

2018 eFAR

Federal Aviation Regulations

Rules and Procedures for pilots, flight crew, and instructors



 mypilotstore.com

Federal Aviation Regulations
2018 Edition

Compiled and Published by:
MyPilotStore.com
15887 N 76th St
Scottsdale, AZ 85260

This publication contains current regulations as of July 28, 2017.

Visit your My Account area at www.MyPilotStore.com for updates to this document.

None of the material in this publication supersedes any documents, procedures, or regulations issued by the Federal Aviation Administration. This document is not an official legal edition of the US Code of Federal Regulations (CFR). Visit www.eCFR.gov for more information.

The information provided within this eBook is for general informational purposes only. While we try to keep the information up-to-date and accurate, there are no representations or warranties, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information, products, services, or related graphics contained in this eBook for any purpose. Any use of this information is at your own risk.

MyPlane, Inc. does not claim copyright on any material published herein that was taken from United States government sources.

Do Not Distribute or Copy

This eBook is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, resold, hired out, or otherwise circulated without the publisher's prior consent in any form of binding or cover other than that in which it is published and without a similar condition, including this condition, being imposed on the subsequent purchaser. If you received this publication from anyone other than MyPilotStore.com, you've received a pirated copy. Please contact us via e-mail at service@mMyPilotStore.com and notify us of the situation.

To purchase a copy of this eBook, please visit www.MyPilotStore.com or call 480-556-0500.

© 2017 MyPlane, inc.

ISBN 978-1-936506-09-5

US Code of Federal Regulations (CFR)
Title 14 – Aeronautics and Space

| | |
|----------|---|
| Part 1 | Definitions and abbreviations |
| Part 43 | Maintenance, rebuilding, and alterations |
| Part 48 | Registration and Marking Requirements for Small Unmanned Aircraft |
| Part 61 | Certification: Pilots and instructors |
| Part 67 | Medical Standards and Certification |
| Part 71 | Airspace and Airways |
| Part 73 | Special Use Airspace |
| Part 91 | General Operating and Flight Rules |
| Part 97 | Standard Instrument Approach Procedures |
| Part 103 | Ultralight Vehicles |
| Part 105 | Parachute Operations |
| Part 107 | Small Unmanned Aircraft Systems |
| Part 110 | General Requirements |
| Part 117 | Flight and Duty Limitations and Rest Requirements |
| Part 119 | Certification of Air Carriers and Commercial Operators |
| Part 135 | Operating Requirements: Commuter and On Demand Operations |
| Part 136 | Commercial Air Tours and National Parks Air Tour Management |
| Part 137 | Agricultural Aircraft Operations |
| Part 141 | Pilot schools |
| Part 142 | Training centers |

July 25, 2017

Title 14 - Aeronautics and Space--Volume 1

CHAPTER I - FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

SUBCHAPTER A - DEFINITIONS AND GENERAL REQUIREMENTS

PART 1 - DEFINITIONS AND ABBREVIATIONS

Authority:

49 U.S.C. 106(f), 106(g), 40113, 44701.

§ 1.1 General definitions.

As used in Subchapters A through K of this chapter, unless the context requires otherwise:

Administrator means the Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned.

Aerodynamic coefficients means non-dimensional coefficients for aerodynamic forces and moments.

Air carrier means a person who undertakes directly by lease, or other arrangement, to engage in air transportation.

Air commerce means interstate, overseas, or foreign air commerce or the transportation of mail by aircraft or any operation or navigation of aircraft within the limits of any Federal airway or any operation or navigation of aircraft which directly affects, or which may endanger safety in, interstate, overseas, or foreign air commerce.

Aircraft means a device that is used or intended to be used for flight in the air.

Aircraft engine means an engine that is used or intended to be used for propelling aircraft. It includes turbosuperchargers, appurtenances, and accessories necessary for its functioning, but does not include propellers.

Airframe means the fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines), and landing gear of an aircraft and their accessories and controls.

Airplane means an engine-driven fixed-wing aircraft heavier than air, that is supported in flight by the dynamic reaction of the air against its wings.

Airport means an area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

Airship means an engine-driven lighter-than-air aircraft that can be steered.

Air traffic means aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Air traffic clearance means an authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace.

Air traffic control means a service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air Traffic Service (ATS) route is a specified route designated for channeling the flow of traffic as necessary for the provision of air traffic services. The term "ATS route" refers to a variety of airways, including jet routes, area navigation (RNAV) routes, and arrival and departure routes. An ATS route is defined by route specifications, which may include:

- (1) An ATS route designator;
- (2) The path to or from significant points;
- (3) Distance between significant points;
- (4) Reporting requirements; and
- (5) The lowest safe altitude determined by the appropriate authority.

Air transportation means interstate, overseas, or foreign air transportation or the transportation of mail by aircraft.

Alert Area. An alert area is established to inform pilots of a specific area wherein a high volume of pilot training or an unusual type of aeronautical activity is conducted.

Alternate airport means an airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

Altitude engine means a reciprocating aircraft engine having a rated takeoff power that is producible from sea level to an established higher altitude.

Amateur rocket means an unmanned rocket that:

- (1) Is propelled by a motor or motors having a combined total impulse of 889,600 Newton-seconds (200,000 pound-seconds) or less; and
- (2) Cannot reach an altitude greater than 150 kilometers (93.2 statute miles) above the earth's surface.

Appliance means any instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight, is installed in or attached to the aircraft, and is not part of an airframe, engine, or propeller.

Approved, unless used with reference to another person, means approved by the FAA or any person to whom the FAA has delegated its authority in the matter concerned,

or approved under the provisions of a bilateral agreement between the United States and a foreign country or jurisdiction.

Area navigation (RNAV) is a method of navigation that permits aircraft operations on any desired flight path.

Area navigation (RNAV) route is an ATS route based on RNAV that can be used by suitably equipped aircraft.

Armed Forces means the Army, Navy, Air Force, Marine Corps, and Coast Guard, including their regular and reserve components and members serving without component status.

Autorotation means a rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

Auxiliary rotor means a rotor that serves either to counteract the effect of the main rotor torque on a rotorcraft or to maneuver the rotorcraft about one or more of its three principal axes.

Balloon means a lighter-than-air aircraft that is not engine driven, and that sustains flight through the use of either gas buoyancy or an airborne heater.

Brake horsepower means the power delivered at the propeller shaft (main drive or main output) of an aircraft engine.

Calibrated airspeed means the indicated airspeed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.

Canard means the forward wing of a canard configuration and may be a fixed, movable, or variable geometry surface, with or without control surfaces.

Canard configuration means a configuration in which the span of the forward wing is substantially less than that of the main wing.

Category:

(1) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a broad classification of aircraft. Examples include: airplane; rotorcraft; glider; and lighter-than-air; and

(2) As used with respect to the certification of aircraft, means a grouping of aircraft based upon intended use or operating limitations. Examples include: transport, normal, utility, acrobatic, limited, restricted, and provisional.

Category A, with respect to transport category rotorcraft, means multiengine rotorcraft designed with engine and system isolation features specified in Part 29 and utilizing scheduled takeoff and landing operations under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight in the event of engine failure.

Category B, with respect to transport category rotorcraft, means single-engine or multiengine rotorcraft which do not fully meet all Category A standards. Category B rotorcraft have no guaranteed stay-up ability in the event of engine failure and unscheduled landing is assumed.

Category II operations, with respect to the operation of aircraft, means a straight-in ILS approach to the runway of an

airport under a Category II ILS instrument approach procedure issued by the Administrator or other appropriate authority.

Category III operations, with respect to the operation of aircraft, means an ILS approach to, and landing on, the runway of an airport using a Category III ILS instrument approach procedure issued by the Administrator or other appropriate authority.

Ceiling means the height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration", and not classified as "thin" or "partial".

Civil aircraft means aircraft other than public aircraft.

Class:

(1) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a classification of aircraft within a category having similar operating characteristics. Examples include: single engine; multiengine; land; water; gyroplane; helicopter; airship; and free balloon; and

(2) As used with respect to the certification of aircraft, means a broad grouping of aircraft having similar characteristics of propulsion, flight, or landing. Examples include: airplane; rotorcraft; glider; balloon; landplane; and seaplane.

Clearway means:

(1) For turbine engine powered airplanes certificated after August 29, 1959, an area beyond the runway, not less than 500 feet wide, centrally located about the extended centerline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of a clearway plane, extending from the end of the runway with an upward slope not exceeding 1.25 percent, above which no object nor any terrain protrudes. However, threshold lights may protrude above the plane if their height above the end of the runway is 26 inches or less and if they are located to each side of the runway.

(2) For turbine engine powered airplanes certificated after September 30, 1958, but before August 30, 1959, an area beyond the takeoff runway extending no less than 300 feet on either side of the extended centerline of the runway, at an elevation no higher than the elevation of the end of the runway, clear of all fixed obstacles, and under the control of the airport authorities.

Climbout speed, with respect to rotorcraft, means a referenced airspeed which results in a flight path clear of the height-velocity envelope during initial climbout.

Commercial operator means a person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier or foreign air carrier or under the authority of Part 375 of this title. Where it is doubtful that an operation is for "compensation or hire", the test applied is whether the carriage by air is merely incidental to the person's other business or is, in itself, a major enterprise for profit.

Configuration, Maintenance, and Procedures (CMP) document means a document approved by the FAA that

contains minimum configuration, operating, and maintenance requirements, hardware life-limits, and Master Minimum Equipment List (MMEL) constraints necessary for an airplane-engine combination to meet ETOPS type design approval requirements.

Consensus standard means, for the purpose of certificating light-sport aircraft, an industry-developed consensus standard that applies to aircraft design, production, and airworthiness. It includes, but is not limited to, standards for aircraft design and performance, required equipment, manufacturer quality assurance systems, production acceptance test procedures, operating instructions, maintenance and inspection procedures, identification and recording of major repairs and major alterations, and continued airworthiness.

Controlled airspace means an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note:

Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

Controlled Firing Area. A controlled firing area is established to contain activities, which if not conducted in a controlled environment, would be hazardous to nonparticipating aircraft.

Crewmember means a person assigned to perform duty in an aircraft during flight time.

Critical altitude means the maximum altitude at which, in standard atmosphere, it is possible to maintain, at a specified rotational speed, a specified power or a specified manifold pressure. Unless otherwise stated, the critical altitude is the maximum altitude at which it is possible to maintain, at the maximum continuous rotational speed, one of the following:

(1) The maximum continuous power, in the case of engines for which this power rating is the same at sea level and at the rated altitude.

(2) The maximum continuous rated manifold pressure, in the case of engines, the maximum continuous power of which is governed by a constant manifold pressure.

Critical engine means the engine whose failure would most adversely affect the performance or handling qualities of an aircraft.

Decision altitude (DA) is a specified altitude in an instrument approach procedure at which the pilot must decide whether to initiate an immediate missed approach if the pilot does not see the required visual reference, or to continue the approach. Decision altitude is expressed in feet above mean sea level.

Decision height (DH) is a specified height above the ground in an instrument approach procedure at which the pilot must decide whether to initiate an immediate missed approach if the pilot does not see the required visual reference, or to

continue the approach. Decision height is expressed in feet above ground level.

Early ETOPS means ETOPS type design approval obtained without gaining non-ETOPS service experience on the candidate airplane-engine combination certified for ETOPS.

EFVS operation means an operation in which visibility conditions require an EFVS to be used in lieu of natural vision to perform an approach or landing, determine enhanced flight visibility, identify required visual references, or conduct a rollout.

Enhanced flight visibility (EFV) means the average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent topographical objects may be clearly distinguished and identified by day or night by a pilot using an enhanced flight vision system.

Enhanced flight vision system (EFVS) means an installed aircraft system which uses an electronic means to provide a display of the forward external scene topography (the natural or manmade features of a place or region especially in a way to show their relative positions and elevation) through the use of imaging sensors, including but not limited to forward-looking infrared, millimeter wave radiometry, millimeter wave radar, or low-light level image intensification. An EFVS includes the display element, sensors, computers and power supplies, indications, and controls.

Equivalent airspeed means the calibrated airspeed of an aircraft corrected for adiabatic compressible flow for the particular altitude. Equivalent airspeed is equal to calibrated airspeed in standard atmosphere at sea level.

ETOPS Significant System means an airplane system, including the propulsion system, the failure or malfunctioning of which could adversely affect the safety of an ETOPS flight, or the continued safe flight and landing of an airplane during an ETOPS diversion. Each ETOPS significant system is either an ETOPS group 1 significant system or an ETOPS group 2 significant system.

(1) An ETOPS group 1 Significant System -

(i) Has fail-safe characteristics directly linked to the degree of redundancy provided by the number of engines on the airplane.

(ii) Is a system, the failure or malfunction of which could result in an IFSD, loss of thrust control, or other power loss.

(iii) Contributes significantly to the safety of an ETOPS diversion by providing additional redundancy for any system power source lost as a result of an inoperative engine.

(iv) Is essential for prolonged operation of an airplane at engine inoperative altitudes.

(2) An ETOPS group 2 significant system is an ETOPS significant system that is not an ETOPS group 1 significant system.

Extended Operations (ETOPS) means an airplane flight operation, other than an all-cargo operation in an airplane with more than two engines, during which a portion of the flight is conducted beyond a time threshold identified in part

121 or part 135 of this chapter that is determined using an approved one-engine-inoperative cruise speed under standard atmospheric conditions in still air.

Extended over-water operation means -

(1) With respect to aircraft other than helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline; and

(2) With respect to helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline and more than 50 nautical miles from an off-shore heliport structure.

External load means a load that is carried, or extends, outside of the aircraft fuselage.

External-load attaching means means the structural components used to attach an external load to an aircraft, including external-load containers, the backup structure at the attachment points, and any quick-release device used to jettison the external load.

Final approach fix (FAF) defines the beginning of the final approach segment and the point where final segment descent may begin.

Final takeoff speed means the speed of the airplane that exists at the end of the takeoff path in the en route configuration with one engine inoperative.

Fireproof -

(1) With respect to materials and parts used to confine fire in a designated fire zone, means the capacity to withstand at least as well as steel in dimensions appropriate for the purpose for which they are used, the heat produced when there is a severe fire of extended duration in that zone; and

(2) With respect to other materials and parts, means the capacity to withstand the heat associated with fire at least as well as steel in dimensions appropriate for the purpose for which they are used.

Fire resistant -

(1) With respect to sheet or structural members means the capacity to withstand the heat associated with fire at least as well as aluminum alloy in dimensions appropriate for the purpose for which they are used; and

(2) With respect to fluid-carrying lines, fluid system parts, wiring, air ducts, fittings, and powerplant controls, means the capacity to perform the intended functions under the heat and other conditions likely to occur when there is a fire at the place concerned.

Flame resistant means not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed.

Flammable, with respect to a fluid or gas, means susceptible to igniting readily or to exploding.

Flap extended speed means the highest speed permissible with wing flaps in a prescribed extended position.

Flash resistant means not susceptible to burning violently when ignited.

Flightcrew member means a pilot, flight engineer, or flight navigator assigned to duty in an aircraft during flight time.

Flight level means a level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level 250 represents a barometric altimeter indication of 25,000 feet; flight level 255, an indication of 25,500 feet.

Flight plan means specified information, relating to the intended flight of an aircraft, that is filed orally or in writing with air traffic control.

Flight simulation training device (FSTD) means a flight simulator or a flight training device.

Flight time means:

(1) Pilot time that commences when an aircraft moves under its own power for the purpose of flight and ends when the aircraft comes to rest after landing; or

(2) For a glider without self-launch capability, pilot time that commences when the glider is towed for the purpose of flight and ends when the glider comes to rest after landing.

Flight training device (FTD) means a replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft cockpit replica. It includes the equipment and computer programs necessary to represent aircraft (or set of aircraft) operations in ground and flight conditions having the full range of capabilities of the systems installed in the device as described in part 60 of this chapter and the qualification performance standard (QPS) for a specific FTD qualification level.

Flight visibility means the average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

Foreign air carrier means any person other than a citizen of the United States, who undertakes directly, by lease or other arrangement, to engage in air transportation.

Foreign air commerce means the carriage by aircraft of persons or property for compensation or hire, or the carriage of mail by aircraft, or the operation or navigation of aircraft in the conduct or furtherance of a business or vocation, in commerce between a place in the United States and any place outside thereof; whether such commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

Foreign air transportation means the carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft, in commerce between a place in the United States and any place outside of the United States, whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

Forward wing means a forward lifting surface of a canard configuration or tandem-wing configuration airplane. The surface may be a fixed, movable, or variable geometry surface, with or without control surfaces.

Full flight simulator (FFS) means a replica of a specific type; or make, model, and series aircraft cockpit. It includes the assemblage of equipment and computer programs necessary to

represent aircraft operations in ground and flight conditions, a visual system providing an out-of-the-cockpit view, a system that provides cues at least equivalent to those of a three-degree-of-freedom motion system, and has the full range of capabilities of the systems installed in the device as described in part 60 of this chapter and the qualification performance standards (QPS) for a specific FFS qualification level.

Glider means a heavier-than-air aircraft, that is supported in flight by the dynamic reaction of the air against its lifting surfaces and whose free flight does not depend principally on an engine.

Ground visibility means prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

Go-around power or thrust setting means the maximum allowable in-flight power or thrust setting identified in the performance data.

Gyrodyne means a rotorcraft whose rotors are normally engine-driven for takeoff, hovering, and landing, and for forward flight through part of its speed range, and whose means of propulsion, consisting usually of conventional propellers, is independent of the rotor system.

Gyroplane means a rotorcraft whose rotors are not engine-driven, except for initial starting, but are made to rotate by action of the air when the rotorcraft is moving; and whose means of propulsion, consisting usually of conventional propellers, is independent of the rotor system.

Helicopter means a rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors.

Heliport means an area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters.

Idle thrust means the jet thrust obtained with the engine power control level set at the stop for the least thrust position at which it can be placed.

IFR conditions means weather conditions below the minimum for flight under visual flight rules.

IFR over-the-top, with respect to the operation of aircraft, means the operation of an aircraft over-the-top on an IFR flight plan when cleared by air traffic control to maintain "VFR conditions" or "VFR conditions on top".

Indicated airspeed means the speed of an aircraft as shown on its pitot static airspeed indicator calibrated to reflect standard atmosphere adiabatic compressible flow at sea level uncorrected for airspeed system errors.

In-flight shutdown (IFSD) means, for ETOPS only, when an engine ceases to function (when the airplane is airborne) and is shutdown, whether self induced, flightcrew initiated or caused by an external influence. The FAA considers IFSD for all causes: for example, flameout, internal failure, flightcrew initiated shutdown, foreign object ingestion, icing, inability to obtain or control desired thrust or power, and cycling of the start control, however briefly, even if the engine operates normally for the remainder of the flight. This definition excludes the airborne cessation of the functioning of an engine when immediately followed by an automatic engine relight

and when an engine does not achieve desired thrust or power but is not shutdown.

Instrument means a device using an internal mechanism to show visually or aurally the attitude, altitude, or operation of an aircraft or aircraft part. It includes electronic devices for automatically controlling an aircraft in flight.

Instrument approach procedure (IAP) is a series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles and assurance of navigation signal reception capability. It begins from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point:

- (1) From which a landing can be completed; or
- (2) If a landing is not completed, to a position at which holding or en route obstacle clearance criteria apply.

Interstate air commerce means the carriage by aircraft of persons or property for compensation or hire, or the carriage of mail by aircraft, or the operation or navigation of aircraft in the conduct or furtherance of a business or vocation, in commerce between a place in any State of the United States, or the District of Columbia, and a place in any other State of the United States, or the District of Columbia; or between places in the same State of the United States through the airspace over any place outside thereof; or between places in the same territory or possession of the United States, or the District of Columbia.

Interstate air transportation means the carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft in commerce:

- (1) Between a place in a State or the District of Columbia and another place in another State or the District of Columbia;
- (2) Between places in the same State through the airspace over any place outside that State; or
- (3) Between places in the same possession of the United States;

Whether that commerce moves wholly by aircraft of partly by aircraft and partly by other forms of transportation.

Intrastate air transportation means the carriage of persons or property as a common carrier for compensation or hire, by turbojet-powered aircraft capable of carrying thirty or more persons, wholly within the same State of the United States.

Kite means a framework, covered with paper, cloth, metal, or other material, intended to be flown at the end of a rope or cable, and having as its only support the force of the wind moving past its surfaces.

Landing gear extended speed means the maximum speed at which an aircraft can be safely flown with the landing gear extended.

Landing gear operating speed means the maximum speed at which the landing gear can be safely extended or retracted.

Large aircraft means aircraft of more than 12,500 pounds, maximum certificated takeoff weight.

Light-sport aircraft means an aircraft, other than a helicopter or powered-lift that, since its original certification, has continued to meet the following:

- (1) A maximum takeoff weight of not more than -

(i) 1,320 pounds (600 kilograms) for aircraft not intended for operation on water; or

(ii) 1,430 pounds (650 kilograms) for an aircraft intended for operation on water.

(2) A maximum airspeed in level flight with maximum continuous power (V_H) of not more than 120 knots CAS under standard atmospheric conditions at sea level.

(3) A maximum never-exceed speed (V_{NE}) of not more than 120 knots CAS for a glider.

(4) A maximum stalling speed or minimum steady flight speed without the use of lift-enhancing devices (V_{S1}) of not more than 45 knots CAS at the aircraft's maximum certificated takeoff weight and most critical center of gravity.

(5) A maximum seating capacity of no more than two persons, including the pilot.

(6) A single, reciprocating engine, if powered.

(7) A fixed or ground-adjustable propeller if a powered aircraft other than a powered glider.

(8) A fixed or feathering propeller system if a powered glider.

(9) A fixed-pitch, semi-rigid, teetering, two-blade rotor system, if a gyroplane.

(10) A nonpressurized cabin, if equipped with a cabin.

(11) Fixed landing gear, except for an aircraft intended for operation on water or a glider.

(12) Fixed or retractable landing gear, or a hull, for an aircraft intended for operation on water.

(13) Fixed or retractable landing gear for a glider.

Lighter-than-air aircraft means aircraft that can rise and remain suspended by using contained gas weighing less than the air that is displaced by the gas.

Load factor means the ratio of a specified load to the total weight of the aircraft. The specified load is expressed in terms of any of the following: aerodynamic forces, inertia forces, or ground or water reactions.

Long-range communication system (LRCS). A system that uses satellite relay, data link, high frequency, or another approved communication system which extends beyond line of sight.

Long-range navigation system (LRNS). An electronic navigation unit that is approved for use under instrument flight rules as a primary means of navigation, and has at least one source of navigational input, such as inertial navigation system or global positioning system.

Mach number means the ratio of true airspeed to the speed of sound.

Main rotor means the rotor that supplies the principal lift to a rotorcraft.

Maintenance means inspection, overhaul, repair, preservation, and the replacement of parts, but excludes preventive maintenance.

Major alteration means an alteration not listed in the aircraft, aircraft engine, or propeller specifications -

(1) That might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or

(2) That is not done according to accepted practices or cannot be done by elementary operations.

Major repair means a repair:

(1) That, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or

(2) That is not done according to accepted practices or cannot be done by elementary operations.

Manifold pressure means absolute pressure as measured at the appropriate point in the induction system and usually expressed in inches of mercury.

Maximum engine overtorque, as it applies to turbopropeller and turboshaft engines incorporating free power turbines for all ratings except one engine inoperative (OEI) ratings of two minutes or less, means the maximum torque of the free power turbine rotor assembly, the inadvertent occurrence of which, for periods of up to 20 seconds, will not require rejection of the engine from service, or any maintenance action other than to correct the cause. *Maximum speed for stability characteristics*, V_{FC}/M_{FC} means a speed that may not be less than a speed midway between maximum operating limit speed (V_{MO}/M_{MO}) and demonstrated flight diving speed (V_{DF}/M_{DF}), except that, for altitudes where the Mach number is the limiting factor, M_{FC} need not exceed the Mach number at which effective speed warning occurs.

Medical certificate means acceptable evidence of physical fitness on a form prescribed by the Administrator.

Military operations area. A military operations area (MOA) is airspace established outside Class A airspace to separate or segregate certain nonhazardous military activities from IFR Traffic and to identify for VFR traffic where these activities are conducted.

Minimum descent altitude (MDA) is the lowest altitude specified in an instrument approach procedure, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering until the pilot sees the required visual references for the heliport or runway of intended landing.

Minor alteration means an alteration other than a major alteration.

Minor repair means a repair other than a major repair.

Model aircraft means an unmanned aircraft that is:

(1) Capable of sustained flight in the atmosphere;

(2) Flown within visual line of sight of the person operating the aircraft; and

(3) Flown for hobby or recreational purposes.

National defense airspace means airspace established by a regulation prescribed, or an order issued under, 49 U.S.C. 40103(b)(3).

Navigable airspace means airspace at and above the minimum flight altitudes prescribed by or under this chapter, including airspace needed for safe takeoff and landing.

Night means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time.

Nonprecision approach procedure means a standard instrument approach procedure in which no electronic glide slope is provided.

Operate, with respect to aircraft, means use, cause to use or authorize to use aircraft, for the purpose (except as provided in § 91.13 of this chapter) of air navigation including the piloting of aircraft, with or without the right of legal control (as owner, lessee, or otherwise).

Operational control, with respect to a flight, means the exercise of authority over initiating, conducting or terminating a flight.

Overseas air commerce means the carriage by aircraft of persons or property for compensation or hire, or the carriage of mail by aircraft, or the operation or navigation of aircraft in the conduct or furtherance of a business or vocation, in commerce between a place in any State of the United States, or the District of Columbia, and any place in a territory or possession of the United States; or between a place in a territory or possession of the United States, and a place in any other territory or possession of the United States.

Overseas air transportation means the carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft, in commerce:

- (1) Between a place in a State or the District of Columbia and a place in a possession of the United States; or
- (2) Between a place in a possession of the United States and a place in another possession of the United States; whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

Over-the-top means above the layer of clouds or other obscuring phenomena forming the ceiling.

Parachute means a device used or intended to be used to retard the fall of a body or object through the air.

Person means an individual, firm, partnership, corporation, company, association, joint-stock association, or governmental entity. It includes a trustee, receiver, assignee, or similar representative of any of them.

Pilotage means navigation by visual reference to landmarks.

Pilot in command means the person who:

- (1) Has final authority and responsibility for the operation and safety of the flight;
- (2) Has been designated as pilot in command before or during the flight; and
- (3) Holds the appropriate category, class, and type rating, if appropriate, for the conduct of the flight.

Pitch setting means the propeller blade setting as determined by the blade angle measured in a manner, and at a radius, specified by the instruction manual for the propeller.

Portable oxygen concentrator means a medical device that separates oxygen from other gasses in ambient air and dispenses this concentrated oxygen to the user.

Positive control means control of all air traffic, within designated airspace, by air traffic control.

Powered parachute means a powered aircraft comprised of a flexible or semi-rigid wing connected to a fuselage so that the wing is not in position for flight until the aircraft is in motion. The fuselage of a powered parachute contains the aircraft engine, a seat for each occupant and is attached to the aircraft's landing gear.

Powered-lift means a heavier-than-air aircraft capable of vertical takeoff, vertical landing, and low speed flight that depends principally on engine-driven lift devices or engine thrust for lift during these flight regimes and on nonrotating airfoil(s) for lift during horizontal flight.

Precision approach procedure means a standard instrument approach procedure in which an electronic glide slope is provided, such as ILS and PAR.

Preventive maintenance means simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.

Prohibited area. A prohibited area is airspace designated under part 73 within which no person may operate an aircraft without the permission of the using agency.

Propeller means a device for propelling an aircraft that has blades on an engine-driven shaft and that, when rotated, produces by its action on the air, a thrust approximately perpendicular to its plane of rotation. It includes control components normally supplied by its manufacturer, but does not include main and auxiliary rotors or rotating airfoils of engines.

Public aircraft means any of the following aircraft when not being used for a commercial purpose or to carry an individual other than a crewmember or qualified non-crewmember:

- (1) An aircraft used only for the United States Government; an aircraft owned by the Government and operated by any person for purposes related to crew training, equipment development, or demonstration; an aircraft owned and operated by the government of a State, the District of Columbia, or a territory or possession of the United States or a political subdivision of one of these governments; or an aircraft exclusively leased for at least 90 continuous days by the government of a State, the District of Columbia, or a territory or possession of the United States or a political subdivision of one of these governments.

(i) For the sole purpose of determining public aircraft status, *commercial purposes* means the transportation of persons or property for compensation or hire, but does not include the operation of an aircraft by the armed forces for reimbursement when that reimbursement is required by any Federal statute, regulation, or directive, in effect on November 1, 1999, or by one government on behalf of another government under a cost reimbursement agreement if

the government on whose behalf the operation is conducted certifies to the Administrator of the Federal Aviation Administration that the operation is necessary to respond to a significant and imminent threat to life or property (including natural resources) and that no service by a private operator is reasonably available to meet the threat.

(ii) For the sole purpose of determining public aircraft status, *governmental function* means an activity undertaken by a government, such as national defense, intelligence missions, firefighting, search and rescue, law enforcement (including transport of prisoners, detainees, and illegal aliens), aeronautical research, or biological or geological resource management.

(iii) For the sole purpose of determining public aircraft status, *qualified non-crewmember* means an individual, other than a member of the crew, aboard an aircraft operated by the armed forces or an intelligence agency of the United States Government, or whose presence is required to perform, or is associated with the performance of, a governmental function.

(2) An aircraft owned or operated by the armed forces or chartered to provide transportation to the armed forces if -

(i) The aircraft is operated in accordance with title 10 of the United States Code;

(ii) The aircraft is operated in the performance of a governmental function under title 14, 31, 32, or 50 of the United States Code and the aircraft is not used for commercial purposes; or

(iii) The aircraft is chartered to provide transportation to the armed forces and the Secretary of Defense (or the Secretary of the department in which the Coast Guard is operating) designates the operation of the aircraft as being required in the national interest.

(3) An aircraft owned or operated by the National Guard of a State, the District of Columbia, or any territory or possession of the United States, and that meets the criteria of paragraph (2) of this definition, qualifies as a public aircraft only to the extent that it is operated under the direct control of the Department of Defense.

Rated 30-second OEI Power, with respect to rotorcraft turbine engines, means the approved brake horsepower developed under static conditions at specified altitudes and temperatures within the operating limitations established for the engine under part 33 of this chapter, for continuation of one flight operation after the failure or shutdown of one engine in multiengine rotorcraft, for up to three periods of use no longer than 30 seconds each in any one flight, and followed by mandatory inspection and prescribed maintenance action.

Rated 2-minute OEI Power, with respect to rotorcraft turbine engines, means the approved brake horsepower developed under static conditions at specified altitudes and temperatures within the operating limitations established for the engine under part 33 of this chapter, for continuation of one flight operation after the failure or shutdown of one engine in multiengine rotorcraft, for up to three periods of use no

longer than 2 minutes each in any one flight, and followed by mandatory inspection and prescribed maintenance action.

Rated continuous OEI power, with respect to rotorcraft turbine engines, means the approved brake horsepower developed under static conditions at specified altitudes and temperatures within the operating limitations established for the engine under part 33 of this chapter, and limited in use to the time required to complete the flight after the failure or shutdown of one engine of a multiengine rotorcraft.

Rated maximum continuous augmented thrust, with respect to turbojet engine type certification, means the approved jet thrust that is developed statically or in flight, in standard atmosphere at a specified altitude, with fluid injection or with the burning of fuel in a separate combustion chamber, within the engine operating limitations established under Part 33 of this chapter, and approved for unrestricted periods of use.

Rated maximum continuous power, with respect to reciprocating, turbopropeller, and turboshaft engines, means the approved brake horsepower that is developed statically or in flight, in standard atmosphere at a specified altitude, within the engine operating limitations established under part 33, and approved for unrestricted periods of use.

Rated maximum continuous thrust, with respect to turbojet engine type certification, means the approved jet thrust that is developed statically or in flight, in standard atmosphere at a specified altitude, without fluid injection and without the burning of fuel in a separate combustion chamber, within the engine operating limitations established under part 33 of this chapter, and approved for unrestricted periods of use.

Rated takeoff augmented thrust, with respect to turbojet engine type certification, means the approved jet thrust that is developed statically under standard sea level conditions, with fluid injection or with the burning of fuel in a separate combustion chamber, within the engine operating limitations established under part 33 of this chapter, and limited in use to periods of not over 5 minutes for takeoff operation.

Rated takeoff power, with respect to reciprocating, turbopropeller, and turboshaft engine type certification, means the approved brake horsepower that is developed statically under standard sea level conditions, within the engine operating limitations established under part 33, and limited in use to periods of not over 5 minutes for takeoff operation.

Rated takeoff thrust, with respect to turbojet engine type certification, means the approved jet thrust that is developed statically under standard sea level conditions, without fluid injection and without the burning of fuel in a separate combustion chamber, within the engine operating limitations established under part 33 of this chapter, and limited in use to periods of not over 5 minutes for takeoff operation.

Rated 30-minute OEI power, with respect to rotorcraft turbine engines, means the approved brake horsepower developed under static conditions at specified altitudes and temperatures within the operating limitations established for the engine under part 33 of this chapter, and limited in use to

one period of use no longer than 30 minutes after the failure or shutdown of one engine of a multiengine rotorcraft.

Rated 2 -minute OEI power, with respect to rotorcraft turbine engines, means the approved brake horsepower developed under static conditions at specified altitudes and temperatures within the operating limitations established for the engine under part 33 of this chapter for periods of use no longer than 2 minutes each after the failure or shutdown of one engine of a multiengine rotorcraft.

Rating means a statement that, as a part of a certificate, sets forth special conditions, privileges, or limitations.

Reference landing speed means the speed of the airplane, in a specified landing configuration, at the point where it descends through the 50 foot height in the determination of the landing distance.

Reporting point means a geographical location in relation to which the position of an aircraft is reported.

Restricted area. A restricted area is airspace designated under Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction.

Rocket means an aircraft propelled by ejected expanding gases generated in the engine from self-contained propellants and not dependent on the intake of outside substances. It includes any part which becomes separated during the operation.

Rotorcraft means a heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors.

Rotorcraft-load combination means the combination of a rotorcraft and an external-load, including the external-load attaching means. Rotorcraft-load combinations are designated as Class A, Class B, Class C, and Class D, as follows:

(1) *Class A rotorcraft-load combination* means one in which the external load cannot move freely, cannot be jettisoned, and does not extend below the landing gear.

(2) *Class B rotorcraft-load combination* means one in which the external load is jettisonable and is lifted free of land or water during the rotorcraft operation.

(3) *Class C rotorcraft-load combination* means one in which the external load is jettisonable and remains in contact with land or water during the rotorcraft operation.

(4) *Class D rotorcraft-load combination* means one in which the external-load is other than a Class A, B, or C and has been specifically approved by the Administrator for that operation.

Route segment is a portion of a route bounded on each end by a fix or navigation aid (NAVAID).

Sea level engine means a reciprocating aircraft engine having a rated takeoff power that is producible only at sea level.

Second in command means a pilot who is designated to be second in command of an aircraft during flight time.

Show, unless the context otherwise requires, means to show to the satisfaction of the Administrator.

Small aircraft means aircraft of 12,500 pounds or less, maximum certificated takeoff weight.

Small unmanned aircraft means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft.

Small unmanned aircraft system (small UAS) means a small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system.

Special VFR conditions mean meteorological conditions that are less than those required for basic VFR flight in controlled airspace and in which some aircraft are permitted flight under visual flight rules.

Special VFR operations means aircraft operating in accordance with clearances within controlled airspace in meteorological conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

Standard atmosphere means the atmosphere defined in U.S. Standard Atmosphere, 1962 (Geopotential altitude tables).

Stopway means an area beyond the takeoff runway, no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

Suitable RNAV system is an RNAV system that meets the required performance established for a type of operation, e.g. IFR; and is suitable for operation over the route to be flown in terms of any performance criteria (including accuracy) established by the air navigation service provider for certain routes (e.g. oceanic, ATS routes, and IAPs). An RNAV system's suitability is dependent upon the availability of ground and/or satellite navigation aids that are needed to meet any route performance criteria that may be prescribed in route specifications to navigate the aircraft along the route to be flown. Information on suitable RNAV systems is published in FAA guidance material.

Synthetic vision means a computer-generated image of the external scene topography from the perspective of the flight deck that is derived from aircraft attitude, high-precision navigation solution, and database of terrain, obstacles and relevant cultural features.

Synthetic vision system means an electronic means to display a synthetic vision image of the external scene topography to the flight crew.

Takeoff power:

(1) With respect to reciprocating engines, means the brake horsepower that is developed under standard sea level conditions, and under the maximum conditions of crankshaft rotational speed and engine manifold pressure approved for the

normal takeoff, and limited in continuous use to the period of time shown in the approved engine specification; and

(2) With respect to turbine engines, means the brake horsepower that is developed under static conditions at a specified altitude and atmospheric temperature, and under the maximum conditions of rotor shaft rotational speed and gas temperature approved for the normal takeoff, and limited in continuous use to the period of time shown in the approved engine specification.

Takeoff safety speed means a referenced airspeed obtained after lift-off at which the required one-engine-inoperative climb performance can be achieved.

Takeoff thrust, with respect to turbine engines, means the jet thrust that is developed under static conditions at a specific altitude and atmospheric temperature under the maximum conditions of rotorshaft rotational speed and gas temperature approved for the normal takeoff, and limited in continuous use to the period of time shown in the approved engine specification.

Tandem wing configuration means a configuration having two wings of similar span, mounted in tandem.

TCAS I means a TCAS that utilizes interrogations of, and replies from, airborne radar beacon transponders and provides traffic advisories to the pilot.

TCAS II means a TCAS that utilizes interrogations of, and replies from, airborne radar beacon transponders and provides traffic advisories and resolution advisories in the vertical plane.

TCAS III means a TCAS that utilizes interrogation of, and replies from, airborne radar beacon transponders and provides traffic advisories and resolution advisories in the vertical and horizontal planes to the pilot.

Time in service, with respect to maintenance time records, means the time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing.

Traffic pattern means the traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from, an airport.

True airspeed means the airspeed of an aircraft relative to undisturbed air. True airspeed is equal to equivalent airspeed multiplied by (#0/#).

Type:

(1) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a specific make and basic model of aircraft, including modifications thereto that do not change its handling or flight characteristics. Examples include: DC-7, 1049, and F-27; and

(2) As used with respect to the certification of aircraft, means those aircraft which are similar in design. Examples include: DC-7 and DC-7C; 1049G and 1049H; and F-27 and F-27F.

(3) As used with respect to the certification of aircraft engines means those engines which are similar in design. For example, JT8D and JT8D-7 are engines of the same type, and JT9D-3A and JT9D-7 are engines of the same type.

United States, in a geographical sense, means (1) the States, the District of Columbia, Puerto Rico, and the possessions, including the territorial waters, and (2) the airspace of those areas.

United States air carrier means a citizen of the United States who undertakes directly by lease, or other arrangement, to engage in air transportation.

Unmanned aircraft means an aircraft operated without the possibility of direct human intervention from within or on the aircraft.

VFR over-the-top, with respect to the operation of aircraft, means the operation of an aircraft over-the-top under VFR when it is not being operated on an IFR flight plan.

Warning area. A warning area is airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

Weight-shift-control aircraft means a powered aircraft with a framed pivoting wing and a fuselage controllable only in pitch and roll by the pilot's ability to change the aircraft's center of gravity with respect to the wing. Flight control of the aircraft depends on the wing's ability to flexibly deform rather than the use of control surfaces.

Winglet or tip fin means an out-of-plane surface extending from a lifting surface. The surface may or may not have control surfaces.

[Doc. No. 1150, 27 FR 4588, May 15, 1962]

Editorial Note:

For Federal Register citations affecting § 1.1, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 1.2 Abbreviations and symbols.

In Subchapters A through K of this chapter:

AFM means airplane flight manual.

AGL means above ground level.

ALS means approach light system.

APU means auxiliary power unit.

ASR means airport surveillance radar.

ATC means air traffic control.

ATS means Air Traffic Service.

CAMP means continuous airworthiness maintenance program.

CAS means calibrated airspeed.

CAT II means Category II.

CHDO means an FAA Flight Standards certificate holding district office.

CMP means configuration, maintenance, and procedures.

DH means decision height.

DME means distance measuring equipment compatible with TACAN.

EAS means equivalent airspeed.

EFVS means enhanced flight vision system.

Equi-Time Point means a point on the route of flight where the flight time, considering wind, to each of two selected airports is equal.

ETOPS means extended operations.

EWIS, as defined by § 25.1701 of this chapter, means electrical wiring interconnection system.

FAA means Federal Aviation Administration.

FFS means full flight simulator.

FM means fan marker.

FSTD means flight simulation training device.

FTD means flight training device.

GS means glide slope.

HIRL means high-intensity runway light system.

IAS means indicated airspeed.

ICAO means International Civil Aviation Organization.

IFR means instrument flight rules.

IFSD means in-flight shutdown.

ILS means instrument landing system.

IM means ILS inner marker.

INT means intersection.

LDA means localizer-type directional aid.

LFR means low-frequency radio range.

LMM means compass locator at middle marker.

LOC means ILS localizer.

LOM means compass locator at outer marker.

M means mach number.

MAA means maximum authorized IFR altitude.

MALS means medium intensity approach light system.

*MALS*R means medium intensity approach light system with runway alignment indicator lights.

MCA means minimum crossing altitude.

MDA means minimum descent altitude.

MEA means minimum en route IFR altitude.

MEL means minimum equipment list.

MM means ILS middle marker.

MOCA means minimum obstruction clearance altitude.

MRA means minimum reception altitude.

MSL means mean sea level.

NDB (ADF) means nondirectional beacon (automatic direction finder).

NM means nautical mile.

NOPAC means North Pacific area of operation.

NOPT means no procedure turn required.

OEI means one engine inoperative.

OM means ILS outer marker.

OPSPECS means operations specifications.

PACOTS means Pacific Organized Track System.

PAR means precision approach radar.

PMA means parts manufacturer approval.

POC means portable oxygen concentrator.

PTRS means Performance Tracking and Reporting System.

RAIL means runway alignment indicator light system.

RBN means radio beacon.

RCLM means runway centerline marking.

RCLS means runway centerline light system.

REIL means runway end identification lights.

RFFS means rescue and firefighting services.

RNAV means area navigation.

RR means low or medium frequency radio range station.

RVR means runway visual range as measured in the touchdown zone area.

SALS means short approach light system.

SATCOM means satellite communications.

SSALS means simplified short approach light system.

*SSALS*R means simplified short approach light system with runway alignment indicator lights.

TACAN means ultra-high frequency tactical air navigational aid.

TAS means true airspeed.

TCAS means a traffic alert and collision avoidance system.

TDZL means touchdown zone lights.

TSO means technical standard order.

TVOR means very high frequency terminal omnirange station.

V_A means design maneuvering speed.

V_B means design speed for maximum gust intensity.

V_C means design cruising speed.

V_D means design diving speed.

$V_{DF/M}$ DF means demonstrated flight diving speed.

V_{EF} means the speed at which the critical engine is assumed to fail during takeoff.

V_F means design flap speed.

$V_{FC/M}$ FC means maximum speed for stability characteristics.

V_{FE} means maximum flap extended speed.

V_{FTO} means final takeoff speed.

V_H means maximum speed in level flight with maximum continuous power.

V_{LE} means maximum landing gear extended speed.

V_{LO} means maximum landing gear operating speed.

V_{LOF} means lift-off speed.

V_{MC} means minimum control speed with the critical engine inoperative.

$V_{MO/M}$ MO means maximum operating limit speed.

V_{MU} means minimum unstick speed.

V_{NE} means never-exceed speed.

V_{NO} means maximum structural cruising speed.

V_R means rotation speed.

V_{REF} means reference landing speed.

V_S means the stalling speed or the minimum steady flight speed at which the airplane is controllable.

V_{S0} means the stalling speed or the minimum steady flight speed in the landing configuration.

V_{S1} means the stalling speed or the minimum steady flight speed obtained in a specific configuration.

V_{SR} means reference stall speed.

V_{SR0} means reference stall speed in the landing configuration.

V_{SR1} means reference stall speed in a specific configuration.

V_{SW} means speed at which onset of natural or artificial stall warning occurs.

V_{TOSS} means takeoff safety speed for Category A rotorcraft.

V_X means speed for best angle of climb.

V_Y means speed for best rate of climb.

V_1 means the maximum speed in the takeoff at which the pilot must take the first action (e.g., apply brakes, reduce thrust, deploy speed brakes) to stop the airplane within the accelerate-stop distance. V_1 also means the minimum speed in the takeoff, following a failure of the critical engine at V_{EF} , at which the pilot can continue the takeoff and achieve the required height above the takeoff surface within the takeoff distance.

V_2 means takeoff safety speed.

V_{2min} means minimum takeoff safety speed.

VFR means visual flight rules.

VGSI means visual glide slope indicator.

VHF means very high frequency.

VOR means very high frequency omnirange station.

VORTAC means collocated VOR and TACAN.

[Doc. No. 1150, 27 FR 4590, May 15, 1962]

Editorial Note:

For Federal Register citations affecting § 1.2, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 1.3 Rules of construction.

(a) In Subchapters A through K of this chapter, unless the context requires otherwise:

- (1) Words importing the singular include the plural;
- (2) Words importing the plural include the singular; and
- (3) Words importing the masculine gender include the feminine.

(b) In Subchapters A through K of this chapter, the word:

- (1) *Shall* is used in an imperative sense;
- (2) *May* is used in a permissive sense to state authority or permission to do the act prescribed, and the words “no person may * * *” or “a person may not * * *” mean that no person is required, authorized, or permitted to do the act prescribed; and
- (3) *Includes* means “includes but is not limited to”.

[Doc. No. 1150, 27 FR 4590, May 15, 1962, as amended by Amdt. 1-10, 31 FR 5055, Mar. 29, 1966]

**SUBCHAPTER B -
PROCEDURAL RULES**

SUBCHAPTER C - AIRCRAFT

**PART 43 - MAINTENANCE,
PREVENTIVE MAINTENANCE,
REBUILDING, AND ALTERATION**

Authority:

49 U.S.C. 106(f), 106(g), 40113, 44701, 44703, 44705, 44707, 44711, 44713, 44717, 44725.

Link to an amendment published at 81 FR 96700, Dec. 30, 2016.

Source:

Docket No. 1993, 29 FR 5451, Apr. 23, 1964, unless otherwise noted.

Editorial Note:

For miscellaneous technical amendments to this part 43, see Amdt. 43-3, 31 FR 3336, Mar. 3, 1966, and Amdt. 43-6, 31 FR 9211, July 6, 1966.

§ 43.1 Applicability.

(a) Except as provided in paragraphs (b) and (d) of this section, this part prescribes rules governing the maintenance, preventive maintenance, rebuilding, and alteration of any -

- (1) Aircraft having a U.S. airworthiness certificate;
- (2) Foreign-registered civil aircraft used in common carriage or carriage of mail under the provisions of Part 121 or 135 of this chapter; and
- (3) Airframe, aircraft engines, propellers, appliances, and component parts of such aircraft.

(b) This part does not apply to -

- (1) Any aircraft for which the FAA has issued an experimental certificate, unless the FAA has previously issued a different kind of airworthiness certificate for that aircraft;
- (2) Any aircraft for which the FAA has issued an experimental certificate under the provisions of § 21.191(i)(3) of this chapter, and the aircraft was previously issued a special airworthiness certificate in the light-sport category under the provisions of § 21.190 of this chapter; or
- (3) Any aircraft subject to the provisions of part 107 of this chapter.

(c) This part applies to all life-limited parts that are removed from a type certificated product, segregated, or controlled as provided in § 43.10.

(d) This part applies to all life-limited parts that are removed from a type certificated product, segregated, or controlled as provided in § 43.10.

(e) This part applies to any aircraft issued a special airworthiness certificate in the light-sport category except:

(1) The repair or alteration form specified in §§ 43.5(b) and 43.9(d) is not required to be completed for products not produced under an FAA approval;

(2) Major repairs and major alterations for products not produced under an FAA approval are not required to be recorded in accordance with appendix B of this part; and

(3) The listing of major alterations and major repairs specified in paragraphs (a) and (b) of appendix A of this part is not applicable to products not produced under an FAA approval.

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-23, 47 FR 41084, Sept. 16, 1982; Amdt. 43-37, 66 FR 21066, Apr. 27, 2001; Amdt. 43-38, 67 FR 2109, Jan. 15, 2002; Amdt. 43-39, 69 FR 44863, July 27, 2004; Amdt. 43-44, 75 FR 5219, Feb. 1, 2010; Docket FAA-2015-0150, Amdt. 43-48, 81 FR 42208, June 28, 2016]

§ 43.2 Records of overhaul and rebuilding.

(a) No person may describe in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being overhauled unless -

(1) Using methods, techniques, and practices acceptable to the Administrator, it has been disassembled, cleaned, inspected, repaired as necessary, and reassembled; and

(2) It has been tested in accordance with approved standards and technical data, or in accordance with current standards and technical data acceptable to the Administrator, which have been developed and documented by the holder of the type certificate, supplemental type certificate, or a material, part, process, or appliance approval under part 21 of this chapter.

(b) No person may describe in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being rebuilt unless it has been disassembled, cleaned, inspected, repaired as necessary, reassembled, and tested to the same tolerances and limits as a new item, using either new parts or used parts that either conform to new part tolerances and limits or to approved oversized or undersized dimensions.

[Amdt. 43-23, 47 FR 41084, Sept. 16, 1982, as amended by Amdt. 43-43, 74 FR 53394, Oct. 16, 2009]

§ 43.3 Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations.

(a) Except as provided in this section and § 43.17, no person may maintain, rebuild, alter, or perform preventive maintenance on an aircraft, airframe, aircraft engine, propeller, appliance, or component part to which this part applies. Those items, the performance of which is a major alteration, a major repair, or preventive maintenance, are listed in appendix A.

(b) The holder of a mechanic certificate may perform maintenance, preventive maintenance, and alterations as provided in Part 65 of this chapter.

(c) The holder of a repairman certificate may perform maintenance, preventive maintenance, and alterations as provided in part 65 of this chapter.

(d) A person working under the supervision of a holder of a mechanic or repairman certificate may perform the maintenance, preventive maintenance, and alterations that his supervisor is authorized to perform, if the supervisor personally observes the work being done to the extent necessary to ensure that it is being done properly and if the supervisor is readily available, in person, for consultation. However, this paragraph does not authorize the performance of any inspection required by Part 91 or Part 125 of this chapter or any inspection performed after a major repair or alteration.

(e) The holder of a repair station certificate may perform maintenance, preventive maintenance, and alterations as provided in Part 145 of this chapter.

(f) The holder of an air carrier operating certificate or an operating certificate issued under Part 121 or 135, may perform maintenance, preventive maintenance, and alterations as provided in Part 121 or 135.

(g) Except for holders of a sport pilot certificate, the holder of a pilot certificate issued under part 61 may perform preventive maintenance on any aircraft owned or operated by that pilot which is not used under part 121, 129, or 135 of this chapter. The holder of a sport pilot certificate may perform preventive maintenance on an aircraft owned or operated by that pilot and issued a special airworthiness certificate in the light-sport category.

(h) Notwithstanding the provisions of paragraph (g) of this section, the Administrator may approve a certificate holder under Part 135 of this chapter, operating rotorcraft in a remote area, to allow a pilot to perform specific preventive maintenance items provided -

(1) The items of preventive maintenance are a result of a known or suspected mechanical difficulty or malfunction that occurred en route to or in a remote area;

(2) The pilot has satisfactorily completed an approved training program and is authorized in writing by the certificate holder for each item of preventive maintenance that the pilot is authorized to perform;

(3) There is no certificated mechanic available to perform preventive maintenance;

(4) The certificate holder has procedures to evaluate the accomplishment of a preventive maintenance item that requires a decision concerning the airworthiness of the rotorcraft; and

(5) The items of preventive maintenance authorized by this section are those listed in paragraph (c) of appendix A of this part.

(i) Notwithstanding the provisions of paragraph (g) of this section, in accordance with an approval issued to the holder of a certificate issued under part 135 of this chapter, a pilot of an aircraft type-certificated for 9 or fewer passenger seats, excluding any pilot seat, may perform the removal and installation of approved aircraft cabin seats, approved cabin-

mounted stretchers, and when no tools are required, approved cabin-mounted medical oxygen bottles, provided -

(1) The pilot has satisfactorily completed an approved training program and is authorized in writing by the certificate holder to perform each task; and

(2) The certificate holder has written procedures available to the pilot to evaluate the accomplishment of the task.

(j) A manufacturer may -

(1) Rebuild or alter any aircraft, aircraft engine, propeller, or appliance manufactured by him under a type or production certificate;

(2) Rebuild or alter any appliance or part of aircraft, aircraft engines, propellers, or appliances manufactured by him under a Technical Standard Order Authorization, an FAA-Parts Manufacturer Approval, or Product and Process Specification issued by the Administrator; and

(3) Perform any inspection required by part 91 or part 125 of this chapter on aircraft it manufactured under a type certificate, or currently manufactures under a production certificate.

(k) Updates of databases in installed avionics meeting the conditions of this paragraph are not considered maintenance and may be performed by pilots provided:

(1) The database upload is:

(i) Initiated from the flight deck;

(ii) Performed without disassembling the avionics unit; and

(iii) Performed without the use of tools and/or special equipment.

(2) The pilot must comply with the certificate holder's procedures or the manufacturer's instructions.

(3) The holder of operating certificates must make available written procedures consistent with manufacturer's instructions to the pilot that describe how to:

(i) Perform the database update; and

(ii) Determine the status of the data upload.

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-4, 31 FR 5249, Apr. 1, 1966; Amdt. 43-23, 47 FR 41084, Sept. 16, 1982; Amdt. 43-25, 51 FR 40702, Nov. 7, 1986; Amdt. 43-36, 61 FR 19501, May 1, 1996; Amdt. 43-37, 66 FR 21066, Apr. 27, 2001; Amdt. 43-39, 69 FR 44863, July 27, 2004; Amdt. 43-43, 74 FR 53394, Oct. 16, 2009; Amdt. 43-45, 77 FR 71096, Nov. 29, 2012]

§ 43.5 Approval for return to service after maintenance, preventive maintenance, rebuilding, or alteration.

No person may approve for return to service any aircraft, airframe, aircraft engine, propeller, or appliance, that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless -

(a) The maintenance record entry required by § 43.9 or § 43.11, as appropriate, has been made;

(b) The repair or alteration form authorized by or furnished by the Administrator has been executed in a manner prescribed by the Administrator; and

(c) If a repair or an alteration results in any change in the aircraft operating limitations or flight data contained in the approved aircraft flight manual, those operating limitations or flight data are appropriately revised and set forth as prescribed in § 91.9 of this chapter.

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-23, 47 FR 41084, Sept. 16, 1982; Amdt. 43-31, 54 FR 34330, Aug. 18, 1989]

§ 43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration.

(a) Except as provided in this section and § 43.17, no person, other than the Administrator, may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service after it has undergone maintenance, preventive maintenance, rebuilding, or alteration.

(b) The holder of a mechanic certificate or an inspection authorization may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service as provided in Part 65 of this chapter.

(c) The holder of a repair station certificate may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service as provided in Part 145 of this chapter.

(d) A manufacturer may approve for return to service any aircraft, airframe, aircraft engine, propeller, appliance, or component part which that manufacturer has worked on under § 43.3(j). However, except for minor alterations, the work must have been done in accordance with technical data approved by the Administrator.

(e) The holder of an air carrier operating certificate or an operating certificate issued under Part 121 or 135, may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service as provided in Part 121 or 135 of this chapter, as applicable.

(f) A person holding at least a private pilot certificate may approve an aircraft for return to service after performing preventive maintenance under the provisions of § 43.3(g).

(g) The holder of a repairman certificate (light-sport aircraft) with a maintenance rating may approve an aircraft issued a special airworthiness certificate in light-sport category for return to service, as provided in part 65 of this chapter.

(h) The holder of at least a sport pilot certificate may approve an aircraft owned or operated by that pilot and issued a special airworthiness certificate in the light-sport category for return to service after performing preventive maintenance under the provisions of § 43.3(g).

[Amdt. 43-23, 47 FR 41084, Sept. 16, 1982, as amended by Amdt. 43-36, 61 FR 19501, May 1, 1996; Amdt. 43-37, 66 FR 21066, Apr. 27, 2001; Amdt. 43-39, 69 FR 44863, July 27, 2004]

§ 43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, § 135.411(a)(1), and § 135.419 of this chapter).

(a) *Maintenance record entries.* Except as provided in paragraphs (b) and (c) of this section, each person who maintains, performs preventive maintenance, rebuilds, or alters an aircraft, airframe, aircraft engine, propeller, appliance, or component part shall make an entry in the maintenance record of that equipment containing the following information:

(1) A description (or reference to data acceptable to the Administrator) of work performed.

(2) The date of completion of the work performed.

(3) The name of the person performing the work if other than the person specified in paragraph (a)(4) of this section.

(4) If the work performed on the aircraft, airframe, aircraft engine, propeller, appliance, or component part has been performed satisfactorily, the signature, certificate number, and kind of certificate held by the person approving the work. The signature constitutes the approval for return to service only for the work performed.

(b) Each holder of an air carrier operating certificate or an operating certificate issued under Part 121 or 135, that is required by its approved operations specifications to provide for a continuous airworthiness maintenance program, shall make a record of the maintenance, preventive maintenance, rebuilding, and alteration, on aircraft, airframes, aircraft engines, propellers, appliances, or component parts which it operates in accordance with the applicable provisions of Part 121 or 135 of this chapter, as appropriate.

(c) This section does not apply to persons performing inspections in accordance with Part 91, 125, § 135.411(a)(1), or § 135.419 of this chapter.

(d) In addition to the entry required by paragraph (a) of this section, major repairs and major alterations shall be entered on a form, and the form disposed of, in the manner prescribed in appendix B, by the person performing the work.

[Amdt. 43-23, 47 FR 41085, Sept. 16, 1982, as amended by Amdt. 43-37, 66 FR 21066, Apr. 27, 2001; Amdt. 43-39, 69 FR 44863, July 27, 2004]

§ 43.10 Disposition of life-limited aircraft parts.

(a) *Definitions used in this section.* For the purposes of this section the following definitions apply.

Life-limited part means any part for which a mandatory replacement limit is specified in the type design, the Instructions for Continued Airworthiness, or the maintenance manual.

Life status means the accumulated cycles, hours, or any other mandatory replacement limit of a life-limited part.

(b) *Temporary removal of parts from type-certificated products.* When a life-limited part is temporarily removed and reinstalled for the purpose of performing maintenance, no disposition under paragraph (c) of this section is required if -

(1) The life status of the part has not changed;

(2) The removal and reinstallation is performed on the same serial numbered product; and

(3) That product does not accumulate time in service while the part is removed.

(c) *Disposition of parts removed from type-certificated products.* Except as provided in paragraph (b) of this section, after April 15, 2002 each person who removes a life-limited part from a type-certificated product must ensure that the part is controlled using one of the methods in this paragraph. The method must deter the installation of the part after it has reached its life limit. Acceptable methods include:

(1) *Record keeping system.* The part may be controlled using a record keeping system that substantiates the part number, serial number, and current life status of the part. Each time the part is removed from a type certificated product, the record must be updated with the current life status. This system may include electronic, paper, or other means of record keeping.

(2) *Tag or record attached to part.* A tag or other record may be attached to the part. The tag or record must include the part number, serial number, and current life status of the part. Each time the part is removed from a type certificated product, either a new tag or record must be created, or the existing tag or record must be updated with the current life status.

(3) *Non-permanent marking.* The part may be legibly marked using a non-permanent method showing its current life status. The life status must be updated each time the part is removed from a type certificated product, or if the mark is removed, another method in this section may be used. The mark must be accomplished in accordance with the instructions under § 45.16 of this chapter in order to maintain the integrity of the part.

(4) *Permanent marking.* The part may be legibly marked using a permanent method showing its current life status. The life status must be updated each time the part is removed from a type certificated product. Unless the part is permanently removed from use on type certificated products, this permanent mark must be accomplished in accordance with the instructions under § 45.16 of this chapter in order to maintain the integrity of the part.

(5) *Segregation.* The part may be segregated using methods that deter its installation on a type-certificated product. These methods must include, at least -

(i) Maintaining a record of the part number, serial number, and current life status, and

(ii) Ensuring the part is physically stored separately from parts that are currently eligible for installation.

(6) *Mutilation.* The part may be mutilated to deter its installation in a type certificated product. The mutilation must

render the part beyond repair and incapable of being reworked to appear to be airworthy.

(7) *Other methods.* Any other method approved or accepted by the FAA.

(d) *Transfer of life-limited parts.* Each person who removes a life-limited part from a type certificated product and later sells or otherwise transfers that part must transfer with the part the mark, tag, or other record used to comply with this section, unless the part is mutilated before it is sold or transferred.

[Doc. No. FAA-2000-8017, 67 FR 2110, Jan. 15, 2002, as amended by Amdt. 43-38A, 79 FR 67055, Nov. 12, 2014]

§ 43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and §§ 135.411(a)(1) and 135.419 of this chapter.

(a) *Maintenance record entries.* The person approving or disapproving for return to service an aircraft, airframe, aircraft engine, propeller, appliance, or component part after any inspection performed in accordance with part 91, 125, § 135.411(a)(1), or § 135.419 shall make an entry in the maintenance record of that equipment containing the following information:

(1) The type of inspection and a brief description of the extent of the inspection.

(2) The date of the inspection and aircraft total time in service.

(3) The signature, the certificate number, and kind of certificate held by the person approving or disapproving for return to service the aircraft, airframe, aircraft engine, propeller, appliance, component part, or portions thereof.

(4) Except for progressive inspections, if the aircraft is found to be airworthy and approved for return to service, the following or a similarly worded statement - "I certify that this aircraft has been inspected in accordance with (insert type) inspection and was determined to be in airworthy condition."

(5) Except for progressive inspections, if the aircraft is not approved for return to service because of needed maintenance, noncompliance with applicable specifications, airworthiness directives, or other approved data, the following or a similarly worded statement - "I certify that this aircraft has been inspected in accordance with (insert type) inspection and a list of discrepancies and unairworthy items dated (date) has been provided for the aircraft owner or operator."

(6) For progressive inspections, the following or a similarly worded statement - "I certify that in accordance with a progressive inspection program, a routine inspection of (identify whether aircraft or components) and a detailed inspection of (identify components) were performed and the (aircraft or components) are (approved or disapproved) for return to service." If disapproved, the entry will further state "and a list of discrepancies and unairworthy items dated (date) has been provided to the aircraft owner or operator."

(7) If an inspection is conducted under an inspection program provided for in part 91, 125, or § 135.411(a)(1),

the entry must identify the inspection program, that part of the inspection program accomplished, and contain a statement that the inspection was performed in accordance with the inspections and procedures for that particular program.

(b) *Listing of discrepancies and placards.* If the person performing any inspection required by part 91 or 125 or § 135.411(a)(1) of this chapter finds that the aircraft is unairworthy or does not meet the applicable type certificate data, airworthiness directives, or other approved data upon which its airworthiness depends, that persons must give the owner or lessee a signed and dated list of those discrepancies. For those items permitted to be inoperative under § 91.213(d)(2) of this chapter, that person shall place a placard, that meets the aircraft's airworthiness certification regulations, on each inoperative instrument and the cockpit control of each item of inoperative equipment, marking it "Inoperative," and shall add the items to the signed and dated list of discrepancies given to the owner or lessee.

[Amdt. 43-23, 47 FR 41085, Sept. 16, 1982, as amended by Amdt. 43-30, 53 FR 50195, Dec. 13, 1988; Amdt. 43-36, 61 FR 19501, May 1, 1996; 71 FR 44188, Aug. 4, 2006]

§ 43.12 Maintenance records: Falsification, reproduction, or alteration.

(a) No person may make or cause to be made:

(1) Any fraudulent or intentionally false entry in any record or report that is required to be made, kept, or used to show compliance with any requirement under this part;

(2) Any reproduction, for fraudulent purpose, of any record or report under this part; or

(3) Any alteration, for fraudulent purpose, of any record or report under this part.

(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for suspending or revoking the applicable airman, operator, or production certificate, Technical Standard Order Authorization, FAA-Parts Manufacturer Approval, or Product and Process Specification issued by the Administrator and held by that person.

[Amdt. 43-19, 43 FR 22639, May 25, 1978, as amended by Amdt. 43-23, 47 FR 41085, Sept. 16, 1982]

§ 43.13 Performance rules (general).

(a) Each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator, except as noted in § 43.16. He shall use the tools, equipment, and test apparatus necessary to assure completion of the work in accordance with accepted industry practices. If special equipment or test apparatus is recommended by the manufacturer involved, he must use that

equipment or apparatus or its equivalent acceptable to the Administrator.

(b) Each person maintaining or altering, or performing preventive maintenance, shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).

(c) *Special provisions for holders of air carrier operating certificates and operating certificates issued under the provisions of Part 121 or 135 and Part 129 operators holding operations specifications.* Unless otherwise notified by the administrator, the methods, techniques, and practices contained in the maintenance manual or the maintenance part of the manual of the holder of an air carrier operating certificate or an operating certificate under Part 121 or 135 and Part 129 operators holding operations specifications (that is required by its operating specifications to provide a continuous airworthiness maintenance and inspection program) constitute acceptable means of compliance with this section.

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-20, 45 FR 60182, Sept. 11, 1980; Amdt. 43-23, 47 FR 41085, Sept. 16, 1982; Amdt. 43-28, 52 FR 20028, June 16, 1987; Amdt. 43-37, 66 FR 21066, Apr. 27, 2001]

§ 43.15 Additional performance rules for inspections.

(a) *General.* Each person performing an inspection required by part 91, 125, or 135 of this chapter, shall -

(1) Perform the inspection so as to determine whether the aircraft, or portion(s) thereof under inspection, meets all applicable airworthiness requirements; and

(2) If the inspection is one provided for in part 125, 135, or § 91.409(e) of this chapter, perform the inspection in accordance with the instructions and procedures set forth in the inspection program for the aircraft being inspected.

(b) *Rotorcraft.* Each person performing an inspection required by Part 91 on a rotorcraft shall inspect the following systems in accordance with the maintenance manual or Instructions for Continued Airworthiness of the manufacturer concerned:

(1) The drive shafts or similar systems.

(2) The main rotor transmission gear box for obvious defects.

(3) The main rotor and center section (or the equivalent area).

(4) The auxiliary rotor on helicopters.

(c) *Annual and 100-hour inspections.* (1) Each person performing an annual or 100-hour inspection shall use a checklist while performing the inspection. The checklist may be of the person's own design, one provided by the manufacturer of the equipment being inspected or one obtained from another source. This checklist must include the

scope and detail of the items contained in appendix D to this part and paragraph (b) of this section.

(2) Each person approving a reciprocating-engine-powered aircraft for return to service after an annual or 100-hour inspection shall, before that approval, run the aircraft engine or engines to determine satisfactory performance in accordance with the manufacturer's recommendations of -

(i) Power output (static and idle r.p.m.);

(ii) Magnetos;

(iii) Fuel and oil pressure; and

(iv) Cylinder and oil temperature.

(3) Each person approving a turbine-engine-powered aircraft for return to service after an annual, 100-hour, or progressive inspection shall, before that approval, run the aircraft engine or engines to determine satisfactory performance in accordance with the manufacturer's recommendations.

(d) *Progressive inspection.* (1) Each person performing a progressive inspection shall, at the start of a progressive inspection system, inspect the aircraft completely. After this initial inspection, routine and detailed inspections must be conducted as prescribed in the progressive inspection schedule. Routine inspections consist of visual examination or check of the appliances, the aircraft, and its components and systems, insofar as practicable without disassembly. Detailed inspections consist of a thorough examination of the appliances, the aircraft, and its components and systems, with such disassembly as is necessary. For the purposes of this subparagraph, the overhaul of a component or system is considered to be a detailed inspection.

(2) If the aircraft is away from the station where inspections are normally conducted, an appropriately rated mechanic, a certificated repair station, or the manufacturer of the aircraft may perform inspections in accordance with the procedures and using the forms of the person who would otherwise perform the inspection.

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-23, 47 FR 41086, Sept. 16, 1982; Amdt. 43-25, 51 FR 40702, Nov. 7, 1986; Amdt. 43-31, 54 FR 34330, Aug. 18, 1989; 71 FR 44188, Aug. 4, 2006]

§ 43.16 Airworthiness limitations.

Each person performing an inspection or other maintenance specified in an Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness shall perform the inspection or other maintenance in accordance with that section, or in accordance with operations specifications approved by the Administrator under part 121 or 135, or an inspection program approved under § 91.409(e).

[71 FR 44188, Aug. 4, 2006]

§ 43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons.

(a) *Definitions.* For purposes of this section:

Aeronautical product means any civil aircraft or airframe, aircraft engine, propeller, appliance, component, or part to be installed thereon.

Canadian aeronautical product means any aeronautical product under airworthiness regulation by Transport Canada Civil Aviation.

U.S. aeronautical product means any aeronautical product under airworthiness regulation by the FAA.

(b) *Applicability.* This section does not apply to any U.S. aeronautical products maintained or altered under any bilateral agreement made between Canada and any country other than the United States.

(c) *Authorized persons.* (1) A person holding a valid Transport Canada Civil Aviation Maintenance Engineer license and appropriate ratings may, with respect to a U.S.-registered aircraft located in Canada, perform maintenance, preventive maintenance, and alterations in accordance with the requirements of paragraph (d) of this section and approve the affected aircraft for return to service in accordance with the requirements of paragraph (e) of this section.

(2) A Transport Canada Civil Aviation Approved Maintenance Organization (AMO) holding appropriate ratings may, with respect to a U.S.-registered aircraft or other U.S. aeronautical products located in Canada, perform maintenance, preventive maintenance, and alterations in accordance with the requirements of paragraph (d) of this section and approve the affected products for return to service in accordance with the requirements of paragraph (e) of this section.

(d) *Performance requirements.* A person authorized in paragraph (c) of this section may perform maintenance (including any inspection required by Sec. 91.409 of this chapter, except an annual inspection), preventive maintenance, and alterations, provided -

(1) The person performing the work is authorized by Transport Canada Civil Aviation to perform the same type of work with respect to Canadian aeronautical products;

(2) The maintenance, preventive maintenance, or alteration is performed in accordance with a Bilateral Aviation Safety Agreement between the United States and Canada and associated Maintenance Implementation Procedures that provide a level of safety equivalent to that provided by the provisions of this chapter;

(3) The maintenance, preventive maintenance, or alteration is performed such that the affected product complies with the applicable requirements of part 36 of this chapter; and

(4) The maintenance, preventive maintenance, or alteration is recorded in accordance with a Bilateral Aviation Safety Agreement between the United States and Canada and associated Maintenance Implementation Procedures that

provide a level of safety equivalent to that provided by the provisions of this chapter.

(e) *Approval requirements.* (1) To return an affected product to service, a person authorized in paragraph (c) of this section must approve (certify) maintenance, preventive maintenance, and alterations performed under this section, except that an Aircraft Maintenance Engineer may not approve a major repair or major alteration.

(2) An AMO whose system of quality control for the maintenance, preventive maintenance, alteration, and inspection of aeronautical products has been approved by Transport Canada Civil Aviation, or an authorized employee performing work for such an AMO, may approve (certify) a major repair or major alteration performed under this section if the work was performed in accordance with technical data approved by the FAA.

(f) No person may operate in air commerce an aircraft, airframe, aircraft engine, propeller, or appliance on which maintenance, preventive maintenance, or alteration has been performed under this section unless it has been approved for return to service by a person authorized in this section.

[Amdt. 43-33, 56 FR 57571, Nov. 12, 1991, as amended by Amdt. 43-40, 71 FR 40877, July 14, 2005]

Appendix A to Part 43 - Major Alterations, Major Repairs, and Preventive Maintenance

(a) *Major alterations* - (1) *Airframe major alterations.* Alterations of the following parts and alterations of the following types, when not listed in the aircraft specifications issued by the FAA, are airframe major alterations:

(i) Wings.

(ii) Tail surfaces.

(iii) Fuselage.

(iv) Engine mounts.

(v) Control system.

(vi) Landing gear.

(vii) Hull or floats.

(viii) Elements of an airframe including spars, ribs, fittings, shock absorbers, bracing, cowling, fairings, and balance weights.

(ix) Hydraulic and electrical actuating system of components.

(x) Rotor blades.

(xi) Changes to the empty weight or empty balance which result in an increase in the maximum certificated weight or center of gravity limits of the aircraft.

(xii) Changes to the basic design of the fuel, oil, cooling, heating, cabin pressurization, electrical, hydraulic, de-icing, or exhaust systems.

(xiii) Changes to the wing or to fixed or movable control surfaces which affect flutter and vibration characteristics.

(2) *Powerplant major alterations.* The following alterations of a powerplant when not listed in the engine specifications issued by the FAA, are powerplant major alterations.

(i) Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios or the substitution of major engine parts which requires extensive rework and testing of the engine.

(ii) Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts not specifically approved by the Administrator.

(iii) Installation of an accessory which is not approved for the engine.

(iv) Removal of accessories that are listed as required equipment on the aircraft or engine specification.

(v) Installation of structural parts other than the type of parts approved for the installation.

(vi) Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

(3) *Propeller major alterations.* The following alterations of a propeller when not authorized in the propeller specifications issued by the FAA are propeller major alterations:

(i) Changes in blade design.

(ii) Changes in hub design.

(iii) Changes in the governor or control design.

(iv) Installation of a propeller governor or feathering system.

(v) Installation of propeller de-icing system.

(vi) Installation of parts not approved for the propeller.

(4) *Appliance major alterations.* Alterations of the basic design not made in accordance with recommendations of the appliance manufacturer or in accordance with an FAA Airworthiness Directive are appliance major alterations. In addition, changes in the basic design of radio communication and navigation equipment approved under type certification or a Technical Standard Order that have an effect on frequency stability, noise level, sensitivity, selectivity, distortion, spurious radiation, AVC characteristics, or ability to meet environmental test conditions and other changes that have an effect on the performance of the equipment are also major alterations.

(b) *Major repairs - (1) Airframe major repairs.* Repairs to the following parts of an airframe and repairs of the following types, involving the strengthening, reinforcing, splicing, and manufacturing of primary structural members or their replacement, when replacement is by fabrication such as riveting or welding, are airframe major repairs.

(i) Box beams.

(ii) Monocoque or semimonocoque wings or control surfaces.

(iii) Wing stringers or chord members.

(iv) Spars.

(v) Spar flanges.

(vi) Members of truss-type beams.

(vii) Thin sheet webs of beams.

(viii) Keel and chine members of boat hulls or floats.

(ix) Corrugated sheet compression members which act as flange material of wings or tail surfaces.

(x) Wing main ribs and compression members.

(xi) Wing or tail surface brace struts.

(xii) Engine mounts.

(xiii) Fuselage longerons.

(xiv) Members of the side truss, horizontal truss, or bulkheads.

(xv) Main seat support braces and brackets.

(xvi) Landing gear brace struts.

(xvii) Axles.

(xviii) Wheels.

(xix) Skis, and ski pedestals.

(xx) Parts of the control system such as control columns, pedals, shafts, brackets, or horns.

(xxi) Repairs involving the substitution of material.

(xxii) The repair of damaged areas in metal or plywood stressed covering exceeding six inches in any direction.

(xxiii) The repair of portions of skin sheets by making additional seams.

(xxiv) The splicing of skin sheets.

(xxv) The repair of three or more adjacent wing or control surface ribs or the leading edge of wings and control surfaces, between such adjacent ribs.

(xxvi) Repair of fabric covering involving an area greater than that required to repair two adjacent ribs.

(xxvii) Replacement of fabric on fabric covered parts such as wings, fuselages, stabilizers, and control surfaces.

(xxviii) Repairing, including rebotomting, of removable or integral fuel tanks and oil tanks.

(2) *Powerplant major repairs.* Repairs of the following parts of an engine and repairs of the following types, are powerplant major repairs:

(i) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger.

(ii) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing.

(iii) Special repairs to structural engine parts by welding, plating, metalizing, or other methods.

(3) *Propeller major repairs.* Repairs of the following types to a propeller are propeller major repairs:

(i) Any repairs to, or straightening of steel blades.

(ii) Repairing or machining of steel hubs.

(iii) Shortening of blades.

(iv) Retipping of wood propellers.

(v) Replacement of outer laminations on fixed pitch wood propellers.

(vi) Repairing elongated bolt holes in the hub of fixed pitch wood propellers.

(vii) Inlay work on wood blades.

(viii) Repairs to composition blades.

(ix) Replacement of tip fabric.

- (x) Replacement of plastic covering.
- (xi) Repair of propeller governors.
- (xii) Overhaul of controllable pitch propellers.
- (xiii) Repairs to deep dents, cuts, scars, nicks, etc., and straightening of aluminum blades.

(xiv) The repair or replacement of internal elements of blades.

(4) *Appliance major repairs.* Repairs of the following types to appliances are appliance major repairs:

- (i) Calibration and repair of instruments.
- (ii) Calibration of radio equipment.
- (iii) Rewinding the field coil of an electrical accessory.
- (iv) Complete disassembly of complex hydraulic power valves.

(v) Overhaul of pressure type carburetors, and pressure type fuel, oil and hydraulic pumps.

(c) *Preventive maintenance.* Preventive maintenance is limited to the following work, provided it does not involve complex assembly operations:

- (1) Removal, installation, and repair of landing gear tires.
- (2) Replacing elastic shock absorber cords on landing gear.
- (3) Servicing landing gear shock struts by adding oil, air, or both.

(4) Servicing landing gear wheel bearings, such as cleaning and greasing.

(5) Replacing defective safety wiring or cotter keys.

(6) Lubrication not requiring disassembly other than removal of nonstructural items such as cover plates, cowlings, and fairings.

(7) Making simple fabric patches not requiring rib stitching or the removal of structural parts or control surfaces. In the case of balloons, the making of small fabric repairs to envelopes (as defined in, and in accordance with, the balloon manufacturers' instructions) not requiring load tape repair or replacement.

(8) Replenishing hydraulic fluid in the hydraulic reservoir.

(9) Refinishing decorative coating of fuselage, balloon baskets, wings tail group surfaces (excluding balanced control surfaces), fairings, cowlings, landing gear, cabin, or cockpit interior when removal or disassembly of any primary structure or operating system is not required.

(10) Applying preservative or protective material to components where no disassembly of any primary structure or operating system is involved and where such coating is not prohibited or is not contrary to good practices.

(11) Repairing upholstery and decorative furnishings of the cabin, cockpit, or balloon basket interior when the repairing does not require disassembly of any primary structure or operating system or interfere with an operating system or affect the primary structure of the aircraft.

(12) Making small simple repairs to fairings, nonstructural cover plates, cowlings, and small patches and reinforcements not changing the contour so as to interfere with proper air flow.

(13) Replacing side windows where that work does not interfere with the structure or any operating system such as controls, electrical equipment, etc.

(14) Replacing safety belts.

(15) Replacing seats or seat parts with replacement parts approved for the aircraft, not involving disassembly of any primary structure or operating system.

(16) Trouble shooting and repairing broken circuits in landing light wiring circuits.

(17) Replacing bulbs, reflectors, and lenses of position and landing lights.

(18) Replacing wheels and skis where no weight and balance computation is involved.

(19) Replacing any cowling not requiring removal of the propeller or disconnection of flight controls.

(20) Replacing or cleaning spark plugs and setting of spark plug gap clearance.

(21) Replacing any hose connection except hydraulic connections.

(22) Replacing prefabricated fuel lines.

(23) Cleaning or replacing fuel and oil strainers or filter elements.

(24) Replacing and servicing batteries.

(25) Cleaning of balloon burner pilot and main nozzles in accordance with the balloon manufacturer's instructions.

(26) Replacement or adjustment of nonstructural standard fasteners incidental to operations.

(27) The interchange of balloon baskets and burners on envelopes when the basket or burner is designated as interchangeable in the balloon type certificate data and the baskets and burners are specifically designed for quick removal and installation.

(28) The installations of anti-misfueling devices to reduce the diameter of fuel tank filler openings provided the specific device has been made a part of the aircraft type certificate data by the aircraft manufacturer, the aircraft manufacturer has provided FAA-approved instructions for installation of the specific device, and installation does not involve the disassembly of the existing tank filler opening.

(29) Removing, checking, and replacing magnetic chip detectors.

(30) The inspection and maintenance tasks prescribed and specifically identified as preventive maintenance in a primary category aircraft type certificate or supplemental type certificate holder's approved special inspection and preventive maintenance program when accomplished on a primary category aircraft provided:

- (i) They are performed by the holder of at least a private pilot certificate issued under part 61 who is the registered owner (including co-owners) of the affected aircraft and who holds a certificate of competency for the affected aircraft (1) issued by a school approved under § 147.21(e) of this chapter; (2) issued by the holder of the production certificate for that primary category aircraft that has a special training program approved under § 21.24 of this subchapter; or (3) issued by

another entity that has a course approved by the Administrator; and

(ii) The inspections and maintenance tasks are performed in accordance with instructions contained by the special inspection and preventive maintenance program approved as part of the aircraft's type design or supplemental type design.

(31) Removing and replacing self-contained, front instrument panel-mounted navigation and communication devices that employ tray-mounted connectors that connect the unit when the unit is installed into the instrument panel, (excluding automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)). The approved unit must be designed to be readily and repeatedly removed and replaced, and pertinent instructions must be provided. Prior to the unit's intended use, and operational check must be performed in accordance with the applicable sections of part 91 of this chapter.

(Secs. 313, 601 through 610, and 1102, Federal Aviation Act of 1958 as amended (49 U.S.C. 1354, 1421 through 1430 and 1502); (49 U.S.C. 106(g) (Revised Pub. L. 97-449, Jan. 21, 1983); and 14 CFR 11.45)

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-14, 37 FR 14291, June 19, 1972; Amdt. 43-23, 47 FR 41086, Sept. 16, 1982; Amdt. 43-24, 49 FR 44602, Nov. 7, 1984; Amdt. 43-25, 51 FR 40703, Nov. 7, 1986; Amdt. 43-27, 52 FR 17277, May 6, 1987; Amdt. 43-34, 57 FR 41369, Sept. 9, 1992; Amdt. 43-36, 61 FR 19501, May 1, 1996; Amdt. 43-45, 77 FR 71096, Nov. 29, 2012]

Appendix B to Part 43 - Recording of Major Repairs and Major Alterations

(a) Except as provided in paragraphs (b), (c), and (d) of this appendix, each person performing a major repair or major alteration shall -

- (1) Execute FAA Form 337 at least in duplicate;
- (2) Give a signed copy of that form to the aircraft owner;

and

(3) Forward a copy of that form to the FAA Aircraft Registration Branch in Oklahoma City, Oklahoma, within 48 hours after the aircraft, airframe, aircraft engine, propeller, or appliance is approved for return to service.

(b) For major repairs made in accordance with a manual or specifications acceptable to the Administrator, a certificated repair station may, in place of the requirements of paragraph (a) -

(1) Use the customer's work order upon which the repair is recorded;

(2) Give the aircraft owner a signed copy of the work order and retain a duplicate copy for at least two years from the date of approval for return to service of the aircraft, airframe, aircraft engine, propeller, or appliance;

(3) Give the aircraft owner a maintenance release signed by an authorized representative of the repair station and incorporating the following information:

(i) Identity of the aircraft, airframe, aircraft engine, propeller or appliance.

(ii) If an aircraft, the make, model, serial number, nationality and registration marks, and location of the repaired area.

(iii) If an airframe, aircraft engine, propeller, or appliance, give the manufacturer's name, name of the part, model, and serial numbers (if any); and

(4) Include the following or a similarly worded statement - "The aircraft, airframe, aircraft engine, propeller, or appliance identified above was repaired and inspected in accordance with current Regulations of the Federal Aviation Agency and is approved for return to service.

Pertinent details of the repair are on file at this repair station under Order No. _____,

Date _____

Signed _____

For signature of authorized representative)

Repair station name) (Certificate No.)

_____."

(Address)

(c) Except as provided in paragraph (d) of this appendix, for a major repair or major alteration made by a person authorized in § 43.17, the person who performs the major repair or major alteration and the person authorized by § 43.17 to approve that work shall execute an FAA Form 337 at least in duplicate. A completed copy of that form shall be -

(1) Given to the aircraft owner; and

(2) Forwarded to the Federal Aviation Administration, Aircraft Registration Branch, AFS-750, Post Office Box 25504, Oklahoma City, OK 73125, within 48 hours after the work is inspected.

(d) For extended-range fuel tanks installed within the passenger compartment or a baggage compartment, the person who performs the work and the person authorized to approve the work by § 43.7 shall execute an FAA Form 337 in at least triplicate. A completed copy of that form shall be -

(1) Placed on board the aircraft as specified in § 91.417 of this chapter;

(2) Given to the aircraft owner; and

(3) Forwarded to the Federal Aviation Administration, Aircraft Registration Branch, AFS-751, Post Office Box 25724, Oklahoma City, OK 73125, within 48 hours after the work is inspected.

(Secs. 101, 610, 72 Stat. 737, 780, 49 U.S.C. 1301, 1430)

[Doc. No. 1993, 29 FR 5451, Apr. 23, 1964, as amended by Amdt. 43-10, 33 FR 15989, Oct. 31, 1968; Amdt. 43-29, 52 FR 34101, Sept. 9, 1987; Amdt. 43-31, 54 FR 34330, Aug. 18, 1989; 71 FR 58495, Oct. 4, 2006; Amdt. 43-41, 72 FR 53680, Sept. 20, 2007]

Appendix C to Part 43 [Reserved]**Appendix D to Part 43 - Scope and Detail of Items
(as Applicable to the Particular Aircraft) To Be
Included in Annual and 100-Hour Inspections**

(a) Each person performing an annual or 100-hour inspection shall, before that inspection, remove or open all necessary inspection plates, access doors, fairing, and cowling. He shall thoroughly clean the aircraft and aircraft engine.

(b) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the fuselage and hull group:

(1) Fabric and skin - for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings.

(2) Systems and components - for improper installation, apparent defects, and unsatisfactory operation.

(3) Envelope, gas bags, ballast tanks, and related parts - for poor condition.

(c) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the cabin and cockpit group:

(1) Generally - for uncleanness and loose equipment that might foul the controls.

(2) Seats and safety belts - for poor condition and apparent defects.

(3) Windows and windshields - for deterioration and breakage.

(4) Instruments - for poor condition, mounting, marking, and (where practicable) improper operation.

(5) Flight and engine controls - for improper installation and improper operation.

(6) Batteries - for improper installation and improper charge.

(7) All systems - for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.

(d) Each person performing an annual or 100-hour inspection shall inspect (where applicable) components of the engine and nacelle group as follows:

(1) Engine section - for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.

(2) Studs and nuts - for improper torquing and obvious defects.

(3) Internal engine - for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances.

(4) Engine mount - for cracks, looseness of mounting, and looseness of engine to mount.

(5) Flexible vibration dampeners - for poor condition and deterioration.

(6) Engine controls - for defects, improper travel, and improper safetying.

(7) Lines, hoses, and clamps - for leaks, improper condition and looseness.

(8) Exhaust stacks - for cracks, defects, and improper attachment.

(9) Accessories - for apparent defects in security of mounting.

(10) All systems - for improper installation, poor general condition, defects, and insecure attachment.

(11) Cowling - for cracks, and defects.

(e) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the landing gear group:

(1) All units - for poor condition and insecurity of attachment.

(2) Shock absorbing devices - for improper oleo fluid level.

(3) Linkages, trusses, and members - for undue or excessive wear fatigue, and distortion.

(4) Retracting and locking mechanism - for improper operation.

(5) Hydraulic lines - for leakage.

(6) Electrical system - for chafing and improper operation of switches.

(7) Wheels - for cracks, defects, and condition of bearings.

(8) Tires - for wear and cuts.

(9) Brakes - for improper adjustment.

(10) Floats and skis - for insecure attachment and obvious or apparent defects.

(f) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components of the wing and center section assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, and insecurity of attachment.

(g) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components and systems that make up the complete empennage assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation, and improper component operation.

(h) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the propeller group:

(1) Propeller assembly - for cracks, nicks, binds, and oil leakage.

(2) Bolts - for improper torquing and lack of safetying.

(3) Anti-icing devices - for improper operations and obvious defects.

(4) Control mechanisms - for improper operation, insecure mounting, and restricted travel.

(i) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the radio group:

(1) Radio and electronic equipment - for improper installation and insecure mounting.

(2) Wiring and conduits - for improper routing, insecure mounting, and obvious defects.

(3) Bonding and shielding - for improper installation and poor condition.

(4) Antenna including trailing antenna - for poor condition, insecure mounting, and improper operation.

(j) Each person performing an annual or 100-hour inspection shall inspect (where applicable) each installed miscellaneous item that is not otherwise covered by this listing for improper installation and improper operation.

Appendix E to Part 43 - Altimeter System Test and Inspection

Link to an amendment published at 81 FR 96700, Dec. 30, 2016.

Each person performing the altimeter system tests and inspections required by § 91.411 shall comply with the following:

(a) Static pressure system:

(1) Ensure freedom from entrapped moisture and restrictions.

(2) Determine that leakage is within the tolerances established in § 23.1325 or § 25.1325, whichever is applicable.

(3) Determine that the static port heater, if installed, is operative.

(4) Ensure that no alterations or deformations of the airframe surface have been made that would affect the relationship between air pressure in the static pressure system and true ambient static air pressure for any flight condition.

(b) Altimeter:

(1) Test by an appropriately rated repair facility in accordance with the following subparagraphs. Unless otherwise specified, each test for performance may be conducted with the instrument subjected to vibration. When tests are conducted with the temperature substantially different from ambient temperature of approximately 25 degrees C., allowance shall be made for the variation from the specified condition.

(i) *Scale error.* With the barometric pressure scale at 29.92 inches of mercury, the altimeter shall be subjected successively to pressures corresponding to the altitude specified in Table I up to the maximum normally expected operating altitude of the airplane in which the altimeter is to be installed. The reduction in pressure shall be made at a rate not in excess of 20,000 feet per minute to within approximately 2,000 feet of the test point. The test point shall be approached at a rate compatible with the test equipment. The altimeter shall be kept at the pressure corresponding to each test point for at least 1 minute, but not more than 10 minutes, before a reading is taken. The error at all test points must not exceed the tolerances specified in Table I.

(ii) *Hysteresis.* The hysteresis test shall begin not more than 15 minutes after the altimeter's initial exposure to the pressure corresponding to the upper limit of the scale error test prescribed in subparagraph (i); and while the altimeter is at this pressure, the hysteresis test shall commence. Pressure shall be increased at a rate simulating a descent in altitude at the rate of

5,000 to 20,000 feet per minute until within 3,000 feet of the first test point (50 percent of maximum altitude). The test point shall then be approached at a rate of approximately 3,000 feet per minute. The altimeter shall be kept at this pressure for at least 5 minutes, but not more than 15 minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further, in the same manner as before, until the pressure corresponding to the second test point (40 percent of maximum altitude) is reached. The altimeter shall be kept at this pressure for at least 1 minute, but not more than 10 minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further, in the same manner as before, until atmospheric pressure is reached. The reading of the altimeter at either of the two test points shall not differ by more than the tolerance specified in Table II from the reading of the altimeter for the corresponding altitude recorded during the scale error test prescribed in paragraph (b)(i).

(iii) *After effect.* Not more than 5 minutes after the completion of the hysteresis test prescribed in paragraph (b) (ii), the reading of the altimeter (corrected for any change in atmospheric pressure) shall not differ from the original atmospheric pressure reading by more than the tolerance specified in Table II.

(iv) *Friction.* The altimeter shall be subjected to a steady rate of decrease of pressure approximating 750 feet per minute. At each altitude listed in Table III, the change in reading of the pointers after vibration shall not exceed the corresponding tolerance listed in Table III.

(v) *Case leak.* The leakage of the altimeter case, when the pressure within it corresponds to an altitude of 18,000 feet, shall not change the altimeter reading by more than the tolerance shown in Table II during an interval of 1 minute.

(vi) *Barometric scale error.* At constant atmospheric pressure, the barometric pressure scale shall be set at each of the pressures (falling within its range of adjustment) that are listed in Table IV, and shall cause the pointer to indicate the equivalent altitude difference shown in Table IV with a tolerance of 25 feet.

(2) Altimeters which are the air data computer type with associated computing systems, or which incorporate air data correction internally, may be tested in a manner and to specifications developed by the manufacturer which are acceptable to the Administrator.

(c) Automatic Pressure Altitude Reporting Equipment and ATC Transponder System Integration Test. The test must be conducted by an appropriately rated person under the conditions specified in paragraph (a). Measure the automatic pressure altitude at the output of the installed ATC transponder when interrogated on Mode C at a sufficient number of test points to ensure that the altitude reporting equipment, altimeters, and ATC transponders perform their intended functions as installed in the aircraft. The difference between the automatic reporting output and the altitude displayed at the altimeter shall not exceed 125 feet.

(d) Records: Comply with the provisions of § 43.9 of this chapter as to content, form, and disposition of the records. The person performing the altimeter tests shall record on the altimeter the date and maximum altitude to which the altimeter

has been tested and the persons approving the airplane for return to service shall enter that data in the airplane log or other permanent record.

Table I

| Altitude | Equivalent pressure (inches of mercury) | Tolerance ±(feet) |
|----------|---|-------------------|
| #1,000 | 31.018 | 20 |
| 0 | 29.921 | 20 |
| 500 | 29.385 | 20 |
| 1,000 | 28.856 | 20 |
| 1,500 | 28.335 | 25 |
| 2,000 | 27.821 | 30 |
| 3,000 | 26.817 | 30 |
| 4,000 | 25.842 | 35 |
| 6,000 | 23.978 | 40 |
| 8,000 | 22.225 | 60 |
| 10,000 | 20.577 | 80 |
| 12,000 | 19.029 | 90 |
| 14,000 | 17.577 | 100 |
| 16,000 | 16.216 | 110 |
| 18,000 | 14.942 | 120 |
| 20,000 | 13.750 | 130 |
| 22,000 | 12.636 | 140 |
| 25,000 | 11.104 | 155 |
| 30,000 | 8.885 | 180 |
| 35,000 | 7.041 | 205 |
| 40,000 | 5.538 | 230 |
| 45,000 | 4.355 | 255 |
| 50,000 | 3.425 | 280 |

Table II - Test Tolerances

| Test | Tolerance (feet) |
|--|------------------|
| Case Leak Test | ±100 |
| Hysteresis Test: | |
| First Test Point (50 percent of maximum altitude) | 75 |
| Second Test Point (40 percent of maximum altitude) | 75 |
| After Effect Test | 30 |

Table III - Friction

| Altitude (feet) | Tolerance (feet) |
|-----------------|------------------|
| 1,000 | ±70 |
| 2,000 | 70 |

| Altitude (feet) | Tolerance (feet) |
|-----------------|------------------|
| 3,000 | 70 |
| 5,000 | 70 |
| 10,000 | 80 |
| 15,000 | 90 |
| 20,000 | 100 |
| 25,000 | 120 |
| 30,000 | 140 |
| 35,000 | 160 |
| 40,000 | 180 |
| 50,000 | 250 |

Table IV - Pressure-Altitude Difference

| Pressure (inches of Hg) | Altitude difference (feet) |
|-------------------------|----------------------------|
| 28.10 | #1,727 |
| 28.50 | #1,340 |
| 29.00 | #863 |
| 29.50 | #392 |
| 29.92 | 0 |
| 30.50 | + 531 |
| 30.90 | + 893 |
| 30.99 | + 974 |

(Secs. 313, 314, and 601 through 610 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1355, and 1421 through 1430) and sec. 6(c), Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Amdt. 43-2, 30 FR 8262, June 29, 1965, as amended by Amdt. 43-7, 32 FR 7587, May 24, 1967; Amdt. 43-19, 43 FR 22639, May 25, 1978; Amdt. 43-23, 47 FR 41086, Sept. 16, 1982; Amdt. 43-31, 54 FR 34330, Aug. 18, 1989]

Appendix F to Part 43 - ATC Transponder Tests and Inspections

The ATC transponder tests required by § 91.413 of this chapter may be conducted using a bench check or portable test equipment and must meet the requirements prescribed in paragraphs (a) through (j) of this appendix. If portable test equipment with appropriate coupling to the aircraft antenna system is used, operate the test equipment for ATCRBS transponders at a nominal rate of 235 interrogations per second to avoid possible ATCRBS interference. Operate the test equipment at a nominal rate of 50 Mode S interrogations per second for Mode S. An additional 3 dB loss is allowed to compensate for antenna coupling errors during receiver sensitivity measurements conducted in accordance with paragraph (c)(1) when using portable test equipment.

(a) Radio Reply Frequency:

(1) For all classes of ATCRBS transponders, interrogate the transponder and verify that the reply frequency is 1090 ± 3 Megahertz (MHz).

(2) For classes 1B, 2B, and 3B Mode S transponders, interrogate the transponder and verify that the reply frequency is 1090 ± 3 MHz.

(3) For classes 1B, 2B, and 3B Mode S transponders that incorporate the optional 1090 ± 1 MHz reply frequency, interrogate the transponder and verify that the reply frequency is correct.

(4) For classes 1A, 2A, 3A, and 4 Mode S transponders, interrogate the transponder and verify that the reply frequency is 1090 ± 1 MHz.

(b) Suppression: When Classes 1B and 2B ATCRBS Transponders, or Classes 1B, 2B, and 3B Mode S transponders are interrogated Mode 3/A at an interrogation rate between 230 and 1,000 interrogations per second; or when Classes 1A and 2A ATCRBS Transponders, or Classes 1B, 2A, 3A, and 4 Mode S transponders are interrogated at a rate between 230 and 1,200 Mode 3/A interrogations per second:

(1) Verify that the transponder does not respond to more than 1 percent of ATCRBS interrogations when the amplitude of P₂ pulse is equal to the P₁ pulse.

(2) Verify that the transponder replies to at least 90 percent of ATCRBS interrogations when the amplitude of the P₂ pulse is 9 dB less than the P₁ pulse. If the test is conducted with a radiated test signal, the interrogation rate shall be 235 ±5 interrogations per second unless a higher rate has been approved for the test equipment used at that location.

(c) Receiver Sensitivity:

(1) Verify that for any class of ATCRBS Transponder, the receiver minimum triggering level (MTL) of the system is #73 ±4 dbm, or that for any class of Mode S transponder the receiver MTL for Mode S format (P6 type) interrogations is #74 ±3 dbm by use of a test set either:

(i) Connected to the antenna end of the transmission line;

(ii) Connected to the antenna terminal of the transponder with a correction for transmission line loss; or

(iii) Utilized radiated signal.

(2) Verify that the difference in Mode 3/A and Mode C receiver sensitivity does not exceed 1 db for either any class of ATCRBS transponder or any class of Mode S transponder.

(d) Radio Frequency (RF) Peak Output Power:

(1) Verify that the transponder RF output power is within specifications for the class of transponder. Use the same conditions as described in (c)(1)(i), (ii), and (iii) above.

(i) For Class 1A and 2A ATCRBS transponders, verify that the minimum RF peak output power is at least 21.0 dbw (125 watts).

(ii) For Class 1B and 2B ATCRBS Transponders, verify that the minimum RF peak output power is at least 18.5 dbw (70 watts).

(iii) For Class 1A, 2A, 3A, and 4 and those Class 1B, 2B, and 3B Mode S transponders that include the optional high RF peak output power, verify that the minimum RF peak output power is at least 21.0 dbw (125 watts).

(iv) For Classes 1B, 2B, and 3B Mode S transponders, verify that the minimum RF peak output power is at least 18.5 dbw (70 watts).

(v) For any class of ATCRBS or any class of Mode S transponders, verify that the maximum RF peak output power does not exceed 27.0 dbw (500 watts).

Note:

The tests in (e) through (j) apply only to Mode S transponders.

(e) Mode S Diversity Transmission Channel Isolation: For any class of Mode S transponder that incorporates diversity operation, verify that the RF peak output power transmitted from the selected antenna exceeds the power transmitted from the nonselected antenna by at least 20 db.

(f) Mode S Address: Interrogate the Mode S transponder and verify that it replies only to its assigned address. Use the correct address and at least two incorrect addresses. The interrogations should be made at a nominal rate of 50 interrogations per second.

(g) Mode S Formats: Interrogate the Mode S transponder with uplink formats (UF) for which it is equipped and verify that the replies are made in the correct format. Use the surveillance formats UF = 4 and 5. Verify that the altitude reported in the replies to UF = 4 are the same as that reported in a valid ATCRBS Mode C reply. Verify that the identity reported in the replies to UF = 5 are the same as that reported in a valid ATCRBS Mode 3/A reply. If the transponder is so equipped, use the communication formats UF = 20, 21, and 24.

(h) Mode S All-Call Interrogations: Interrogate the Mode S transponder with the Mode S-only all-call format UF = 11, and the ATCRBS/Mode S all-call formats (1.6 microsecond P₄ pulse) and verify that the correct address and capability are reported in the replies (downlink format DF = 11).

(i) ATCRBS-Only All-Call Interrogation: Interrogate the Mode S transponder with the ATCRBS-only all-call interrogation (0.8 microsecond P₄ pulse) and verify that no reply is generated.

(j) Squitter: Verify that the Mode S transponder generates a correct squitter approximately once per second.

(k) Records: Comply with the provisions of § 43.9 of this chapter as to content, form, and disposition of the records.

[Amdt. 43-26, 52 FR 3390, Feb. 3, 1987; 52 FR 6651, Mar. 4, 1987, as amended by Amdt. 43-31, 54 FR 34330, Aug. 18, 1989]

PART 48 - REGISTRATION AND MARKING REQUIREMENTS FOR SMALL UNMANNED AIRCRAFT

Authority:

49 U.S.C. 106(f), 106(g), 40101, 40103, 40113-40114, 41703, 44101-44103, 44105-44106, 44110-44113, 45302, 45305, 46104, 46301, 46306.

Source:

Doc. No. FAA-2015-7396; Amdt. No. 48-1; 80 FR 78645, Dec. 16, 2015, unless otherwise noted.

Subpart A - General

§ 48.1 Applicability.

(a) This part provides registration and identification requirements for small unmanned aircraft that are part of a small unmanned aircraft system as defined in § 1.1 of this chapter.

(b) Small unmanned aircraft eligible for registration in the United States must be registered and identified in accordance with either:

(1) The registration and identification requirements in this part; or

(2) The registration requirements in part 47 and the identification and registration marking requirements in subparts A and C of part 45.

(c) Small unmanned aircraft intended to be operated outside of the territorial airspace of the United States, or registered through a trust or voting trust, must be registered in accordance with subparts A and B of part 47 and satisfy the identification and registration marking requirements of subparts A and C of part 45.

§ 48.5 Compliance dates.

(a) *Small unmanned aircraft used exclusively as model aircraft.* For small unmanned aircraft operated by the current owner prior to December 21, 2015, compliance with the requirements of this part or part 47 is required no later than February 19, 2016. For all other small unmanned aircraft, compliance with this part is required prior to operation of the small unmanned aircraft.

(b) *Small unmanned aircraft used as other than model aircraft.* Small unmanned aircraft owners authorized to conduct operations other than model aircraft operations must register the small unmanned aircraft in accordance with part 47 of this chapter. Beginning March 31, 2016, small unmanned aircraft operated as other than model aircraft may complete aircraft registration in accordance with this part.

§ 48.10 Definitions.

For purposes of this part, the following definitions apply:

Citizen of the United States or U.S. citizen means one of the following:

(1) An individual who is a citizen of the United States or one of its possessions.

(2) A partnership each of whose partners is an individual who is a citizen of the United States.

(3) A corporation or association organized under the laws of the United States or a State, the District of Columbia, or a territory or possession of the United States, of which the president and at least two-thirds of the board of directors and other managing officers are citizens of the United States, which is under the actual control of citizens of the United States, and in which at least 75 percent of the voting interest is owned or controlled by persons that are citizens of the United States.

Registry means the FAA, Civil Aviation Registry, Aircraft Registration Branch.

Resident alien means an individual citizen of a foreign country lawfully admitted for permanent residence in the United States as an immigrant in conformity with the regulations of the Department of Homeland Security (8 CFR Chapter 1).

§ 48.15 Requirement to register.

No person may operate a small unmanned aircraft that is eligible for registration under 49 U.S.C. 44101-44103 unless one of the following criteria has been satisfied:

(a) The owner has registered and marked the aircraft in accordance with this part;

(b) The aircraft weighs 0.55 pounds or less on takeoff, including everything that is on board or otherwise attached to the aircraft; or

(c) The aircraft is an aircraft of the Armed Forces of the United States.

§ 48.20 Eligibility for registration.

A small unmanned aircraft may be registered under 49 U.S.C. 44103 and under this part only when the aircraft is not registered under the laws of a foreign country and is -

(a) Owned by a U.S. citizen;

(b) Owned by an individual citizen of a foreign country lawfully admitted for permanent residence in the United States;

(c) Owned by a corporation not a citizen of the United States when the corporation is organized and doing business under the laws of the United States or a State within the United States, and the aircraft is based and primarily used in the United States; or

(d) An aircraft of -

(1) The United States Government; or

(2) A State, the District of Columbia, a territory or possession of the United States, or a political subdivision of a State, territory, or possession.

§ 48.25 Applicants.

(a) To register a small unmanned aircraft in the United States under this part, a person must provide the information required by § 48.100 to the Registry in the form and manner prescribed by the Administrator. Upon submission of this information, the FAA issues a Certificate of Aircraft Registration to that person.

(b) A small unmanned aircraft must be registered by its owner using the legal name of its owner, unless the owner is less than 13 years of age. If the owner is less than 13 years of age, then the small unmanned aircraft must be registered by a person who is at least 13 years of age.

(c) In accordance with 49 U.S.C. 44103(c), registration is not evidence of aircraft ownership in any proceeding in which ownership of an unmanned aircraft by a particular person is in issue.

(d) In this part, "owner" includes a buyer in possession, a bailee, a lessee of a small unmanned aircraft under a contract of conditional sale, and the assignee of that person.

§ 48.30 Fees.

(a) The fee for issuing or renewing a Certificate of Aircraft Registration for aircraft registered in accordance with § 48.100(a) is \$5.00 per aircraft.

(b) The fee for issuing or renewing a Certificate of Aircraft Registration for aircraft registered in accordance with § 48.100(b) is \$5.00 per certificate.

(c) Each application for and renewal of a Certificate of Aircraft Registration must be accompanied by the fee described in paragraphs (a) and (b), as applicable, paid to the Federal Aviation Administration through the web-based aircraft registration system, or in another manner if prescribed by the Administrator.

Subpart B - Certificates of Aircraft Registration for Small Unmanned Aircraft

§ 48.100 Application.

(a) *Required information: Persons intending to use the small unmanned aircraft as other than a model aircraft.* Each applicant for a Certificate of Aircraft Registration issued under this part must submit all of the following information to the Registry:

(1) Applicant name and, for an applicant other than an individual, the name of the authorized representative applying for a Certificate of Aircraft Registration.

(2) Applicant's physical address and, for an applicant other than an individual, the physical address for the authorized representative. If the applicant or authorized representative does not receive mail at their physical address, a mailing address must also be provided.

(3) Applicant's email address or, for applicants other than individuals, the email address of the authorized representative.

(4) The aircraft manufacturer and model name.

(5) The aircraft serial number, if available.

(6) Other information as required by the Administrator.

(b) *Required information: Individuals intending to use the small unmanned aircraft exclusively as a model aircraft.* Each applicant for a Certificate of Aircraft Registration issued under this part must submit all of the following information to the Registry:

(1) Applicant name.

(2) Applicant's physical address and if the applicant does not receive mail at their physical address, a mailing address must also be provided.

(3) Applicant's email address.

(4) Other information as required by the Administrator.

(c) *Provision of information.* The information identified in paragraphs (a) and (b) of this section must be submitted to the Registry through the Web-based small unmanned aircraft registration system in a form and manner prescribed by the Administrator.

(d) *Issuance of Certificate of Aircraft registration.* The FAA will issue a Certificate of Aircraft Registration upon completion of the application requirements provided in paragraph (a) or (b) of this section as applicable.

§ 48.105 Requirement to maintain current information.

(a) The holder of a Certificate of Aircraft Registration must ensure that the information provided under § 48.100 remains accurate.

(b) The holder of a Certificate of Aircraft Registration must update the information using the web-based small unmanned aircraft registration system within 14 calendar days of the following:

(1) A change in the information provided under § 48.100.

(2) When aircraft registration requires cancellation for any reason including sale or transfer, destruction, or export.

§ 48.110 Registration: Persons intending to use small unmanned aircraft for purposes other than as model aircraft.

(a) *Certificate of Aircraft Registration.* A Certificate of Aircraft Registration issued in accordance with § 48.100 for aircraft used for purposes other than as model aircraft constitutes registration only for the small unmanned aircraft identified on the application.

(b) *Effective date of registration.* An aircraft is registered when the applicant receives a Certificate of Aircraft Registration for the specific aircraft. The effective date of registration is shown by the date of issue on the Certificate of Aircraft Registration issued for the aircraft.

(c) *Registration renewal.* A Certificate of Aircraft registration issued under this part expires 3 years after the date of issue unless it is renewed.

(1) The holder of a Certificate of Aircraft Registration must renew the Certificate by verifying, in a form and manner prescribed by the Administrator, that the information provided in accordance with § 48.100 of this subpart is accurate and if it is not, provide updated information. The verification may take place at any time within the six months preceding the month in which the Certificate of Aircraft registration expires.

(2) A certificate issued under this paragraph expires three years from the expiration date of the previous certificate.

(d) *Other events affecting effectiveness of Certificate.* Each Certificate of Aircraft Registration issued by the FAA under this subpart is effective, unless registration has ended by reason of having been revoked, canceled, expired, or the ownership is transferred, until the date upon which one of the following events occurs:

(1) Subject to the Convention on the International Recognition of Rights in Aircraft when applicable, the aircraft is registered under the laws of a foreign country.

(2) The small unmanned aircraft is totally destroyed or scrapped.

(3) The holder of the Certificate of Aircraft Registration loses U.S. citizenship.

(4) Thirty days have elapsed since the death of the holder of the Certificate of Aircraft Registration.

(5) The owner, if an individual who is not a citizen of the United States, loses status as a resident alien, unless that person becomes a citizen of the United States at the same time.

(6) The owner is a corporation other than a corporation which is a citizen of the United States and one of the following events occurs:

(i) The corporation ceases to be lawfully organized and doing business under the laws of the United States or any State thereof; or

(ii) The aircraft was not operated exclusively within the United States during the period of registration under this part.

§ 48.115 Registration: Individuals intending to use small unmanned aircraft exclusively as a model aircraft.

(a) *Certificate of Aircraft Registration*: A Certificate of Aircraft Registration issued in accordance with § 48.100 for small unmanned aircraft used exclusively as model aircraft constitutes registration for all small unmanned aircraft used exclusively as model aircraft owned by the individual identified on the application.

(b) *Effective date of registration*. An aircraft is registered when the applicant receives a Certificate of Aircraft Registration. The effective date of registration is shown by the date of issue on the Certificate of Aircraft Registration issued under this part.

(c) *Registration renewal*. A Certificate of Aircraft Registration issued under this part expires 3 years after the date of issue unless it is renewed.

(1) The holder of a Certificate of Aircraft Registration must renew the Certificate by verifying, in a form and manner prescribed by the Administrator, that the information provided in accordance with § 48.100(b) and (c) of this part is accurate and if it is not, provide updated information. The verification may take place at any time within the six months preceding the month in which the Certificate of Aircraft registration expires.

(2) A certificate issued under this paragraph expires three years from the expiration date of the previous certificate.

(d) *Other events affecting effectiveness of Certificate*. Each Certificate of Aircraft Registration issued by the FAA under this part is effective, unless registration has ended by reason of having been revoked, canceled or expired, or until the date upon which one of the following events occurs:

(1) The holder of the Certificate of Aircraft Registration loses U.S. citizenship.

(2) Thirty days have elapsed since the death of the holder of the Certificate of Aircraft Registration.

(3) The owner, if an individual who is not a citizen of the United States, loses status as a resident alien, unless that person becomes a citizen of the United States at the same time.

§ 48.120 Invalid registration.

The registration of a small unmanned aircraft is invalid if, at the time it is made -

(a) The aircraft is registered in a foreign country;

(b) The applicant is not the owner, except when the applicant registers on behalf of an owner who is under 13 years of age;

(c) The applicant is not eligible to submit an application under this part; or

(d) The interest of the applicant in the aircraft was created by a transaction that was not entered into in good faith, but rather was made to avoid (with or without the owner's knowledge) compliance with 49 U.S.C. 44101-44103.

§ 48.125 Foreign civil aircraft.

Except for corporations eligible to register under § 48.20(c), the FAA will issue a recognition of ownership to persons required to comply with the provisions of this part pursuant to an authorization to operate issued under part 375 of this title. The recognition of ownership does not have the effect of U.S. aircraft registration.

Subpart C - Aircraft Marking

§ 48.200 General.

(a) No person may operate a small unmanned aircraft registered in accordance with this part unless the aircraft displays a unique identifier in accordance with the requirements of § 48.205 of this subpart.

(b) A unique identifier is one of the following:

(1) The registration number issued to an individual or the registration number issued to the aircraft by the Registry upon completion of the registration process provided by this part; or

(2) If authorized by the Administrator and provided with the application for Certificate of Aircraft Registration under § 48.100 of this part, the small unmanned aircraft serial number.

§ 48.205 Display and location of unique identifier.

(a) The unique identifier must be maintained in a condition that is legible.

(b) The unique identifier must be affixed to the small unmanned aircraft by any means necessary to ensure that it will remain affixed for the duration of each operation.

(c) The unique identifier must be readily accessible and visible upon inspection of the small unmanned aircraft. A unique identifier enclosed in a compartment is readily accessible if it can be accessed without the use of any tool.

, 2017

Title 14 - Aeronautics and Space--Volume 2

CHAPTER I - FEDERAL AVIATION ADMINISTRATION,

**DEPARTMENT OF
TRANSPORTATION
(CONTINUED)**

SUBCHAPTER D - AIRMEN

**PART 61 - CERTIFICATION:
PILOTS, FLIGHT INSTRUCTORS,
AND GROUND INSTRUCTORS**

Authority:

49 U.S.C. 106(f), 106(g), 40113, 44701-44703, 44707, 44709-44711, 44729, 44903, 45102-45103, 45301-45302; Sec. 2307 Pub. L. 114-190, 130 Stat. 615 (49 U.S.C. 44703 note).

Source:

Docket No. 25910, 62 FR 16298, Apr. 4, 1997, unless otherwise noted.

**Special Federal Aviation Regulation No. 73 -
Robinson R-22/R-44 Special Training and
Experience Requirements**

Sections

1. Applicability.
2. Required training, aeronautical experience, endorsements, and flight review.
3. Expiration date.

1. Applicability. Under the procedures prescribed herein, this SFAR applies to all persons who seek to manipulate the controls or act as pilot in command of a Robinson model R-22 or R-44 helicopter. The requirements stated in this SFAR are in addition to the current requirements of part 61.

2. Required training, aeronautical experience, endorsements, and flight review.

(a) Awareness Training:

(1) Except as provided in paragraph (a)(2) of this section, no person may manipulate the controls of a Robinson model R-22 or R-44 helicopter after March 27, 1995, for the purpose of flight unless the awareness training specified in paragraph (a)(3) of this section is completed and the person's logbook has been endorsed by a certified flight instructor authorized under paragraph (b)(5) of this section.

(2) A person who holds a rotorcraft category and helicopter class rating on that person's pilot certificate and meets the experience requirements of paragraph (b)(1) or paragraph (b)(2) of this section may not manipulate the controls of a Robinson model R-22 or R-44 helicopter for the purpose of flight after April 26, 1995, unless the awareness training specified in paragraph (a)(3) of this section is completed and

the person's logbook has been endorsed by a certified flight instructor authorized under paragraph (b)(5) of this section.

(3) Awareness training must be conducted by a certified flight instructor who has been endorsed under paragraph (b)(5) of this section and consists of instruction in the following general subject areas:

- (i) Energy management;
- (ii) Mast bumping;
- (iii) Low rotor RPM (blade stall);
- (iv) Low G hazards; and
- (v) Rotor RPM decay.

(4) A person who can show satisfactory completion of the manufacturer's safety course after January 1, 1994, may obtain an endorsement from an FAA aviation safety inspector in lieu of completing the awareness training required in paragraphs (a)(1) and (a)(2) of this section.

(b) Aeronautical Experience:

(1) No person may act as pilot in command of a Robinson model R-22 unless that person:

(i) Has had at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson R-22; or

(ii) Has had at least 10 hours dual instruction in the Robinson R-22 and has received an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that the individual has been given the training required by this paragraph and is proficient to act as pilot in command of an R-22. Beginning 12 calendar months after the date of the endorsement, the individual may not act as pilot in command unless the individual has completed a flight review in an R-22 within the preceding 12 calendar months and obtained an endorsement for that flight review. The dual instruction must include at least the following abnormal and emergency procedures flight training:

(A) Enhanced training in autorotation procedures,

(B) Engine rotor RPM control without the use of the governor,

(C) Low rotor RPM recognition and recovery, and

(D) Effects of low G maneuvers and proper recovery procedures.

(2) No person may act as pilot in command of a Robinson R-44 unless that person -

(i) Has had at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson R-44. The pilot in command may credit up to 25 flight hours in the Robinson R-22 toward the 50 hour requirement in the Robinson R-44; or

(ii) Has had at least 10 hours dual instruction in a Robinson helicopter, at least 5 hours of which must have been accomplished in the Robinson R-44 helicopter and has received an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that the individual has been given the training required by this paragraph and is proficient to act as pilot in command of an R-44. Beginning 12 calendar months after the date of the endorsement, the individual may not act as pilot in command unless the individual has completed a flight review in a

Robinson R-44 within the preceding 12 calendar months and obtained an endorsement for that flight review. The dual instruction must include at least the following abnormal and emergency procedures flight training -

- (A) Enhanced training in autorotation procedures;
- (B) Engine rotor RPM control without the use of the governor;
- (C) Low rotor RPM recognition and recovery; and
- (D) Effects of low G maneuvers and proper recovery procedures.

(3) A person who does not hold a rotorcraft category and helicopter class rating must have had at least 20 hours of dual instruction in a Robinson R-22 helicopter prior to operating it in solo flight. In addition, the person must obtain an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that instruction has been given in those maneuvers and procedures, and the instructor has found the applicant proficient to solo a Robinson R-22. This endorsement is valid for a period of 90 days. The dual instruction must include at least the following abnormal and emergency procedures flight training:

- (i) Enhanced training in autorotation procedures,
- (ii) Engine rotor RPM control without the use of the governor,
- (iii) Low rotor RPM recognition and recovery, and
- (iv) Effects of low G maneuvers and proper recovery procedures.

(4) A person who does not hold a rotorcraft category and helicopter class rating must have had at least 20 hours of dual instruction in a Robinson R-44 helicopter prior to operating it in solo flight. In addition, the person must obtain an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that instruction has been given in those maneuvers and procedures, and the instructor has found the applicant proficient to solo a Robinson R-44. This endorsement is valid for a period of 90 days. The dual instruction must include at least the following abnormal and emergency procedures flight training:

- (i) Enhanced training in autorotation procedures,
- (ii) Engine rotor RPM control without the use of the governor,
- (iii) Low rotor RPM recognition and recovery, and
- (iv) Effects of low G maneuvers and proper recovery procedures.

(5) No certificated flight instructor may provide instruction or conduct a flight review in a Robinson R-22 or R-44 unless that instructor -

- (i) Completes the awareness training in paragraph 2(a) of this SFAR.
- (ii) For the Robinson R-22, has had at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson R-22, or for the Robinson R-44, has had at least 200 flight hours in helicopters, 50 flight hours of which were in Robinson helicopters. Up to 25 flight hours of Robinson R-22 flight time may be credited toward the 50 hour requirement.

(iii) Has completed flight training in a Robinson R-22, R-44, or both, on the following abnormal and emergency procedures -

- (A) Enhanced training in autorotation procedures;
- (B) Engine rotor RPM control without the use of the governor;
- (C) Low rotor RPM recognition and recovery; and
- (D) Effects of low G maneuvers and proper recovery procedures.

(iv) Has been authorized by endorsement from an FAA aviation safety inspector or authorized designated examiner that the instructor has completed the appropriate training, meets the experience requirements and has satisfactorily demonstrated an ability to provide instruction on the general subject areas of paragraph 2(a)(3) of this SFAR, and the flight training identified in paragraph 2(b)(5)(iii) of this SFAR.

(c) Flight Review:

(1) No flight review completed to satisfy § 61.56 by an individual after becoming eligible to function as pilot in command in a Robinson R-22 helicopter shall be valid for the operation of R-22 helicopter unless that flight review was taken in an R-22.

(2) No flight review completed to satisfy § 61.56 by individual after becoming eligible to function as pilot in command in a Robinson R-44 helicopter shall be valid for the operation of R-44 helicopter unless that flight review was taken in the R-44.

(3) The flight review will include a review of the awareness training subject areas of paragraph 2(a)(3) of this SFAR and the flight training identified in paragraph 2(b) of this SFAR.

(d) Currency Requirements: No person may act as pilot in command of a Robinson model R-22 or R-44 helicopter carrying passengers unless the pilot in command has met the recency of flight experience requirements of § 61.57 in an R-22 or R-44, as appropriate.

3. *Expiration date.* This SFAR No. 73 shall remain in effect until it is revised or rescinded.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by SFAR 73-1, 63 FR 666, Jan. 7, 1998; 68 FR 43, Jan. 2, 2003; Amdt. 61-120, 73 FR 17246, Apr. 1, 2008; Amdt. SFAR 73-2, 74 FR 25650, May 29, 2009]

Special Federal Aviation Regulation No. 100-2 - Relief for U.S. Military and Civilian Personnel Who are Assigned Outside the United States in Support of U.S. Armed Forces Operations

1. *Applicability.* Flight Standards District Offices are authorized to accept from an eligible person, as described in paragraph 2 of this SFAR, the following:

(a) An expired flight instructor certificate to show eligibility for renewal of a flight instructor certificate under § 61.197, or an expired written test report to show eligibility under part 61 to take a practical test;

(b) An expired written test report to show eligibility under §§ 63.33 and 63.57 to take a practical test; and

(c) An expired written test report to show eligibility to take a practical test required under part 65 or an expired inspection authorization to show eligibility for renewal under § 65.93.

2. *Eligibility.* A person is eligible for the relief described in paragraph 1 of this SFAR if:

(a) The person served in a U.S. military or civilian capacity outside the United States in support of the U.S. Armed Forces' operation during some period of time from September 11, 2001, to termination of SFAR 100-2;

(b) The person's flight instructor certificate, airman written test report, or inspection authorization expired some time between September 11, 2001, and 6 calendar months after returning to the United States or termination of SFAR 100-2, whichever is earlier; and

(c) The person complies with § 61.197 or § 65.93 of this chapter, as appropriate, or completes the appropriate practical test within 6 calendar months after returning to the United States, or upon termination of SFAR 100-2, whichever is earlier.

3. *Required documents.* The person must send the Airman Certificate and/or Rating Application (FAA Form 8710-1) to the appropriate Flight Standards District Office. The person must include with the application one of the following documents, which must show the date of assignment outside the United States and the date of return to the United States:

(a) An official U.S. Government notification of personnel action, or equivalent document, showing the person was a civilian on official duty for the U.S. Government outside the United States and was assigned to a U.S. Armed Forces' operation some time between September 11, 2001, to termination of SFAR 100-2;

(b) Military orders showing the person was assigned to duty outside the United States and was assigned to a U.S. Armed Forces' operation some time between September 11, 2001, to termination of SFAR 100-2 ; or

(c) A letter from the person's military commander or civilian supervisor providing the dates during which the person served outside the United States and was assigned to a U.S. Armed Forces' operation some time between September 11, 2001, to termination of SFAR 100-2.

4. *Expiration date.* This Special Federal Aviation Regulation No. 100-2 is effective until further notice.

[Doc. No. FAA-2009-0923, 75 FR 9766, Mar. 4, 2010]

Subpart A - General

§ 61.1 Applicability and definitions.

(a) Except as provided in part 107 of this chapter, this part prescribes:

(1) The requirements for issuing pilot, flight instructor, and ground instructor certificates and ratings; the conditions under which those certificates and ratings are necessary; and the privileges and limitations of those certificates and ratings.

(2) The requirements for issuing pilot, flight instructor, and ground instructor authorizations; the conditions under which those authorizations are necessary; and the privileges and limitations of those authorizations.

(3) The requirements for issuing pilot, flight instructor, and ground instructor certificates and ratings for persons who have taken courses approved by the Administrator under other parts of this chapter.

(b) For the purpose of this part:

Accredited has the same meaning as defined by the Department of Education in 34 CFR 600.2.

Aeronautical experience means pilot time obtained in an aircraft, flight simulator, or flight training device for meeting the appropriate training and flight time requirements for an airman certificate, rating, flight review, or recency of flight experience requirements of this part.

Authorized instructor means -

(i) A person who holds a ground instructor certificate issued under part 61 of this chapter and is in compliance with § 61.217, when conducting ground training in accordance with the privileges and limitations of his or her ground instructor certificate;

(ii) A person who holds a flight instructor certificate issued under part 61 of this chapter and is in compliance with § 61.197, when conducting ground training or flight training in accordance with the privileges and limitations of his or her flight instructor certificate; or

(iii) A person authorized by the Administrator to provide ground training or flight training under part 61, 121, 135, or 142 of this chapter when conducting ground training or flight training in accordance with that authority.

Complex airplane means an airplane that has a retractable landing gear, flaps, and a controllable pitch propeller, including airplanes equipped with an engine control system consisting of a digital computer and associated accessories for controlling the engine and propeller, such as a full authority digital engine control; or, in the case of a seaplane, flaps and a controllable pitch propeller, including seaplanes equipped with an engine control system consisting of a digital computer and associated accessories for controlling the engine and propeller, such as a full authority digital engine control.

Cross-country time means -

(i) Except as provided in paragraphs (ii) through (vi) of this definition, time acquired during flight -

(A) Conducted by a person who holds a pilot certificate;

(B) Conducted in an aircraft;

(C) That includes a landing at a point other than the point of departure; and

(D) That involves the use of dead reckoning, pilotage, electronic navigation aids, radio aids, or other navigation systems to navigate to the landing point.

(ii) For the purpose of meeting the aeronautical experience requirements (except for a rotorcraft category rating), for a private pilot certificate (except for a powered parachute category rating), a commercial pilot certificate, or an

instrument rating, or for the purpose of exercising recreational pilot privileges (except in a rotorcraft) under § 61.101 (c), time acquired during a flight -

(A) Conducted in an appropriate aircraft;

(B) That includes a point of landing that was at least a straight-line distance of more than 50 nautical miles from the original point of departure; and

(C) That involves the use of dead reckoning, pilotage, electronic navigation aids, radio aids, or other navigation systems to navigate to the landing point.

(iii) For the purpose of meeting the aeronautical experience requirements for a sport pilot certificate (except for powered parachute privileges), time acquired during a flight conducted in an appropriate aircraft that -

(A) Includes a point of landing at least a straight line distance of more than 25 nautical miles from the original point of departure; and

(B) Involves, as applicable, the use of dead reckoning; pilotage; electronic navigation aids; radio aids; or other navigation systems to navigate to the landing point.

(iv) For the purpose of meeting the aeronautical experience requirements for a sport pilot certificate with powered parachute privileges or a private pilot certificate with a powered parachute category rating, time acquired during a flight conducted in an appropriate aircraft that -

(A) Includes a point of landing at least a straight line distance of more than 15 nautical miles from the original point of departure; and

(B) Involves, as applicable, the use of dead reckoning; pilotage; electronic navigation aids; radio aids; or other navigation systems to navigate to the landing point.

(v) For the purpose of meeting the aeronautical experience requirements for any pilot certificate with a rotorcraft category rating or an instrument-helicopter rating, or for the purpose of exercising recreational pilot privileges, in a rotorcraft, under § 61.101(c), time acquired during a flight -

(A) Conducted in an appropriate aircraft;

(B) That includes a point of landing that was at least a straight-line distance of more than 25 nautical miles from the original point of departure; and

(C) That involves the use of dead reckoning, pilotage, electronic navigation aids, radio aids, or other navigation systems to navigate to the landing point.

(vi) For the purpose of meeting the aeronautical experience requirements for an airline transport pilot certificate (except with a rotorcraft category rating), time acquired during a flight -

(A) Conducted in an appropriate aircraft;

(B) That is at least a straight-line distance of more than 50 nautical miles from the original point of departure; and

(C) That involves the use of dead reckoning, pilotage, electronic navigation aids, radio aids, or other navigation systems.

(vii) For a military pilot who qualifies for a commercial pilot certificate (except with a rotorcraft category rating) under § 61.73 of this part, time acquired during a flight -

(A) Conducted in an appropriate aircraft;

(B) That is at least a straight-line distance of more than 50 nautical miles from the original point of departure; and

(C) That involves the use of dead reckoning, pilotage, electronic navigation aids, radio aids, or other navigation systems.

Examiner means any person who is authorized by the Administrator to conduct a pilot proficiency test or a practical test for an airman certificate or rating issued under this part, or a person who is authorized to conduct a knowledge test under this part.

Flight training means that training, other than ground training, received from an authorized instructor in flight in an aircraft.

Ground training means that training, other than flight training, received from an authorized instructor.

Institution of higher education has the same meaning as defined by the Department of Education in 34 CFR 600.4.

Instrument approach means an approach procedure defined in part 97 of this chapter.

Instrument training means that time in which instrument training is received from an authorized instructor under actual or simulated instrument conditions.

Knowledge test means a test on the aeronautical knowledge areas required for an airman certificate or rating that can be administered in written form or by a computer.

Nationally recognized accrediting agency has the same meaning as defined by the Department of Education in 34 CFR 600.2.

Night vision goggles means an appliance worn by a pilot that enhances the pilot's ability to maintain visual surface reference at night.

Night vision goggle operation means the portion of a flight that occurs during the time period from 1 hour after sunset to 1 hour before sunrise where the pilot maintains visual surface reference using night vision goggles in an aircraft that is approved for such an operation.

Pilot time means that time in which a person -

(i) Serves as a required pilot flight crewmember;

(ii) Receives training from an authorized instructor in an aircraft, flight simulator, or flight training device; or

(iii) Gives training as an authorized instructor in an aircraft, flight simulator, or flight training device.

Practical test means a test on the areas of operations for an airman certificate, rating, or authorization that is conducted by having the applicant respond to questions and demonstrate maneuvers in flight, in a flight simulator, or in a flight training device.

Set of aircraft means aircraft that share similar performance characteristics, such as similar airspeed and altitude operating envelopes, similar handling characteristics, and the same number and type of propulsion systems.

Student pilot seeking a sport pilot certificate means a person who has received an endorsement -

- (i) To exercise student pilot privileges from a certificated flight instructor with a sport pilot rating; or
- (ii) That includes a limitation for the operation of a light-sport aircraft specified in § 61.89(c) issued by a certificated flight instructor with other than a sport pilot rating.

Training time means training received -

- (i) In flight from an authorized instructor;
- (ii) On the ground from an authorized instructor; or
- (iii) In a flight simulator or flight training device from an authorized instructor.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40893, July 30, 1997; Amdt. 61-110, 69 FR 44864, July 27, 2004; Amdt. 61-124, 74 FR 42546, Aug. 21, 2009; Amdt. 61-128, 76 FR 54105, Aug. 31, 2011; Amdt. 61-130, 78 FR 42372, July 15, 2013; Docket FAA-2015-0150, Amdt. 61-137, 81 FR 42208, June 28, 2016]

§ 61.2 Exercise of Privilege.

(a) *Validity.* No person may:

(1) Exercise privileges of a certificate, rating, endorsement, or authorization issued under this part if the certificate, rating or authorization is surrendered, suspended, revoked or expired.

(2) Exercise privileges of a flight instructor certificate if that flight instructor certificate is surrendered, suspended, revoked or expired.

(3) Exercise privileges of a foreign pilot certificate to operate an aircraft of foreign registry under § 61.3(b) if the certificate is surrendered, suspended, revoked or expired.

(4) Exercise privileges of a pilot certificate issued under § 61.75, or an authorization issued under § 61.77, if the foreign pilot certificate or authorization is surrendered, suspended, revoked or expired.

(5) Exercise privileges of a medical certificate issued under part 67 to meet any requirements of part 61 if the medical certificate is surrendered, suspended, revoked or expired according to the duration standards set forth in § 61.23(d).

(6) Use an official government issued driver's license to meet any requirements of part 61 related to holding that driver's license, if the driver's license is surrendered, suspended, revoked or expired.

(b) *Currency.* No person may:

(1) Exercise privileges of an airman certificate, rating, endorsement, or authorization issued under this part unless that person meets the appropriate airman and medical recency requirements of this part, specific to the operation or activity.

(2) Exercise privileges of a foreign pilot license within the United States to conduct an operation described in § 61.3(b), unless that person meets the appropriate airman and medical recency requirements of the country that issued the license, specific to the operation.

[Doc. No. FAA-2006-26661, 74 FR 42546, Aug. 21, 2009]

§ 61.3 Requirement for certificates, ratings, and authorizations.

(a) *Required pilot certificate for operating a civil aircraft of the United States.* No person may serve as a required pilot flight crewmember of a civil aircraft of the United States, unless that person:

(1) Has in the person's physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate or authorization -

(i) A pilot certificate issued under this part and in accordance with § 61.19;

(ii) A special purpose pilot authorization issued under § 61.77;

(iii) A temporary certificate issued under § 61.17;

(iv) A document conveying temporary authority to exercise certificate privileges issued by the Airmen Certification Branch under § 61.29(e); or

(v) When operating an aircraft within a foreign country, a pilot license issued by that country may be used.

(2) Has a photo identification that is in that person's physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate or authorization. The photo identification must be a:

(i) Driver's license issued by a State, the District of Columbia, or territory or possession of the United States;

(ii) Government identification card issued by the Federal government, a State, the District of Columbia, or a territory or possession of the United States;

(iii) U.S. Armed Forces' identification card;

(iv) Official passport;

(v) Credential that authorizes unescorted access to a security identification display area at an airport regulated under 49 CFR part 1542; or

(vi) Other form of identification that the Administrator finds acceptable.

(b) *Required pilot certificate for operating a foreign-registered aircraft within the United States.* No person may serve as a required pilot flight crewmember of a civil aircraft of foreign registry within the United States, unless -

(1) That person's pilot certificate or document issued under § 61.29(e) is in that person's physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate; and

(2) Has been issued in accordance with this part, or has been issued or validated by the country in which the aircraft is registered.

(c) *Medical certificate.* (1) A person may serve as a required pilot flight crewmember of an aircraft only if that person holds the appropriate medical certificate issued under part 67 of this chapter, or other documentation acceptable to the FAA, that is in that person's physical possession or readily accessible in the aircraft. Paragraph (c)(2) of this section provides certain exceptions to the requirement to hold a medical certificate.

(2) A person is not required to meet the requirements of paragraph (c)(1) of this section if that person -

(i) Is exercising the privileges of a student pilot certificate while seeking a pilot certificate with a glider category rating, a balloon class rating, or glider or balloon privileges;

(ii) Is exercising the privileges of a student pilot certificate while seeking a sport pilot certificate with other than glider or balloon privileges and holds a U.S. driver's license;

(iii) Is exercising the privileges of a student pilot certificate while seeking a pilot certificate with a weight-shift-control aircraft category rating or a powered parachute category rating and holds a U.S. driver's license;

(iv) Is exercising the privileges of a sport pilot certificate with glider or balloon privileges;

(v) Is exercising the privileges of a sport pilot certificate with other than glider or balloon privileges and holds a U.S. driver's license. A person who has applied for or held a medical certificate may exercise the privileges of a sport pilot certificate using a U.S. driver's license only if that person -

(A) Has been found eligible for the issuance of at least a third-class airman medical certificate at the time of his or her most recent application; and

(B) Has not had his or her most recently issued medical certificate suspended or revoked or most recent Authorization for a Special Issuance of a Medical Certificate withdrawn.

(vi) Is holding a pilot certificate with a balloon class rating and is piloting or providing training in a balloon as appropriate;

(vii) Is holding a pilot certificate or a flight instructor certificate with a glider category rating, and is piloting or providing training in a glider, as appropriate;

(viii) Is exercising the privileges of a flight instructor certificate, provided the person is not acting as pilot in command or as a required pilot flight crewmember;

(ix) Is exercising the privileges of a ground instructor certificate;

(x) Is operating an aircraft within a foreign country using a pilot license issued by that country and possesses evidence of current medical qualification for that license;

(xi) Is operating an aircraft with a U.S. pilot certificate, issued on the basis of a foreign pilot license, issued under § 61.75, and holds a medical certificate issued by the foreign country that issued the foreign pilot license, which is in that person's physical possession or readily accessible in the aircraft when exercising the privileges of that airman certificate;

(xii) Is a pilot of the U.S. Armed Forces, has an up-to-date U.S. military medical examination, and holds military pilot flight status;

(xiii) Is exercising the privileges of a student, recreational or private pilot certificate for operations conducted under the conditions and limitations set forth in § 61.113(i) and holds a U.S. driver's license; or

(xiv) Is exercising the privileges of a flight instructor certificate and acting as pilot in command for operations

conducted under the conditions and limitations set forth in § 61.113(i) and holds a U.S. driver's license.

(d) *Flight instructor certificate.* (1) A person who holds a flight instructor certificate issued under this part must have that certificate, or other documentation acceptable to the Administrator, in that person's physical possession or readily accessible in the aircraft when exercising the privileges of that flight instructor certificate.

(2) Except as provided in paragraph (d)(3) of this section, no person other than the holder of a flight instructor certificate issued under this part with the appropriate rating on that certificate may -

(i) Give training required to qualify a person for solo flight and solo cross-country flight;

(ii) Endorse an applicant for a -

(A) Pilot certificate or rating issued under this part;

(B) Flight instructor certificate or rating issued under this part; or

(C) Ground instructor certificate or rating issued under this part;

(iii) Endorse a pilot logbook to show training given; or

(iv) Endorse a logbook for solo operating privileges.

(3) A flight instructor certificate issued under this part is not necessary -

(i) Under paragraph (d)(2) of this section, if the training is given by the holder of a commercial pilot certificate with a lighter-than-air rating, provided the training is given in accordance with the privileges of the certificate in a lighter-than-air aircraft;

(ii) Under paragraph (d)(2) of this section, if the training is given by the holder of an airline transport pilot certificate with a rating appropriate to the aircraft in which the training is given, provided the training is given in accordance with the privileges of the certificate and conducted in accordance with an approved air carrier training program approved under part 121 or part 135 of this chapter;

(iii) Under paragraph (d)(2) of this section, if the training is given by a person who is qualified in accordance with subpart C of part 142 of this chapter, provided the training is conducted in accordance with an approved part 142 training program;

(iv) Under paragraphs (d)(2)(i), (d)(2)(ii)(C), and (d)(2)(iii) of this section, if the training is given by the holder of a ground instructor certificate in accordance with the privileges of the certificate; or

(v) Under paragraph (d)(2)(iii) of this section, if the training is given by an authorized flight instructor under § 61.41 of this part.

(e) *Instrument rating.* No person may act as pilot in command of a civil aircraft under IFR or in weather conditions less than the minimums prescribed for VFR flight unless that person holds:

(1) The appropriate aircraft category, class, type (if required), and instrument rating on that person's pilot certificate for any airplane, helicopter, or powered-lift being flown;

(2) An airline transport pilot certificate with the appropriate aircraft category, class, and type rating (if required) for the aircraft being flown;

(3) For a glider, a pilot certificate with a glider category rating and an airplane instrument rating; or

(4) For an airship, a commercial pilot certificate with a lighter-than-air category rating and airship class rating.

(f) *Category II pilot authorization.* Except for a pilot conducting Category II operations under part 121 or part 135, a person may not:

(1) Act as pilot in command of a civil aircraft during Category II operations unless that person -

(i) Holds a Category II pilot authorization for that category or class of aircraft, and the type of aircraft, if applicable; or

(ii) In the case of a civil aircraft of foreign registry, is authorized by the country of registry to act as pilot in command of that aircraft in Category II operations.

(2) Act as second in command of a civil aircraft during Category II operations unless that person -

(i) Holds a pilot certificate with category and class ratings for that aircraft and an instrument rating for that category aircraft;

(ii) Holds an airline transport pilot certificate with category and class ratings for that aircraft; or

(iii) In the case of a civil aircraft of foreign registry, is authorized by the country of registry to act as second in command of that aircraft during Category II operations.

(g) *Category III pilot authorization.* Except for a pilot conducting Category III operations under part 121 or part 135, a person may not:

(1) Act as pilot in command of a civil aircraft during Category III operations unless that person -

(i) Holds a Category III pilot authorization for that category or class of aircraft, and the type of aircraft, if applicable; or

(ii) In the case of a civil aircraft of foreign registry, is authorized by the country of registry to act as pilot in command of that aircraft in Category III operations.

(2) Act as second in command of a civil aircraft during Category III operations unless that person -

(i) Holds a pilot certificate with category and class ratings for that aircraft and an instrument rating for that category aircraft;

(ii) Holds an airline transport pilot certificate with category and class ratings for that aircraft; or

(iii) In the case of a civil aircraft of foreign registry, is authorized by the country of registry to act as second in command of that aircraft during Category III operations.

(h) *Category A aircraft pilot authorization.* The Administrator may issue a certificate of authorization for a Category II or Category III operation to the pilot of a small aircraft that is a Category A aircraft, as identified in § 97.3(b) (1) of this chapter if:

(1) The Administrator determines that the Category II or Category III operation can be performed safely by that pilot under the terms of the certificate of authorization; and

(2) The Category II or Category III operation does not involve the carriage of persons or property for compensation or hire.

(i) *Ground instructor certificate.* (1) Each person who holds a ground instructor certificate issued under this part must have that certificate or a temporary document issued under § 61.29(e) in that person's physical possession or immediately accessible when exercising the privileges of that certificate.

(2) Except as provided in paragraph (i)(3) of this section, no person other than the holder of a ground instructor certificate, issued under this part or part 143, with the appropriate rating on that certificate may -

(i) Give ground training required to qualify a person for solo flight and solo cross-country flight;

(ii) Endorse an applicant for a knowledge test required for a pilot, flight instructor, or ground instructor certificate or rating issued under this part; or

(iii) Endorse a pilot logbook to show ground training given.

(3) A ground instructor certificate issued under this part is not necessary -

(i) Under paragraph (i)(2) of this section, if the training is given by the holder of a flight instructor certificate issued under this part in accordance with the privileges of that certificate;

(ii) Under paragraph (i)(2) of this section, if the training is given by the holder of a commercial pilot certificate with a lighter-than-air rating, provided the training is given in accordance with the privileges of the certificate in a lighter-than-air aircraft;

(iii) Under paragraph (i)(2) of this section, if the training is given by the holder of an airline transport pilot certificate with a rating appropriate to the aircraft in which the training is given, provided the training is given in accordance with the privileges of the certificate and conducted in accordance with an approved air carrier training program approved under part 121 or part 135 of this chapter;

(iv) Under paragraph (i)(2) of this section, if the training is given by a person who is qualified in accordance with subpart C of part 142 of this chapter, provided the training is conducted in accordance with an approved part 142 training program; or

(v) Under paragraph (i)(2)(iii) of this section, if the training is given by an authorized flight instructor under § 61.41 of this part.

(j) *Age limitation for certain operations.* (1) *Age limitation.* No person who holds a pilot certificate issued under this part may serve as a pilot on a civil airplane of U.S. registry in the following operations if the person has reached his or her 60th birthday or, in the case of operations with more than one pilot, his or her 65th birthday:

(i) Scheduled international air services carrying passengers in turbojet-powered airplanes;

(ii) Scheduled international air services carrying passengers in airplanes having a passenger-seat configuration of more than nine passenger seats, excluding each crewmember seat;

(iii) Nonscheduled international air transportation for compensation or hire in airplanes having a passenger-seat configuration of more than 30 passenger seats, excluding each crewmember seat; or

(iv) Scheduled international air services, or nonscheduled international air transportation for compensation or hire, in airplanes having a payload capacity of more than 7,500 pounds.

(2) *Definitions.* (i) "International air service," as used in this paragraph (j), means scheduled air service performed in airplanes for the public transport of passengers, mail, or cargo, in which the service passes through the airspace over the territory of more than one country.

(ii) "International air transportation," as used in this paragraph (j), means air transportation performed in airplanes for the public transport of passengers, mail, or cargo, in which the service passes through the airspace over the territory of more than one country.

(k) *Special purpose pilot authorization.* Any person that is required to hold a special purpose pilot authorization, issued in accordance with § 61.77 of this part, must have that authorization and the person's foreign pilot license in that person's physical possession or have it readily accessible in the aircraft when exercising the privileges of that authorization.

(l) *Inspection of certificate.* Each person who holds an airman certificate, medical certificate, documents establishing alternative medical qualification under part 68 of this chapter, authorization, or license required by this part must present it and their photo identification as described in paragraph (a)(2) of this section for inspection upon a request from:

- (1) The Administrator;
- (2) An authorized representative of the National Transportation Safety Board;
- (3) Any Federal, State, or local law enforcement officer; or
- (4) An authorized representative of the Transportation Security Administration.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40894, July 30, 1997; Amdt. 61-111, 67 FR 65861, Oct. 28, 2002; Amdt. 61-110, 69 FR 44864, July 27, 2004; Amdt. 61-123, 74 FR 34234, July 15, 2009; Amdt. 61-124, 74 FR 42546, Aug. 21, 2009; Amdt. 61-124A, 74 FR 53644, Oct. 20, 2009; Amdt. 61-131, 78 FR 56828, Sept. 16, 2013; Amdt. 61-134, 80 FR 33400, June 12, 2015; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016; Docket FAA-2016-9157, Amdt. 61-140, 82 FR 3164, Jan. 11, 2017]

§ 61.4 Qualification and approval of flight simulators and flight training devices.

(a) Except as specified in paragraph (b) or (c) of this section, each flight simulator and flight training device used for training, and for which an airman is to receive credit to satisfy any training, testing, or checking requirement under this chapter, must be qualified and approved by the Administrator for -

- (1) The training, testing, and checking for which it is used;

(2) Each particular maneuver, procedure, or crewmember function performed; and

(3) The representation of the specific category and class of aircraft, type of aircraft, particular variation within the type of aircraft, or set of aircraft for certain flight training devices.

(b) Any device used for flight training, testing, or checking that has been determined to be acceptable to or approved by the Administrator prior to August 1, 1996, which can be shown to function as originally designed, is considered to be a flight training device, provided it is used for the same purposes for which it was originally accepted or approved and only to the extent of such acceptance or approval.

(c) The Administrator may approve a device other than a flight simulator or flight training device for specific purposes.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40895, July 30, 1997]

§ 61.5 Certificates and ratings issued under this part.

(a) The following certificates are issued under this part to an applicant who satisfactorily accomplishes the training and certification requirements for the certificate sought:

- (1) Pilot certificates -
 - (i) Student pilot.
 - (ii) Sport pilot.
 - (iii) Recreational pilot.
 - (iv) Private pilot.
 - (v) Commercial pilot.
 - (vi) Airline transport pilot.
- (2) Flight instructor certificates.
- (3) Ground instructor certificates.

(b) The following ratings are placed on a pilot certificate (other than student pilot) when an applicant satisfactorily accomplishes the training and certification requirements for the rating sought:

- (1) Aircraft category ratings -
 - (i) Airplane.
 - (ii) Rotorcraft.
 - (iii) Glider.
 - (iv) Lighter-than-air.
 - (v) Powered-lift.
 - (vi) Powered parachute.
 - (vii) Weight-shift-control aircraft.
- (2) Airplane class ratings -
 - (i) Single-engine land.
 - (ii) Multiengine land.
 - (iii) Single-engine sea.
 - (iv) Multiengine sea.
- (3) Rotorcraft class ratings -
 - (i) Helicopter.
 - (ii) Gyroplane.
- (4) Lighter-than-air class ratings -
 - (i) Airship.
 - (ii) Balloon.
- (5) Weight-shift-control aircraft class ratings -

- (i) Weight-shift-control aircraft land.
- (ii) Weight-shift-control aircraft sea.

(6) Powered parachute class ratings -

- (i) Powered parachute land.
- (ii) Powered parachute sea.

(7) Aircraft type ratings -

- (i) Large aircraft other than lighter-than-air.
- (ii) Turbojet-powered airplanes.

(iii) Other aircraft type ratings specified by the Administrator through the aircraft type certification procedures.

(iv) Second-in-command pilot type rating for aircraft that is certificated for operations with a minimum crew of at least two pilots.

(8) Instrument ratings (on private and commercial pilot certificates only) -

- (i) Instrument - Airplane.
- (ii) Instrument - Helicopter.
- (iii) Instrument - Powered-lift.

(c) The following ratings are placed on a flight instructor certificate when an applicant satisfactorily accomplishes the training and certification requirements for the rating sought:

(1) Aircraft category ratings -

- (i) Airplane.
- (ii) Rotorcraft.
- (iii) Glider.
- (iv) Powered-lift.

(2) Airplane class ratings -

- (i) Single-engine.
- (ii) Multiengine.

(3) Rotorcraft class ratings -

- (i) Helicopter.
- (ii) Gyroplane.

(4) Instrument ratings -

- (i) Instrument - Airplane.
- (ii) Instrument - Helicopter.
- (iii) Instrument - Powered-lift.

(5) Sport pilot rating.

(d) The following ratings are placed on a ground instructor certificate when an applicant satisfactorily accomplishes the training and certification requirements for the rating sought:

- (1) Basic.
- (2) Advanced.
- (3) Instrument.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44864, July 27, 2004; Amdt. 61-113, 70 FR 45271, Aug. 4, 2005]

§ 61.7 Obsolete certificates and ratings.

(a) The holder of a free-balloon pilot certificate issued before November 1, 1973, may not exercise the privileges of that certificate.

(b) The holder of a pilot certificate that bears any of the following category ratings without an associated class rating may not exercise the privileges of that category rating:

- (1) Rotorcraft.
- (2) Lighter-than-air.
- (3) Helicopter.
- (4) Autogyro.

§ 61.8 Inapplicability of unmanned aircraft operations.

Any action conducted pursuant to part 107 of this chapter or Subpart E of part 101 of this chapter cannot be used to meet the requirements of this part.

[Docket FAA-2015-0150, Amdt. 61-137, 81 FR 42208, June 28, 2016]

§ 61.9 [Reserved]

§ 61.11 Expired pilot certificates and re-issuance.

(a) No person who holds an expired pilot certificate or rating may act as pilot in command or as a required pilot flight crewmember of an aircraft of the same category or class that is listed on that expired pilot certificate or rating.

(b) The following pilot certificates and ratings have expired and will not be reissued:

(1) An airline transport pilot certificate issued before May 1, 1949, or an airline transport pilot certificate that contains a horsepower limitation.

(2) A private or commercial pilot certificate issued before July 1, 1945.

(3) A pilot certificate with a lighter-than-air or free-balloon rating issued before July 1, 1945.

(c) An airline transport pilot certificate that was issued after April 30, 1949, and that bears an expiration date but does not contain a horsepower limitation, may have that airline transport pilot certificate re-issued without an expiration date.

(d) A private or commercial pilot certificate that was issued after June 30, 1945, and that bears an expiration date, may have that pilot certificate reissued without an expiration date.

(e) A pilot certificate with a lighter-than-air or free-balloon rating that was issued after June 30, 1945, and that bears an expiration date, may have that pilot certificate reissued without an expiration date.

[Doc. No. FAA-2006-26661, 74 FR 42547, Aug. 21, 2009]

§ 61.13 Issuance of airman certificates, ratings, and authorizations.

(a) *Application.* (1) An applicant for an airman certificate, rating, or authorization under this part must make that application on a form and in a manner acceptable to the Administrator.

(2) An applicant must show evidence that the appropriate fee prescribed in appendix A to part 187 of this chapter has been paid when that person applies for airmen certification services administered outside the United States.

(3) An applicant who is neither a citizen of the United States nor a resident alien of the United States may be refused

issuance of any U.S. airman certificate, rating or authorization by the Administrator.

(4) Except as provided in paragraph (a)(3) of this section, an applicant who satisfactorily accomplishes the training and certification requirements for the certificate, rating, or authorization sought is entitled to receive that airman certificate, rating, or authorization.

(b) *Limitations.* (1) An applicant who cannot comply with certain areas of operation required on the practical test because of physical limitations may be issued an airman certificate, rating, or authorization with the appropriate limitation placed on the applicant's airman certificate provided the -

(i) Applicant is able to meet all other certification requirements for the airman certificate, rating, or authorization sought;

(ii) Physical limitation has been recorded with the FAA on the applicant's medical records; and

(iii) Administrator determines that the applicant's inability to perform the particular area of operation will not adversely affect safety.

(2) A limitation placed on a person's airman certificate may be removed, provided that person demonstrates for an examiner satisfactory proficiency in the area of operation appropriate to the airman certificate, rating, or authorization sought.

(c) *Additional requirements for Category II and Category III pilot authorizations.* (1) A Category II or Category III pilot authorization is issued by a letter of authorization as part of an applicant's instrument rating or airline transport pilot certificate.

(2) Upon original issue, the authorization contains the following limitations:

(i) For Category II operations, the limitation is 1,600 feet RVR and a 150-foot decision height; and

(ii) For Category III operations, each initial limitation is specified in the authorization document.

(3) The limitations on a Category II or Category III pilot authorization may be removed as follows:

(i) In the case of Category II limitations, a limitation is removed when the holder shows that, since the beginning of the sixth preceding month, the holder has made three Category II ILS approaches with a 150-foot decision height to a landing under actual or simulated instrument conditions.

(ii) In the case of Category III limitations, a limitation is removed as specified in the authorization.

(4) To meet the experience requirements of paragraph (c) (3) of this section, and for the practical test required by this part for a Category II or a Category III pilot authorization, a flight simulator or flight training device may be used if it is approved by the Administrator for such use.

(d) *Application during suspension or revocation.* (1) Unless otherwise authorized by the Administrator, a person whose pilot, flight instructor, or ground instructor certificate has been suspended may not apply for any certificate, rating, or authorization during the period of suspension.

(2) Unless otherwise authorized by the Administrator, a person whose pilot, flight instructor, or ground instructor certificate has been revoked may not apply for any certificate, rating, or authorization for 1 year after the date of revocation.

[Doc. No. 25910, 62 FR 40895, July 30, 1997, as amended by Amdt. 61-116, 72 FR 18558, Apr. 12, 2007; Amdt. 61-132, 78 FR 77572, Dec. 24, 2013]

§ 61.14 [Reserved]

§ 61.15 Offenses involving alcohol or drugs.

(a) A conviction for the violation of any Federal or State statute relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marijuana, or depressant or stimulant drugs or substances is grounds for:

(1) Denial of an application for any certificate, rating, or authorization issued under this part for a period of up to 1 year after the date of final conviction; or

(2) Suspension or revocation of any certificate, rating, or authorization issued under this part.

(b) Committing an act prohibited by § 91.17(a) or § 91.19(a) of this chapter is grounds for:

(1) Denial of an application for a certificate, rating, or authorization issued under this part for a period of up to 1 year after the date of that act; or

(2) Suspension or revocation of any certificate, rating, or authorization issued under this part.

(c) For the purposes of paragraphs (d), (e), and (f) of this section, a motor vehicle action means:

(1) A conviction after November 29, 1990, for the violation of any Federal or State statute relating to the operation of a motor vehicle while intoxicated by alcohol or a drug, while impaired by alcohol or a drug, or while under the influence of alcohol or a drug;

(2) The cancellation, suspension, or revocation of a license to operate a motor vehicle after November 29, 1990, for a cause related to the operation of a motor vehicle while intoxicated by alcohol or a drug, while impaired by alcohol or a drug, or while under the influence of alcohol or a drug;

(3) The denial after November 29, 1990, of an application for a license to operate a motor vehicle for a cause related to the operation of a motor vehicle while intoxicated by alcohol or a drug, while impaired by alcohol or a drug, or while under the influence of alcohol or a drug.

(d) Except for a motor vehicle action that results from the same incident or arises out of the same factual circumstances, a motor vehicle action occurring within 3 years of a previous motor vehicle action is grounds for:

(1) Denial of an application for any certificate, rating, or authorization issued under this part for a period of up to 1 year after the date of the last motor vehicle action; or

(2) Suspension or revocation of any certificate, rating, or authorization issued under this part.

(e) Each person holding a certificate issued under this part shall provide a written report of each motor vehicle action to the FAA, Civil Aviation Security Division (AMC-700), P.O. Box 25810, Oklahoma City, OK 73125, not later than 60 days after the motor vehicle action. The report must include:

(1) The person's name, address, date of birth, and airman certificate number;

(2) The type of violation that resulted in the conviction or the administrative action;

(3) The date of the conviction or administrative action;

(4) The State that holds the record of conviction or administrative action; and

(5) A statement of whether the motor vehicle action resulted from the same incident or arose out of the same factual circumstances related to a previously reported motor vehicle action.

(f) Failure to comply with paragraph (e) of this section is grounds for:

(1) Denial of an application for any certificate, rating, or authorization issued under this part for a period of up to 1 year after the date of the motor vehicle action; or

(2) Suspension or revocation of any certificate, rating, or authorization issued under this part.

§ 61.16 Refusal to submit to an alcohol test or to furnish test results.

A refusal to submit to a test to indicate the percentage by weight of alcohol in the blood, when requested by a law enforcement officer in accordance with § 91.17(c) of this chapter, or a refusal to furnish or authorize the release of the test results requested by the Administrator in accordance with § 91.17(c) or (d) of this chapter, is grounds for:

(a) Denial of an application for any certificate, rating, or authorization issued under this part for a period of up to 1 year after the date of that refusal; or

(b) Suspension or revocation of any certificate, rating, or authorization issued under this part.

§ 61.17 Temporary certificate.

(a) A temporary pilot, flight instructor, or ground instructor certificate or rating is issued for up to 120 days, at which time a permanent certificate will be issued to a person whom the Administrator finds qualified under this part.

(b) A temporary pilot, flight instructor, or ground instructor certificate or rating expires:

(1) On the expiration date shown on the certificate;

(2) Upon receipt of the permanent certificate; or

(3) Upon receipt of a notice that the certificate or rating sought is denied or revoked.

§ 61.18 Security disqualification.

(a) *Eligibility standard.* No person is eligible to hold a certificate, rating, or authorization issued under this part when the Transportation Security Administration (TSA) has notified the FAA in writing that the person poses a security threat.

(b) *Effect of the issuance by the TSA of an Initial Notification of Threat Assessment.* (1) The FAA will hold in abeyance pending the outcome of the TSA's final threat assessment review an application for any certificate, rating, or authorization under this part by any person who has been issued an Initial Notification of Threat Assessment by the TSA.

(2) The FAA will suspend any certificate, rating, or authorization issued under this part after the TSA issues to the holder an Initial Notification of Threat Assessment.

(c) *Effect of the issuance by the TSA of a Final Notification of Threat Assessment.* (1) The FAA will deny an application for any certificate, rating, or authorization under this part to any person who has been issued a Final Notification of Threat Assessment.

(2) The FAA will revoke any certificate, rating, or authorization issued under this part after the TSA has issued to the holder a Final Notification of Threat Assessment.

[Doc. No. FAA-2003-14293, 68 FR 3774, Jan. 24, 2003]

§ 61.19 Duration of pilot and instructor certificates and privileges.

(a) *General.* (1) The holder of a certificate with an expiration date may not, after that date, exercise the privileges of that certificate.

(2) Except for a certificate issued with an expiration date, a pilot certificate is valid unless it is surrendered, suspended, or revoked.

(b) *Paper student pilot certificate.* A student pilot certificate issued under this part prior to April 1, 2016 expires:

(1) For student pilots who have not reached their 40th birthday, 60 calendar months after the month of the date of examination shown on the medical certificate.

(2) For student pilots who have reached their 40th birthday, 24 calendar months after the month of the date of examination shown on the medical certificate.

(3) For student pilots seeking a glider rating, balloon rating, or a sport pilot certificate, 60 calendar months after the month of the date issued, regardless of the person's age.

(c) *Pilot certificates.* (1) A pilot certificate (including a student pilot certificate issued after April 1, 2016 issued under this part is issued without a specific expiration date.

(2) The holder of a pilot certificate issued on the basis of a foreign pilot license may exercise the privileges of that certificate only while that person's foreign pilot license is effective.

(d) *Flight instructor certificate.* Except as specified in § 61.197(b), a flight instructor certificate expires 24 calendar months from the month in which it was issued, renewed, or reinstated, as appropriate.

(e) *Ground instructor certificate.* A ground instructor certificate is issued without a specific expiration date.

(f) *Return of certificates.* The holder of any airman certificate that is issued under this part, and that has been

suspended or revoked, must return that certificate to the FAA when requested to do so by the Administrator.

(g) *Duration of pilot certificates.* Except for a temporary certificate issued under § 61.17 or a student pilot certificate issued under paragraph (b) of this section, the holder of a paper pilot certificate issued under this part may not exercise the privileges of that certificate after March 31, 2010.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-118, 73 FR 10668, Feb. 28, 2008; Amdt. 61-124, 74 FR 42547, Aug. 21, 2009; Amdt. 61-124A, 74 FR 53644, Oct. 20, 2009; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016]

§ 61.21 Duration of a Category II and a Category III pilot authorization (for other than part 121 and part 135 use).

(a) A Category II pilot authorization or a Category III pilot authorization expires at the end of the sixth calendar month after the month in which it was issued or renewed.

(b) Upon passing a practical test for a Category II or Category III pilot authorization, the authorization may be renewed for each type of aircraft for which the authorization is held.

(c) A Category II or Category III pilot authorization for a specific type aircraft for which an authorization is held will not be renewed beyond 12 calendar months from the month the practical test was accomplished in that type aircraft.

(d) If the holder of a Category II or Category III pilot authorization passes the practical test for a renewal in the month before the authorization expires, the holder is considered to have passed it during the month the authorization expired.

§ 61.23 Medical certificates: Requirement and duration.

(a) *Operations requiring a medical certificate.* Except as provided in paragraphs (b) and (c) of this section, a person -

(1) Must hold a first-class medical certificate:

(i) When exercising the pilot-in-command privileges of an airline transport pilot certificate;

(ii) When exercising the second-in-command privileges of an airline transport pilot certificate in a flag or supplemental operation in part 121 of this chapter that requires three or more pilots; or

(iii) When serving as a required pilot flightcrew member in an operation conducted under part 121 of this chapter if the pilot has reached his or her 60th birthday.

(2) Must hold at least a second class medical certificate when exercising:

(i) Second-in-command privileges of an airline transport pilot certificate in part 121 of this chapter (other than operations specified in paragraph (a)(1)(ii) of this section); or

(ii) Privileges of a commercial pilot certificate; or

(3) Must hold at least a third-class medical certificate -

(i) When exercising the privileges of a private pilot certificate, recreational pilot certificate, or student pilot certificate, except when operating under the conditions and limitations set forth in § 61.113(i);

(ii) When exercising the privileges of a flight instructor certificate and acting as the pilot in command or as a required flightcrew member, except when operating under the conditions and limitations set forth in § 61.113(i);

(iii) When taking a practical test in an aircraft for a recreational pilot, private pilot, commercial pilot, or airline transport pilot certificate, or for a flight instructor certificate, except when operating under the conditions and limitations set forth in § 61.113(i); or

(iv) When performing the duties as an Examiner in an aircraft when administering a practical test or proficiency check for an airman certificate, rating, or authorization.

(b) *Operations not requiring a medical certificate.* A person is not required to hold a medical certificate -

(1) When exercising the privileges of a student pilot certificate while seeking -

(i) A sport pilot certificate with glider or balloon privileges; or

(ii) A pilot certificate with a glider category rating or balloon class rating;

(2) When exercising the privileges of a sport pilot certificate with privileges in a glider or balloon;

(3) When exercising the privileges of a pilot certificate with a glider category rating or balloon class rating in a glider or a balloon, as appropriate;

(4) When exercising the privileges of a flight instructor certificate with -

(i) A sport pilot rating in a glider or balloon; or

(ii) A glider category rating;

(5) When exercising the privileges of a flight instructor certificate if the person is not acting as pilot in command or serving as a required pilot flight crewmember;

(6) When exercising the privileges of a ground instructor certificate;

(7) When serving as an Examiner or check airman and administering a practical test or proficiency check for an airman certificate, rating, or authorization conducted in a glider, balloon, flight simulator, or flight training device;

(8) When taking a practical test or a proficiency check for a certificate, rating, authorization or operating privilege conducted in a glider, balloon, flight simulator, or flight training device; or

(9) When a military pilot of the U.S. Armed Forces can show evidence of an up-to-date medical examination authorizing pilot flight status issued by the U.S. Armed Forces and -

(i) The flight does not require higher than a third-class medical certificate; and

(ii) The flight conducted is a domestic flight operation within U.S. airspace.

(c) *Operations requiring either a medical certificate or U.S. driver's license.* (1) A person must hold and possess either a medical certificate issued under part 67 of this chapter or a U.S. driver's license when -

(i) Exercising the privileges of a student pilot certificate while seeking sport pilot privileges in a light-sport aircraft other than a glider or balloon;

(ii) Exercising the privileges of a sport pilot certificate in a light-sport aircraft other than a glider or balloon;

(iii) Exercising the privileges of a flight instructor certificate with a sport pilot rating while acting as pilot in command or serving as a required flight crewmember of a light-sport aircraft other than a glider or balloon;

(iv) Serving as an Examiner and administering a practical test for the issuance of a sport pilot certificate in a light-sport aircraft other than a glider or balloon;

(v) Exercising the privileges of a student, recreational or private pilot certificate if the flight is conducted under the conditions and limitations set forth in § 61.113(i); or

(vi) Exercising the privileges of a flight instructor certificate and acting as the pilot in command or as a required flight crewmember if the flight is conducted under the conditions and limitations set forth in § 61.113(i).

(2) A person using a U.S. driver's license to meet the requirements of paragraph (c) while exercising sport pilot privileges must -

(i) Comply with each restriction and limitation imposed by that person's U.S. driver's license and any judicial or administrative order applying to the operation of a motor vehicle;

(ii) Have been found eligible for the issuance of at least a third-class airman medical certificate at the time of his or her most recent application (if the person has applied for a medical certificate);

(iii) Not have had his or her most recently issued medical certificate (if the person has held a medical certificate) suspended or revoked or most recent Authorization for a Special Issuance of a Medical Certificate withdrawn; and

(iv) Not know or have reason to know of any medical condition that would make that person unable to operate a light-sport aircraft in a safe manner.

(3) A person using a U.S. driver's license to meet the requirements of paragraph (c) while operating under the conditions and limitations of § 61.113(i) must meet the following requirements -

(i) The person must -

(A) Comply with all medical requirements or restrictions associated with his or her U.S. driver's license;

(B) At any point after July 14, 2006, have held a medical certificate issued under part 67 of this chapter;

(C) Complete the medical education course set forth in § 68.3 of this chapter during the 24-calendar months before acting as pilot in command in an operation conducted under § 61.113(i) and retain a certification of course completion in accordance with § 68.3(b)(1) of this chapter;

(D) Receive a comprehensive medical examination from a State-licensed physician during the 48 months before acting as pilot in command of an operation conducted under § 61.113(i) and that medical examination is conducted in accordance with the requirements in part 68 of this chapter; and

(E) If the individual has been diagnosed with any medical condition that may impact the ability of the individual to fly, be under the care and treatment of a State-licensed physician when acting as pilot in command of an operation conducted under § 61.113(i).

(ii) The most recently issued medical certificate -

(A) May include an authorization for special issuance;

(B) May be expired; and

(C) Cannot have been suspended or revoked.

(iii) The most recently issued Authorization for a Special Issuance of a Medical Certificate cannot have been withdrawn; and

(iv) The most recent application for an airman medical certificate submitted to the FAA cannot have been completed and denied.

(d) *Duration of a medical certificate.* Use the following table to determine duration for each class of medical certificate:

| If you hold | And on the date of examination for your most recent medical certificate you were | And you are conducting an operation requiring | Then your medical certificate expires, for that operation, at the end of the last day of the |
|---------------------------------------|--|--|--|
| (1) A first-class medical certificate | (i) Under age 40 | an airline transport pilot certificate for pilot-in-command privileges, or for second-in-command privileges in a flag or supplemental operation in part 121 requiring three or more pilots | 12th month after the month of the date of examination shown on the medical certificate. |

| If you hold | And on the date of examination for your most recent medical certificate you were | And you are conducting an operation requiring | Then your medical certificate expires, for that operation, at the end of the last day of the |
|--|--|--|--|
| | (ii) Age 40 or older | an airline transport pilot certificate for pilot-in-command privileges, for second-in-command privileges in a flag or supplemental operation in part 121 requiring three or more pilots, or for a pilot flightcrew member in part 121 operations who has reached his or her 60th birthday. | 6th month after the month of the date of examination shown on the medical certificate. |
| | (iii) Any age | a commercial pilot certificate or an air traffic control tower operator certificate | 12th month after the month of the date of examination shown on the medical certificate. |
| | (iv) Under age 40 | a recreational pilot certificate, a private pilot certificate, a flight instructor certificate (when acting as pilot in command or a required pilot flight crewmember in operations other than glider or balloon), a student pilot certificate, or a sport pilot certificate (when not using a U.S. driver's license as medical qualification) | 60th month after the month of the date of examination shown on the medical certificate. |
| | (v) Age 40 or older | a recreational pilot certificate, a private pilot certificate, a flight instructor certificate (when acting as pilot in command or a required pilot flight crewmember in operations other than glider or balloon), a student pilot certificate, or a sport pilot certificate (when not using a U.S. driver's license as medical qualification) | 24th month after the month of the date of examination shown on the medical certificate. |
| (2) A second-class medical certificate | (i) Any age | an airline transport pilot certificate for second-in-command privileges (other than the operations specified in paragraph (d)(1) of this section), a commercial pilot certificate, or an air traffic control tower operator certificate | 12th month after the month of the date of examination shown on the medical certificate. |
| | (ii) Under age 40 | a recreational pilot certificate, a private pilot certificate, a flight instructor certificate (when acting as pilot in command or a required pilot flight crewmember in operations other than glider or balloon), a student pilot certificate, or a sport pilot certificate (when not using a | 60th month after the month of the date of examination shown on the medical certificate. |

| If you hold | And on the date of examination for your most recent medical certificate you were | And you are conducting an operation requiring | Then your medical certificate expires, for that operation, at the end of the last day of the |
|---------------------------------------|--|--|--|
| | | U.S. driver's license as medical qualification) | |
| | (iii) Age 40 or older | a recreational pilot certificate, a private pilot certificate, a flight instructor certificate (when acting as pilot in command or a required pilot flight crewmember in operations other than glider or balloon), a student pilot certificate, or a sport pilot certificate (when not using a U.S. driver's license as medical qualification) | 24th month after the month of the date of examination shown on the medical certificate. |
| (3) A third-class medical certificate | (i) Under age 40 | a recreational pilot certificate, a private pilot certificate, a flight instructor certificate (when acting as pilot in command or a required pilot flight crewmember in operations other than glider or balloon), a student pilot certificate, or a sport pilot certificate (when not using a U.S. driver's license as medical qualification) | 60th month after the month of the date of examination shown on the medical certificate. |
| | (ii) Age 40 or older | a recreational pilot certificate, a private pilot certificate, a flight instructor certificate (when acting as pilot in command or a required pilot flight crewmember in operations other than glider or balloon), a student pilot certificate, or a sport pilot certificate (when not using a U.S. driver's license as medical qualification) | 24th month after the month of the date of examination shown on the medical certificate. |

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40895, July 30, 1997; Amdt. 61-110, 69 FR 44864, July 27, 2004, as amended by Amdt. 61-121, 73 FR 43064, July 24, 2008; Amdt. 61-121, 73 FR 48125, Aug. 18, 2008; Amdt. 61-123, 74 FR 34234, July 15, 2009; Amdt. 61-124, 74 FR 42547, Aug. 21, 2009; Amdt. 61-129, 76 FR 78143, Dec. 16, 2011; Amdt. 61-129A, 77 FR 61721, Oct. 11, 2012; Amdt. 61-130, 78 FR 42372, July 15, 2013; Docket FAA-2016-9157, Amdt. 61-140, 82 FR 3164, Jan. 11, 2017]

§ 61.25 Change of name.

- (a) An application to change the name on a certificate issued under this part must be accompanied by the applicant's:
 - (1) Airman certificate; and
 - (2) A copy of the marriage license, court order, or other document verifying the name change.

(b) The documents in paragraph (a) of this section will be returned to the applicant after inspection.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-124, 74 FR 42548, Aug. 21, 2009]

§ 61.27 Voluntary surrender or exchange of certificate.

(a) The holder of a certificate issued under this part may voluntarily surrender it for:

- (1) Cancellation;
- (2) Issuance of a lower grade certificate; or
- (3) Another certificate with specific ratings deleted.

(b) Any request made under paragraph (a) of this section must include the following signed statement or its equivalent: "This request is made for my own reasons, with full knowledge that my (insert name of certificate or rating, as appropriate)

may not be reissued to me unless I again pass the tests prescribed for its issuance.”

§ 61.29 Replacement of a lost or destroyed airman or medical certificate or knowledge test report.

(a) A request for the replacement of a lost or destroyed airman certificate issued under this part must be made:

(1) By letter to the Department of Transportation, FAA, Airmen Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125, and must be accompanied by a check or money order for the appropriate fee payable to the FAA; or

(2) In any other manner and form approved by the Administrator including a request online to Airmen Services at <http://www.faa.gov>, and must be accompanied by acceptable form of payment for the appropriate fee.

(b) A request for the replacement of a lost or destroyed medical certificate must be made:

(1) By letter to the Department of Transportation, FAA, Aerospace Medical Certification Division, P.O. Box 26200, Oklahoma City, OK 73125, and must be accompanied by a check or money order for the appropriate fee payable to the FAA; or

(2) In any other manner and form approved by the Administrator and must be accompanied by acceptable form of payment for the appropriate fee.

(c) A request for the replacement of a lost or destroyed knowledge test report must be made:

(1) By letter to the Department of Transportation, FAA, Airmen Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125, and must be accompanied by a check or money order for the appropriate fee payable to the FAA; or

(2) In any other manner and form approved by the Administrator and must be accompanied by acceptable form of payment for the appropriate fee.

(d) The letter requesting replacement of a lost or destroyed airman certificate, medical certificate, or knowledge test report must state:

(1) The name of the person;

(2) The permanent mailing address (including ZIP code), or if the permanent mailing address includes a post office box number, then the person's current residential address;

(3) The certificate holder's date and place of birth; and

(4) Any information regarding the -

(i) Grade, number, and date of issuance of the airman certificate and ratings, if appropriate;

(ii) Class of medical certificate, the place and date of the medical exam, name of the Airman Medical Examiner (AME), and the circumstances concerning the loss of the original medical certificate, as appropriate; and

(iii) Date the knowledge test was taken, if appropriate.

(e) A person who has lost an airman certificate, medical certificate, or knowledge test report may obtain, in a form or manner approved by the Administrator, a document conveying temporary authority to exercise certificate privileges from

the FAA Aeromedical Certification Branch or the Airman Certification Branch, as appropriate, and the:

(1) Document may be carried as an airman certificate, medical certificate, or knowledge test report, as appropriate, for up to 60 days pending the person's receipt of a duplicate under paragraph (a), (b), or (c) of this section, unless the person has been notified that the certificate has been suspended or revoked.

(2) Request for such a document must include the date on which a duplicate certificate or knowledge test report was previously requested.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40896, July 30, 1997; Amdt. 61-121, 73 FR 43065, July 24, 2008; Amdt. 61-124, 74 FR 42548, Aug. 21, 2009; Amdt. 61-131, 78 FR 56828, Sept. 16, 2013]

§ 61.31 Type rating requirements, additional training, and authorization requirements.

(a) *Type ratings required.* A person who acts as a pilot in command of any of the following aircraft must hold a type rating for that aircraft:

(1) Large aircraft (except lighter-than-air).

(2) Turbojet-powered airplanes.

(3) Other aircraft specified by the Administrator through aircraft type certificate procedures.

(b) *Authorization in lieu of a type rating.* A person may be authorized to operate without a type rating for up to 60 days an aircraft requiring a type rating, provided -

(1) The Administrator has authorized the flight or series of flights;

(2) The Administrator has determined that an equivalent level of safety can be achieved through the operating limitations on the authorization;

(3) The person shows that compliance with paragraph (a) of this section is impracticable for the flight or series of flights; and

(4) The flight -

(i) Involves only a ferry flight, training flight, test flight, or practical test for a pilot certificate or rating;

(ii) Is within the United States;

(iii) Does not involve operations for compensation or hire unless the compensation or hire involves payment for the use of the aircraft for training or taking a practical test; and

(iv) Involves only the carriage of flight crewmembers considered essential for the flight.

(5) If the flight or series of flights cannot be accomplished within the time limit of the authorization, the Administrator may authorize an additional period of up to 60 days to accomplish the flight or series of flights.

(c) *Aircraft category, class, and type ratings: Limitations on the carriage of persons, or operating for compensation or hire.* Unless a person holds a category, class, and type rating (if a class and type rating is required) that applies to the aircraft, that person may not act as pilot in command of an aircraft that is carrying another person, or is operated for compensation or

hire. That person also may not act as pilot in command of that aircraft for compensation or hire.

(d) *Aircraft category, class, and type ratings: Limitations on operating an aircraft as the pilot in command.* To serve as the pilot in command of an aircraft, a person must -

(1) Hold the appropriate category, class, and type rating (if a class or type rating is required) for the aircraft to be flown; or

(2) Have received training required by this part that is appropriate to the pilot certification level, aircraft category, class, and type rating (if a class or type rating is required) for the aircraft to be flown, and have received an endorsement for solo flight in that aircraft from an authorized instructor.

(e) *Additional training required for operating complex airplanes.* (1) Except as provided in paragraph (e)(2) of this section, no person may act as pilot in command of a complex airplane, unless the person has -

(i) Received and logged ground and flight training from an authorized instructor in a complex airplane, or in a flight simulator or flight training device that is representative of a complex airplane, and has been found proficient in the operation and systems of the airplane; and

(ii) Received a one-time endorsement in the pilot's logbook from an authorized instructor who certifies the person is proficient to operate a complex airplane.

(2) The training and endorsement required by paragraph (e)(1) of this section is not required if the person has logged flight time as pilot in command of a complex airplane, or in a flight simulator or flight training device that is representative of a complex airplane prior to August 4, 1997.

(f) *Additional training required for operating high-performance airplanes.* (1) Except as provided in paragraph (f)(2) of this section, no person may act as pilot in command of a high-performance airplane (an airplane with an engine of more than 200 horsepower), unless the person has -

(i) Received and logged ground and flight training from an authorized instructor in a high-performance airplane, or in a flight simulator or flight training device that is representative of a high-performance airplane, and has been found proficient in the operation and systems of the airplane; and

(ii) Received a one-time endorsement in the pilot's logbook from an authorized instructor who certifies the person is proficient to operate a high-performance airplane.

(2) The training and endorsement required by paragraph (f)(1) of this section is not required if the person has logged flight time as pilot in command of a high-performance airplane, or in a flight simulator or flight training device that is representative of a high-performance airplane prior to August 4, 1997.

(g) *Additional training required for operating pressurized aircraft capable of operating at high altitudes.* (1) Except as provided in paragraph (g)(3) of this section, no person may act as pilot in command of a pressurized aircraft (an aircraft that has a service ceiling or maximum operating altitude, whichever is lower, above 25,000 feet MSL), unless that person has received and logged ground training from an authorized instructor and obtained an endorsement

in the person's logbook or training record from an authorized instructor who certifies the person has satisfactorily accomplished the ground training. The ground training must include at least the following subjects:

(i) High-altitude aerodynamics and meteorology;

(ii) Respiration;

(iii) Effects, symptoms, and causes of hypoxia and any other high-altitude sickness;

(iv) Duration of consciousness without supplemental oxygen;

(v) Effects of prolonged usage of supplemental oxygen;

(vi) Causes and effects of gas expansion and gas bubble formation;

(vii) Preventive measures for eliminating gas expansion, gas bubble formation, and high-altitude sickness;

(viii) Physical phenomena and incidents of decompression; and

(ix) Any other physiological aspects of high-altitude flight.

(2) Except as provided in paragraph (g)(3) of this section, no person may act as pilot in command of a pressurized aircraft unless that person has received and logged training from an authorized instructor in a pressurized aircraft, or in a flight simulator or flight training device that is representative of a pressurized aircraft, and obtained an endorsement in the person's logbook or training record from an authorized instructor who found the person proficient in the operation of a pressurized aircraft. The flight training must include at least the following subjects:

(i) Normal cruise flight operations while operating above 25,000 feet MSL;

(ii) Proper emergency procedures for simulated rapid decompression without actually depressurizing the aircraft; and

(iii) Emergency descent procedures.

(3) The training and endorsement required by paragraphs (g)(1) and (g)(2) of this section are not required if that person can document satisfactory accomplishment of any of the following in a pressurized aircraft, or in a flight simulator or flight training device that is representative of a pressurized aircraft:

(i) Serving as pilot in command before April 15, 1991;

(ii) Completing a pilot proficiency check for a pilot certificate or rating before April 15, 1991;

(iii) Completing an official pilot-in-command check conducted by the military services of the United States; or

(iv) Completing a pilot-in-command proficiency check under part 121, 125, or 135 of this chapter conducted by the Administrator or by an approved pilot check airman.

(h) *Additional aircraft type-specific training.* No person may serve as pilot in command of an aircraft that the Administrator has determined requires aircraft type-specific training unless that person has -

(1) Received and logged type-specific training in the aircraft, or in a flight simulator or flight training device that is representative of that type of aircraft; and

(2) Received a logbook endorsement from an authorized instructor who has found the person proficient in the operation of the aircraft and its systems.

(i) *Additional training required for operating tailwheel airplanes.* (1) Except as provided in paragraph (i)(2) of this section, no person may act as pilot in command of a tailwheel airplane unless that person has received and logged flight training from an authorized instructor in a tailwheel airplane and received an endorsement in the person's logbook from an authorized instructor who found the person proficient in the operation of a tailwheel airplane. The flight training must include at least the following maneuvers and procedures:

(i) Normal and crosswind takeoffs and landings;

(ii) Wheel landings (unless the manufacturer has recommended against such landings); and

(iii) Go-around procedures.

(2) The training and endorsement required by paragraph (i) (1) of this section is not required if the person logged pilot-in-command time in a tailwheel airplane before April 15, 1991.

(j) *Additional training required for operating a glider.* (1) No person may act as pilot in command of a glider -

(i) Using ground-tow procedures, unless that person has satisfactorily accomplished ground and flight training on ground-tow procedures and operations, and has received an endorsement from an authorized instructor who certifies in that pilot's logbook that the pilot has been found proficient in ground-tow procedures and operations;

(ii) Using aerotow procedures, unless that person has satisfactorily accomplished ground and flight training on aerotow procedures and operations, and has received an endorsement from an authorized instructor who certifies in that pilot's logbook that the pilot has been found proficient in aerotow procedures and operations; or

(iii) Using self-launch procedures, unless that person has satisfactorily accomplished ground and flight training on self-launch procedures and operations, and has received an endorsement from an authorized instructor who certifies in that pilot's logbook that the pilot has been found proficient in self-launch procedures and operations.

(2) The holder of a glider rating issued prior to August 4, 1997, is considered to be in compliance with the training and logbook endorsement requirements of this paragraph for the specific operating privilege for which the holder is already qualified.

(k) *Additional training required for night vision goggle operations.* (1) Except as provided under paragraph (k)(3) of this section, a person may act as pilot in command of an aircraft using night vision goggles only if that person receives and logs ground training from an authorized instructor and obtains a logbook or training record endorsement from an authorized instructor who certifies the person completed the ground training. The ground training must include the following subjects:

(i) Applicable portions of this chapter that relate to night vision goggle limitations and flight operations;

(ii) Aeromedical factors related to the use of night vision goggles, including how to protect night vision, how the eyes adapt to night, self-imposed stresses that affect night vision, effects of lighting on night vision, cues used to estimate distance and depth perception at night, and visual illusions;

(iii) Normal, abnormal, and emergency operations of night vision goggle equipment;

(iv) Night vision goggle performance and scene interpretation; and

(v) Night vision goggle operation flight planning, including night terrain interpretation and factors affecting terrain interpretation.

(2) Except as provided under paragraph (k)(3) of this section, a person may act as pilot in command of an aircraft using night vision goggles only if that person receives and logs flight training from an authorized instructor and obtains a logbook or training record endorsement from an authorized instructor who found the person proficient in the use of night vision goggles. The flight training must include the following tasks:

(i) Preflight and use of internal and external aircraft lighting systems for night vision goggle operations;

(ii) Preflight preparation of night vision goggles for night vision goggle operations;

(iii) Proper piloting techniques when using night vision goggles during the takeoff, climb, enroute, descent, and landing phases of flight; and

(iv) Normal, abnormal, and emergency flight operations using night vision goggles.

(3) The requirements under paragraphs (k)(1) and (2) of this section do not apply if a person can document satisfactory completion of any of the following pilot proficiency checks using night vision goggles in an aircraft:

(i) A pilot proficiency check on night vision goggle operations conducted by the U.S. Armed Forces.

(ii) A pilot proficiency check on night vision goggle operations under part 135 of this chapter conducted by an Examiner or Check Airman.

(iii) A pilot proficiency check on night vision goggle operations conducted by a night vision goggle manufacturer or authorized instructor, when the pilot -

(A) Is employed by a Federal, State, county, or municipal law enforcement agency; and

(B) Has logged at least 20 hours as pilot in command in night vision goggle operations.

(1) *Exceptions.* (1) This section does not require a category and class rating for aircraft not type-certificated as airplanes, rotorcraft, gliders, lighter-than-air aircraft, powered-lifts, powered parachutes, or weight-shift-control aircraft.

(2) The rating limitations of this section do not apply to -

(i) An applicant when taking a practical test given by an examiner;

(ii) The holder of a student pilot certificate;

(iii) The holder of a pilot certificate when operating an aircraft under the authority of -

- (A) A provisional type certificate; or
- (B) An experimental certificate, unless the operation involves carrying a passenger;
- (iv) The holder of a pilot certificate with a lighter-than-air category rating when operating a balloon;
- (v) The holder of a recreational pilot certificate operating under the provisions of § 61.101(h); or
- (vi) The holder of a sport pilot certificate when operating a light-sport aircraft.

[Doc. No. 25910, 62 FR 40896, July 30, 1997, as amended by Amdt. 61-104, 63 FR 20286, Apr. 23, 1998; Amdt. 61-110, 69 FR 44865, July 27, 2004; Amdt. 61-124, 74 FR 42548, Aug. 21, 2009; Amdt. 61-128, 76 FR 54105, Aug. 31, 2011]

§ 61.33 Tests: General procedure.

Tests prescribed by or under this part are given at times and places, and by persons designated by the Administrator.

§ 61.35 Knowledge test: Prerequisites and passing grades.

- (a) An applicant for a knowledge test must have:
 - (1) Received an endorsement, if required by this part, from an authorized instructor certifying that the applicant accomplished the appropriate ground-training or a home-study course required by this part for the certificate or rating sought and is prepared for the knowledge test;
 - (2) After July 31, 2014, for the knowledge test for an airline transport pilot certificate with an airplane category multiengine class rating, a graduation certificate for the airline transport pilot certification training program specified in § 61.156; and
 - (3) Proper identification at the time of application that contains the applicant's -
 - (i) Photograph;
 - (ii) Signature;
 - (iii) Date of birth, which shows:
 - (A) For issuance of certificates other than the ATP certificate with an airplane category multiengine class rating, the applicant meets or will meet the age requirements of this part for the certificate sought before the expiration date of the airman knowledge test report;
 - (B) Prior to August 1, 2014, for issuance of an ATP certificate with an airplane category multiengine class rating under the aeronautical experience requirements of §§ 61.159 or 61.160, the applicant is at least 21 years of age at the time of the knowledge test; and
 - (C) After July 31, 2014, for issuance of an ATP certificate with an airplane category multiengine class rating obtained under the aeronautical experience requirements of §§ 61.159 or 61.160, the applicant is at least 18 years of age at the time of the knowledge test;
 - (iv) If the permanent mailing address is a post office box number, then the applicant must provide a current residential address.

- (b) The Administrator shall specify the minimum passing grade for the knowledge test.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-104, 63 FR 20286, Apr. 23, 1998; Amdt. 61-124, 74 FR 42548, Aug. 21, 2009; Amdt. 61-130, 78 FR 42373, July 15, 2013; Amdt. 61-130B, 78 FR 77573, Dec. 24, 2013]

§ 61.37 Knowledge tests: Cheating or other unauthorized conduct.

- (a) An applicant for a knowledge test may not:
 - (1) Copy or intentionally remove any knowledge test;
 - (2) Give to another applicant or receive from another applicant any part or copy of a knowledge test;
 - (3) Give assistance on, or receive assistance on, a knowledge test during the period that test is being given;
 - (4) Take any part of a knowledge test on behalf of another person;
 - (5) Be represented by, or represent, another person for a knowledge test;
 - (6) Use any material or aid during the period that the test is being given, unless specifically authorized to do so by the Administrator; and
 - (7) Intentionally cause, assist, or participate in any act prohibited by this paragraph.
- (b) An applicant who the Administrator finds has committed an act prohibited by paragraph (a) of this section is prohibited, for 1 year after the date of committing that act, from:
 - (1) Applying for any certificate, rating, or authorization issued under this chapter; and
 - (2) Applying for and taking any test under this chapter.
- (c) Any certificate or rating held by an applicant may be suspended or revoked if the Administrator finds that person has committed an act prohibited by paragraph (a) of this section.

§ 61.39 Prerequisites for practical tests.

- (a) Except as provided in paragraphs (b), (c), and (e) of this section, to be eligible for a practical test for a certificate or rating issued under this part, an applicant must:
 - (1) Pass the required knowledge test:
 - (i) Within the 24-calendar-month period preceding the month the applicant completes the practical test, if a knowledge test is required; or
 - (ii) Within the 60-calendar month period preceding the month the applicant completes the practical test for those applicants who complete the airline transport pilot certification training program in § 61.156 and pass the knowledge test for an airline transport pilot certificate with a multiengine class rating after July 31, 2014;
 - (2) Present the knowledge test report at the time of application for the practical test, if a knowledge test is required;

(3) Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed by this part for the certificate or rating sought;

(4) Hold at least a third-class medical certificate, if a medical certificate is required;

(5) Meet the prescribed age requirement of this part for the issuance of the certificate or rating sought;

(6) Have an endorsement, if required by this part, in the applicant's logbook or training record that has been signed by an authorized instructor who certifies that the applicant -

(i) Has received and logged training time within 2 calendar months preceding the month of application in preparation for the practical test;

(ii) Is prepared for the required practical test; and

(iii) Has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test; and

(7) Have a completed and signed application form.

(b) An applicant for an airline transport pilot certificate with an airplane category multiengine class rating or an airline transport pilot certificate with an airplane type rating may take the practical test with an expired knowledge test only if the applicant passed the knowledge test after July 31, 2014, and is employed:

(1) As a flightcrew member by a part 119 certificate holder conducting operations under parts 125 or 135 of this chapter at the time of the practical test and has satisfactorily accomplished that operator's approved pilot-in-command training or checking program; or

(2) As a flightcrew member by a part 119 certificate holder conducting operations under part 121 of this chapter at the time of the practical test and has satisfactorily accomplished that operator's approved initial training program; or

(3) By the U.S. Armed Forces as a flight crewmember in U.S. military air transport operations at the time of the practical test and has completed the pilot in command aircraft qualification training program that is appropriate to the pilot certificate and rating sought.

(c) An applicant for an airline transport pilot certificate with a rating other than those ratings set forth in paragraph (b) of this section may take the practical test for that certificate or rating with an expired knowledge test report, provided that the applicant is employed:

(1) As a flightcrew member by a part 119 certificate holder conducting operations under parts 125 or 135 of this chapter at the time of the practical test and has satisfactorily accomplished that operator's approved pilot-in-command training or checking program; or

(2) By the U.S. Armed Forces as a flight crewmember in U.S. military air transport operations at the time of the practical test and has completed the pilot in command aircraft qualification training program that is appropriate to the pilot certificate and rating sought.

(d) In addition to the requirements in paragraph (a) of this section, to be eligible for a practical test for an

airline transport pilot certificate with an airplane category multiengine class rating or airline transport pilot certificate obtained concurrently with an airplane type rating, an applicant must:

(1) If the applicant passed the knowledge test after July 31, 2014, present the graduation certificate for the airline transport pilot certification training program in § 61.156, at the time of application for the practical test;

(2) If applying for the practical test under the aeronautical experience requirements of § 61.160(a), the applicant must present the documents required by that section to substantiate eligibility; and

(3) If applying for the practical test under the aeronautical experience requirements of § 61.160(b), (c), or (d), the applicant must present an official transcript and certifying document from an institution of higher education that holds a letter of authorization from the Administrator under § 61.169.

(e) A person is not required to comply with the provisions of paragraph (a)(6) of this section if that person:

(1) Holds a foreign pilot license issued by a contracting State to the Convention on International Civil Aviation that authorizes at least the privileges of the pilot certificate sought;

(2) Is only applying for a type rating; or

(3) Is applying for an airline transport pilot certificate or an additional rating to an airline transport pilot certificate in an aircraft that does not require an aircraft type rating practical test.

(f) If all increments of the practical test for a certificate or rating are not completed on the same date, then all the remaining increments of the test must be completed within 2 calendar months after the month the applicant began the test.

(g) If all increments of the practical test for a certificate or rating are not completed within 2 calendar months after the month the applicant began the test, the applicant must retake the entire practical test.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40897, July 30, 1997, as amended by Amdt. 61-104, 63 FR 20286, Apr. 23, 1998; Amdt. 61-124, 74 FR 42548, Aug. 21, 2009; Amdt. 61-130, 78 FR 42373, July 15, 2013; Amdt. 61-130B, 78 FR 77573, Dec. 24, 2013]

§ 61.41 Flight training received from flight instructors not certificated by the FAA.

(a) A person may credit flight training toward the requirements of a pilot certificate or rating issued under this part, if that person received the training from:

(1) A flight instructor of an Armed Force in a program for training military pilots of either -

(i) The United States; or

(ii) A foreign contracting State to the Convention on International Civil Aviation.

(2) A flight instructor who is authorized to give such training by the licensing authority of a foreign contracting State to the Convention on International Civil Aviation, and the flight training is given outside the United States.

(b) A flight instructor described in paragraph (a) of this section is only authorized to give endorsements to show training given.

§ 61.43 Practical tests: General procedures.

(a) Completion of the practical test for a certificate or rating consists of -

(1) Performing the tasks specified in the areas of operation for the airman certificate or rating sought within the approved practical test standards;

(2) Demonstrating mastery of the aircraft by performing each task successfully;

(3) Demonstrating proficiency and competency within the approved standards; and

(4) Demonstrating sound judgment.

(b) The pilot flight crew complement required during the practical test is based on one of the following requirements that applies to the aircraft being used on the practical test:

(1) If the aircraft's FAA-approved flight manual requires the pilot flight crew complement be a single pilot, then the applicant must demonstrate single pilot proficiency on the practical test.

(2) If the aircraft's type certification data sheet requires the pilot flight crew complement be a single pilot, then the applicant must demonstrate single pilot proficiency on the practical test.

(3) If the FAA Flight Standardization Board report, FAA-approved aircraft flight manual, or aircraft type certification data sheet allows the pilot flight crew complement to be either a single pilot, or a pilot and a copilot, then the applicant may demonstrate single pilot proficiency or have a copilot on the practical test. If the applicant performs the practical test with a copilot, the limitation of "Second in Command Required" will be placed on the applicant's pilot certificate. The limitation may be removed if the applicant passes the practical test by demonstrating single-pilot proficiency in the aircraft in which single-pilot privileges are sought.

(c) If an applicant fails any area of operation, that applicant fails the practical test.

(d) An applicant is not eligible for a certificate or rating sought until all the areas of operation are passed.

(e) The examiner or the applicant may discontinue a practical test at any time:

(1) When the applicant fails one or more of the areas of operation; or

(2) Due to inclement weather conditions, aircraft airworthiness, or any other safety-of-flight concern.

(f) If a practical test is discontinued, the applicant is entitled credit for those areas of operation that were passed, but only if the applicant:

(1) Passes the remainder of the practical test within the 60-day period after the date the practical test was discontinued;

(2) Presents to the examiner for the retest the original notice of disapproval form or the letter of discontinuance form, as appropriate;

(3) Satisfactorily accomplishes any additional training needed and obtains the appropriate instructor endorsements, if additional training is required; and

(4) Presents to the examiner for the retest a properly completed and signed application.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-124, 74 FR 42549, Aug. 21, 2009]

§ 61.45 Practical tests: Required aircraft and equipment.

(a) *General.* Except as provided in paragraph (a)(2) of this section or when permitted to accomplish the entire flight increment of the practical test in a flight simulator or a flight training device, an applicant for a certificate or rating issued under this part must furnish:

(1) An aircraft of U.S. registry for each required test that -

(i) Is of the category, class, and type, if applicable, for which the applicant is applying for a certificate or rating; and

(ii) Has a standard airworthiness certificate or special airworthiness certificate in the limited, primary, or light-sport category.

(2) At the discretion of the examiner who administers the practical test, the applicant may furnish -

(i) An aircraft that has an airworthiness certificate other than a standard airworthiness certificate or special airworthiness certificate in the limited, primary, or light-sport category, but that otherwise meets the requirements of paragraph (a)(1) of this section;

(ii) An aircraft of the same category, class, and type, if applicable, of foreign registry that is properly certificated by the country of registry; or

(iii) A military aircraft of the same category, class, and type, if aircraft class and type are appropriate, for which the applicant is applying for a certificate or rating, and provided -

(A) The aircraft is under the direct operational control of the U.S. Armed Forces;

(B) The aircraft is airworthy under the maintenance standards of the U.S. Armed Forces; and

(C) The applicant has a letter from his or her commanding officer authorizing the use of the aircraft for the practical test.

(b) *Required equipment (other than controls).* (1) Except as provided in paragraph (b)(2) of this section, an aircraft used for a practical test must have -

(i) The equipment for each area of operation required for the practical test;

(ii) No prescribed operating limitations that prohibit its use in any of the areas of operation required for the practical test;

(iii) Except as provided in paragraphs (e) and (f) of this section, at least two pilot stations with adequate visibility for each person to operate the aircraft safely; and

(iv) Cockpit and outside visibility adequate to evaluate the performance of the applicant when an additional jump seat is provided for the examiner.

(2) An applicant for a certificate or rating may use an aircraft with operating characteristics that preclude the

applicant from performing all of the tasks required for the practical test. However, the applicant's certificate or rating, as appropriate, will be issued with an appropriate limitation.

(c) *Required controls.* Except for lighter-than-air aircraft, and a glider without an engine, an aircraft used for a practical test must have engine power controls and flight controls that are easily reached and operable in a conventional manner by both pilots, unless the Examiner determines that the practical test can be conducted safely in the aircraft without the controls easily reached by the Examiner.

(d) *Simulated instrument flight equipment.* An applicant for a practical test that involves maneuvering an aircraft solely by reference to instruments must furnish:

(1) Equipment on board the aircraft that permits the applicant to pass the areas of operation that apply to the rating sought; and

(2) A device that prevents the applicant from having visual reference outside the aircraft, but does not prevent the examiner from having visual reference outside the aircraft, and is otherwise acceptable to the Administrator.

(e) *Aircraft with single controls.* A practical test may be conducted in an aircraft having a single set of controls, provided the:

(1) Examiner agrees to conduct the test;

(2) Test does not involve a demonstration of instrument skills; and

(3) Proficiency of the applicant can be observed by an examiner who is in a position to observe the applicant.

(f) *Light-sport aircraft with a single seat.* A practical test for a sport pilot certificate may be conducted in a light-sport aircraft having a single seat provided that the -

(1) Examiner agrees to conduct the test;

(2) Examiner is in a position to observe the operation of the aircraft and evaluate the proficiency of the applicant; and

(3) Pilot certificate of an applicant successfully passing the test is issued a pilot certificate with a limitation "No passenger carriage and flight in a single-seat light-sport aircraft only."

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40897, July 30, 1997; Amdt. 61-104, 63 FR 20286, Apr. 23, 1998; Amdt. 61-110, 69 FR 44865, July 27, 2004; Amdt. 61-124, 74 FR 42549, Aug. 21, 2009]

§ 61.47 Status of an examiner who is authorized by the Administrator to conduct practical tests.

(a) An examiner represents the Administrator for the purpose of conducting practical tests for certificates and ratings issued under this part and to observe an applicant's ability to perform the areas of operation on the practical test.

(b) The examiner is not the pilot in command of the aircraft during the practical test unless the examiner agrees to act in that capacity for the flight or for a portion of the flight by prior arrangement with:

(1) The applicant; or

(2) A person who would otherwise act as pilot in command of the flight or for a portion of the flight.

(c) Notwithstanding the type of aircraft used during the practical test, the applicant and the examiner (and any other occupants authorized to be on board by the examiner) are not subject to the requirements or limitations for the carriage of passengers that are specified in this chapter.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40897, July 30, 1997]

§ 61.49 Retesting after failure.

(a) An applicant for a knowledge or practical test who fails that test may reapply for the test only after the applicant has received:

(1) The necessary training from an authorized instructor who has determined that the applicant is proficient to pass the test; and

(2) An endorsement from an authorized instructor who gave the applicant the additional training.

(b) An applicant for a flight instructor certificate with an airplane category rating or, for a flight instructor certificate with a glider category rating, who has failed the practical test due to deficiencies in instructional proficiency on stall awareness, spin entry, spins, or spin recovery must:

(1) Comply with the requirements of paragraph (a) of this section before being retested;

(2) Bring an aircraft to the retest that is of the appropriate aircraft category for the rating sought and is certificated for spins; and

(3) Demonstrate satisfactory instructional proficiency on stall awareness, spin entry, spins, and spin recovery to an examiner during the retest.

§ 61.51 Pilot logbooks.

(a) *Training time and aeronautical experience.* Each person must document and record the following time in a manner acceptable to the Administrator:

(1) Training and aeronautical experience used to meet the requirements for a certificate, rating, or flight review of this part.

(2) The aeronautical experience required for meeting the recent flight experience requirements of this part.

(b) *Logbook entries.* For the purposes of meeting the requirements of paragraph (a) of this section, each person must enter the following information for each flight or lesson logged:

(1) General -

(i) Date.

(ii) Total flight time or lesson time.

(iii) Location where the aircraft departed and arrived, or for lessons in a flight simulator or flight training device, the location where the lesson occurred.

(iv) Type and identification of aircraft, flight simulator, flight training device, or aviation training device, as appropriate.

(v) The name of a safety pilot, if required by § 91.109 of this chapter.

(2) Type of pilot experience or training -
 (i) Solo.
 (ii) Pilot in command.
 (iii) Second in command.
 (iv) Flight and ground training received from an authorized instructor.

(v) Training received in a flight simulator, flight training device, or aviation training device from an authorized instructor.

(3) Conditions of flight -
 (i) Day or night.
 (ii) Actual instrument.
 (iii) Simulated instrument conditions in flight, a flight simulator, flight training device, or aviation training device.

(iv) Use of night vision goggles in an aircraft in flight, in a flight simulator, or in a flight training device.

(c) *Logging of pilot time.* The pilot time described in this section may be used to:

(1) Apply for a certificate or rating issued under this part or a privilege authorized under this part; or

(2) Satisfy the recent flight experience requirements of this part.

(d) *Logging of solo flight time.* Except for a student pilot performing the duties of pilot in command of an airship requiring more than one pilot flight crewmember, a pilot may log as solo flight time only that flight time when the pilot is the sole occupant of the aircraft.

(e) *Logging pilot-in-command flight time.* (1) A sport, recreational, private, commercial, or airline transport pilot may log pilot in command flight time for flights-

(i) When the pilot is the sole manipulator of the controls of an aircraft for which the pilot is rated, or has sport pilot privileges for that category and class of aircraft, if the aircraft class rating is appropriate;

(ii) When the pilot is the sole occupant in the aircraft;

(iii) When the pilot, except for a holder of a sport or recreational pilot certificate, acts as pilot in command of an aircraft for which more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is conducted; or

(iv) When the pilot performs the duties of pilot in command while under the supervision of a qualified pilot in command provided -

(A) The pilot performing the duties of pilot in command holds a commercial or airline transport pilot certificate and aircraft rating that is appropriate to the category and class of aircraft being flown, if a class rating is appropriate;

(B) The pilot performing the duties of pilot in command is undergoing an approved pilot in command training program that includes ground and flight training on the following areas of operation -

- (1) Preflight preparation;
- (2) Preflight procedures;
- (3) Takeoff and departure;
- (4) In-flight maneuvers;

(5) Instrument procedures;

(6) Landings and approaches to landings;

(7) Normal and abnormal procedures;

(8) Emergency procedures; and

(9) Postflight procedures;

(C) The supervising pilot in command holds -

(1) A commercial pilot certificate and flight instructor certificate, and aircraft rating that is appropriate to the category, class, and type of aircraft being flown, if a class or type rating is required; or

(2) An airline transport pilot certificate and aircraft rating that is appropriate to the category, class, and type of aircraft being flown, if a class or type rating is required; and

(D) The supervising pilot in command logs the pilot in command training in the pilot's logbook, certifies the pilot in command training in the pilot's logbook and attests to that certification with his or her signature, and flight instructor certificate number.

(2) If rated to act as pilot in command of the aircraft, an airline transport pilot may log all flight time while acting as pilot in command of an operation requiring an airline transport pilot certificate.

(3) A certificated flight instructor may log pilot in command flight time for all flight time while serving as the authorized instructor in an operation if the instructor is rated to act as pilot in command of that aircraft.

(4) A student pilot may log pilot-in-command time only when the student pilot -

(i) Is the sole occupant of the aircraft or is performing the duties of pilot of command of an airship requiring more than one pilot flight crewmember;

(ii) Has a solo flight endorsement as required under § 61.87 of this part; and

(iii) Is undergoing training for a pilot certificate or rating.

(f) *Logging second-in-command flight time.* A person may log second-in-command time only for that flight time during which that person:

(1) Is qualified in accordance with the second-in-command requirements of § 61.55 of this part, and occupies a crewmember station in an aircraft that requires more than one pilot by the aircraft's type certificate; or

(2) Holds the appropriate category, class, and instrument rating (if an instrument rating is required for the flight) for the aircraft being flown, and more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is being conducted.

(g) *Logging instrument time.* (1) A person may log instrument time only for that flight time when the person operates the aircraft solely by reference to instruments under actual or simulated instrument flight conditions.

(2) An authorized instructor may log instrument time when conducting instrument flight instruction in actual instrument flight conditions.

(3) For the purposes of logging instrument time to meet the recent instrument experience requirements of § 61.57(c)

of this part, the following information must be recorded in the person's logbook -

(i) The location and type of each instrument approach accomplished; and

(ii) The name of the safety pilot, if required.

(4) A person can use time in a flight simulator, flight training device, or aviation training device for acquiring instrument aeronautical experience for a pilot certificate, rating, or instrument recency experience, provided an authorized instructor is present to observe that time and signs the person's logbook or training record to verify the time and the content of the training session.

(h) *Logging training time.* (1) A person may log training time when that person receives training from an authorized instructor in an aircraft, flight simulator, or flight training device.

(2) The training time must be logged in a logbook and must:

(i) Be endorsed in a legible manner by the authorized instructor; and

(ii) Include a description of the training given, the length of the training lesson, and the authorized instructor's signature, certificate number, and certificate expiration date.

(i) *Presentation of required documents.* (1) Persons must present their pilot certificate, medical certificate, logbook, or any other record required by this part for inspection upon a reasonable request by -

(i) The Administrator;

(ii) An authorized representative from the National Transportation Safety Board; or

(iii) Any Federal, State, or local law enforcement officer.

(2) A student pilot must carry the following items in the aircraft on all solo cross-country flights as evidence of the required authorized instructor clearances and endorsements -

(i) Pilot logbook;

(ii) Student pilot certificate; and

(iii) Any other record required by this section.

(3) A sport pilot must carry his or her logbook or other evidence of required authorized instructor endorsements on all flights.

(4) A recreational pilot must carry his or her logbook with the required authorized instructor endorsements on all solo flights -

(i) That exceed 50 nautical miles from the airport at which training was received;

(ii) Within airspace that requires communication with air traffic control;

(iii) Conducted between sunset and sunrise; or

(iv) In an aircraft for which the pilot does not hold an appropriate category or class rating.

(5) A flight instructor with a sport pilot rating must carry his or her logbook or other evidence of required authorized instructor endorsements on all flights when providing flight training.

(j) *Aircraft requirements for logging flight time.* For a person to log flight time, the time must be acquired in an aircraft that is identified as an aircraft under § 61.5(b), and is -

(1) An aircraft of U.S. registry with either a standard or special airworthiness certificate;

(2) An aircraft of foreign registry with an airworthiness certificate that is approved by the aviation authority of a foreign country that is a Member State to the Convention on International Civil Aviation Organization;

(3) A military aircraft under the direct operational control of the U.S. Armed Forces; or

(4) A public aircraft under the direct operational control of a Federal, State, county, or municipal law enforcement agency, if the flight time was acquired by the pilot while engaged on an official law enforcement flight for a Federal, State, County, or Municipal law enforcement agency.

(k) *Logging night vision goggle time.* (1) A person may log night vision goggle time only for the time the person uses night vision goggles as the primary visual reference of the surface and operates:

(i) An aircraft during a night vision goggle operation; or

(ii) A flight simulator or flight training device with the lighting system adjusted to represent the period beginning 1 hour after sunset and ending 1 hour before sunrise.

(2) An authorized instructor may log night vision goggle time when that person conducts training using night vision goggles as the primary visual reference of the surface and operates:

(i) An aircraft during a night goggle operation; or

(ii) A flight simulator or flight training device with the lighting system adjusted to represent the period beginning 1 hour after sunset and ending 1 hour before sunrise.

(3) To log night vision goggle time to meet the recent night vision goggle experience requirements under § 61.57(f), a person must log the information required under § 61.51(b).

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40897, July 30, 1997; Amdt. 61-104, 63 FR 20286, Apr. 23, 1998; Amdt. 61-110, 69 FR 44865, July 27, 2004; Amdt. 61-124, 74 FR 42549, Aug. 21, 2009; Amdt. 61-128, 76 FR 54105, Aug. 31, 2011]

§ 61.52 Use of aeronautical experience obtained in ultralight vehicles.

(a) Before January 31, 2012, a person may use aeronautical experience obtained in an ultralight vehicle to meet the requirements for the following certificates and ratings issued under this part:

(1) A sport pilot certificate.

(2) A flight instructor certificate with a sport pilot rating;

(3) A private pilot certificate with a weight-shift-control or powered parachute category rating.

(b) Before January 31, 2012, a person may use aeronautical experience obtained in an ultralight vehicle to meet the provisions of § 61.69.

(c) A person using aeronautical experience obtained in an ultralight vehicle to meet the requirements for a certificate or rating specified in paragraph (a) of this section or the requirements of paragraph (b) of this section must -

(1) Have been a registered ultralight pilot with an FAA-recognized ultralight organization when that aeronautical experience was obtained;

(2) Document and log that aeronautical experience in accordance with the provisions for logging aeronautical experience specified by an FAA-recognized ultralight organization and in accordance with the provisions for logging pilot time in aircraft as specified in § 61.51;

(3) Obtain the aeronautical experience in a category and class of vehicle corresponding to the rating or privilege sought; and

(4) Provide the FAA with a certified copy of his or her ultralight pilot records from an FAA-recognized ultralight organization, that -

(i) Document that he or she is a registered ultralight pilot with that FAA-recognized ultralight organization; and

(ii) Indicate that he or she is recognized to operate the category and class of aircraft for which sport pilot privileges are sought.

[Doc. No. FAA-2001-11133, 69 FR 44865, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5220, Feb. 1, 2010]

§ 61.53 Prohibition on operations during medical deficiency.

(a) *Operations that require a medical certificate.* Except as provided for in paragraph (b) of this section, no person who holds a medical certificate issued under part 67 of this chapter may act as pilot in command, or in any other capacity as a required pilot flight crewmember, while that person:

(1) Knows or has reason to know of any medical condition that would make the person unable to meet the requirements for the medical certificate necessary for the pilot operation; or

(2) Is taking medication or receiving other treatment for a medical condition that results in the person being unable to meet the requirements for the medical certificate necessary for the pilot operation.

(b) *Operations that do not require a medical certificate.* For operations provided for in § 61.23(b) of this part, a person shall not act as pilot in command, or in any other capacity as a required pilot flight crewmember, while that person knows or has reason to know of any medical condition that would make the person unable to operate the aircraft in a safe manner.

(c) *Operations requiring a medical certificate or a U.S. driver's license.* For operations provided for in § 61.23(c), a person must meet the provisions of -

(1) Paragraph (a) of this section if that person holds a medical certificate issued under part 67 of this chapter and does not hold a U.S. driver's license.

(2) Paragraph (b) of this section if that person holds a U.S. driver's license.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44866, July 27, 2004; Amdt. 61-124, 74 FR 42550, Aug. 21, 2009]

§ 61.55 Second-in-command qualifications.

(a) A person may serve as a second-in-command of an aircraft type certificated for more than one required pilot flight crewmember or in operations requiring a second-in-command pilot flight crewmember only if that person holds:

(1) At least a private pilot certificate with the appropriate category and class rating; and

(2) An instrument rating or privilege that applies to the aircraft being flown if the flight is under IFR; and

(3) At least a pilot type rating for the aircraft being flown unless the flight will be conducted as domestic flight operations within the United States airspace.

(b) Except as provided in paragraph (e) of this section, no person may serve as a second-in-command of an aircraft type certificated for more than one required pilot flight crewmember or in operations requiring a second-in-command unless that person has within the previous 12 calendar months:

(1) Become familiar with the following information for the specific type aircraft for which second-in-command privileges are requested -

(i) Operational procedures applicable to the powerplant, equipment, and systems.

(ii) Performance specifications and limitations.

(iii) Normal, abnormal, and emergency operating procedures.

(iv) Flight manual.

(v) Placards and markings.

(2) Except as provided in paragraph (g) of this section, performed and logged pilot time in the type of aircraft or in a flight simulator that represents the type of aircraft for which second-in-command privileges are requested, which includes -

(i) Three takeoffs and three landings to a full stop as the sole manipulator of the flight controls;

(ii) Engine-out procedures and maneuvering with an engine out while executing the duties of pilot in command; and

(iii) Crew resource management training.

(c) If a person complies with the requirements in paragraph (b) of this section in the calendar month before or the calendar month after the month in which compliance with this section is required, then that person is considered to have accomplished the training and practice in the month it is due.

(d) A person may receive a second-in-command pilot type rating for an aircraft after satisfactorily completing the second-in-command familiarization training requirements under paragraph (b) of this section in that type of aircraft provided the training was completed within the 12 calendar months before the month of application for the SIC pilot type rating. The person must comply with the following application and pilot certification procedures:

(1) The person who provided the training must sign the applicant's logbook or training record after each lesson in

accordance with § 61.51(h)(2) of this part. In lieu of the trainer, it is permissible for a qualified management official within the organization to sign the applicant's training records or logbook and make the required endorsement. The qualified management official must hold the position of Chief Pilot, Director of Training, Director of Operations, or another comparable management position within the organization that provided the training and must be in a position to verify the applicant's training records and that the training was given.

(2) The trainer or qualified management official must make an endorsement in the applicant's logbook that states "[Applicant's Name and Pilot Certificate Number] has demonstrated the skill and knowledge required for the safe operation of the [Type of Aircraft], relevant to the duties and responsibilities of a second in command."

(3) If the applicant's flight experience and/or training records are in an electronic form, the applicant must present a paper copy of those records containing the signature of the trainer or qualified management official to an FAA Flight Standards District Office or Examiner.

(4) The applicant must complete and sign an Airman Certificate and/or Rating Application, FAA Form 8710-1, and present the application to an FAA Flight Standards District Office or to an Examiner.

(5) The person who provided the ground and flight training to the applicant must sign the "Instructor's Recommendation" section of the Airman Certificate and/or Rating Application, FAA Form 8710-1. In lieu of the trainer, it is permissible for a qualified management official within the organization to sign the applicant's FAA Form 8710-1.

(6) The applicant must appear in person at a FAA Flight Standards District Office or to an Examiner with his or her logbook/training records and with the completed and signed FAA Form 8710-1.

(7) There is no practical test required for the issuance of the "SIC Privileges Only" pilot type rating.

(e) A person may receive a second-in-command pilot type rating for the type of aircraft after satisfactorily completing an approved second-in-command training program, proficiency check, or competency check under subpart K of part 91, part 125, or part 135, as appropriate, in that type of aircraft provided the training was completed within the 12 calendar months before the month of application for the SIC pilot type rating. The person must comply with the following application and pilot certification procedures:

(1) The person who provided the training must sign the applicant's logbook or training record after each lesson in accordance with § 61.51(h)(2) of this part. In lieu of the trainer, it is permissible for a qualified management official within the organization to sign the applicant's training records or logbook and make the required endorsement. The qualified management official must hold the position of Chief Pilot, Director of Training, Director of Operations, or another comparable management position within the organization that

provided the training and must be in a position to verify the applicant's training records and that the training was given.

(2) The trainer or qualified management official must make an endorsement in the applicant's logbook that states "[Applicant's Name and Pilot Certificate Number] has demonstrated the skill and knowledge required for the safe operation of the [Type of Aircraft], relevant to the duties and responsibilities of a second in command."

(3) If the applicant's flight experience and/or training records are in an electronic form, the applicant must provide a paper copy of those records containing the signature of the trainer or qualified management official to an FAA Flight Standards District Office, an Examiner, or an Aircrew Program Designee.

(4) The applicant must complete and sign an Airman Certificate and/or Rating Application, FAA Form 8710-1, and present the application to an FAA Flight Standards District Office or to an Examiner or to an authorized Aircrew Program Designee.

(5) The person who provided the ground and flight training to the applicant must sign the "Instructor's Recommendation" section of the Airman Certificate and/or Rating Application, FAA Form 8710-1. In lieu of the trainer, it is permissible for a qualified management official within the organization to sign the applicant's FAA Form 8710-1.

(6) The applicant must appear in person at an FAA Flight Standards District Office or to an Examiner or to an authorized Aircrew Program Designee with his or her logbook/training records and with the completed and signed FAA Form 8710-1.

(7) There is no practical test required for the issuance of the "SIC Privileges Only" pilot type rating.

(f) The familiarization training requirements of paragraph (b) of this section do not apply to a person who is:

(1) Designated and qualified as pilot in command under subpart K of part 91, part 121, 125, or 135 of this chapter in that specific type of aircraft;

(2) Designated as the second in command under subpart K of part 91, part 121, 125, or 135 of this chapter in that specific type of aircraft;

(3) Designated as the second in command in that specific type of aircraft for the purpose of receiving flight training required by this section, and no passengers or cargo are carried on the aircraft; or

(4) Designated as a safety pilot for purposes required by § 91.109 of this chapter.

(g) The holder of a commercial or airline transport pilot certificate with the appropriate category and class rating is not required to meet the requirements of paragraph (b)(2) of this section, provided the pilot:

(1) Is conducting a ferry flight, aircraft flight test, or evaluation flight of an aircraft's equipment; and

(2) Is not carrying any person or property on board the aircraft, other than necessary for conduct of the flight.

(h) For the purpose of meeting the requirements of paragraph (b) of this section, a person may serve as second in command in that specific type aircraft, provided:

- (1) The flight is conducted under day VFR or day IFR; and
- (2) No person or property is carried on board the aircraft, other than necessary for conduct of the flight.

(i) The training under paragraphs (b) and (d) of this section and the training, proficiency check, and competency check under paragraph (e) of this section may be accomplished in a flight simulator that is used in accordance with an approved training course conducted by a training center certificated under part 142 of this chapter or under subpart K of part 91, part 121 or part 135 of this chapter.

(j) When an applicant for an initial second-in-command qualification for a particular type of aircraft receives all the training in a flight simulator, that applicant must satisfactorily complete one takeoff and one landing in an aircraft of the same type for which the qualification is sought. This requirement does not apply to an applicant who completes a proficiency check under part 121 or competency check under subpart K, part 91, part 125, or part 135 for the particular type of aircraft.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40898, July 30, 1997; Amdt. 61-109, 68 FR 54559, Sept. 17, 2003; Amdt. 61-113, 70 FR 45271, Aug. 4, 2005; Amdt. 61-109, 70 FR 61890, Oct. 27, 2005; Amdt. 61-124, 74 FR 42550, Aug. 21, 2009; Amdt. 61-128, 76 FR 54105, Aug. 31, 2011; Amdt. 61-130, 78 FR 42374, July 15, 2013]

§ 61.56 Flight review.

(a) Except as provided in paragraphs (b) and (f) of this section, a flight review consists of a minimum of 1 hour of flight training and 1 hour of ground training. The review must include:

(1) A review of the current general operating and flight rules of part 91 of this chapter; and

(2) A review of those maneuvers and procedures that, at the discretion of the person giving the review, are necessary for the pilot to demonstrate the safe exercise of the privileges of the pilot certificate.

(b) Glider pilots may substitute a minimum of three instructional flights in a glider, each of which includes a flight to traffic pattern altitude, in lieu of the 1 hour of flight training required in paragraph (a) of this section.

(c) Except as provided in paragraphs (d), (e), and (g) of this section, no person may act as pilot in command of an aircraft unless, since the beginning of the 24th calendar month before the month in which that pilot acts as pilot in command, that person has -

(1) Accomplished a flight review given in an aircraft for which that pilot is rated by an authorized instructor and

(2) A logbook endorsed from an authorized instructor who gave the review certifying that the person has satisfactorily completed the review.

(d) A person who has, within the period specified in paragraph (c) of this section, passed any of the following need not accomplish the flight review required by this section:

(1) A pilot proficiency check or practical test conducted by an examiner, an approved pilot check airman, or a U.S. Armed Force, for a pilot certificate, rating, or operating privilege.

(2) A practical test conducted by an examiner for the issuance of a flight instructor certificate, an additional rating on a flight instructor certificate, renewal of a flight instructor certificate, or reinstatement of a flight instructor certificate.

(e) A person who has, within the period specified in paragraph (c) of this section, satisfactorily accomplished one or more phases of an FAA-sponsored pilot proficiency award program need not accomplish the flight review required by this section.

(f) A person who holds a flight instructor certificate and who has, within the period specified in paragraph (c) of this section, satisfactorily completed a renewal of a flight instructor certificate under the provisions in § 61.197 need not accomplish the one hour of ground training specified in paragraph (a) of this section.

(g) A student pilot need not accomplish the flight review required by this section provided the student pilot is undergoing training for a certificate and has a current solo flight endorsement as required under § 61.87 of this part.

(h) The requirements of this section may be accomplished in combination with the requirements of § 61.57 and other applicable recent experience requirements at the discretion of the authorized instructor conducting the flight review.

(i) A flight simulator or flight training device may be used to meet the flight review requirements of this section subject to the following conditions:

(1) The flight simulator or flight training device must be used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(2) Unless the flight review is undertaken in a flight simulator that is approved for landings, the applicant must meet the takeoff and landing requirements of § 61.57(a) or § 61.57(b) of this part.

(3) The flight simulator or flight training device used must represent an aircraft or set of aircraft for which the pilot is rated.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40898, July 30, 1997; Amdt. 61-104, 63 FR 20287, Apr. 23, 1998; Amdt. 61-124, 74 FR 42550, Aug. 21, 2009; Amdt. 61-131, 78 FR 56828, Sept. 16, 2013]

§ 61.57 Recent flight experience: Pilot in command.

(a) *General experience.* (1) Except as provided in paragraph (e) of this section, no person may act as a pilot in command of an aircraft carrying passengers or of an aircraft certificated for more than one pilot flight crewmember unless that person has made at least three takeoffs and three landings within the preceding 90 days, and -

(i) The person acted as the sole manipulator of the flight controls; and

(ii) The required takeoffs and landings were performed in an aircraft of the same category, class, and type (if a type rating is required), and, if the aircraft to be flown is an airplane with a tailwheel, the takeoffs and landings must have been made to a full stop in an airplane with a tailwheel.

(2) For the purpose of meeting the requirements of paragraph (a)(1) of this section, a person may act as a pilot in command of an aircraft under day VFR or day IFR, provided no persons or property are carried on board the aircraft, other than those necessary for the conduct of the flight.

(3) The takeoffs and landings required by paragraph (a)(1) of this section may be accomplished in a flight simulator or flight training device that is -

(i) Approved by the Administrator for landings; and

(ii) Used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(b) *Night takeoff and landing experience.* (1) Except as provided in paragraph (e) of this section, no person may act as pilot in command of an aircraft carrying passengers during the period beginning 1 hour after sunset and ending 1 hour before sunrise, unless within the preceding 90 days that person has made at least three takeoffs and three landings to a full stop during the period beginning 1 hour after sunset and ending 1 hour before sunrise, and -

(i) That person acted as sole manipulator of the flight controls; and

(ii) The required takeoffs and landings were performed in an aircraft of the same category, class, and type (if a type rating is required).

(2) The takeoffs and landings required by paragraph (b)(1) of this section may be accomplished in a flight simulator that is -

(i) Approved by the Administrator for takeoffs and landings, if the visual system is adjusted to represent the period described in paragraph (b)(1) of this section; and

(ii) Used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(c) *Instrument experience.* Except as provided in paragraph (e) of this section, a person may act as pilot in command under IFR or weather conditions less than the minimums prescribed for VFR only if:

(1) *Use of an airplane, powered-lift, helicopter, or airship for maintaining instrument experience.* Within the 6 calendar months preceding the month of the flight, that person performed and logged at least the following tasks and iterations in an airplane, powered-lift, helicopter, or airship, as appropriate, for the instrument rating privileges to be maintained in actual weather conditions, or under simulated conditions using a view-limiting device that involves having performed the following -

(i) Six instrument approaches.

(ii) Holding procedures and tasks.

(iii) Intercepting and tracking courses through the use of navigational electronic systems.

(2) *Use of a flight simulator or flight training device for maintaining instrument experience.* Within the 6 calendar months preceding the month of the flight, that person performed and logged at least the following tasks and iterations in a flight simulator or flight training device, provided the flight simulator or flight training device represents the category of aircraft for the instrument rating privileges to be maintained and involves having performed the following -

(i) Six instrument approaches.

(ii) Holding procedures and tasks.

(iii) Intercepting and tracking courses through the use of navigational electronic systems.

(3) *Use of an aviation training device for maintaining instrument experience.* Within the 2 calendar months preceding the month of the flight, that person performed and logged at least the following tasks, iterations, and time in an aviation training device and has performed the following -

(i) Three hours of instrument experience.

(ii) Holding procedures and tasks.

(iii) Six instrument approaches.

(iv) Two unusual attitude recoveries while in a descending, V_{NE} airspeed condition and two unusual attitude recoveries while in an ascending, stall speed condition.

(v) Interception and tracking courses through the use of navigational electronic systems.

(4) *Combination of completing instrument experience in an aircraft and a flight simulator, flight training device, and aviation training device.* A person who elects to complete the instrument experience with a combination of an aircraft, flight simulator or flight training device, and aviation training device must have performed and logged the following within the 6 calendar months preceding the month of the flight -

(i) Instrument experience in an airplane, powered-lift, helicopter, or airship, as appropriate, for the instrument rating privileges to be maintained, performed in actual weather conditions, or under simulated weather conditions while using a view-limiting device, on the following instrument currency tasks:

(A) Instrument approaches.

(B) Holding procedures and tasks.

(C) Interception and tracking courses through the use of navigational electronic systems.

(ii) Instrument experience in a flight simulator or flight training device that represents the category of aircraft for the instrument rating privileges to be maintained and involves performing at least the following tasks -

(A) Instrument approaches.

(B) Holding procedures and tasks.

(C) Interception and tracking courses through the use of navigational electronic systems.

(iii) Instrument experience in an aviation training device that represents the category of aircraft for the instrument rating privileges to be maintained and involves performing at least the following tasks -

(A) Six instrument approaches.

(B) Holding procedures and tasks.

(C) Interception and tracking courses through the use of navigational electronic systems.

(5) *Combination of completing instrument experience in a flight simulator or flight training device, and an aviation training device.* A person who elects to complete the instrument experience with a combination of a flight simulator, flight training device, and aviation training device must have performed the following within the 6 calendar months preceding the month of the flight -

(i) Instrument recency experience in a flight simulator or flight training device that represents the category of aircraft for the instrument rating privileges to be maintained and involves having performed the following tasks:

(A) Six instrument approaches.

(B) Holding procedures and tasks.

(C) Interception and tracking courses through the use of navigational electronic systems.

(ii) Three hours of instrument experience in an aviation training device that represents the category of aircraft for the instrument rating privileges to be maintained and involves performing at least the following tasks -

(A) Six instrument approaches.

(B) Holding procedures and tasks.

(C) Interception and tracking courses through the use of navigational electronic systems.

(D) Two unusual attitude recoveries while in a descending, V_{ne} airspeed condition and two unusual attitude recoveries while in an ascending, stall speed condition.

(6) Maintaining instrument recent experience in a glider.

(i) Within the 6 calendar months preceding the month of the flight, that person must have performed and logged at least the following instrument currency tasks, iterations, and flight time, and the instrument currency must have been performed in actual weather conditions or under simulated weather conditions -

(A) One hour of instrument flight time in a glider or in a single engine airplane using a view-limiting device while performing interception and tracking courses through the use of navigation electronic systems.

(B) Two hours of instrument flight time in a glider or a single engine airplane with the use of a view-limiting device while performing straight glides, turns to specific headings, steep turns, flight at various airspeeds, navigation, and slow flight and stalls.

(ii) Before a pilot is allowed to carry a passenger in a glider under IFR or in weather conditions less than the minimums prescribed for VFR, that pilot must -

(A) Have logged and performed 2 hours of instrument flight time in a glider within the 6 calendar months preceding the month of the flight.

(B) Use a view-limiting-device while practicing performance maneuvers, performance airspeeds, navigation, slow flight, and stalls.

(d) *Instrument proficiency check.* Except as provided in paragraph (e) of this section, a person who has failed to meet the instrument experience requirements of paragraph (c) for more than six calendar months may reestablish instrument currency only by completing an instrument proficiency check. The instrument proficiency check must consist of the areas of operation and instrument tasks required in the instrument rating practical test standards.

(1) The instrument proficiency check must be -

(i) In an aircraft that is appropriate to the aircraft category;

(ii) For other than a glider, in a flight simulator or flight training device that is representative of the aircraft category; or

(iii) For a glider, in a single-engine airplane or a glider.

(2) The instrument proficiency check must be given by -

(i) An examiner;

(ii) A person authorized by the U.S. Armed Forces to conduct instrument flight tests, provided the person being tested is a member of the U.S. Armed Forces;

(iii) A company check pilot who is authorized to conduct instrument flight tests under part 121, 125, or 135 of this chapter or subpart K of part 91 of this chapter, and provided that both the check pilot and the pilot being tested are employees of that operator or fractional ownership program manager, as applicable;

(iv) An authorized instructor; or

(v) A person approved by the Administrator to conduct instrument practical tests.

(e) *Exceptions.* (1) Paragraphs (a) and (b) of this section do not apply to a pilot in command who is employed by a part 119 certificate holder authorized to conduct operations under part 125 when the pilot is engaged in a flight operation for that certificate holder if the pilot in command is in compliance with §§ 125.281 and 125.285 of this chapter.

(2) This section does not apply to a pilot in command who is employed by a part 119 certificate holder authorized to conduct operations under part 121 when the pilot is engaged in a flight operation under part 91 or 121 for that certificate holder if the pilot in command complies with §§ 121.436 and 121.439 of this chapter.

(3) This section does not apply to a pilot in command who is employed by a part 119 certificate holder authorized to conduct operations under part 135 when the pilot is engaged in a flight operation under parts 91 or 135 for that certificate holder if the pilot in command is in compliance with §§ 135.243 and 135.247 of this chapter.

(4) Paragraph (b) of this section does not apply to a pilot in command of a turbine-powered airplane that is type certificated for more than one pilot crewmember, provided that

pilot has complied with the requirements of paragraph (e)(4)(i) or (ii) of this section:

(i) The pilot in command must hold at least a commercial pilot certificate with the appropriate category, class, and type rating for each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, and:

(A) That pilot must have logged at least 1,500 hours of aeronautical experience as a pilot;

(B) In each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, that pilot must have accomplished and logged the daytime takeoff and landing recent flight experience of paragraph (a) of this section, as the sole manipulator of the flight controls;

(C) Within the preceding 90 days prior to the operation of that airplane that is type certificated for more than one pilot crewmember, the pilot must have accomplished and logged at least 15 hours of flight time in the type of airplane that the pilot seeks to operate under this alternative; and

(D) That pilot has accomplished and logged at least 3 takeoffs and 3 landings to a full stop, as the sole manipulator of the flight controls, in a turbine-powered airplane that requires more than one pilot crewmember. The pilot must have performed the takeoffs and landings during the period beginning 1 hour after sunset and ending 1 hour before sunrise within the preceding 6 months prior to the month of the flight.

(ii) The pilot in command must hold at least a commercial pilot certificate with the appropriate category, class, and type rating for each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, and:

(A) That pilot must have logged at least 1,500 hours of aeronautical experience as a pilot;

(B) In each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, that pilot must have accomplished and logged the daytime takeoff and landing recent flight experience of paragraph (a) of this section, as the sole manipulator of the flight controls;

(C) Within the preceding 90 days prior to the operation of that airplane that is type certificated for more than one pilot crewmember, the pilot must have accomplished and logged at least 15 hours of flight time in the type of airplane that the pilot seeks to operate under this alternative; and

(D) Within the preceding 12 months prior to the month of the flight, the pilot must have completed a training program that is approved under part 142 of this chapter. The approved training program must have required and the pilot must have performed, at least 6 takeoffs and 6 landings to a full stop as the sole manipulator of the controls in a flight simulator that is representative of a turbine-powered airplane that requires more than one pilot crewmember. The flight simulator's visual system must have been adjusted to represent the period beginning 1 hour after sunset and ending 1 hour before sunrise.

(f) *Night vision goggle operating experience.* (1) A person may act as pilot in command in a night vision goggle operation with passengers on board only if, within 2 calendar months preceding the month of the flight, that person performs and logs the following tasks as the sole manipulator of the controls on a flight during a night vision goggle operation -

(i) Three takeoffs and three landings, with each takeoff and landing including a climbout, cruise, descent, and approach phase of flight (only required if the pilot wants to use night vision goggles during the takeoff and landing phases of the flight).

(ii) Three hovering tasks (only required if the pilot wants to use night vision goggles when operating helicopters or powered-lifts during the hovering phase of flight).

(iii) Three area departure and area arrival tasks.

(iv) Three tasks of transitioning from aided night flight (*aided night flight* means that the pilot uses night vision goggles to maintain visual surface reference) to unaided night flight (*unaided night flight* means that the pilot does not use night vision goggles) and back to aided night flight.

(v) Three night vision goggle operations, or when operating helicopters or powered-lifts, six night vision goggle operations.

(2) A person may act as pilot in command using night vision goggles only if, within the 4 calendar months preceding the month of the flight, that person performs and logs the tasks listed in paragraph (f)(1)(i) through (v) of this section as the sole manipulator of the controls during a night vision goggle operation.

(g) *Night vision goggle proficiency check.* A person must either meet the night vision goggle experience requirements of paragraphs (f)(1) or (f)(2) of this section or pass a night vision goggle proficiency check to act as pilot in command using night vision goggles. The proficiency check must be performed in the category of aircraft that is appropriate to the night vision goggle operation for which the person is seeking the night vision goggle privilege or in a flight simulator or flight training device that is representative of that category of aircraft. The check must consist of the tasks listed in § 61.31(k), and the check must be performed by:

(1) An Examiner who is qualified to perform night vision goggle operations in that same aircraft category and class;

(2) A person who is authorized by the U.S. Armed Forces to perform night vision goggle proficiency checks, provided the person being administered the check is also a member of the U.S. Armed Forces;

(3) A company check pilot who is authorized to perform night vision goggle proficiency checks under parts 121, 125, or 135 of this chapter, provided that both the check pilot and the pilot being tested are employees of that operator;

(4) An authorized flight instructor who is qualified to perform night vision goggle operations in that same aircraft category and class;

(5) A person who is qualified as pilot in command for night vision goggle operations in accordance with paragraph (f) of this section; or

(6) A person approved by the FAA to perform night vision goggle proficiency checks.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40898, July 30, 1997; Amdt. 61-106, 64 FR 23529, Apr. 30, 1999; Amdt. 61-109, 68 FR 54559, Sept. 17, 2003; Amdt. 61-124, 74 FR 42550, Aug. 21, 2009; Amdt. 61-127, 76 FR 19267, Apr. 7, 2011; Amdt. 61-129, 76 FR 78143, Dec. 16, 2011; Amdt. 61-130, 78 FR 42374, July 15, 2013; Amdt. 61-131, 78 FR 56828, Sept. 16, 2013; Docket FAA-2013-0485, Amdt. 61-139, 81 FR 90170, Dec. 13, 2016]

§ 61.58 Pilot-in-command proficiency check:

Operation of an aircraft that requires more than one pilot flight crewmember or is turbojet-powered.

(a) Except as otherwise provided in this section, to serve as pilot in command of an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered, a person must -

(1) Within the preceding 12 calendar months, complete a pilot-in-command proficiency check in an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered; and

(2) Within the preceding 24 calendar months, complete a pilot-in-command proficiency check in the particular type of aircraft in which that person will serve as pilot in command, that is type certificated for more than one required pilot flight crewmember or is turbojet-powered.

(b) This section does not apply to persons conducting operations under subpart K of part 91, part 121, 125, 133, 135, or 137 of this chapter, or persons maintaining continuing qualification under an Advanced Qualification program approved under subpart Y of part 121 of this chapter.

(c) The pilot-in-command proficiency check given in accordance with the provisions of subpart K of part 91, part 121, 125, or 135 of this chapter may be used to satisfy the requirements of this section.

(d) The pilot-in-command proficiency check required by paragraph (a) of this section may be accomplished by satisfactory completion of one of the following:

(1) A pilot-in-command proficiency check conducted by a person authorized by the Administrator, consisting of the aeronautical knowledge areas, areas of operations, and tasks required for a type rating, in an aircraft that is type certificated for more than one pilot flight crewmember or is turbojet-powered;

(2) The practical test required for a type rating, in an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered;

(3) The initial or periodic practical test required for the issuance of a pilot examiner or check airman designation, in

an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered;

(4) A pilot proficiency check administered by a U.S. Armed Force that qualifies the military pilot for pilot-in-command designation with instrument privileges, and was performed in a military aircraft that the military requires to be operated by more than one pilot flight crewmember or is turbojet-powered;

(5) For a pilot authorized by the Administrator to operate an experimental turbojet-powered aircraft that possesses, by original design or through modification, more than a single seat, the required proficiency check for all of the experimental turbojet-powered aircraft for which the pilot holds an authorization may be accomplished by completing any one of the following:

(i) A single proficiency check, conducted by an examiner authorized by the Administrator, in any one of the experimental turbojet-powered aircraft for which the airman holds an authorization to operate if conducted within the prior 12 months;

(ii) A single proficiency check, conducted by an examiner authorized by the Administrator, in any experimental turbojet-powered aircraft (*e.g.*, if a pilot acquires a new authorization to operate an additional experimental turbojet-powered aircraft, the check for that new authorization will meet the intent), if conducted within the prior 12 months;

(iii) Current qualification under an Advanced Qualification Program (AQP) under subpart Y of part 121 of this chapter;

(iv) Any proficiency check conducted under subpart K of part 91, part 121, or part 135 of this chapter within the prior 12 months if conducted in a turbojet-powered aircraft; or

(v) Any other § 61.58 proficiency check conducted within the prior 12 months if conducted in a turbojet-powered aircraft.

(e) The pilot of a multi-seat experimental turbojet-powered aircraft who has not received a proficiency check within the prior 12 months in accordance with this section may continue to operate such aircraft in accordance with the pilot's authorizations. However, the pilot is prohibited from carriage of any persons in any experimental turbojet-powered aircraft with the exception of those individuals authorized by the Administrator to conduct training, conduct flight checks, or perform pilot certification functions in such aircraft, and only during flights specifically related to training, flight checks, or certification in such aircraft.

(f) This section will not apply to a pilot authorized by the Administrator to serve as pilot in command in experimental turbojet-powered aircraft that possesses, by original design, a single seat, when operating such single-seat aircraft.

(g) A check or test described in paragraphs (d)(1) through (5) of this section may be accomplished in a flight simulator under part 142 of this chapter, subject to the following:

(1) Except as provided for in paragraphs (g)(2) and (3) of this section, if an otherwise qualified and approved flight simulator used for a pilot-in-command proficiency check is not qualified and approved for a specific required maneuver -

(i) The training center must annotate, in the applicant's training record, the maneuver or maneuvers omitted; and

(ii) Prior to acting as pilot in command, the pilot must demonstrate proficiency in each omitted maneuver in an aircraft or flight simulator qualified and approved for each omitted maneuver.

(2) If the flight simulator used pursuant to paragraph (g) of this section is not qualified and approved for circling approaches -

(i) The applicant's record must include the statement, "Proficiency in circling approaches not demonstrated"; and

(ii) The applicant may not perform circling approaches as pilot in command when weather conditions are less than the basic VFR conditions described in § 91.155 of this chapter, until proficiency in circling approaches has been successfully demonstrated in a flight simulator qualified and approved for circling approaches or in an aircraft to a person authorized by the Administrator to conduct the check required by this section.

(3) If the flight simulator used pursuant to paragraph (g) of this section is not qualified and approved for landings, the applicant must -

(i) Hold a type rating in the airplane represented by the simulator; and

(ii) Have completed within the preceding 90 days at least three takeoffs and three landings (one to a full stop) as the sole manipulator of the flight controls in the type airplane for which the pilot-in-command proficiency check is sought.

(h) For the purpose of meeting the pilot-in-command proficiency check requirements of paragraph (a) of this section, a person may act as pilot in command of a flight under day VFR conditions or day IFR conditions if no person or property is carried, other than as necessary to demonstrate compliance with this part.

(i) If a pilot takes the pilot-in-command proficiency check required by this section in the calendar month before or the calendar month after the month in which it is due, the pilot is considered to have taken it in the month in which it was due for the purpose of computing when the next pilot-in-command proficiency check is due.

(j) A pilot-in-command of a turbojet powered aircraft that is type certificated for one pilot does not have to comply with the pilot-in-command proficiency check requirements in paragraphs (a)(1) and (a)(2) of this section until October 31, 2012.

(k) Unless required by the aircraft's operating limitations, a pilot-in-command of an experimental turbojet-powered aircraft does not have to comply with the pilot-in-command proficiency check requirements in paragraphs (a)(1) and (a)(2) of this section until October 31, 2012.

[Doc. No. 25910, 62 FR 40899, July 30, 1997, as amended by Amdt. 61-109, 68 FR 54559, Sept. 17, 2003; Amdt. 61-112, 70 FR 54814, Sept. 16, 2005; Amdt. 61-128, 76 FR 54106, Aug. 31, 2011; 76 FR 63184, Oct. 12, 2011]

§ 61.59 Falsification, reproduction, or alteration of applications, certificates, logbooks, reports, or records.

(a) No person may make or cause to be made:

(1) Any fraudulent or intentionally false statement on any application for a certificate, rating, authorization, or duplicate thereof, issued under this part;

(2) Any fraudulent or intentionally false entry in any logbook, record, or report that is required to be kept, made, or used to show compliance with any requirement for the issuance or exercise of the privileges of any certificate, rating, or authorization under this part;

(3) Any reproduction for fraudulent purpose of any certificate, rating, or authorization, under this part; or

(4) Any alteration of any certificate, rating, or authorization under this part.

(b) The commission of an act prohibited under paragraph (a) of this section is a basis for suspending or revoking any airman certificate, rating, or authorization held by that person.

§ 61.60 Change of address.

The holder of a pilot, flight instructor, or ground instructor certificate who has made a change in permanent mailing address may not, after 30 days from that date, exercise the privileges of the certificate unless the holder has notified in writing the FAA, Airman Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125, of the new permanent mailing address, or if the permanent mailing address includes a post office box number, then the holder's current residential address.

Subpart B - Aircraft Ratings and Pilot Authorizations

§ 61.61 Applicability.

This subpart prescribes the requirements for the issuance of additional aircraft ratings after a pilot certificate is issued, issuance of a type rating concurrently with a pilot certificate, and the requirements for and limitations of pilot authorizations issued by the Administrator.

[Doc. No. FAA-2006-26661, 76 FR 78143, Dec. 16, 2011]

§ 61.63 Additional aircraft ratings (other than for ratings at the airline transport pilot certification level).

(a) *General.* For an additional aircraft rating on a pilot certificate, other than for an airline transport pilot certificate, a person must meet the requirements of this section appropriate to the additional aircraft rating sought.

(b) *Additional aircraft category rating.* A person who applies to add a category rating to a pilot certificate:

(1) Must complete the training and have the applicable aeronautical experience.

(2) Must have a logbook or training record endorsement from an authorized instructor attesting that the person was found competent in the appropriate aeronautical knowledge areas and proficient in the appropriate areas of operation.

(3) Must pass the practical test.

(4) Need not take an additional knowledge test, provided the applicant holds an airplane, rotorcraft, powered-lift, weight-shift-control aircraft, powered parachute, or airship rating at that pilot certificate level.

(c) *Additional aircraft class rating.* A person who applies for an additional class rating on a pilot certificate:

(1) Must have a logbook or training record endorsement from an authorized instructor attesting that the person was found competent in the appropriate aeronautical knowledge areas and proficient in the appropriate areas of operation.

(2) Must pass the practical test.

(3) Need not meet the specified training time requirements prescribed by this part that apply to the pilot certificate for the aircraft class rating sought; unless, the person only holds a lighter-than-air category rating with a balloon class rating and is seeking an airship class rating, then that person must receive the specified training time requirements and possess the appropriate aeronautical experience.

(4) Need not take an additional knowledge test, provided the applicant holds an airplane, rotorcraft, powered-lift, weight-shift-control aircraft, powered parachute, or airship rating at that pilot certificate level.

(d) *Additional aircraft type rating.* Except as provided under paragraph (d)(6) of this section, a person who applies for an aircraft type rating or an aircraft type rating to be completed concurrently with an aircraft category or class rating -

(1) Must hold or concurrently obtain an appropriate instrument rating, except as provided in paragraph (e) of this section.

(2) Must have a logbook or training record endorsement from an authorized instructor attesting that the person is competent in the appropriate aeronautical knowledge areas and proficient in the appropriate areas of operation at the airline transport pilot certification level.

(3) Must pass the practical test at the airline transport pilot certification level.

(4) Must perform the practical test in actual or simulated instrument conditions, except as provided in paragraph (e) of this section.

(5) Need not take an additional knowledge test if the applicant holds an airplane, rotorcraft, powered-lift, or airship rating on the pilot certificate.

(6) In the case of a pilot employee of a part 121 or part 135 certificate holder or of a fractional ownership program manager under subpart K of part 91 of this chapter, the pilot must -

(i) Meet the appropriate requirements under paragraphs (d)(1), (d)(3), and (d)(4) of this section; and

(ii) Receive a flight training record endorsement from the certificate holder attesting that the person completed the certificate holder's approved ground and flight training program.

(e) *Aircraft not capable of instrument maneuvers and procedures.* (1) An applicant for a type rating or a type rating in addition to an aircraft category and/or class rating who provides an aircraft that is not capable of the instrument maneuvers and procedures required on the practical test:

(i) May apply for the type rating, but the rating will be limited to "VFR only."

(ii) May have the "VFR only" limitation removed for that aircraft type after the applicant:

(A) Passes a practical test in that type of aircraft in actual or simulated instrument conditions;

(B) Passes a practical test in that type of aircraft on the appropriate instrument maneuvers and procedures in § 61.157; or

(C) Becomes qualified under § 61.73(d) for that type of aircraft.

(2) When an instrument rating is issued to a person who holds one or more type ratings, the amended pilot certificate must bear the "VFR only" limitation for each aircraft type rating that the person did not demonstrate instrument competency.

(f) *Multiengine airplane with a single-pilot station.* An applicant for a type rating, at other than the ATP certification level, in a multiengine airplane with a single-pilot station must perform the practical test in the multi-seat version of that airplane, or the practical test may be performed in the single-seat version of that airplane if the Examiner is in a position to observe the applicant during the practical test and there is no multi-seat version of that multiengine airplane.

(g) *Single engine airplane with a single-pilot station.* An applicant for a type rating, at other than the ATP certification level, in a single engine airplane with a single-pilot station must perform the practical test in the multi-seat version of that single engine airplane, or the practical test may be performed in the single-seat version of that airplane if the Examiner is in a position to observe the applicant during the practical test and there is no multi-seat version of that single engine airplane.

(h) *Aircraft category and class rating for the operation of aircraft with an experimental certificate.* A person holding a recreational, private, or commercial pilot certificate may apply for a category and class rating limited to a specific make and model of experimental aircraft, provided -

(1) The person logged 5 hours flight time while acting as pilot in command in the same category, class, make, and model of aircraft.

(2) The person received a logbook endorsement from an authorized instructor who determined the pilot's proficiency to act as pilot in command of the same category, class, make, and model of aircraft.

(3) The flight time specified under paragraph (h)(1) of this section was logged between September 1, 2004 and August 31, 2005.

(i) *Waiver authority.* An Examiner who conducts a practical test may waive any task for which the FAA has provided waiver authority.

[Doc. No. FAA-2006-26661, 74 FR 42552, Aug. 21, 2009, as amended by Amdt. 61-125, 75 FR 5220, Feb. 1, 2010]

§ 61.64 Use of a flight simulator and flight training device.

(a) *Use of a flight simulator or flight training device.* If an applicant for a certificate or rating uses a flight simulator or flight training device for training or any portion of the practical test, the flight simulator and flight training device -

(1) Must represent the category, class, and type (if a type rating is applicable) for the rating sought; and

(2) Must be qualified and approved by the Administrator and used in accordance with an approved course of training under part 141 or part 142 of this chapter; or under part 121 or part 135 of this chapter, provided the applicant is a pilot employee of that air carrier operator.

(b) Except as provided in paragraph (f) of this section, if an airplane is not used during the practical test for a type rating for a turbojet airplane (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher flight simulator and the applicant must -

(1) Hold a type rating in a turbojet airplane of the same class of airplane for which the type rating is sought, and that type rating may not contain a supervised operating experience limitation;

(2) Have 1,000 hours of flight time in two different turbojet airplanes of the same class of airplane for which the type rating is sought;

(3) Have been appointed by the U.S. Armed Forces as pilot in command in a turbojet airplane of the same class of airplane for which the type rating is sought;

(4) Have 500 hours of flight time in the same type of airplane for which the type rating is sought; or

(5) Have logged at least 2,000 hours of flight time, of which 500 hours were in turbine-powered airplanes of the same class of airplane for which the type rating is sought.

(c) Except as provided in paragraph (f) of this section, if an airplane is not used during the practical test for a type rating for a turbo-propeller airplane (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher flight simulator and the applicant must -

(1) Hold a type rating in a turbo-propeller airplane of the same class of airplane for which the type rating is sought, and that type rating may not contain a supervised operating experience limitation;

(2) Have 1,000 hours of flight time in two different turbo-propeller airplanes of the same class of airplane for which the type rating is sought;

(3) Have been appointed by the U.S. Armed Forces as pilot in command in a turbo-propeller airplane of the same class of airplane for which the type rating is sought;

(4) Have 500 hours of flight time in the same type of airplane for which the type rating is sought; or

(5) Have logged at least 2,000 hours of flight time, of which 500 hours were in turbine-powered airplanes of the same class of airplane for which the type rating is sought.

(d) Except as provided in paragraph (f) of this section, if a helicopter is not used during the practical test for a type rating in a helicopter (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher flight simulator and the applicant must meet one of the following requirements -

(1) Hold a type rating in a helicopter and that type rating may not contain the supervised operating experience limitation;

(2) Have been appointed by the U.S. Armed Forces as pilot in command of a helicopter;

(3) Have 500 hours of flight time in the type of helicopter; or

(4) Have 1,000 hours of flight time in two different types of helicopters.

(e) Except as provided in paragraph (f) of this section, if a powered-lift is not used during the practical test for a type rating in a powered-lift (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher flight simulator and the applicant must meet one of the following requirements -

(1) Hold a type rating in a powered-lift without a supervised operating experience limitation;

(2) Have been appointed by the U.S. Armed Forces as pilot in command of a powered-lift;

(3) Have 500 hours of flight time in the type of powered-lift for which the rating is sought; or

(4) Have 1,000 hours of flight time in two different types of powered-lifts.

(f) If the applicant does not meet one of the experience requirements of paragraphs (b)(1) through (5), (c)(1) through (5), (d)(1) through (4) or (e)(1) through (4) of this section, as appropriate to the type rating sought, then -

(1) The applicant must complete the following tasks on the practical test in an aircraft appropriate to category, class, and type for the rating sought: Preflight inspection, normal takeoff, normal instrument landing system approach, missed approach, and normal landing; or

(2) The applicant's pilot certificate will be issued with a limitation that states: "The [name of the additional type rating] is subject to pilot in command limitations," and the applicant is restricted from serving as pilot in command in an aircraft of that type.

(g) The limitation described under paragraph (f)(2) of this section may be removed from the pilot certificate if the applicant complies with the following -

(1) Performs 25 hours of flight time in an aircraft of the category, class, and type for which the limitation applies under the direct observation of the pilot in command who holds a category, class, and type rating, without limitations, for the aircraft;

(2) Logs each flight and the pilot in command who observed the flight attests in writing to each flight;

(3) Obtains the flight time while performing the duties of pilot in command; and

(4) Presents evidence of the supervised operating experience to any Examiner or FAA Flight Standards District Office to have the limitation removed.

[Doc. No. FAA-2006-26661, 76 FR 78143, Dec. 16, 2011]

§ 61.65 Instrument rating requirements.

(a) *General.* A person who applies for an instrument rating must:

(1) Hold at least a current private pilot certificate, or be concurrently applying for a private pilot certificate, with an airplane, helicopter, or powered-lift rating appropriate to the instrument rating sought;

(2) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet any of these requirements due to a medical condition, the Administrator may place such operating limitations on the applicant's pilot certificate as are necessary for the safe operation of the aircraft;

(3) Receive and log ground training from an authorized instructor or accomplish a home-study course of training on the aeronautical knowledge areas of paragraph (b) of this section that apply to the instrument rating sought;

(4) Receive a logbook or training record endorsement from an authorized instructor certifying that the person is prepared to take the required knowledge test;

(5) Receive and log training on the areas of operation of paragraph (c) of this section from an authorized instructor in an aircraft, full flight simulator, or flight training device that represents an airplane, helicopter, or powered-lift appropriate to the instrument rating sought;

(6) Receive a logbook or training record endorsement from an authorized instructor certifying that the person is prepared to take the required practical test;

(7) Pass the required knowledge test on the aeronautical knowledge areas of paragraph (b) of this section; however, an applicant is not required to take another knowledge test when that person already holds an instrument rating; and

(8) Pass the required practical test on the areas of operation in paragraph (c) of this section in -

(i) An airplane, helicopter, or powered-lift appropriate to the rating sought; or

(ii) A full flight simulator or a flight training device appropriate to the rating sought and for the specific maneuver or instrument approach procedure performed. If an approved flight training device is used for the practical test, the instrument approach procedures conducted in that

flight training device are limited to one precision and one nonprecision approach, provided the flight training device is approved for the procedure performed.

(b) *Aeronautical knowledge.* A person who applies for an instrument rating must have received and logged ground training from an authorized instructor or accomplished a home-study course on the following aeronautical knowledge areas that apply to the instrument rating sought:

(1) Federal Aviation Regulations of this chapter that apply to flight operations under IFR;

(2) Appropriate information that applies to flight operations under IFR in the "Aeronautical Information Manual;"

(3) Air traffic control system and procedures for instrument flight operations;

(4) IFR navigation and approaches by use of navigation systems;

(5) Use of IFR en route and instrument approach procedure charts;

(6) Procurement and use of aviation weather reports and forecasts and the elements of forecasting weather trends based on that information and personal observation of weather conditions;

(7) Safe and efficient operation of aircraft under instrument flight rules and conditions;

(8) Recognition of critical weather situations and windshear avoidance;

(9) Aeronautical decision making and judgment; and

(10) Crew resource management, including crew communication and coordination.

(c) *Flight proficiency.* A person who applies for an instrument rating must receive and log training from an authorized instructor in an aircraft, or in a full flight simulator or flight training device, in accordance with paragraph (g) of this section, that includes the following areas of operation:

(1) Preflight preparation;

(2) Preflight procedures;

(3) Air traffic control clearances and procedures;

(4) Flight by reference to instruments;

(5) Navigation systems;

(6) Instrument approach procedures;

(7) Emergency operations; and

(8) Postflight procedures.

(d) *Aeronautical experience for the instrument-airplane rating.* A person who applies for an instrument-airplane rating must have logged:

(1) Except as provided in paragraph (g) of this section, 50 hours of cross-country flight time as pilot in command, of which 10 hours must have been in an airplane; and

(2) Forty hours of actual or simulated instrument time in the areas of operation listed in paragraph (c) of this section, of which 15 hours must have been received from an authorized instructor who holds an instrument-airplane rating, and the instrument time includes:

(i) Three hours of instrument flight training from an authorized instructor in an airplane that is appropriate to the instrument-airplane rating within 2 calendar months before the date of the practical test; and

(ii) Instrument flight training on cross country flight procedures, including one cross country flight in an airplane with an authorized instructor, that is performed under instrument flight rules, when a flight plan has been filed with an air traffic control facility, and that involves -

(A) A flight of 250 nautical miles along airways or by directed routing from an air traffic control facility;

(B) An instrument approach at each airport; and

(C) Three different kinds of approaches with the use of navigation systems.

(e) *Aeronautical experience for the instrument-helicopter rating.* A person who applies for an instrument-helicopter rating must have logged:

(1) Except as provided in paragraph (g) of this section, 50 hours of cross-country flight time as pilot in command, of which 10 hours must have been in a helicopter; and

(2) Forty hours of actual or simulated instrument time in the areas of operation listed under paragraph (c) of this section, of which 15 hours must have been with an authorized instructor who holds an instrument-helicopter rating, and the instrument time includes:

(i) Three hours of instrument flight training from an authorized instructor in a helicopter that is appropriate to the instrument-helicopter rating within 2 calendar months before the date of the practical test; and

(ii) Instrument flight training on cross country flight procedures, including one cross country flight in a helicopter with an authorized instructor that is performed under instrument flight rules and a flight plan has been filed with an air traffic control facility, and involves -

(A) A flight of 100 nautical miles along airways or by directed routing from an air traffic control facility;

(B) An instrument approach at each airport; and

(C) Three different kinds of approaches with the use of navigation systems.

(f) *Aeronautical experience for the instrument-powered-lift rating.* A person who applies for an instrument-powered-lift rating must have logged:

(1) Except as provided in paragraph (g) of this section, 50 hours of cross-country flight time as pilot in command, of which 10 hours must have been in a powered-lift; and

(2) Forty hours of actual or simulated instrument time in the areas of operation listed under paragraph (c) of this section, of which 15 hours must have been received from an authorized instructor who holds an instrument-powered-lift rating, and the instrument time includes:

(i) Three hours of instrument flight training from an authorized instructor in a powered-lift that is appropriate to the instrument-powered-lift rating within 2 calendar months before the date of the practical test; and

(ii) Instrument flight training on cross country flight procedures, including one cross country flight in a powered-lift with an authorized instructor that is performed under instrument flight rules, when a flight plan has been filed with an air traffic control facility, that involves -

(A) A flight of 250 nautical miles along airways or by directed routing from an air traffic control facility;

(B) An instrument approach at each airport; and

(C) Three different kinds of approaches with the use of navigation systems.

(g) An applicant for a combined private pilot certificate with an instrument rating may satisfy the cross-country flight time requirements of this section by crediting:

(1) For an instrument-airplane rating or an instrument-powered-lift rating, up to 45 hours of cross-country flight time performing the duties of pilot in command with an authorized instructor; or

(2) For an instrument-helicopter rating, up to 47 hours of cross-country flight time performing the duties of pilot in command with an authorized instructor.

(h) *Use of full flight simulators or flight training devices.* If the instrument time was provided by an authorized instructor in a full flight simulator or flight training device -

(1) A maximum of 30 hours may be performed in that full flight simulator or flight training device if the instrument time was completed in accordance with part 142 of this chapter; or

(2) A maximum of 20 hours may be performed in that full flight simulator or flight training device if the instrument time was not completed in accordance with part 142 of this chapter.

(i) *Use of an aviation training device.* A maximum of 10 hours of instrument time received in a basic aviation training device or a maximum of 20 hours of instrument time received in an advanced aviation training device may be credited for the instrument time requirements of this section if -

(1) The device is approved and authorized by the FAA;

(2) An authorized instructor provides the instrument time in the device; and

(3) The FAA approved the instrument training and instrument tasks performed in the device.

(j) Except as provided in paragraph (h)(1) of this section, a person may not credit more than 20 total hours of instrument time in a full flight simulator, flight training device, aviation training device, or a combination towards the instrument time requirements of this section.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40900, July 30, 1997; Amdt. 61-124, 74 FR 42554, Aug. 21, 2009; Amdt. 61-127, 76 FR 19267, Apr. 7, 2011; Amdt. 61-128, 76 FR 54106, Aug. 31, 2011; Docket FAA-2015-1846, Amdt. 61-136, 81 FR 21460, Apr. 12, 2016]

§ 61.66 Enhanced Flight Vision System Pilot Requirements.

Link to an amendment published at 81 FR 90172, Dec. 13, 2016.

(a) *Ground training.* (1) Except as provided under paragraphs (f) and (h) of this section, no person may manipulate the controls of an aircraft or act as pilot in command of an aircraft during an EFVS operation conducted under § 91.176(a) or (b) of this chapter, or serve as a required pilot flightcrew member during an EFVS operation conducted under § 91.176(a) of this chapter, unless that person -

(i) Receives and logs ground training under a training program approved by the Administrator; and

(ii) Obtains a logbook or training record endorsement from an authorized training provider certifying the person satisfactorily completed the ground training appropriate to the category of aircraft for which the person is seeking the EFVS privilege.

(2) The ground training must include the following subjects:

(i) Those portions of this chapter that relate to EFVS flight operations and limitations, including the Airplane Flight Manual or Rotorcraft Flight Manual limitations;

(ii) EFVS sensor imagery, required aircraft flight information, and flight symbology;

(iii) EFVS display, controls, modes, features, symbology, annunciations, and associated systems and components;

(iv) EFVS sensor performance, sensor limitations, scene interpretation, visual anomalies, and other visual effects;

(v) Preflight planning and operational considerations associated with using EFVS during taxi, takeoff, climb, cruise, descent and landing phases of flight, including the use of EFVS for instrument approaches, operating below DA/DH or MDA, executing missed approaches, landing, rollout, and balked landings;

(vi) Weather associated with low visibility conditions and its effect on EFVS performance;

(vii) Normal, abnormal, emergency, and crew coordination procedures when using EFVS; and

(viii) Interpretation of approach and runway lighting systems and their display characteristics when using an EFVS.

(b) *Flight training.* (1) Except as provided under paragraph (h) of this section, no person may manipulate the controls of an aircraft or act as pilot in command of an aircraft during an EFVS operation under § 91.176(a) or (b) of this chapter unless that person -

(i) Receives and logs flight training for the EFVS operation under a training program approved by the Administrator; and

(ii) Obtains a logbook or training record endorsement from an authorized training provider certifying the person is proficient in the use of EFVS in the category of aircraft in which the training was provided for the EFVS operation to be conducted.

(2) Flight training must include the following tasks:

(i) Preflight and inflight preparation of EFVS equipment for EFVS operations, including EFVS setup and use of display, controls, modes and associated systems, and adjustments for brightness and contrast under day and night conditions;

(ii) Proper piloting techniques associated with using EFVS during taxi, takeoff, climb, cruise, descent, landing, and rollout, including missed approaches and balked landings;

(iii) Proper piloting techniques for the use of EFVS during instrument approaches, to include operations below DA/DH or MDA as applicable to the EFVS operations to be conducted, under both day and night conditions;

(iv) Determining enhanced flight visibility;

(v) Identifying required visual references appropriate to EFVS operations;

(vi) Transitioning from EFVS sensor imagery to natural vision acquisition of required visual references and the runway environment;

(vii) Using EFVS sensor imagery, required aircraft flight information, and flight symbology to touchdown and rollout, if the person receiving training will conduct EFVS operations under § 91.176(a) of this chapter; and

(viii) Normal, abnormal, emergency, and crew coordination procedures when using an EFVS.

(c) *Supplementary EFVS training.* A person qualified to conduct an EFVS operation under § 91.176(a) or (b) of this chapter who seeks to conduct an additional EFVS operation for which that person has not received training must -

(1) Receive and log the ground and flight training required by paragraphs (a) and (b) of this section, under a training program approved by the Administrator, appropriate to the additional EFVS operation to be conducted; and

(2) Obtain a logbook or training record endorsement from the authorized training provider certifying the person is proficient in the use of EFVS in the category of aircraft in which the training was provided for the EFVS operation to be conducted.

(d) *Recent flight experience: EFVS.* Except as provided in paragraphs (f) and (h) of this section, no person may manipulate the controls of an aircraft during an EFVS operation or act as pilot in command of an aircraft during an EFVS operation unless, within 6 calendar months preceding the month of the flight, that person performs and logs six instrument approaches as the sole manipulator of the controls using an EFVS under any weather conditions in the category of aircraft for which the person seeks the EFVS privilege. The instrument approaches may be performed in day or night conditions; and

(1) One approach must terminate in a full stop landing; and

(2) For persons authorized to exercise the privileges of § 91.176(a), the full stop landing must be conducted using the EFVS.

(e) *EFVS refresher training.* (1) Except as provided in paragraph (h) of this section, a person who has failed to meet the recent flight experience requirements of paragraph (d) of this section for more than six calendar months may reestablish EFVS currency only by satisfactorily completing an approved EFVS refresher course in the category of aircraft for which the person seeks the EFVS privilege. The EFVS refresher course must consist of the subjects and tasks listed in paragraphs (a)

(2) and (b)(2) of this section applicable to the EFVS operations to be conducted.

(2) The EFVS refresher course must be conducted by an authorized training provider whose instructor meets the training requirements of this section and, if conducting EFVS operations in an aircraft, the recent flight experience requirements of this section.

(f) *Military pilots and former military pilots in the U.S. Armed Forces.* (1) The training requirements of paragraphs (a) and (b) of this section applicable to EFVS operations conducted under § 91.176(a) of this chapter do not apply to a military pilot or former military pilot in the U.S. Armed Forces if that person documents satisfactory completion of ground and flight training in EFVS operations to touchdown and rollout by the U.S. Armed Forces.

(2) The training requirements in paragraphs (a) and (b) of this section applicable to EFVS operations conducted under § 91.176(b) of this chapter do not apply to a military pilot or former military pilot in the U.S. Armed Forces if that person documents satisfactory completion of ground and flight training in EFVS operations to 100 feet above the touchdown zone elevation by the U.S. Armed Forces.

(3) A military pilot or former military pilot in the U.S. Armed Forces may satisfy the recent flight experience requirements of paragraph (d) of this section if he or she documents satisfactory completion of an EFVS proficiency check in the U.S. Armed Forces within 6 calendar months preceding the month of the flight, the check was conducted by a person authorized by the U.S. Armed Forces to administer the check, and the person receiving the check was a member of the U.S. Armed Forces at the time the check was administered.

(g) *Use of full flight simulators.* A level C or higher full flight simulator (FFS) equipped with an EFVS may be used to meet the flight training, recent flight experience, and refresher training requirements of this section. The FFS must be evaluated and qualified for EFVS operations by the Administrator, and must be:

(1) Qualified and maintained in accordance with part 60 of this chapter, or a previously qualified device, as permitted in accordance with § 60.17 of this chapter;

(2) Approved by the Administrator for the tasks and maneuvers to be conducted; and

(3) Equipped with a daylight visual display if being used to meet the flight training requirements of this section.

(h) *Exceptions.* (1) A person may manipulate the controls of an aircraft during an EFVS operation without meeting the requirements of this section in the following circumstances:

(i) When receiving flight training to meet the requirements of this section under an approved training program, provided the instructor meets the requirements in this section to perform the EFVS operation in the category of aircraft for which the training is being conducted.

(ii) During an EFVS operation performed in the course of satisfying the recent flight experience requirements of paragraph (d) of this section, provided another individual is

serving as pilot in command of the aircraft during the EFVS operation and that individual meets the requirements in this section to perform the EFVS operation in the category of aircraft in which the flight is being conducted.

(iii) During an EFVS operation performed in the course of completing EFVS refresher training in accordance with paragraph (e) of this section, provided the instructor providing the refresher training meets the requirements in this section to perform the EFVS operation in the category of aircraft for which the training is being conducted.

(2) The requirements of paragraphs (a) and (b) of this section do not apply if a person is conducting a flight or series of flights in an aircraft issued an experimental airworthiness certificate under § 21.191 of this chapter for the purpose of research and development or showing compliance with regulations, provided the person has knowledge of the subjects specified in paragraph (a)(2) of this section and has experience with the tasks specified in paragraph (b)(2) of this section applicable to the EFVS operations to be conducted.

(3) The requirements specified in paragraphs (d) and (e) of this section do not apply to a pilot who:

(i) Is employed by a part 119 certificate holder authorized to conduct operations under part 121, 125, or 135 when the pilot is conducting an EFVS operation for that certificate holder under part 91, 121, 125, or 135, as applicable, provided the pilot conducts the operation in accordance with the certificate holder's operations specifications for EFVS operations;

(ii) Is employed by a person who holds a letter of deviation authority issued under § 125.3 of this chapter when the pilot is conducting an EFVS operation for that person under part 125, provided the pilot is conducting the operation in accordance with that person's letter of authorization for EFVS operations; or

(iii) Is employed by a fractional ownership program manager to conduct operations under part 91 subpart K when the pilot is conducting an EFVS operation for that program manager under part 91, provided the pilot is conducting the operation in accordance with the program manager's management specifications for EFVS operations.

(4) The requirements of paragraphs (a) and (b) of this section do not apply if a person is conducting EFVS operations under § 91.176(b) of this chapter and that person documents that prior to March 13, 2018, that person satisfactorily completed ground and flight training on EFVS operations to 100 feet above the touchdown zone elevation.

(5) The requirements specified in this section do not apply if a person is conducting an EFVS operation to 100 feet above the touchdown zone elevation in accordance with the requirements of § 91.175(l) and (m) of this chapter prior to March 13, 2018.

[Docket FAA-2013-0485, Amdt. 61-139, 81 FR 90170, Dec. 13, 2016]

§ 61.67 Category II pilot authorization requirements.

(a) *General.* A person who applies for a Category II pilot authorization must hold:

- (1) At least a private or commercial pilot certificate with an instrument rating or an airline transport pilot certificate;
- (2) A type rating for the aircraft for which the authorization is sought if that aircraft requires a type rating; and
- (3) A category and class rating for the aircraft for which the authorization is sought.

(b) *Experience requirements.* An applicant for a Category II pilot authorization must have at least -

- (1) 50 hours of night flight time as pilot in command.
- (2) 75 hours of instrument time under actual or simulated instrument conditions that may include not more than -
 - (i) A combination of 25 hours of simulated instrument flight time in a flight simulator or flight training device; or
 - (ii) 40 hours of simulated instrument flight time if accomplished in an approved course conducted by an appropriately rated training center certificated under part 142 of this chapter.
- (3) 250 hours of cross-country flight time as pilot in command.

(c) *Practical test requirements.* (1) A practical test must be passed by a person who applies for -

- (i) Issuance or renewal of a Category II pilot authorization; and
- (ii) The addition of another type aircraft to the applicant's Category II pilot authorization.

(2) To be eligible for the practical test for an authorization under this section, an applicant must -

- (i) Meet the requirements of paragraphs (a) and (b) of this section; and
- (ii) If the applicant has not passed a practical test for this authorization during the 12 calendar months preceding the month of the test, then that person must -
 - (A) Meet the requirements of § 61.57(c); and
 - (B) Have performed at least six ILS approaches during the 6 calendar months preceding the month of the test, of which at least three of the approaches must have been conducted without the use of an approach coupler.

(3) The approaches specified in paragraph (c)(2)(ii)(B) of this section -

- (i) Must be conducted under actual or simulated instrument flight conditions;
- (ii) Must be conducted to the decision height for the ILS approach in the type aircraft in which the practical test is to be conducted;
- (iii) Need not be conducted to the decision height authorized for Category II operations;
- (iv) Must be conducted to the decision height authorized for Category II operations only if conducted in a flight simulator or flight training device; and

(v) Must be accomplished in an aircraft of the same category and class, and type, as applicable, as the aircraft in which the practical test is to be conducted or in a flight simulator that -

(A) Represents an aircraft of the same category and class, and type, as applicable, as the aircraft in which the authorization is sought; and

(B) Is used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(4) The flight time acquired in meeting the requirements of paragraph (c)(2)(ii)(B) of this section may be used to meet the requirements of paragraph (c)(2)(ii)(A) of this section.

(d) *Practical test procedures.* The practical test consists of an oral increment and a flight increment.

(1) *Oral increment.* In the oral increment of the practical test an applicant must demonstrate knowledge of the following:

- (i) Required landing distance;
- (ii) Recognition of the decision height;
- (iii) Missed approach procedures and techniques using computed or fixed attitude guidance displays;
- (iv) Use and limitations of RVR;
- (v) Use of visual clues, their availability or limitations, and altitude at which they are normally discernible at reduced RVR readings;
- (vi) Procedures and techniques related to transition from nonvisual to visual flight during a final approach under reduced RVR;
- (vii) Effects of vertical and horizontal windshear;
- (viii) Characteristics and limitations of the ILS and runway lighting system;
- (ix) Characteristics and limitations of the flight director system, auto approach coupler (including split axis type if equipped), auto throttle system (if equipped), and other required Category II equipment;
- (x) Assigned duties of the second in command during Category II approaches, unless the aircraft for which authorization is sought does not require a second in command; and

(xi) Instrument and equipment failure warning systems.

(2) *Flight increment.* The following requirements apply to the flight increment of the practical test:

(i) The flight increment must be conducted in an aircraft of the same category, class, and type, as applicable, as the aircraft in which the authorization is sought or in a flight simulator that -

(A) Represents an aircraft of the same category and class, and type, as applicable, as the aircraft in which the authorization is sought; and

(B) Is used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(ii) The flight increment must consist of at least two ILS approaches to 100 feet AGL including at least one landing and one missed approach.

(iii) All approaches performed during the flight increment must be made with the use of an approved flight control guidance system, except if an approved auto approach coupler is installed, at least one approach must be hand flown using flight director commands.

(iv) If a multiengine airplane with the performance capability to execute a missed approach with one engine inoperative is used for the practical test, the flight increment must include the performance of one missed approach with an engine, which shall be the most critical engine, if applicable, set at idle or zero thrust before reaching the middle marker.

(v) If a multiengine flight simulator or multiengine flight training device is used for the practical test, the applicant must execute a missed approach with the most critical engine, if applicable, failed.

(vi) For an authorization for an aircraft that requires a type rating, the practical test must be performed in coordination with a second in command who holds a type rating in the aircraft in which the authorization is sought.

(vii) Oral questioning may be conducted at any time during a practical test.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40900, July 30, 1997]

§ 61.68 Category III pilot authorization requirements.

(a) *General.* A person who applies for a Category III pilot authorization must hold:

(1) At least a private pilot certificate or commercial pilot certificate with an instrument rating or an airline transport pilot certificate;

(2) A type rating for the aircraft for which the authorization is sought if that aircraft requires a type rating; and

(3) A category and class rating for the aircraft for which the authorization is sought.

(b) *Experience requirements.* An applicant for a Category III pilot authorization must have at least -

(1) 50 hours of night flight time as pilot in command.

(2) 75 hours of instrument flight time during actual or simulated instrument conditions that may include not more than -

(i) A combination of 25 hours of simulated instrument flight time in a flight simulator or flight training device; or

(ii) 40 hours of simulated instrument flight time if accomplished in an approved course conducted by an appropriately rated training center certificated under part 142 of this chapter.

(3) 250 hours of cross-country flight time as pilot in command.

(c) *Practical test requirements.* (1) A practical test must be passed by a person who applies for -

(i) Issuance or renewal of a Category III pilot authorization; and

(ii) The addition of another type of aircraft to the applicant's Category III pilot authorization.

(2) To be eligible for the practical test for an authorization under this section, an applicant must -

(i) Meet the requirements of paragraphs (a) and (b) of this section; and

(ii) If the applicant has not passed a practical test for this authorization during the 12 calendar months preceding the month of the test, then that person must -

(A) Meet the requirements of § 61.57(c); and

(B) Have performed at least six ILS approaches during the 6 calendar months preceding the month of the test, of which at least three of the approaches must have been conducted without the use of an approach coupler.

(3) The approaches specified in paragraph (c)(2)(ii)(B) of this section -

(i) Must be conducted under actual or simulated instrument flight conditions;

(ii) Must be conducted to the alert height or decision height for the ILS approach in the type aircraft in which the practical test is to be conducted;

(iii) Need not be conducted to the decision height authorized for Category III operations;

(iv) Must be conducted to the alert height or decision height, as applicable, authorized for Category III operations only if conducted in a flight simulator or flight training device; and

(v) Must be accomplished in an aircraft of the same category and class, and type, as applicable, as the aircraft in which the practical test is to be conducted or in a flight simulator that -

(A) Represents an aircraft of the same category and class, and type, as applicable, as the aircraft for which the authorization is sought; and

(B) Is used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(4) The flight time acquired in meeting the requirements of paragraph (c)(2)(ii)(B) of this section may be used to meet the requirements of paragraph (c)(2)(ii)(A) of this section.

(d) *Practical test procedures.* The practical test consists of an oral increment and a flight increment.

(1) *Oral increment.* In the oral increment of the practical test an applicant must demonstrate knowledge of the following:

(i) Required landing distance;

(ii) Determination and recognition of the alert height or decision height, as applicable, including use of a radar altimeter;

(iii) Recognition of and proper reaction to significant failures encountered prior to and after reaching the alert height or decision height, as applicable;

(iv) Missed approach procedures and techniques using computed or fixed attitude guidance displays and expected height loss as they relate to manual go-around or automatic go-around, and initiation altitude, as applicable;

(v) Use and limitations of RVR, including determination of controlling RVR and required transmissometers;

(vi) Use, availability, or limitations of visual cues and the altitude at which they are normally discernible at reduced RVR readings including -

(A) Unexpected deterioration of conditions to less than minimum RVR during approach, flare, and rollout;

(B) Demonstration of expected visual references with weather at minimum conditions;

(C) The expected sequence of visual cues during an approach in which visibility is at or above landing minima; and

(D) Procedures and techniques for making a transition from instrument reference flight to visual flight during a final approach under reduced RVR.

(vii) Effects of vertical and horizontal windshear;

(viii) Characteristics and limitations of the ILS and runway lighting system;

(ix) Characteristics and limitations of the flight director system auto approach coupler (including split axis type if equipped), auto throttle system (if equipped), and other Category III equipment;

(x) Assigned duties of the second in command during Category III operations, unless the aircraft for which authorization is sought does not require a second in command;

(xi) Recognition of the limits of acceptable aircraft position and flight path tracking during approach, flare, and, if applicable, rollout; and

(xii) Recognition of, and reaction to, airborne or ground system faults or abnormalities, particularly after passing alert height or decision height, as applicable.

(2) *Flight increment.* The following requirements apply to the flight increment of the practical test -

(i) The flight increment may be conducted in an aircraft of the same category and class, and type, as applicable, as the aircraft for which the authorization is sought, or in a flight simulator that -

(A) Represents an aircraft of the same category and class, and type, as applicable, as the aircraft in which the authorization is sought; and

(B) Is used in accordance with an approved course conducted by a training center certificated under part 142 of this chapter.

(ii) The flight increment must consist of at least two ILS approaches to 100 feet AGL, including one landing and one missed approach initiated from a very low altitude that may result in a touchdown during the go-around maneuver;

(iii) All approaches performed during the flight increment must be made with the approved automatic landing system or an equivalent landing system approved by the Administrator;

(iv) If a multiengine aircraft with the performance capability to execute a missed approach with one engine

inoperative is used for the practical test, the flight increment must include the performance of one missed approach with the most critical engine, if applicable, set at idle or zero thrust before reaching the middle or outer marker;

(v) If a multiengine flight simulator or multiengine flight training device is used, a missed approach must be executed with an engine, which shall be the most critical engine, if applicable, failed;

(vi) For an authorization for an aircraft that requires a type rating, the practical test must be performed in coordination with a second in command who holds a type rating in the aircraft in which the authorization is sought;

(vii) Oral questioning may be conducted at any time during the practical test;

(viii) Subject to the limitations of this paragraph, for Category IIIb operations predicated on the use of a fail-passive rollout control system, at least one manual rollout using visual reference or a combination of visual and instrument references must be executed. The maneuver required by this paragraph shall be initiated by a fail-passive disconnect of the rollout control system -

(A) After main gear touchdown;

(B) Prior to nose gear touchdown;

(C) In conditions representative of the most adverse lateral touchdown displacement allowing a safe landing on the runway; and

(D) In weather conditions anticipated in Category IIIb operations.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40900, July 30, 1997]

§ 61.69 Glider and unpowered ultralight vehicle towing: Experience and training requirements.

(a) No person may act as pilot in command for towing a glider or unpowered ultralight vehicle unless that person -

(1) Holds a private, commercial or airline transport pilot certificate with a category rating for powered aircraft;

(2) Has logged at least 100 hours of pilot-in-command time in the aircraft category, class and type, if required, that the pilot is using to tow a glider or unpowered ultralight vehicle;

(3) Has a logbook endorsement from an authorized instructor who certifies that the person has received ground and flight training in gliders or unpowered ultralight vehicles and is proficient in -

(i) The techniques and procedures essential to the safe towing of gliders or unpowered ultralight vehicles, including airspeed limitations;

(ii) Emergency procedures;

(iii) Signals used; and

(iv) Maximum angles of bank.

(4) Except as provided in paragraph (b) of this section, has logged at least three flights as the sole manipulator of the controls of an aircraft while towing a glider or unpowered ultralight vehicle, or has simulated towing flight procedures

in an aircraft while accompanied by a pilot who meets the requirements of paragraphs (c) and (d) of this section.

(5) Except as provided in paragraph (b) of this section, has received a logbook endorsement from the pilot, described in paragraph (a)(4) of this section, certifying that the person has accomplished at least 3 flights in an aircraft while towing a glider or unpowered ultralight vehicle, or while simulating towing flight procedures; and

(6) Within 24 calendar months before the flight has -

(i) Made at least three actual or simulated tows of a glider or unpowered ultralight vehicle while accompanied by a qualified pilot who meets the requirements of this section; or

(ii) Made at least three flights as pilot in command of a glider or unpowered ultralight vehicle towed by an aircraft.

(b) Any person who, before May 17, 1967, has made and logged 10 or more flights as pilot in command of an aircraft towing a glider or unpowered ultralight vehicle in accordance with a certificate of waiver need not comply with paragraphs (a)(4) and (a)(5) of this section.

(c) The pilot, described in paragraph (a)(4) of this section, who endorses the logbook of a person seeking towing privileges must have -

(1) Met the requirements of this section prior to endorsing the logbook of the person seeking towing privileges; and

(2) Logged at least 10 flights as pilot in command of an aircraft while towing a glider or unpowered ultralight vehicle.

(d) If the pilot described in paragraph (a)(4) of this section holds only a private pilot certificate, then that pilot must have -

(1) Logged at least 100 hours of pilot-in-command time in airplanes, or 200 hours of pilot-in-command time in a combination of powered and other-than-powered aircraft; and

(2) Performed and logged at least three flights within the 12 calendar months preceding the month that pilot accompanies or endorses the logbook of a person seeking towing privileges -

(i) In an aircraft while towing a glider or unpowered ultralight vehicle accompanied by another pilot who meets the requirements of this section; or

(ii) As pilot in command of a glider or unpowered ultralight vehicle being towed by another aircraft.

[Doc. No. FAA-2001-11133, 69 FR 44866, July 27, 2004, as amended by Amdt. 61-124, 74 FR 42555, Aug. 21, 2009]

§ 61.71 Graduates of an approved training program other than under this part: Special rules.

(a) A person who graduates from an approved training program under part 141 or part 142 of this chapter is considered to have met the applicable aeronautical experience, aeronautical knowledge, and areas of operation requirements of this part if that person presents the graduation certificate and passes the required practical test within the 60-day period after the date of graduation.

(b) A person may apply for an airline transport pilot certificate, type rating, or both under this part, and will be considered to have met the applicable requirements under § 61.157, except for the airline transport pilot certification

training program required by § 61.156, for that certificate and rating, if that person has:

(1) Satisfactorily accomplished an approved training program and a proficiency check for that airplane type that includes all the tasks and maneuvers required to serve as pilot in command in accordance with the requirements of subparts N and O of part 121 of this chapter; and

(2) Applied for an airline transport pilot certificate, type rating, or both within the 60-day period from the date the person satisfactorily accomplished the requirements of paragraph (b)(1) for that airplane type.

(c) A person who holds a foreign pilot license and is applying for an equivalent U.S. pilot certificate on the basis of a Bilateral Aviation Safety Agreement and associated Implementation Procedures for Licensing may be considered to have met the applicable aeronautical experience, aeronautical knowledge, and areas of operation requirements of this part.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40901, July 30, 1997; Amdt. 61-128, 76 FR 54107, Aug. 31, 2011; Amdt. 61-130, 78 FR 42374, July 15, 2013]

§ 61.73 Military pilots or former military pilots: Special rules.

(a) *General.* Except for a person who has been removed from flying status for lack of proficiency or because of a disciplinary action involving aircraft operations, a U.S. military pilot or former military pilot who meets the requirements of this section may apply, on the basis of his or her military pilot qualifications, for:

(1) A commercial pilot certificate with the appropriate aircraft category and class rating.

(2) An instrument rating with the appropriate aircraft rating.

(3) A type rating.

(b) *Military pilots and former military pilots in the U.S. Armed Forces.* A person who qualifies as a military pilot or former military pilot in the U.S. Armed Forces may apply for a pilot certificate and ratings under paragraph (a) of this section if that person -

(1) Presents evidentiary documents described under paragraphs (h)(1), (2), and (3) of this section that show the person's status in the U.S. Armed Forces.

(2) Has passed the military competency aeronautical knowledge test on the appropriate parts of this chapter for commercial pilot privileges and limitations, air traffic and general operating rules, and accident reporting rules.

(3) Presents official U.S. military records that show compliance with one of the following requirements -

(i) Before the date of the application, passing an official U.S. military pilot and instrument proficiency check in a military aircraft of the kind of aircraft category, class, and type, if class or type of aircraft is applicable, for the ratings sought; or

(ii) Before the date of application, logging 10 hours of pilot time as a military pilot in a U.S. military aircraft in the kind of aircraft category, class, and type, if a class rating or type rating is applicable, for the aircraft rating sought.

(c) *A military pilot in the Armed Forces of a foreign contracting State to the Convention on International Civil Aviation.* A person who is a military pilot in the Armed Forces of a foreign contracting State to the Convention on International Civil Aviation and is assigned to pilot duties in the U.S. Armed Forces, for purposes other than receiving flight training, may apply for a commercial pilot certificate and ratings under paragraph (a) of this section, provided that person -

(1) Presents evidentiary documents described under paragraph (h)(4) of this section that show the person is a military pilot in the Armed Forces of a foreign contracting State to the Convention on International Civil Aviation, and is assigned to pilot duties in the U.S. Armed Forces, for purposes other than receiving flight training.

(2) Has passed the military competency aeronautical knowledge test on the appropriate parts of this chapter for commercial pilot privileges and limitations, air traffic and general operating rules, and accident reporting rules.

(3) Presents official U.S. military records that show compliance with one of the following requirements:

(i) Before the date of the application, passed an official U.S. military pilot and instrument proficiency check in a military aircraft of the kind of aircraft category, class, or type, if class or type of aircraft is applicable, for the ratings; or

(ii) Before the date of the application, logged 10 hours of pilot time as a military pilot in a U.S. military aircraft of the kind of category, class, and type of aircraft, if a class rating or type rating is applicable, for the aircraft rating.

(d) *Instrument rating.* A person who is qualified as a U.S. military pilot or former military pilot may apply for an instrument rating to be added to a pilot certificate if that person -

(1) Has passed an instrument proficiency check in the U.S. Armed Forces in the aircraft category for the instrument rating sought; and

(2) Has an official U.S. Armed Forces record that shows the person is instrument pilot qualified by the U.S. Armed Forces to conduct instrument flying on Federal airways in that aircraft category and class for the instrument rating sought.

(e) *Aircraft type rating.* An aircraft type rating may only be issued for a type of aircraft that has a comparable civilian type designation by the Administrator.

(f) *Aircraft type rating placed on an airline transport pilot certificate.* A person who is a military pilot or former military pilot of the U.S. Armed Forces and requests an aircraft type rating to be placed on an existing U.S. airline transport pilot certificate may be issued the rating at the airline transport pilot certification level, provided that person:

(1) Holds a category and class rating for that type of aircraft at the airline transport pilot certification level; and

(2) Has passed an official U.S. military pilot check and instrument proficiency check in that type of aircraft.

(g) *Flight instructor certificate and ratings.* A person who can show official U.S. military documentation of being a U.S. military instructor pilot or U.S. military pilot examiner, or a former instructor pilot or pilot examiner may apply for and be issued a flight instructor certificate with the appropriate ratings if that person:

(1) Holds a commercial or airline transport pilot certificate with the appropriate aircraft category and class rating, if a class rating is appropriate, for the flight instructor rating sought;

(2) Holds an instrument rating, or has instrument privileges, on the pilot certificate that is appropriate to the flight instructor rating sought; and

(3) Presents the following documents:

(i) A knowledge test report that shows the person passed a knowledge test on the aeronautical knowledge areas listed under § 61.185(a) appropriate to the flight instructor rating sought and the knowledge test was passed within the preceding 24 calendar months prior to the month of application. If the U.S. military instructor pilot or pilot examiner already holds a flight instructor certificate, holding of a flight instructor certificate suffices for the knowledge test report.

(ii) An official U.S. Armed Forces record or order that shows the person is or was qualified as a U.S. Armed Forces military instructor pilot or pilot examiner for the flight instructor rating sought.

(iii) An official U.S. Armed Forces record or order that shows the person completed a U.S. Armed Forces' instructor pilot or pilot examiner training course and received an aircraft rating qualification as a military instructor pilot or pilot examiner that is appropriate to the flight instructor rating sought.

(iv) An official U.S. Armed Forces record or order that shows the person passed a U.S. Armed Forces instructor pilot or pilot examiner proficiency check in an aircraft as a military instructor pilot or pilot examiner that is appropriate to the flight instructor rating sought.

(h) *Documents for qualifying for a pilot certificate and rating.* The following documents are required for a person to apply for a pilot certificate and rating:

(1) An official U.S. Armed Forces record that shows the person is or was a military pilot.

(2) An official U.S. Armed Forces record that shows the person graduated from a U.S. Armed Forces undergraduate pilot training school and received a rating qualification as a military pilot.

(3) An official U.S. Armed Forces record that shows the pilot passed a pilot proficiency check and instrument proficiency check in an aircraft as a military pilot.

(4) If a person is a military pilot in the Armed Forces from a foreign contracting State to the Convention on International Civil Aviation and is applying for a pilot certificate and rating, that person must present the following:

(i) An official U.S. Armed Forces record that shows the person is a military pilot in the U.S. Armed Forces;

(ii) An official U.S. Armed Forces record that shows the person is assigned as a military pilot in the U.S. Armed Forces for purposes other than receiving flight training;

(iii) An official record that shows the person graduated from a military undergraduate pilot training school from the Armed Forces from a foreign contracting State to the Convention on International Civil Aviation or from the U.S. Armed Forces, and received a qualification as a military pilot; and

(iv) An official U.S. Armed Forces record that shows that the person passed a pilot proficiency check and instrument proficiency check in an aircraft as a military pilot in the U.S. Armed Forces.

[Doc. No. FAA-2006-26661, 74 FR 42555, Aug. 21, 2009]

§ 61.75 Private pilot certificate issued on the basis of a foreign pilot license.

(a) *General.* A person who holds a foreign pilot license at the private pilot level or higher that was issued by a contracting State to the Convention on International Civil Aviation may apply for and be issued a U.S. private pilot certificate with the appropriate ratings if the foreign pilot license meets the requirements of this section.

(b) *Certificate issued.* A U.S. private pilot certificate issued under this section must specify the person's foreign license number and country of issuance. A person who holds a foreign pilot license issued by a contracting State to the Convention on International Civil Aviation may be issued a U.S. private pilot certificate based on the foreign pilot license without any further showing of proficiency, provided the applicant:

(1) Meets the requirements of this section;

(2) Holds a foreign pilot license, at the private pilot license level or higher, that does not contain a limitation stating that the applicant has not met all of the standards of ICAO for that license;

(3) Does not hold a U.S. pilot certificate other than a U.S. student pilot certificate;

(4) Holds a medical certificate issued under part 67 of this chapter or a medical license issued by the country that issued the person's foreign pilot license; and

(5) Is able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft.

(c) *Aircraft ratings issued.* Aircraft ratings listed on a person's foreign pilot license, in addition to any issued after testing under the provisions of this part, may be placed on that person's U.S. pilot certificate for private pilot privileges only.

(d) *Instrument ratings issued.* A person who holds an instrument rating on the foreign pilot license issued by a contracting State to the Convention on International Civil

Aviation may be issued an instrument rating on a U.S. pilot certificate provided:

(1) The person's foreign pilot license authorizes instrument privileges;

(2) Within 24 months preceding the month in which the person applies for the instrument rating, the person passes the appropriate knowledge test; and

(3) The person is able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft.

(e) *Operating privileges and limitations.* A person who receives a U.S. private pilot certificate that has been issued under the provisions of this section:

(1) May act as pilot in command of a civil aircraft of the United States in accordance with the pilot privileges authorized by this part and the limitations placed on that U.S. pilot certificate;

(2) Is limited to the privileges placed on the certificate by the Administrator;

(3) Is subject to the limitations and restrictions on the person's U.S. certificate and foreign pilot license when exercising the privileges of that U.S. pilot certificate in an aircraft of U.S. registry operating within or outside the United States; and

(f) *Limitation on licenses used as the basis for a U.S. certificate.* A person may use only one foreign pilot license as a basis for the issuance of a U.S. pilot certificate. The foreign pilot license and medical certification used as a basis for issuing a U.S. pilot certificate under this section must be written in English or accompanied by an English transcription that has been signed by an official or representative of the foreign aviation authority that issued the foreign pilot license.

(g) *Limitation placed on a U.S. pilot certificate.* A U.S. pilot certificate issued under this section can only be exercised when the pilot has the foreign pilot license, upon which the issuance of the U.S. pilot certificate was based, in the holder's possession or readily accessible in the aircraft.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-124, 74 FR 42556, Aug. 21, 2009]

§ 61.77 Special purpose pilot authorization: Operation of a civil aircraft of the United States and leased by a non-U.S. citizen.

(a) *General.* The holder of a foreign pilot license issued by a contracting State to the Convention on International Civil Aviation who meets the requirements of this section may be issued a special purpose pilot authorization by the Administrator for the purpose of performing pilot duties -

(1) On a civil aircraft of U.S. registry that is leased to a person who is not a citizen of the United States, and

(2) For carrying persons or property for compensation or hire for operations in -

(i) Scheduled international air services in turbojet-powered airplanes of U.S. registry;

(ii) Scheduled international air services in airplanes of U.S. registry having a configuration of more than nine passenger seats, excluding crewmember seats;

(iii) Nonscheduled international air transportation in airplanes of U.S. registry having a configuration of more than 30 passenger seats, excluding crewmember seats; or

(iv) Scheduled international air services, or nonscheduled international air transportation, in airplanes of U.S. registry having a payload capacity of more than 7,500 pounds.

(b) *Eligibility.* To be eligible for the issuance or renewal of a special purpose pilot authorization, an applicant must present the following to an FAA Flight Standards District Office:

(1) A foreign pilot license issued by the aeronautical authority of a contracting State to the Convention on International Civil Aviation that contains the appropriate aircraft category, class, type rating, if appropriate, and instrument rating for the aircraft to be flown;

(2) A certification by the lessee of the aircraft -

(i) Stating that the applicant is employed by the lessee;

(ii) Specifying the aircraft type on which the applicant will perform pilot duties; and

(iii) Stating that the applicant has received ground and flight instruction that qualifies the applicant to perform the duties to be assigned on the aircraft.

(3) Documentation showing when the applicant will reach the age of 65 years (an official copy of the applicant's birth certificate or other official documentation);

(4) Documentation the applicant meets the medical standards for the issuance of the foreign pilot license from the aeronautical authority of that contracting State to the Convention on International Civil Aviation; and

(5) A statement that the applicant does not already hold a special purpose pilot authorization; however, if the applicant already holds a special purpose pilot authorization, then that special purpose pilot authorization must be surrendered to either the FAA Flight Standards District Office that issued it, or the FAA Flight Standards District Office processing the application for the authorization, prior to being issued another special purpose pilot authorization.

(c) *Privileges.* A person issued a special purpose pilot authorization under this section -

(1) May exercise the privileges prescribed on the special purpose pilot authorization; and

(2) Must comply with the limitations specified in this section and any additional limitations specified on the special purpose pilot authorization.

(d) *General limitations.* A special purpose pilot authorization may be used only -

(1) For flights between foreign countries or for flights in foreign air commerce within the time period allotted on the authorization.

(2) If the foreign pilot license required by paragraph (b) (1) of this section, the medical documentation required by paragraph (b)(4) of this section, and the special purpose pilot authorization issued under this section are in the holder's physical possession or immediately accessible in the aircraft.

(3) While the holder is employed by the person to whom the aircraft described in the certification required by paragraph (b)(2) of this section is leased.

(4) While the holder is performing pilot duties on the U.S.-registered aircraft described in the certification required by paragraph (b)(2) of this section.

(5) If the holder has only one special purpose pilot authorization as provided in paragraph (b)(5) of this section.

(e) *Age limitation.* No person who holds a special purpose pilot authorization issued under this part may serve as a pilot on a civil airplane of U.S. registry in the following operations if the person has reached his or her 60th birthday or, in the case of operations with more than one pilot, his or her 65th birthday:

(1) Scheduled international air services carrying passengers in turbojet-powered airplanes;

(2) Scheduled international air services carrying passengers in airplanes having a passenger-seat configuration of more than nine passenger seats, excluding each crewmember seat;

(3) Nonscheduled international air transportation for compensation or hire in airplanes having a passenger-seat configuration of more than 30 passenger seats, excluding each crewmember seat; or

(4) Scheduled international air services, or nonscheduled international air transportation for compensation or hire, in airplanes having a payload capacity of more than 7,500 pounds.

(f) *Definitions.* (1) *International air service*, as used in paragraph (e) of this section, means scheduled air service performed in airplanes for the public transport of passengers, mail, or cargo, in which the service passes through the air space over the territory of more than one country.

(2) *International air transportation*, as used in paragraph (e) of this section, means air transportation performed in airplanes for the public transport of passengers, mail, or cargo, in which service passes through the air space over the territory of more than one country.

(g) *Expiration date.* Each special purpose pilot authorization issued under this section expires -

(1) 60 calendar months from the month it was issued, unless sooner suspended or revoked;

(2) When the lease agreement for the aircraft expires or the lessee terminates the employment of the person who holds the special purpose pilot authorization;

(3) Whenever the person's foreign pilot license has been suspended, revoked, or is no longer valid; or

(4) When the person no longer meets the medical standards for the issuance of the foreign pilot license.

(h) *Renewal.* A person exercising the privileges of a special purpose pilot authorization may apply for a 60-calendar-month extension of that authorization, provided the person -

- (1) Continues to meet the requirements of this section; and
- (2) Surrenders the expired special purpose pilot authorization upon receipt of the new authorization.

(i) *Surrender.* The holder of a special purpose pilot authorization must surrender the authorization to the Administrator within 7 days after the date the authorization terminates.

[Doc. No. 25910, 62 FR 40901, July 30, 1997, as amended by Amdt. 61-123, 74 FR 34234, July 15, 2009; Amdt. 61-124, 74 FR 42557, Aug. 21, 2009; Amdt. 61-134, 80 FR 33401, June 12, 2015]

Subpart C - Student Pilots

§ 61.81 Applicability.

This subpart prescribes the requirements for the issuance of student pilot certificates, the conditions under which those certificates are necessary, and the general operating rules and limitations for the holders of those certificates.

§ 61.83 Eligibility requirements for student pilots.

To be eligible for a student pilot certificate, an applicant must:

- (a) Be at least 16 years of age for other than the operation of a glider or balloon.
- (b) Be at least 14 years of age for the operation of a glider or balloon.
- (c) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft.

§ 61.85 Application.

An applicant for a student pilot certificate:

- (a) Must make that application in a form acceptable to the Administrator; and
- (b) Must submit the application to a Flight Standards District Office, a designated pilot examiner, an airman certification representative associated with a pilot school, a flight instructor, or other person authorized by the Administrator.

[Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016]

§ 61.87 Solo requirements for student pilots.

(a) *General.* A student pilot may not operate an aircraft in solo flight unless that student has met the requirements of this section. The term "solo flight" as used in this subpart means that flight time during which a student pilot is the sole occupant

of the aircraft or that flight time during which the student performs the duties of a pilot in command of a gas balloon or an airship requiring more than one pilot flight crewmember.

(b) *Aeronautical knowledge.* A student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that meets the requirements of this paragraph:

- (1) The test must address the student pilot's knowledge of -
 - (i) Applicable sections of parts 61 and 91 of this chapter;
 - (ii) Airspace rules and procedures for the airport where the solo flight will be performed; and
 - (iii) Flight characteristics and operational limitations for the make and model of aircraft to be flown.
- (2) The student's authorized instructor must -
 - (i) Administer the test; and
 - (ii) At the conclusion of the test, review all incorrect answers with the student before authorizing that student to conduct a solo flight.

(c) *Pre-solo flight training.* Prior to conducting a solo flight, a student pilot must have:

- (1) Received and logged flight training for the maneuvers and procedures of this section that are appropriate to the make and model of aircraft to be flown; and
- (2) Demonstrated satisfactory proficiency and safety, as judged by an authorized instructor, on the maneuvers and procedures required by this section in the make and model of aircraft or similar make and model of aircraft to be flown.

(d) *Maneuvers and procedures for pre-solo flight training in a single-engine airplane.* A student pilot who is receiving training for a single-engine airplane rating or privileges must receive and log flight training for the following maneuvers and procedures:

- (1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;
- (2) Taxiing or surface operations, including runups;
- (3) Takeoffs and landings, including normal and crosswind;
- (4) Straight and level flight, and turns in both directions;
- (5) Climbs and climbing turns;
- (6) Airport traffic patterns, including entry and departure procedures;
- (7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;
- (8) Descents, with and without turns, using high and low drag configurations;
- (9) Flight at various airspeeds from cruise to slow flight;
- (10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall;
- (11) Emergency procedures and equipment malfunctions;
- (12) Ground reference maneuvers;
- (13) Approaches to a landing area with simulated engine malfunctions;
- (14) Slips to a landing; and
- (15) Go-arounds.

(e) *Maneuvers and procedures for pre-solo flight training in a multiengine airplane.* A student pilot who is receiving training for a multiengine airplane rating must receive and log flight training for the following maneuvers and procedures:

(1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing or surface operations, including runups;

(3) Takeoffs and landings, including normal and crosswind;

(4) Straight and level flight, and turns in both directions;

(5) Climbs and climbing turns;

(6) Airport traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents, with and without turns, using high and low drag configurations;

(9) Flight at various airspeeds from cruise to slow flight;

(10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall;

(11) Emergency procedures and equipment malfunctions;

(12) Ground reference maneuvers;

(13) Approaches to a landing area with simulated engine malfunctions; and

(14) Go-arounds.

(f) *Maneuvers and procedures for pre-solo flight training in a helicopter.* A student pilot who is receiving training for a helicopter rating must receive and log flight training for the following maneuvers and procedures:

(1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing or surface operations, including runups;

(3) Takeoffs and landings, including normal and crosswind;

(4) Straight and level flight, and turns in both directions;

(5) Climbs and climbing turns;

(6) Airport traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents with and without turns;

(9) Flight at various airspeeds;

(10) Emergency procedures and equipment malfunctions;

(11) Ground reference maneuvers;

(12) Approaches to the landing area;

(13) Hovering and hovering turns;

(14) Go-arounds;

(15) Simulated emergency procedures, including autorotational descents with a power recovery and power recovery to a hover;

(16) Rapid decelerations; and

(17) Simulated one-engine-inoperative approaches and landings for multiengine helicopters.

(g) *Maneuvers and procedures for pre-solo flight training in a gyroplane.* A student pilot who is receiving training for a gyroplane rating or privileges must receive and log flight training for the following maneuvers and procedures:

(1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing or surface operations, including runups;

(3) Takeoffs and landings, including normal and crosswind;

(4) Straight and level flight, and turns in both directions;

(5) Climbs and climbing turns;

(6) Airport traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents with and without turns;

(9) Flight at various airspeeds;

(10) Emergency procedures and equipment malfunctions;

(11) Ground reference maneuvers;

(12) Approaches to the landing area;

(13) High rates of descent with power on and with simulated power off, and recovery from those flight configurations;

(14) Go-arounds; and

(15) Simulated emergency procedures, including simulated power-off landings and simulated power failure during departures.

(h) *Maneuvers and procedures for pre-solo flight training in a powered-lift.* A student pilot who is receiving training for a powered-lift rating must receive and log flight training in the following maneuvers and procedures:

(1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing or surface operations, including runups;

(3) Takeoffs and landings, including normal and crosswind;

(4) Straight and level flight, and turns in both directions;

(5) Climbs and climbing turns;

(6) Airport traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents with and without turns;

(9) Flight at various airspeeds from cruise to slow flight;

(10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall;

(11) Emergency procedures and equipment malfunctions;

(12) Ground reference maneuvers;

(13) Approaches to a landing with simulated engine malfunctions;

- (14) Go-arounds;
- (15) Approaches to the landing area;
- (16) Hovering and hovering turns; and
- (17) For multiengine powered-lifts, simulated one-engine-inoperative approaches and landings.

(i) *Maneuvers and procedures for pre-solo flight training in a glider.* A student pilot who is receiving training for a glider rating or privileges must receive and log flight training for the following maneuvers and procedures:

- (1) Proper flight preparation procedures, including preflight planning, preparation, aircraft systems, and, if appropriate, powerplant operations;
- (2) Taxiing or surface operations, including runups, if applicable;
- (3) Launches, including normal and crosswind;
- (4) Straight and level flight, and turns in both directions, if applicable;
- (5) Airport traffic patterns, including entry procedures;
- (6) Collision avoidance, windshear avoidance, and wake turbulence avoidance;
- (7) Descents with and without turns using high and low drag configurations;
- (8) Flight at various airspeeds;
- (9) Emergency procedures and equipment malfunctions;
- (10) Ground reference maneuvers, if applicable;
- (11) Inspection of towline rigging and review of signals and release procedures, if applicable;
- (12) Aerotow, ground tow, or self-launch procedures;
- (13) Procedures for disassembly and assembly of the glider;
- (14) Stall entry, stall, and stall recovery;
- (15) Straight glides, turns, and spirals;
- (16) Landings, including normal and crosswind;
- (17) Slips to a landing;
- (18) Procedures and techniques for thermalling; and
- (19) Emergency operations, including towline break procedures.

(j) *Maneuvers and procedures for pre-solo flight training in an airship.* A student pilot who is receiving training for an airship rating or privileges must receive and log flight training for the following maneuvers and procedures:

- (1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;
- (2) Taxiing or surface operations, including runups;
- (3) Takeoffs and landings, including normal and crosswind;
- (4) Straight and level flight, and turns in both directions;
- (5) Climbs and climbing turns;
- (6) Airport traffic patterns, including entry and departure procedures;
- (7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;
- (8) Descents with and without turns;
- (9) Flight at various airspeeds from cruise to slow flight;

- (10) Emergency procedures and equipment malfunctions;
- (11) Ground reference maneuvers;
- (12) Rigging, ballasting, and controlling pressure in the ballonets, and superheating; and

(13) Landings with positive and with negative static trim.

(k) *Maneuvers and procedures for pre-solo flight training in a balloon.* A student pilot who is receiving training in a balloon must receive and log flight training for the following maneuvers and procedures:

- (1) Layout and assembly procedures;
- (2) Proper flight preparation procedures, including preflight planning and preparation, and aircraft systems;
- (3) Ascents and descents;
- (4) Landing and recovery procedures;
- (5) Emergency procedures and equipment malfunctions;
- (6) Operation of hot air or gas source, ballast, valves, vents, and rip panels, as appropriate;
- (7) Use of deflation valves or rip panels for simulating an emergency;
- (8) The effects of wind on climb and approach angles; and
- (9) Obstruction detection and avoidance techniques.

(l) *Maneuvers and procedures for pre-solo flight training in a powered parachute.* A student pilot who is receiving training for a powered parachute rating or privileges must receive and log flight training for the following maneuvers and procedures:

- (1) Proper flight preparation procedures, including preflight planning and preparation, preflight assembly and rigging, aircraft systems, and powerplant operations.
- (2) Taxiing or surface operations, including run-ups.
- (3) Takeoffs and landings, including normal and crosswind.
- (4) Straight and level flight, and turns in both directions.
- (5) Climbs, and climbing turns in both directions.
- (6) Airport traffic patterns, including entry and departure procedures.
- (7) Collision avoidance, windshear avoidance, and wake turbulence avoidance.
- (8) Descents, and descending turns in both directions.
- (9) Emergency procedures and equipment malfunctions.
- (10) Ground reference maneuvers.
- (11) Straight glides, and gliding turns in both directions.
- (12) Go-arounds.
- (13) Approaches to landing areas with a simulated engine malfunction.
- (14) Procedures for canopy packing and aircraft disassembly.

(m) *Maneuvers and procedures for pre-solo flight training in a weight-shift-control aircraft.* A student pilot who is receiving training for a weight-shift-control aircraft rating or privileges must receive and log flight training for the following maneuvers and procedures:

- (1) Proper flight preparation procedures, including preflight planning and preparation, preflight assembly and rigging, aircraft systems, and powerplant operations.

(2) Taxiing or surface operations, including run-ups.
 (3) Takeoffs and landings, including normal and crosswind.

(4) Straight and level flight, and turns in both directions.

(5) Climbs, and climbing turns in both directions.

(6) Airport traffic patterns, including entry and departure procedures.

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance.

(8) Descents, and descending turns in both directions.

(9) Flight at various airspeeds from maximum cruise to slow flight.

(10) Emergency procedures and equipment malfunctions.

(11) Ground reference maneuvers.

(12) Stall entry, stall, and stall recovery.

(13) Straight glides, and gliding turns in both directions.

(14) Go-arounds.

(15) Approaches to landing areas with a simulated engine malfunction.

(16) Procedures for disassembly.

(n) *Limitations on student pilots operating an aircraft in solo flight.* A student pilot may not operate an aircraft in solo flight unless that student pilot has received an endorsement in the student's logbook for the specific make and model aircraft to be flown by an authorized instructor who gave the training within the 90 days preceding the date of the flight.

(o) *Limitations on student pilots operating an aircraft in solo flight at night.* A student pilot may not operate an aircraft in solo flight at night unless that student pilot has received:

(1) Flight training at night on night flying procedures that includes takeoffs, approaches, landings, and go-arounds at night at the airport where the solo flight will be conducted;

(2) Navigation training at night in the vicinity of the airport where the solo flight will be conducted; and

(3) An endorsement in the student's logbook for the specific make and model aircraft to be flown for night solo flight by an authorized instructor who gave the training within the 90-day period preceding the date of the flight.

(p) *Limitations on flight instructors authorizing solo flight.* No instructor may authorize a student pilot to perform a solo flight unless that instructor has -

(1) Given that student pilot training in the make and model of aircraft or a similar make and model of aircraft in which the solo flight is to be flown;

(2) Determined the student pilot is proficient in the maneuvers and procedures prescribed in this section;

(3) Determined the student pilot is proficient in the make and model of aircraft to be flown; and

(4) Endorsed the student pilot's logbook for the specific make and model aircraft to be flown, and that endorsement remains current for solo flight privileges, provided an authorized instructor updates the student's logbook every 90 days thereafter.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997; Amdt. 61-104, 63 FR 20287, Apr. 23,

1998; Amdt. 61-110, 69 FR 44866, July 27, 2004; Amdt. 61-124, 74 FR 42557, Aug. 21, 2009; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016]

§ 61.89 General limitations.

(a) A student pilot may not act as pilot in command of an aircraft:

(1) That is carrying a passenger;

(2) That is carrying property for compensation or hire;

(3) For compensation or hire;

(4) In furtherance of a business;

(5) On an international flight, except that a student pilot may make solo training flights from Haines, Gustavus, or Juneau, Alaska, to White Horse, Yukon, Canada, and return over the province of British Columbia;

(6) With a flight or surface visibility of less than 3 statute miles during daylight hours or 5 statute miles at night;

(7) When the flight cannot be made with visual reference to the surface; or

(8) In a manner contrary to any limitations placed in the pilot's logbook by an authorized instructor.

(b) A student pilot may not act as a required pilot flight crewmember on any aircraft for which more than one pilot is required by the type certificate of the aircraft or regulations under which the flight is conducted, except when receiving flight training from an authorized instructor on board an airship, and no person other than a required flight crewmember is carried on the aircraft.

(c) A student pilot seeking a sport pilot certificate must comply with the provisions of paragraphs (a) and (b) of this section and may not act as pilot in command -

(1) Of an aircraft other than a light-sport aircraft;

(2) At night;

(3) At an altitude of more than 10,000 feet MSL or 2,000 feet AGL, whichever is higher;

(4) In Class B, C, and D airspace, at an airport located in Class B, C, or D airspace, and to, from, through, or on an airport having an operational control tower without having received the ground and flight training specified in § 61.94 and an endorsement from an authorized instructor;

(5) Of a light-sport aircraft without having received the applicable ground training, flight training, and instructor endorsements specified in § 61.327 (a) and (b).

(d) The holder of a student pilot certificate may act as pilot in command of an aircraft without holding a medical certificate issued under part 67 of this chapter provided the student pilot holds a valid U.S. driver's license, meets the requirements of § 61.23(c)(3), and the operation is conducted consistent with the requirements of paragraphs (a) and (b) of this section and the conditions of § 61.113(i). Where the requirements of paragraphs (a) and (b) of this section conflict with § 61.113(i), a student pilot must comply with paragraphs (a) and (b) of this section.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44867, July 27, 2004; Amdt. 61-125, 75 FR

5220, Feb. 1, 2010; Docket FAA-2016-9157, Amdt. 61-140, 82 FR 3165, Jan. 11, 2017]

§ 61.91 [Reserved]

§ 61.93 Solo cross-country flight requirements.

(a) *General.* (1) Except as provided in paragraph (b) of this section, a student pilot must meet the requirements of this section before -

(i) Conducting a solo cross-country flight, or any flight greater than 25 nautical miles from the airport from where the flight originated.

(ii) Making a solo flight and landing at any location other than the airport of origination.

(2) Except as provided in paragraph (b) of this section, a student pilot who seeks solo cross-country flight privileges must:

(i) Have received flight training from an instructor authorized to provide flight training on the maneuvers and procedures of this section that are appropriate to the make and model of aircraft for which solo cross-country privileges are sought;

(ii) Have demonstrated cross-country proficiency on the appropriate maneuvers and procedures of this section to an authorized instructor;

(iii) Have satisfactorily accomplished the pre-solo flight maneuvers and procedures required by § 61.87 of this part in the make and model of aircraft or similar make and model of aircraft for which solo cross-country privileges are sought; and

(iv) Comply with any limitations included in the authorized instructor's endorsement that are required by paragraph (c) of this section.

(3) A student pilot who seeks solo cross-country flight privileges must have received ground and flight training from an authorized instructor on the cross-country maneuvers and procedures listed in this section that are appropriate to the aircraft to be flown.

(b) *Authorization to perform certain solo flights and cross-country flights.* A student pilot must obtain an endorsement from an authorized instructor to make solo flights from the airport where the student pilot normally receives training to another location. A student pilot who receives this endorsement must comply with the requirements of this paragraph.

(1) Solo flights may be made to another airport that is within 25 nautical miles from the airport where the student pilot normally receives training, provided -

(i) An authorized instructor has given the student pilot flight training at the other airport, and that training includes flight in both directions over the route, entering and exiting the traffic pattern, and takeoffs and landings at the other airport;

(ii) The authorized instructor who gave the training endorses the student pilot's logbook authorizing the flight;

(iii) The student pilot has a solo flight endorsement in accordance with § 61.87 of this part;

(iv) The authorized instructor has determined that the student pilot is proficient to make the flight; and

(v) The purpose of the flight is to practice takeoffs and landings at that other airport.

(2) Repeated specific solo cross-country flights may be made to another airport that is within 50 nautical miles of the airport from which the flight originated, provided -

(i) The authorized instructor has given the student flight training in both directions over the route, including entering and exiting the traffic patterns, takeoffs, and landings at the airports to be used;

(ii) The authorized instructor who gave the training has endorsed the student's logbook certifying that the student is proficient to make such flights;

(iii) The student has a solo flight endorsement in accordance with § 61.87 of this part; and

(iv) The student has a solo cross country flight endorsement in accordance with paragraph (c) of this section; however, for repeated solo cross country flights to another airport within 50 nautical miles from which the flight originated, separate endorsements are not required to be made for each flight.

(c) *Endorsements for solo cross-country flights.* Except as specified in paragraph (b)(2) of this section, a student pilot must have the endorsements prescribed in this paragraph for each cross-country flight:

(1) A student pilot must have a solo cross-country endorsement from the authorized instructor who conducted the training that is placed in that person's logbook for the specific category of aircraft to be flown.

(2) A student pilot must have a solo cross-country endorsement from an authorized instructor that is placed in that person's logbook for the specific make and model of aircraft to be flown.

(3) For each cross-country flight, the authorized instructor who reviews the cross-country planning must make an endorsement in the person's logbook after reviewing that person's cross-country planning, as specified in paragraph (d) of this section. The endorsement must -

(i) Specify the make and model of aircraft to be flown;

(ii) State that the student's preflight planning and preparation is correct and that the student is prepared to make the flight safely under the known conditions; and

(iii) State that any limitations required by the student's authorized instructor are met.

(d) *Limitations on authorized instructors to permit solo cross-country flights.* An authorized instructor may not permit a student pilot to conduct a solo cross-country flight unless that instructor has:

(1) Determined that the student's cross-country planning is correct for the flight;

(2) Reviewed the current and forecast weather conditions and has determined that the flight can be completed under VFR;

(3) Determined that the student is proficient to conduct the flight safely;

(4) Determined that the student has the appropriate solo cross-country endorsement for the make and model of aircraft to be flown; and

(5) Determined that the student's solo flight endorsement is current for the make and model aircraft to be flown.

(e) *Maneuvers and procedures for cross-country flight training in a single-engine airplane.* A student pilot who is receiving training for cross-country flight in a single-engine airplane must receive and log flight training in the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Use of radios for VFR navigation and two-way communication, except that a student pilot seeking a sport pilot certificate must only receive and log flight training on the use of radios installed in the aircraft to be flown;

(10) Takeoff, approach, and landing procedures, including short-field, soft-field, and crosswind takeoffs, approaches, and landings;

(11) Climbs at best angle and best rate; and

(12) Control and maneuvering solely by reference to flight instruments, including straight and level flight, turns, descents, climbs, use of radio aids, and ATC directives. For student pilots seeking a sport pilot certificate, the provisions of this paragraph only apply when receiving training for cross-country flight in an airplane that has a V_H greater than 87 knots CAS.

(f) *Maneuvers and procedures for cross-country flight training in a multiengine airplane.* A student pilot who is receiving training for cross-country flight in a multiengine airplane must receive and log flight training in the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Use of radios for VFR navigation and two-way communications;

(10) Takeoff, approach, and landing procedures, including short-field, soft-field, and crosswind takeoffs, approaches, and landings;

(11) Climbs at best angle and best rate; and

(12) Control and maneuvering solely by reference to flight instruments, including straight and level flight, turns, descents, climbs, use of radio aids, and ATC directives.

(g) *Maneuvers and procedures for cross-country flight training in a helicopter.* A student pilot who is receiving training for cross-country flight in a helicopter must receive and log flight training for the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Use of radios for VFR navigation and two-way communications; and

(10) Takeoff, approach, and landing procedures.

(h) *Maneuvers and procedures for cross-country flight training in a gyroplane.* A student pilot who is receiving training for cross-country flight in a gyroplane must receive and log flight training in the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Use of radios for VFR navigation and two-way communication, except that a student pilot seeking a sport pilot certificate must only receive and log flight training on the use of radios installed in the aircraft to be flown; and

(10) Takeoff, approach, and landing procedures, including short-field and soft-field takeoffs, approaches, and landings.

(i) *Maneuvers and procedures for cross-country flight training in a powered-lift.* A student pilot who is receiving training for cross-country flight training in a powered-lift must receive and log flight training in the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Use of radios for VFR navigation and two-way communications;

(10) Takeoff, approach, and landing procedures that include high-altitude, steep, and shallow takeoffs, approaches, and landings; and

(11) Control and maneuvering solely by reference to flight instruments, including straight and level flight, turns, descents, climbs, use of radio aids, and ATC directives.

(j) *Maneuvers and procedures for cross-country flight training in a glider.* A student pilot who is receiving training for cross-country flight in a glider must receive and log flight training in the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Landings accomplished without the use of the altimeter from at least 2,000 feet above the surface; and

(10) Recognition of weather and upper air conditions favorable for cross-country soaring, ascending and descending flight, and altitude control.

(k) *Maneuvers and procedures for cross-country flight training in an airship.* A student pilot who is receiving training for cross-country flight in an airship must receive and log flight training for the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(2) Use of aircraft performance charts pertaining to cross-country flight;

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(4) Emergency procedures;

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;

(9) Use of radios for VFR navigation and two-way communication, except that a student pilot seeking a sport pilot certificate must only receive and log flight training on the use of radios installed in the aircraft to be flown;

(10) Control of air pressure with regard to ascending and descending flight and altitude control;

(11) Control of the airship solely by reference to flight instruments, except for a student pilot seeking a sport pilot certificate; and

(12) Recognition of weather and upper air conditions conducive for the direction of cross-country flight.

(1) *Maneuvers and procedures for cross-country flight training in a powered parachute.* A student pilot who is receiving training for cross-country flight in a powered parachute must receive and log flight training in the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass, as appropriate.

(2) Use of aircraft performance charts pertaining to cross-country flight.

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognizing critical weather situations and estimating visibility while in flight.

(4) Emergency procedures.

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach.

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance.

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown.

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications.

(9) If equipped for flight with navigation radios, the use of radios for VFR navigation.

(10) Recognition of weather and upper air conditions favorable for the cross-country flight.

(11) Takeoff, approach and landing procedures.

(m) *Maneuvers and procedures for cross-country flight training in a weight-shift-control aircraft.* A student pilot who is receiving training for cross-country flight in a weight-shift-control aircraft must receive and log flight training for the following maneuvers and procedures:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass, as appropriate.

(2) Use of aircraft performance charts pertaining to cross-country flight.

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognizing critical weather situations and estimating visibility while in flight.

(4) Emergency procedures.

(5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach.

(6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance.

(7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown.

(8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications.

(9) If equipped for flight using navigation radios, the use of radios for VFR navigation.

(10) Recognition of weather and upper air conditions favorable for the cross-country flight.

(11) Takeoff, approach and landing procedures, including crosswind approaches and landings.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997; Amdt. 61-110, 69 FR 44867, July 27, 2004; Amdt. 61-124, 74 FR 42557, Aug. 21, 2009; Amdt. 61-125, 75 FR 5220, Feb. 1, 2010; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016]

§ 61.94 Student pilot seeking a sport pilot certificate or a recreational pilot certificate: Operations at airports within, and in airspace located within, Class B, C, and D airspace, or at airports with an operational control tower in other airspace.

(a) A student pilot seeking a sport pilot certificate or a recreational pilot certificate who wants to obtain privileges to operate in Class B, C, and D airspace, at an airport located in Class B, C, or D airspace, and to, from, through, or at an airport having an operational control tower, must receive and log ground and flight training from an authorized instructor in the following aeronautical knowledge areas and areas of operation:

(1) The use of radios, communications, navigation systems and facilities, and radar services.

(2) Operations at airports with an operating control tower, to include three takeoffs and landings to a full stop, with each

landing involving a flight in the traffic pattern, at an airport with an operating control tower.

(3) Applicable flight rules of part 91 of this chapter for operations in Class B, C, and D airspace and air traffic control clearances.

(4) Ground and flight training for the specific Class B, C, or D airspace for which the solo flight is authorized, if applicable, within the 90-day period preceding the date of the flight in that airspace. The flight training must be received in the specific airspace area for which solo flight is authorized.

(5) Ground and flight training for the specific airport located in Class B, C, or D airspace for which the solo flight is authorized, if applicable, within the 90-day period preceding the date of the flight at that airport. The flight and ground training must be received at the specific airport for which solo flight is authorized.

(b) The authorized instructor who provides the training specified in paragraph (a) of this section must provide a logbook endorsement that certifies the student has received that training and is proficient to conduct solo flight in that specific airspace or at that specific airport and in those aeronautical knowledge areas and areas of operation specified in this section.

[Doc. No. FAA-2001-11133, 69 FR 44867, July 27, 2004]

§ 61.95 Operations in Class B airspace and at airports located within Class B airspace.

(a) A student pilot may not operate an aircraft on a solo flight in Class B airspace unless:

(1) The student pilot has received both ground and flight training from an authorized instructor on that Class B airspace area, and the flight training was received in the specific Class B airspace area for which solo flight is authorized;

(2) The logbook of that student pilot has been endorsed by the authorized instructor who gave the student pilot flight training, and the endorsement is dated within the 90-day period preceding the date of the flight in that Class B airspace area; and

(3) The logbook endorsement specifies that the student pilot has received the required ground and flight training, and has been found proficient to conduct solo flight in that specific Class B airspace area.

(b) A student pilot may not operate an aircraft on a solo flight to, from, or at an airport located within Class B airspace pursuant to § 91.131(b) of this chapter unless:

(1) The student pilot has received both ground and flight training from an instructor authorized to provide training to operate at that airport, and the flight and ground training has been received at the specific airport for which the solo flight is authorized;

(2) The logbook of that student pilot has been endorsed by an authorized instructor who gave the student pilot flight training, and the endorsement is dated within the 90-day period preceding the date of the flight at that airport; and

(3) The logbook endorsement specifies that the student pilot has received the required ground and flight training, and has been found proficient to conduct solo flight operations at that specific airport.

(c) This section does not apply to a student pilot seeking a sport pilot certificate or a recreational pilot certificate.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997; Amdt. 61-110, 69 FR 44868, July 27, 2004]

Subpart D - Recreational Pilots

§ 61.96 Applicability and eligibility requirements:

General.

(a) This subpart prescribes the requirement for the issuance of recreational pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules for persons who hold those certificates and ratings.

(b) To be eligible for a recreational pilot certificate, a person who applies for that certificate must:

(1) Be at least 17 years of age;

(2) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft;

(3) Receive a logbook endorsement from an authorized instructor who -

(i) Conducted the training or reviewed the applicant's home study on the aeronautical knowledge areas listed in § 61.97(b) of this part that apply to the aircraft category and class rating sought; and

(ii) Certified that the applicant is prepared for the required knowledge test.

(4) Pass the required knowledge test on the aeronautical knowledge areas listed in § 61.97(b) of this part;

(5) Receive flight training and a logbook endorsement from an authorized instructor who -

(i) Conducted the training on the areas of operation listed in § 61.98(b) of this part that apply to the aircraft category and class rating sought; and

(ii) Certified that the applicant is prepared for the required practical test.

(6) Meet the aeronautical experience requirements of § 61.99 of this part that apply to the aircraft category and class rating sought before applying for the practical test;

(7) Pass the practical test on the areas of operation listed in § 61.98(b) that apply to the aircraft category and class rating;

(8) Comply with the sections of this part that apply to the aircraft category and class rating; and

(9) Hold either a student pilot certificate or sport pilot certificate.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997; Amdt. 61-124, 74 FR 42558, Aug. 21, 2009]

§ 61.97 Aeronautical knowledge.

(a) *General.* A person who applies for a recreational pilot certificate must receive and log ground training from an authorized instructor or complete a home-study course on the aeronautical knowledge areas of paragraph (b) of this section that apply to the aircraft category and class rating sought.

(b) *Aeronautical knowledge areas.* (1) Applicable Federal Aviation Regulations of this chapter that relate to recreational pilot privileges, limitations, and flight operations;

(2) Accident reporting requirements of the National Transportation Safety Board;

(3) Use of the applicable portions of the “Aeronautical Information Manual” and FAA advisory circulars;

(4) Use of aeronautical charts for VFR navigation using pilotage with the aid of a magnetic compass;

(5) Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts;

(6) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;

(7) Effects of density altitude on takeoff and climb performance;

(8) Weight and balance computations;

(9) Principles of aerodynamics, powerplants, and aircraft systems;

(10) Stall awareness, spin entry, spins, and spin recovery techniques, if applying for an airplane single-engine rating;

(11) Aeronautical decision making and judgment; and

(12) Preflight action that includes -

(i) How to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and

(ii) How to plan for alternatives if the planned flight cannot be completed or delays are encountered.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997]

§ 61.98 Flight proficiency.

(a) *General.* A person who applies for a recreational pilot certificate must receive and log ground and flight training from an authorized instructor on the areas of operation of this section that apply to the aircraft category and class rating sought.

(b) *Areas of operation.* (1) *For a single-engine airplane rating:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport operations;

(iv) Takeoffs, landings, and go-arounds;

(v) Performance maneuvers;

(vi) Ground reference maneuvers;

(vii) Navigation;

(viii) Slow flight and stalls;

(ix) Emergency operations; and

(x) Postflight procedures.

(2) *For a helicopter rating:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport and heliport operations;

(iv) Hovering maneuvers;

(v) Takeoffs, landings, and go-arounds;

(vi) Performance maneuvers;

(vii) Ground reference maneuvers;

(viii) Navigation;

(ix) Emergency operations; and

(x) Postflight procedures.

(3) *For a gyroplane rating:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport operations;

(iv) Takeoffs, landings, and go-arounds;

(v) Performance maneuvers;

(vi) Ground reference maneuvers;

(vii) Navigation;

(viii) Flight at slow airspeeds;

(ix) Emergency operations; and

(x) Postflight procedures.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997]

§ 61.99 Aeronautical experience.

A person who applies for a recreational pilot certificate must receive and log at least 30 hours of flight time that includes at least -

(a) 15 hours of flight training from an authorized instructor on the areas of operation listed in § 61.98 of this part that consists of at least:

(1) Except as provided in § 61.100 of this part, 2 hours of flight training en route to an airport that is located more than 25 nautical miles from the airport where the applicant normally trains, which includes at least three takeoffs and three landings at the airport located more than 25 nautical miles from the airport where the applicant normally trains; and

(2) Three hours of flight training with an authorized instructor in the aircraft for the rating sought in preparation for the practical test within the preceding 2 calendar months from the month of the test.

(b) 3 hours of solo flying in the aircraft for the rating sought, on the areas of operation listed in § 61.98 of this part that apply to the aircraft category and class rating sought.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44868, July 27, 2004; Amdt. 61-124A, 74 FR 53645, Oct. 20, 2009]

§ 61.100 Pilots based on small islands.

(a) An applicant located on an island from which the flight training required in § 61.99(a)(1) of this part cannot

be accomplished without flying over water for more than 10 nautical miles from the nearest shoreline need not comply with the requirements of that section. However, if other airports that permit civil operations are available to which a flight may be made without flying over water for more than 10 nautical miles from the nearest shoreline, the applicant must show completion of a dual flight between two airports, which must include three landings at the other airport.

(b) An applicant who complies with paragraph (a) of this section and meets all requirements for the issuance of a recreational pilot certificate, except the requirements of § 61.99(a)(1) of this part, will be issued a pilot certificate with an endorsement containing the following limitation, "Passenger carrying prohibited on flights more than 10 nautical miles from (the appropriate island)." The limitation may be subsequently amended to include another island if the applicant complies with the requirements of paragraph (a) of this section for another island.

(c) Upon meeting the requirements of § 61.99(a)(1) of this part, the applicant may have the limitation(s) in paragraph (b) of this section removed.

§ 61.101 Recreational pilot privileges and limitations.

(a) A person who holds a recreational pilot certificate may:

(1) Carry no more than one passenger; and

(2) Not pay less than the pro rata share of the operating expenses of a flight with a passenger, provided the expenses involve only fuel, oil, airport expenses, or aircraft rental fees.

(b) A person who holds a recreational pilot certificate may act as pilot in command of an aircraft on a flight within 50 nautical miles from the departure airport, provided that person has -

(1) Received ground and flight training for takeoff, departure, arrival, and landing procedures at the departure airport;

(2) Received ground and flight training for the area, terrain, and aids to navigation that are in the vicinity of the departure airport;

(3) Been found proficient to operate the aircraft at the departure airport and the area within 50 nautical miles from that airport; and

(4) Received from an authorized instructor a logbook endorsement, which is carried in the person's possession in the aircraft, that permits flight within 50 nautical miles from the departure airport.

(c) A person who holds a recreational pilot certificate may act as pilot in command of an aircraft on a flight that exceeds 50 nautical miles from the departure airport, provided that person has -

(1) Received ground and flight training from an authorized instructor on the cross-country training requirements of subpart E of this part that apply to the aircraft rating held;

(2) Been found proficient in cross-country flying; and

(3) Received from an authorized instructor a logbook endorsement, which is carried on the person's possession in the aircraft, that certifies the person has received and been found proficient in the cross-country training requirements of subpart E of this part that apply to the aircraft rating held.

(d) A person who holds a recreational pilot certificate may act as pilot in command of an aircraft in Class B, C, and D airspace, at an airport located in Class B, C, or D airspace, and to, from, through, or at an airport having an operational control tower, provided that person has -

(1) Received and logged ground and flight training from an authorized instructor on the following aeronautical knowledge areas and areas of operation, as appropriate to the aircraft rating held:

(i) The use of radios, communications, navigation system and facilities, and radar services.

(ii) Operations at airports with an operating control tower to include three takeoffs and landings to a full stop, with each landing involving a flight in the traffic pattern at an airport with an operating control tower.

(iii) Applicable flight rules of part 91 of this chapter for operations in Class B, C, and D airspace and air traffic control clearances;

(2) Been found proficient in those aeronautical knowledge areas and areas of operation specified in paragraph (d)(1) of this section; and

(3) Received from an authorized instructor a logbook endorsement, which is carried on the person's possession or readily accessible in the aircraft, that certifies the person has received and been found proficient in those aeronautical knowledge areas and areas of operation specified in paragraph (d)(1) of this section.

(e) Except as provided in paragraphs (d) and (i) of this section, a recreational pilot may not act as pilot in command of an aircraft -

(1) That is certificated -

(i) For more than four occupants;

(ii) With more than one powerplant;

(iii) With a powerplant of more than 180 horsepower, except aircraft certificated in the rotorcraft category; or

(iv) With retractable landing gear;

(2) That is classified as a multiengine airplane, powered-lift, glider, airship, balloon, powered parachute, or weight-shift-control aircraft;

(3) That is carrying a passenger or property for compensation or hire;

(4) For compensation or hire;

(5) In furtherance of a business;

(6) Between sunset and sunrise;

(7) In Class A, B, C, and D airspace, at an airport located in Class B, C, or D airspace, or to, from, through, or at an airport having an operational control tower;

(8) At an altitude of more than 10,000 feet MSL or 2,000 feet AGL, whichever is higher;

(9) When the flight or surface visibility is less than 3 statute miles;

(10) Without visual reference to the surface;

(11) On a flight outside the United States, unless authorized by the country in which the flight is conducted;

(12) To demonstrate that aircraft in flight as an aircraft salesperson to a prospective buyer;

(13) That is used in a passenger-carrying airlift and sponsored by a charitable organization; and

(14) That is towing any object.

(f) A recreational pilot may not act as a pilot flight crewmember on any aircraft for which more than one pilot is required by the type certificate of the aircraft or the regulations under which the flight is conducted, except when:

(1) Receiving flight training from a person authorized to provide flight training on board an airship; and

(2) No person other than a required flight crewmember is carried on the aircraft.

(g) A person who holds a recreational pilot certificate, has logged fewer than 400 flight hours, and has not logged pilot-in-command time in an aircraft within the 180 days preceding the flight shall not act as pilot in command of an aircraft until the pilot receives flight training and a logbook endorsement from an authorized instructor, and the instructor certifies that the person is proficient to act as pilot in command of the aircraft. This requirement can be met in combination with the requirements of §§ 61.56 and 61.57 of this part, at the discretion of the authorized instructor.

(h) A recreational pilot certificate issued under this subpart carries the notation, "Holder does not meet ICAO requirements."

(i) For the purpose of obtaining additional certificates or ratings while under the supervision of an authorized instructor, a recreational pilot may fly as the sole occupant of an aircraft:

(1) For which the pilot does not hold an appropriate category or class rating;

(2) Within airspace that requires communication with air traffic control; or

(3) Between sunset and sunrise, provided the flight or surface visibility is at least 5 statute miles.

(j) In order to fly solo as provided in paragraph (i) of this section, the recreational pilot must meet the appropriate aeronautical knowledge and flight training requirements of § 61.87 for that aircraft. When operating an aircraft under the conditions specified in paragraph (i) of this section, the recreational pilot shall carry the logbook that has been endorsed for each flight by an authorized instructor who:

(1) Has given the recreational pilot training in the make and model of aircraft in which the solo flight is to be made;

(2) Has found that the recreational pilot has met the applicable requirements of § 61.87; and

(3) Has found that the recreational pilot is competent to make solo flights in accordance with the logbook endorsement.

(k) A recreational pilot may act as pilot in command of an aircraft without holding a medical certificate issued under

part 67 of this chapter provided the pilot holds a valid U.S. driver's license, meets the requirements of § 61.23(c)(3), and the operation is conducted consistent with this section and the conditions of § 61.113(i). Where the requirements of this section conflict with § 61.113(i), a recreational pilot must comply with this section.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44868, July 27, 2004; Amdt. 61-124, 74 FR 42558, Aug. 21, 2009; Docket FAA-2016-9157, Amdt. 61-140, 82 FR 3165, Jan. 11, 2017]

Subpart E - Private Pilots

§ 61.102 Applicability.

This subpart prescribes the requirements for the issuance of private pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules for persons who hold those certificates and ratings.

§ 61.103 Eligibility requirements: General.

To be eligible for a private pilot certificate, a person must:

(a) Be at least 17 years of age for a rating in other than a glider or balloon.

(b) Be at least 16 years of age for a rating in a glider or balloon.

(c) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft.

(d) Receive a logbook endorsement from an authorized instructor who:

(1) Conducted the training or reviewed the person's home study on the aeronautical knowledge areas listed in § 61.105(b) of this part that apply to the aircraft rating sought; and

(2) Certified that the person is prepared for the required knowledge test.

(e) Pass the required knowledge test on the aeronautical knowledge areas listed in § 61.105(b) of this part.

(f) Receive flight training and a logbook endorsement from an authorized instructor who:

(1) Conducted the training in the areas of operation listed in § 61.107(b) of this part that apply to the aircraft rating sought; and

(2) Certified that the person is prepared for the required practical test.

(g) Meet the aeronautical experience requirements of this part that apply to the aircraft rating sought before applying for the practical test.

(h) Pass a practical test on the areas of operation listed in § 61.107(b) of this part that apply to the aircraft rating sought.

(i) Comply with the appropriate sections of this part that apply to the aircraft category and class rating sought.

(j) Hold a U.S. student pilot certificate, sport pilot certificate, or recreational pilot certificate.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-124, 74 FR 42558, Aug. 21, 2009]

§ 61.105 Aeronautical knowledge.

(a) *General.* A person who is applying for a private pilot certificate must receive and log ground training from an authorized instructor or complete a home-study course on the aeronautical knowledge areas of paragraph (b) of this section that apply to the aircraft category and class rating sought.

(b) *Aeronautical knowledge areas.* (1) Applicable Federal Aviation Regulations of this chapter that relate to private pilot privileges, limitations, and flight operations;

(2) Accident reporting requirements of the National Transportation Safety Board;

(3) Use of the applicable portions of the “Aeronautical Information Manual” and FAA advisory circulars;

(4) Use of aeronautical charts for VFR navigation using pilotage, dead reckoning, and navigation systems;

(5) Radio communication procedures;

(6) Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts;

(7) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;

(8) Effects of density altitude on takeoff and climb performance;

(9) Weight and balance computations;

(10) Principles of aerodynamics, powerplants, and aircraft systems;

(11) Stall awareness, spin entry, spins, and spin recovery techniques for the airplane and glider category ratings;

(12) Aeronautical decision making and judgment; and

(13) Preflight action that includes -

(i) How to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and

(ii) How to plan for alternatives if the planned flight cannot be completed or delays are encountered.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40902, July 30, 1997]

§ 61.107 Flight proficiency.

(a) *General.* A person who applies for a private pilot certificate must receive and log ground and flight training from an authorized instructor on the areas of operation of this section that apply to the aircraft category and class rating sought.

(b) *Areas of operation.* (1) For an airplane category rating with a single-engine class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and seaplane base operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Basic instrument maneuvers;
- (x) Emergency operations;
- (xi) Night operations, except as provided in § 61.110 of this part; and

(xii) Postflight procedures.

(2) For an airplane category rating with a multiengine class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and seaplane base operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Basic instrument maneuvers;
- (x) Emergency operations;
- (xi) Multiengine operations;
- (xii) Night operations, except as provided in § 61.110 of this part; and

(xiii) Postflight procedures.

(3) For a rotorcraft category rating with a helicopter class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and heliport operations;
- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Emergency operations;
- (ix) Night operations, except as provided in § 61.110 of this part; and

(x) Postflight procedures.

(4) For a rotorcraft category rating with a gyroplane class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Flight at slow airspeeds;
- (ix) Emergency operations;
- (x) Night operations, except as provided in § 61.110 of this part; and

- (xi) Postflight procedures.
- (5) For a powered-lift category rating:
 - (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport and heliport operations;
 - (iv) Hovering maneuvers;
 - (v) Takeoffs, landings, and go-arounds;
 - (vi) Performance maneuvers;
 - (vii) Ground reference maneuvers;
 - (viii) Navigation;
 - (ix) Slow flight and stalls;
 - (x) Basic instrument maneuvers;
 - (xi) Emergency operations;
 - (xii) Night operations, except as provided in § 61.110 of this part; and
 - (xiii) Postflight procedures.
- (6) For a glider category rating:
 - (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport and gliderport operations;
 - (iv) Launches and landings;
 - (v) Performance speeds;
 - (vi) Soaring techniques;
 - (vii) Performance maneuvers;
 - (viii) Navigation;
 - (ix) Slow flight and stalls;
 - (x) Emergency operations; and
 - (xi) Postflight procedures.
- (7) For a lighter-than-air category rating with an airship class rating:
 - (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport operations;
 - (iv) Takeoffs, landings, and go-arounds;
 - (v) Performance maneuvers;
 - (vi) Ground reference maneuvers;
 - (vii) Navigation;
 - (viii) Emergency operations; and
 - (ix) Postflight procedures.
- (8) For a lighter-than-air category rating with a balloon class rating:
 - (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport operations;
 - (iv) Launches and landings;
 - (v) Performance maneuvers;
 - (vi) Navigation;
 - (vii) Emergency operations; and
 - (viii) Postflight procedures.
- (9) For a powered parachute category rating -
 - (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport and seaplane base operations, as applicable;
 - (iv) Takeoffs, landings, and go-arounds;
 - (v) Performance maneuvers;

- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Night operations, except as provided in § 61.110;
- (ix) Emergency operations; and
- (x) Post-flight procedures.
- (10) For a weight-shift-control aircraft category rating -
 - (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport and seaplane base operations, as applicable;
 - (iv) Takeoffs, landings, and go-arounds;
 - (v) Performance maneuvers;
 - (vi) Ground reference maneuvers;
 - (vii) Navigation;
 - (viii) Slow flight and stalls;
 - (ix) Night operations, except as provided in § 61.110;
 - (x) Emergency operations; and
 - (xi) Post-flight procedures.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44868, July 27, 2004]

§ 61.109 Aeronautical experience.

(a) *For an airplane single-engine rating.* Except as provided in paragraph (k) of this section, a person who applies for a private pilot certificate with an airplane category and single-engine class rating must log at least 40 hours of flight time that includes at least 20 hours of flight training from an authorized instructor and 10 hours of solo flight training in the areas of operation listed in § 61.107(b)(1) of this part, and the training must include at least -

- (1) 3 hours of cross-country flight training in a single-engine airplane;
- (2) Except as provided in § 61.110 of this part, 3 hours of night flight training in a single-engine airplane that includes -
 - (i) One cross-country flight of over 100 nautical miles total distance; and
 - (ii) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.
- (3) 3 hours of flight training in a single-engine airplane on the control and maneuvering of an airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight;
- (4) 3 hours of flight training with an authorized instructor in a single-engine airplane in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test; and
- (5) 10 hours of solo flight time in a single-engine airplane, consisting of at least -
 - (i) 5 hours of solo cross-country time;
 - (ii) One solo cross country flight of 150 nautical miles total distance, with full-stop landings at three points, and one segment of the flight consisting of a straight-line distance of

more than 50 nautical miles between the takeoff and landing locations; and

(iii) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(b) *For an airplane multiengine rating.* Except as provided in paragraph (k) of this section, a person who applies for a private pilot certificate with an airplane category and multiengine class rating must log at least 40 hours of flight time that includes at least 20 hours of flight training from an authorized instructor and 10 hours of solo flight training in the areas of operation listed in § 61.107(b)(2) of this part, and the training must include at least -

(1) 3 hours of cross-country flight training in a multiengine airplane;

(2) Except as provided in § 61.110 of this part, 3 hours of night flight training in a multiengine airplane that includes -

(i) One cross-country flight of over 100 nautical miles total distance; and

(ii) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(3) 3 hours of flight training in a multiengine airplane on the control and maneuvering of an airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight;

(4) 3 hours of flight training with an authorized instructor in a multiengine airplane in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test; and

(5) 10 hours of solo flight time in an airplane consisting of at least -

(i) 5 hours of solo cross-country time;

(ii) One solo cross country flight of 150 nautical miles total distance, with full-stop landings at three points, and one segment of the flight consisting of a straight-line distance of more than 50 nautical miles between the takeoff and landing locations; and

(iii) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(c) *For a helicopter rating.* Except as provided in paragraph (k) of this section, a person who applies for a private pilot certificate with rotorcraft category and helicopter class rating must log at least 40 hours of flight time that includes at least 20 hours of flight training from an authorized instructor and 10 hours of solo flight training in the areas of operation listed in § 61.107(b)(3) of this part, and the training must include at least -

(1) 3 hours of cross-country flight training in a helicopter;

(2) Except as provided in § 61.110 of this part, 3 hours of night flight training in a helicopter that includes -

(i) One cross-country flight of over 50 nautical miles total distance; and

(ii) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(3) 3 hours of flight training with an authorized instructor in a helicopter in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test; and

(4) 10 hours of solo flight time in a helicopter, consisting of at least -

(i) 3 hours cross-country time;

(ii) One solo cross country flight of 100 nautical miles total distance, with landings at three points, and one segment of the flight being a straight-line distance of more than 25 nautical miles between the takeoff and landing locations; and

(iii) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(d) *For a gyroplane rating.* Except as provided in paragraph (k) of this section, a person who applies for a private pilot certificate with rotorcraft category and gyroplane class rating must log at least 40 hours of flight time that includes at least 20 hours of flight training from an authorized instructor and 10 hours of solo flight training in the areas of operation listed in § 61.107(b)(4) of this part, and the training must include at least -

(1) 3 hours of cross-country flight training in a gyroplane;

(2) Except as provided in § 61.110 of this part, 3 hours of night flight training in a gyroplane that includes -

(i) One cross-country flight of over 50 nautical miles total distance; and

(ii) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(3) 3 hours of flight training with an authorized instructor in a gyroplane in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test; and

(4) 10 hours of solo flight time in a gyroplane, consisting of at least -

(i) 3 hours of cross-country time;

(ii) One solo cross country flight of 100 nautical miles total distance, with landings at three points, and one segment of the flight being a straight-line distance of more than 25 nautical miles between the takeoff and landing locations; and

(iii) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(e) *For a powered-lift rating.* Except as provided in paragraph (k) of this section, a person who applies for a private pilot certificate with a powered-lift category rating must log at least 40 hours of flight time that includes at least 20 hours of flight training from an authorized instructor and 10 hours of solo flight training in the areas of operation listed in § 61.107(b)(5) of this part, and the training must include at least -

(1) 3 hours of cross-country flight training in a powered-lift;

(2) Except as provided in § 61.110 of this part, 3 hours of night flight training in a powered-lift that includes -

(i) One cross-country flight of over 100 nautical miles total distance; and

(ii) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(3) 3 hours of flight training in a powered-lift on the control and maneuvering of a powered-lift solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight;

(4) 3 hours of flight training with an authorized instructor in a powered-lift in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test; and

(5) 10 hours of solo flight time in an airplane or powered-lift consisting of at least -

(i) 5 hours cross-country time;

(ii) One solo cross country flight of 150 nautical miles total distance, with full-stop landings at three points, and one segment of the flight consisting of a straight-line distance of more than 50 nautical miles between the takeoff and landing locations; and

(iii) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(f) *For a glider category rating.* (1) If the applicant for a private pilot certificate with a glider category rating has not logged at least 40 hours of flight time as a pilot in a heavier-than-air aircraft, the applicant must log at least 10 hours of flight time in a glider in the areas of operation listed in § 61.107(b)(6) of this part, and that flight time must include at least -

(i) 20 flights in a glider in the areas of operations listed in § 61.107(b)(6) of this part, including at least 3 training flights with an authorized instructor in a glider in preparation for the practical test that must have been performed within the preceding 2 calendar months from the month of the test; and

(ii) 2 hours of solo flight time in a glider in the areas of operation listed in § 61.107(b)(6) of this part, with not less than 10 launches and landings being performed.

(2) If the applicant has logged at least 40 hours of flight time in a heavier-than-air aircraft, the applicant must log at least 3 hours of flight time in a glider in the areas of operation listed in § 61.107(b)(6) of this part, and that flight time must include at least -

(i) 10 solo flights in a glider in the areas of operation listed in § 61.107(b)(6) of this part; and

(ii) 3 training flights with an authorized instructor in a glider in preparation for the practical test that must have been

performed within the preceding 2 calendar months from the month of the test.

(g) *For an airship rating.* A person who applies for a private pilot certificate with a lighter-than-air category and airship class rating must log at least:

(1) 25 hours of flight training in airships on the areas of operation listed in § 61.107(b)(7) of this part, which consists of at least:

(i) 3 hours of cross-country flight training in an airship;

(ii) Except as provided in § 61.110 of this part, 3 hours of night flight training in an airship that includes:

(A) A cross-country flight of over 25 nautical miles total distance; and

(B) Five takeoffs and five landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(2) 3 hours of flight training in an airship on the control and maneuvering of an airship solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight;

(3) Three hours of flight training with an authorized instructor in an airship in preparation for the practical test within the preceding 2 calendar months from the month of the test; and

(4) 5 hours performing the duties of pilot in command in an airship with an authorized instructor.

(h) *For a balloon rating.* A person who applies for a private pilot certificate with a lighter-than-air category and balloon class rating must log at least 10 hours of flight training that includes at least six training flights with an authorized instructor in the areas of operation listed in § 61.107(b)(8) of this part, that includes -

(1) *Gas balloon.* If the training is being performed in a gas balloon, at least two flights of 2 hours each that consists of -

(i) At least one training flight with an authorized instructor in a gas balloon in preparation for the practical test within the preceding 2 calendar months from the month of the test;

(ii) At least one flight performing the duties of pilot in command in a gas balloon with an authorized instructor; and

(iii) At least one flight involving a controlled ascent to 3,000 feet above the launch site.

(2) *Balloon with an airborne heater.* If the training is being performed in a balloon with an airborne heater, at least -

(i) At least two training flights of 1 hour each with an authorized instructor in a balloon with an airborne heater in preparation for the practical test within the preceding 2 calendar months from the month of the test;

(ii) One solo flight in a balloon with an airborne heater; and

(iii) At least one flight involving a controlled ascent to 2,000 feet above the launch site.

(i) *For a powered parachute rating.* A person who applies for a private pilot certificate with a powered parachute category rating must log at least 25 hours of flight time in

a powered parachute that includes at least 10 hours of flight training with an authorized instructor, including 30 takeoffs and landings, and 10 hours of solo flight training in the areas of operation listed in § 61.107 (b)(9) and the training must include at least -

(1) One hour of cross-country flight training in a powered parachute that includes a 1-hour cross-country flight with a landing at an airport at least 25 nautical miles from the airport of departure;

(2) Except as provided in § 61.110, 3 hours of night flight training in a powered parachute that includes 10 takeoffs and landings (with each landing involving a flight in the traffic pattern) at an airport;

(3) Three hours of flight training with an authorized instructor in a powered parachute in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test;

(4) Three hours of solo flight time in a powered parachute, consisting of at least -

(i) One solo cross-country flight with a landing at an airport at least 25 nautical miles from the departure airport; and

(ii) Twenty solo takeoffs and landings to a full stop (with each landing involving a flight in a traffic pattern) at an airport; and

(5) Three takeoffs and landings (with each landing involving a flight in the traffic pattern) in an aircraft at an airport with an operating control tower.

(j) *For a weight-shift-control aircraft rating.* A person who applies for a private pilot certificate with a weight-shift-control rating must log at least 40 hours of flight time that includes at least 20 hours of flight training with an authorized instructor and 10 hours of solo flight training in the areas of operation listed in § 61.107(b)(10) and the training must include at least -

(1) Three hours of cross-country flight training in a weight-shift-control aircraft;

(2) Except as provided in § 61.110, 3 hours of night flight training in a weight-shift-control aircraft that includes -

(i) One cross-country flight of over 75 nautical miles total distance that includes a point of landing that is a straight-line distance of more than 50 nautical miles from the original point of departure; and

(ii) Ten takeoffs and landings (with each landing involving a flight in the traffic pattern) at an airport;

(3) Three hours of flight training with an authorized instructor in a weight-shift-control aircraft in preparation for the practical test, which must have been performed within the preceding 2 calendar months from the month of the test;

(4) Ten hours of solo flight time in a weight-shift-control aircraft, consisting of at least -

(i) Five hours of solo cross-country time; and

(ii) One solo cross-country flight over 100 nautical miles total distance, with landings at a minimum of three points, and one segment of the flight being a straight line distance of at least 50 nautical miles between takeoff and landing locations; and

(5) Three takeoffs and landings (with each landing involving a flight in the traffic pattern) in an aircraft at an airport with an operating control tower.

(k) *Permitted credit for use of a flight simulator or flight training device.* (1) Except as provided in paragraphs (k) (2) of this section, a maximum of 2.5 hours of training in a flight simulator or flight training device representing the category, class, and type, if applicable, of aircraft appropriate to the rating sought, may be credited toward the flight training time required by this section, if received from an authorized instructor.

(2) A maximum of 5 hours of training in a flight simulator or flight training device representing the category, class, and type, if applicable, of aircraft appropriate to the rating sought, may be credited toward the flight training time required by this section if the training is accomplished in a course conducted by a training center certificated under part 142 of this chapter.

(3) Except when fewer hours are approved by the Administrator, an applicant for a private pilot certificate with an airplane, rotorcraft, or powered-lift rating, who has satisfactorily completed an approved private pilot course conducted by a training center certificated under part 142 of this chapter, need only have a total of 35 hours of aeronautical experience to meet the requirements of this section.

[Doc. No. 25910, 62 FR 40902, July 30, 1997, as amended by Amdt. 61-104, 63 FR 20287, Apr. 23, 1998; Amdt. 61-110, 69 FR 44868, July 27, 2004; Amdt. 61-124, 74 FR 42558, Aug. 21, 2009; Amdt. 61-124A, 74 FR 53645, Oct. 20, 2009; Amdt. 61-125, 75 FR 5220, Feb. 1, 2010]

§ 61.110 Night flying exceptions.

(a) Subject to the limitations of paragraph (b) of this section, a person is not required to comply with the night flight training requirements of this subpart if the person receives flight training in and resides in the State of Alaska.

(b) A person who receives flight training in and resides in the State of Alaska but does not meet the night flight training requirements of this section:

(1) May be issued a pilot certificate with a limitation "Night flying prohibited"; and

(2) Must comply with the appropriate night flight training requirements of this subpart within the 12-calendar-month period after the issuance of the pilot certificate. At the end of that period, the certificate will become invalid for use until the person complies with the appropriate night training requirements of this subpart. The person may have the "Night flying prohibited" limitation removed if the person -

(i) Accomplishes the appropriate night flight training requirements of this subpart; and

(ii) Presents to an examiner a logbook or training record endorsement from an authorized instructor that verifies accomplishment of the appropriate night flight training requirements of this subpart.

(c) A person who does not meet the night flying requirements in § 61.109(d)(2), (i)(2), or (j)(2) may be issued

a private pilot certificate with the limitation “Night flying prohibited.” This limitation may be removed by an examiner if the holder complies with the requirements of § 61.109(d)(2), (i)(2), or (j)(2), as appropriate.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40904, July 30, 1997; Amdt. 61-110, 69 FR 44869, July 27, 2004]

§ 61.111 Cross-country flights: Pilots based on small islands.

(a) Except as provided in paragraph (b) of this section, an applicant located on an island from which the cross-country flight training required in § 61.109 of this part cannot be accomplished without flying over water for more than 10 nautical miles from the nearest shoreline need not comply with the requirements of that section.

(b) If other airports that permit civil operations are available to which a flight may be made without flying over water for more than 10 nautical miles from the nearest shoreline, the applicant must show completion of two round-trip solo flights between those two airports that are farthest apart, including a landing at each airport on both flights.

(c) An applicant who complies with paragraph (a) or paragraph (b) of this section, and meets all requirements for the issuance of a private pilot certificate, except the cross-country training requirements of § 61.109 of this part, will be issued a pilot certificate with an endorsement containing the following limitation, “Passenger carrying prohibited on flights more than 10 nautical miles from (the appropriate island).” The limitation may be subsequently amended to include another island if the applicant complies with the requirements of paragraph (b) of this section for another island.

(d) Upon meeting the cross-country training requirements of § 61.109 of this part, the applicant may have the limitation in paragraph (c) of this section removed.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40904, July 30, 1997]

§ 61.113 Private pilot privileges and limitations: Pilot in command.

(a) Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire.

(c) A private pilot may not pay less than the pro rata share of the operating expenses of a flight with passengers, provided

the expenses involve only fuel, oil, airport expenditures, or rental fees.

(d) A private pilot may act as pilot in command of a charitable, nonprofit, or community event flight described in § 91.146, if the sponsor and pilot comply with the requirements of § 91.146.

(e) A private pilot may be reimbursed for aircraft operating expenses that are directly related to search and location operations, provided the expenses involve only fuel, oil, airport expenditures, or rental fees, and the operation is sanctioned and under the direction and control of:

(1) A local, State, or Federal agency; or

(2) An organization that conducts search and location operations.

(f) A private pilot who is an aircraft salesman and who has at least 200 hours of logged flight time may demonstrate an aircraft in flight to a prospective buyer.

(g) A private pilot who meets the requirements of § 61.69 may act as a pilot in command of an aircraft towing a glider or unpowered ultralight vehicle.

(h) A private pilot may act as pilot in command for the purpose of conducting a production flight test in a light-sport aircraft intended for certification in the light-sport category under § 21.190 of this chapter, provided that -

(1) The aircraft is a powered parachute or a weight-shift-control aircraft;

(2) The person has at least 100 hours of pilot-in-command time in the category and class of aircraft flown; and

(3) The person is familiar with the processes and procedures applicable to the conduct of production flight testing, to include operations conducted under a special flight permit and any associated operating limitations.

(i) A private pilot may act as pilot in command of an aircraft without holding a medical certificate issued under part 67 of this chapter provided the pilot holds a valid U.S. driver's license, meets the requirements of § 61.23(c)(3), and complies with this section and all of the following conditions and limitations:

(1) The aircraft is authorized to carry not more than 6 occupants, has a maximum takeoff weight of not more than 6,000 pounds, and is operated with no more than five passengers on board; and

(2) The flight, including each portion of the flight, is not carried out -

(i) At an altitude that is more than 18,000 feet above mean sea level;

(ii) Outside the United States unless authorized by the country in which the flight is conducted; or

(iii) At an indicated airspeed exceeding 250 knots; and

(3) The pilot has available in his or her logbook -

(i) The completed medical examination checklist required under § 68.7 of this chapter; and

(ii) The certificate of course completion required under § 61.23(c)(3).

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44869, July 27, 2004; Amdt. 61-115, 72 FR 6910, Feb. 13, 2007; Amdt. 61-125, 75 FR 5220, Feb. 1, 2010; Docket FAA-2016-9157, Amdt. 61-140, 82 FR 3165, Jan. 11, 2017]

§ 61.115 Balloon rating: Limitations.

(a) If a person who applies for a private pilot certificate with a balloon rating takes a practical test in a balloon with an airborne heater:

(1) The pilot certificate will contain a limitation restricting the exercise of the privileges of that certificate to a balloon with an airborne heater; and

(2) The limitation may be removed when the person obtains the required aeronautical experience in a gas balloon and receives a logbook endorsement from an authorized instructor who attests to the person's accomplishment of the required aeronautical experience and ability to satisfactorily operate a gas balloon.

(b) If a person who applies for a private pilot certificate with a balloon rating takes a practical test in a gas balloon:

(1) The pilot certificate will contain a limitation restricting the exercise of the privilege of that certificate to a gas balloon; and

(2) The limitation may be removed when the person obtains the required aeronautical experience in a balloon with an airborne heater and receives a logbook endorsement from an authorized instructor who attests to the person's accomplishment of the required aeronautical experience and ability to satisfactorily operate a balloon with an airborne heater.

§ 61.117 Private pilot privileges and limitations: Second in command of aircraft requiring more than one pilot.

Except as provided in § 61.113 of this part, no private pilot may, for compensation or hire, act as second in command of an aircraft that is type certificated for more than one pilot, nor may that pilot act as second in command of such an aircraft that is carrying passengers or property for compensation or hire.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40904, July 30, 1997]

§§ 61.118-61.120 [Reserved]

Subpart F - Commercial Pilots

§ 61.121 Applicability.

This subpart prescribes the requirements for the issuance of commercial pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules for persons who hold those certificates and ratings.

§ 61.123 Eligibility requirements: General.

To be eligible for a commercial pilot certificate, a person must:

(a) Be at least 18 years of age;

(b) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft.

(c) Receive a logbook endorsement from an authorized instructor who:

(1) Conducted the required ground training or reviewed the person's home study on the aeronautical knowledge areas listed in § 61.125 of this part that apply to the aircraft category and class rating sought; and

(2) Certified that the person is prepared for the required knowledge test that applies to the aircraft category and class rating sought.

(d) Pass the required knowledge test on the aeronautical knowledge areas listed in § 61.125 of this part;

(e) Receive the required training and a logbook endorsement from an authorized instructor who:

(1) Conducted the training on the areas of operation listed in § 61.127(b) of this part that apply to the aircraft category and class rating sought; and

(2) Certified that the person is prepared for the required practical test.

(f) Meet the aeronautical experience requirements of this subpart that apply to the aircraft category and class rating sought before applying for the practical test;

(g) Pass the required practical test on the areas of operation listed in § 61.127(b) of this part that apply to the aircraft category and class rating sought;

(h) Hold at least a private pilot certificate issued under this part or meet the requirements of § 61.73; and

(i) Comply with the sections of this part that apply to the aircraft category and class rating sought.

§ 61.125 Aeronautical knowledge.

(a) *General.* A person who applies for a commercial pilot certificate must receive and log ground training from an authorized instructor, or complete a home-study course, on the aeronautical knowledge areas of paragraph (b) of this section that apply to the aircraft category and class rating sought.

(b) *Aeronautical knowledge areas.* (1) Applicable Federal Aviation Regulations of this chapter that relate to commercial pilot privileges, limitations, and flight operations;

(2) Accident reporting requirements of the National Transportation Safety Board;

(3) Basic aerodynamics and the principles of flight;

(4) Meteorology to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts;

- (5) Safe and efficient operation of aircraft;
- (6) Weight and balance computations;
- (7) Use of performance charts;
- (8) Significance and effects of exceeding aircraft performance limitations;
- (9) Use of aeronautical charts and a magnetic compass for pilotage and dead reckoning;
- (10) Use of air navigation facilities;
- (11) Aeronautical decision making and judgment;
- (12) Principles and functions of aircraft systems;
- (13) Maneuvers, procedures, and emergency operations appropriate to the aircraft;
- (14) Night and high-altitude operations;
- (15) Procedures for operating within the National Airspace System; and
- (16) Procedures for flight and ground training for lighter-than-air ratings.

§ 61.127 Flight proficiency.

(a) *General.* A person who applies for a commercial pilot certificate must receive and log ground and flight training from an authorized instructor on the areas of operation of this section that apply to the aircraft category and class rating sought.

(b) *Areas of operation.* (1) For an airplane category rating with a single-engine class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and seaplane base operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Emergency operations;
- (x) High-altitude operations; and
- (xi) Postflight procedures.

(2) For an airplane category rating with a multiengine class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and seaplane base operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Navigation;
- (vii) Slow flight and stalls;
- (viii) Emergency operations;
- (ix) Multiengine operations;
- (x) High-altitude operations; and
- (xi) Postflight procedures.

(3) For a rotorcraft category rating with a helicopter class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and heliport operations;

- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Emergency operations;
- (ix) Special operations; and
- (x) Postflight procedures.

(4) For a rotorcraft category rating with a gyroplane class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Flight at slow airspeeds;
- (ix) Emergency operations; and
- (x) Postflight procedures.

(5) For a powered-lift category rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and heliport operations;
- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Emergency operations;
- (x) High-altitude operations;
- (xi) Special operations; and
- (xii) Postflight procedures.

(6) For a glider category rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and gliderport operations;
- (iv) Launches and landings;
- (v) Performance speeds;
- (vi) Soaring techniques;
- (vii) Performance maneuvers;
- (viii) Navigation;
- (ix) Slow flight and stalls;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(7) For a lighter-than-air category rating with an airship class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subjects;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Preflight procedures;
- (vi) Airport operations;
- (vii) Takeoffs, landings, and go-arounds;
- (viii) Performance maneuvers;

- (ix) Navigation;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(8) For a lighter-than-air category rating with a balloon class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subjects;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Preflight procedures;
- (vi) Airport operations;
- (vii) Launches and landings;
- (viii) Performance maneuvers;
- (ix) Navigation;
- (x) Emergency operations; and
- (xi) Postflight procedures.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-124, 74 FR 42558, Aug. 21, 2009]

§ 61.129 Aeronautical experience.

(a) *For an airplane single-engine rating.* Except as provided in paragraph (i) of this section, a person who applies for a commercial pilot certificate with an airplane category and single-engine class rating must log at least 250 hours of flight time as a pilot that consists of at least:

(1) 100 hours in powered aircraft, of which 50 hours must be in airplanes.

(2) 100 hours of pilot-in-command flight time, which includes at least -

(i) 50 hours in airplanes; and

(ii) 50 hours in cross-country flight of which at least 10 hours must be in airplanes.

(3) 20 hours of training on the areas of operation listed in § 61.127(b)(1) of this part that includes at least -

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a single engine airplane;

(ii) 10 hours of training in an airplane that has a retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered, or for an applicant seeking a single-engine seaplane rating, 10 hours of training in a seaplane that has flaps and a controllable pitch propeller;

(iii) One 2-hour cross country flight in a single engine airplane in daytime conditions that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight in a single engine airplane in nighttime conditions that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) Three hours in a single-engine airplane with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test.

(4) Ten hours of solo flight time in a single engine airplane or 10 hours of flight time performing the duties of pilot in command in a single engine airplane with an authorized instructor on board (either of which may be credited towards the flight time requirement under paragraph (a)(2) of this section), on the areas of operation listed under § 61.127(b)(1) that include -

(i) One cross-country flight of not less than 300 nautical miles total distance, with landings at a minimum of three points, one of which is a straight-line distance of at least 250 nautical miles from the original departure point. However, if this requirement is being met in Hawaii, the longest segment need only have a straight-line distance of at least 150 nautical miles; and

(ii) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(b) *For an airplane multiengine rating.* Except as provided in paragraph (i) of this section, a person who applies for a commercial pilot certificate with an airplane category and multiengine class rating must log at least 250 hours of flight time as a pilot that consists of at least:

(1) 100 hours in powered aircraft, of which 50 hours must be in airplanes.

(2) 100 hours of pilot-in-command flight time, which includes at least -

(i) 50 hours in airplanes; and

(ii) 50 hours in cross-country flight of which at least 10 hours must be in airplanes.

(3) 20 hours of training on the areas of operation listed in § 61.127(b)(2) of this part that includes at least -

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a multiengine airplane;

(ii) 10 hours of training in a multiengine airplane that has a retractable landing gear, flaps, and controllable pitch propellers, or is turbine-powered, or for an applicant seeking a multiengine seaplane rating, 10 hours of training in a multiengine seaplane that has flaps and a controllable pitch propeller;

(iii) One 2-hour cross country flight in a multiengine airplane in daytime conditions that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight in a multiengine airplane in nighttime conditions that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) Three hours in a multiengine airplane with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test.

(4) 10 hours of solo flight time in a multiengine airplane or 10 hours of flight time performing the duties of pilot in command in a multiengine airplane with an authorized instructor (either of which may be credited towards the flight time requirement in paragraph (b)(2) of this section), on the areas of operation listed in § 61.127(b)(2) of this part that includes at least -

(i) One cross-country flight of not less than 300 nautical miles total distance with landings at a minimum of three points, one of which is a straight-line distance of at least 250 nautical miles from the original departure point. However, if this requirement is being met in Hawaii, the longest segment need only have a straight-line distance of at least 150 nautical miles; and

(ii) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

(c) *For a helicopter rating.* Except as provided in paragraph (i) of this section, a person who applies for a commercial pilot certificate with a rotorcraft category and helicopter class rating must log at least 150 hours of flight time as a pilot that consists of at least:

(1) 100 hours in powered aircraft, of which 50 hours must be in helicopters.

(2) 100 hours of pilot-in-command flight time, which includes at least -

(i) 35 hours in helicopters; and

(ii) 10 hours in cross-country flight in helicopters.

(3) 20 hours of training on the areas of operation listed in § 61.127(b)(3) of this part that includes at least -

(i) Five hours on the control and maneuvering of a helicopter solely by reference to instruments using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device;

(ii) One 2-hour cross country flight in a helicopter in daytime conditions that consists of a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight in a helicopter in nighttime conditions that consists of a total straight-line distance of more than 50 nautical miles from the original point of departure; and

(iv) Three hours in a helicopter with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test.

(4) Ten hours of solo flight time in a helicopter or 10 hours of flight time performing the duties of pilot in command in a helicopter with an authorized instructor on board (either of which may be credited towards the flight time requirement

under paragraph (c)(2) of this section), on the areas of operation listed under § 61.127(b)(3) that includes -

(i) One cross-country flight with landings at a minimum of three points, with one segment consisting of a straight-line distance of at least 50 nautical miles from the original point of departure; and

(ii) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight in the traffic pattern).

(d) *For a gyroplane rating.* A person who applies for a commercial pilot certificate with a rotorcraft category and gyroplane class rating must log at least 150 hours of flight time as a pilot (of which 5 hours may have been accomplished in a flight simulator or flight training device that is representative of a gyroplane) that consists of at least:

(1) 100 hours in powered aircraft, of which 25 hours must be in gyroplanes.

(2) 100 hours of pilot-in-command flight time, which includes at least -

(i) 10 hours in gyroplanes; and

(ii) 3 hours in cross-country flight in gyroplanes.

(3) 20 hours of training on the areas of operation listed in § 61.127(b)(4) of this part that includes at least -

(i) 2.5 hours on the control and maneuvering of a gyroplane solely by reference to instruments using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device;

(ii) One 2-hour cross country flight in a gyroplane in daytime conditions that consists of a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) Two hours of flight training during nighttime conditions in a gyroplane at an airport, that includes 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern); and

(iv) Three hours in a gyroplane with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test.

(4) Ten hours of solo flight time in a gyroplane or 10 hours of flight time performing the duties of pilot in command in a gyroplane with an authorized instructor on board (either of which may be credited towards the flight time requirement under paragraph (d)(2) of this section), on the areas of operation listed in § 61.127(b)(4) that includes -

(i) One cross-country flight with landings at a minimum of three points, with one segment consisting of a straight-line distance of at least 50 nautical miles from the original point of departure; and

(ii) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight in the traffic pattern).

(e) *For a powered-lift rating.* Except as provided in paragraph (i) of this section, a person who applies for a commercial pilot certificate with a powered-lift category rating must log at least 250 hours of flight time as a pilot that consists of at least:

(1) 100 hours in powered aircraft, of which 50 hours must be in a powered-lift.

(2) 100 hours of pilot-in-command flight time, which includes at least -

(i) 50 hours in a powered-lift; and

(ii) 50 hours in cross-country flight of which 10 hours must be in a powered-lift.

(3) 20 hours of training on the areas of operation listed in § 61.127(b)(5) of this part that includes at least -

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a powered-lift;

(ii) One 2-hour cross country flight in a powered-lift in daytime conditions that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight in a powered-lift in nighttime conditions that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(iv) 3 hours in a powered-lift with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test.

(4) Ten hours of solo flight time in a powered-lift or 10 hours of flight time performing the duties of pilot in command in a powered-lift with an authorized instructor on board (either of which may be credited towards the flight time requirement under paragraph (e)(2) of this section, on the areas of operation listed in § 61.127(b)(5) that includes -

(i) One cross-country flight of not less than 300 nautical miles total distance with landings at a minimum of three points, one of which is a straight-line distance of at least 250 nautical miles from the original departure point. However, if this requirement is being met in Hawaii the longest segment need only have a straight-line distance of at least 150 nautical miles; and

(ii) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(f) *For a glider rating.* A person who applies for a commercial pilot certificate with a glider category rating must log at least -

(1) 25 hours of flight time as a pilot in a glider and that flight time must include at least 100 flights in a glider as pilot in command, including at least -

(i) Three hours of flight training in a glider with an authorized instructor or 10 training flights in a glider with an authorized instructor on the areas of operation listed in §

61.127(b)(6) of this part, including at least 3 training flights in a glider with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test; and

(ii) 2 hours of solo flight that include not less than 10 solo flights in a glider on the areas of operation listed in § 61.127(b)(6) of this part; or

(2) 200 hours of flight time as a pilot in heavier-than-air aircraft and at least 20 flights in a glider as pilot in command, including at least -

(i) Three hours of flight training in a glider or 10 training flights in a glider with an authorized instructor on the areas of operation listed in § 61.127(b)(6) of this part including at least 3 training flights in a glider with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test; and

(ii) 5 solo flights in a glider on the areas of operation listed in § 61.127(b)(6) of this part.

(g) *For an airship rating.* A person who applies for a commercial pilot certificate with a lighter-than-air category and airship class rating must log at least 200 hours of flight time as a pilot, which includes at least the following hours:

(1) 50 hours in airships.

(2) Thirty hours of pilot in command flight time in airships or performing the duties of pilot in command in an airship with an authorized instructor aboard, which consists of -

(i) 10 hours of cross-country flight time in airships; and

(ii) 10 hours of night flight time in airships.

(3) Forty hours of instrument time to include -

(i) Instrument training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems; and

(ii) Twenty hours of instrument flight time, of which 10 hours must be in flight in airships.

(4) 20 hours of flight training in airships on the areas of operation listed in § 61.127(b)(7) of this part, which includes at least -

(i) Three hours in an airship with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test;

(ii) One hour cross country flight in an airship in daytime conditions that consists of a total straight-line distance of more than 25 nautical miles from the point of departure; and

(iii) One hour cross country flight in an airship in nighttime conditions that consists of a total straight-line distance of more than 25 nautical miles from the point of departure.

(5) 10 hours of flight training performing the duties of pilot in command with an authorized instructor on the areas of operation listed in § 61.127(b)(7) of this part, which includes at least -

(i) One cross-country flight with landings at a minimum of three points, with one segment consisting of a straight-line distance of at least 25 nautical miles from the original point of departure; and

(ii) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight in the traffic pattern).

(h) *For a balloon rating.* A person who applies for a commercial pilot certificate with a lighter-than-air category and a balloon class rating must log at least 35 hours of flight time as a pilot, which includes at least the following requirements:

- (1) 20 hours in balloons;
- (2) 10 flights in balloons;
- (3) Two flights in balloons as the pilot in command; and
- (4) 10 hours of flight training that includes at least 10 training flights with an authorized instructor in balloons on the areas of operation listed in § 61.127(b)(8) of this part, which consists of at least -

(i) For a gas balloon -

(A) Two training flights of 2 hours each in a gas balloon with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test;

(B) 2 flights performing the duties of pilot in command in a gas balloon with an authorized instructor on the appropriate areas of operation; and

(C) One flight involving a controlled ascent to 5,000 feet above the launch site.

(ii) For a balloon with an airborne heater -

(A) Two training flights of 1 hour each in a balloon with an airborne heater with an authorized instructor in preparation for the practical test within the preceding 2 calendar months from the month of the test;

(B) Two solo flights in a balloon with an airborne heater on the appropriate areas of operation; and

(C) One flight involving a controlled ascent to 3,000 feet above the launch site.

(i) *Permitted credit for use of a flight simulator or flight training device.* (1) Except as provided in paragraph (i)(2) of this section, an applicant who has not accomplished the training required by this section in a course conducted by a training center certificated under part 142 of this chapter may:

(i) Credit a maximum of 50 hours toward the total aeronautical experience requirements for an airplane or powered-lift rating, provided the aeronautical experience was obtained from an authorized instructor in a flight simulator or flight training device that represents that class of airplane or powered-lift category and type, if applicable, appropriate to the rating sought; and

(ii) Credit a maximum of 25 hours toward the total aeronautical experience requirements of this section for a helicopter rating, provided the aeronautical experience was obtained from an authorized instructor in a flight simulator or flight training device that represents a helicopter and type, if applicable, appropriate to the rating sought.

(2) An applicant who has accomplished the training required by this section in a course conducted by a training center certificated under part 142 of this chapter may:

(i) Credit a maximum of 100 hours toward the total aeronautical experience requirements of this section for an airplane and powered-lift rating, provided the aeronautical experience was obtained from an authorized instructor in a flight simulator or flight training device that represents that class of airplane or powered-lift category and type, if applicable, appropriate to the rating sought; and

(ii) Credit a maximum of 50 hours toward the total aeronautical experience requirements of this section for a helicopter rating, provided the aeronautical experience was obtained from an authorized instructor in a flight simulator or flight training device that represents a helicopter and type, if applicable, appropriate to the rating sought.

(3) Except when fewer hours are approved by the FAA, an applicant for the commercial pilot certificate with the airplane or powered-lift rating who has completed 190 hours of aeronautical experience is considered to have met the total aeronautical experience requirements of this section, provided the applicant satisfactorily completed an approved commercial pilot course under part 142 of this chapter and the approved course was appropriate to the commercial pilot certificate and aircraft rating sought.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-101, 62 FR 16892, Apr. 8, 1997; Amdt. 61-103, 62 FR 40904, July 30, 1997; Amdt. 61-104, 63 FR 20288, Apr. 23, 1998; Amdt. 61-124, 74 FR 42558, Aug. 21, 2009; Amdt. 61-124A, 74 FR 53645, Oct. 20, 2009]

§ 61.131 Exceptions to the night flying requirements.

(a) Subject to the limitations of paragraph (b) of this section, a person is not required to comply with the night flight training requirements of this subpart if the person receives flight training in and resides in the State of Alaska.

(b) A person who receives flight training in and resides in the State of Alaska but does not meet the night flight training requirements of this section:

(1) May be issued a pilot certificate with the limitation “night flying prohibited.”

(2) Must comply with the appropriate night flight training requirements of this subpart within the 12-calendar-month period after the issuance of the pilot certificate. At the end of that period, the certificate will become invalid for use until the person complies with the appropriate night flight training requirements of this subpart. The person may have the “night flying prohibited” limitation removed if the person -

(i) Accomplishes the appropriate night flight training requirements of this subpart; and

(ii) Presents to an examiner a logbook or training record endorsement from an authorized instructor that verifies accomplishment of the appropriate night flight training requirements of this subpart.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40905, July 30, 1997]

§ 61.133 Commercial pilot privileges and limitations.

(a) *Privileges* - (1) *General*. A person who holds a commercial pilot certificate may act as pilot in command of an aircraft -

(i) Carrying persons or property for compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation; and

(ii) For compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation.

(2) *Commercial pilots with lighter-than-air category ratings*. A person with a commercial pilot certificate with a lighter-than-air category rating may -

(i) *For an airship* - (A) Give flight and ground training in an airship for the issuance of a certificate or rating;

(B) Give an endorsement for a pilot certificate with an airship rating;

(C) Endorse a pilot's logbook for solo operating privileges in an airship;

(D) Act as pilot in command of an airship under IFR or in weather conditions less than the minimum prescribed for VFR flight; and

(E) Give flight and ground training and endorsements that are required for a flight review, an operating privilege or recency-of-experience requirements of this part.

(ii) *For a balloon* - (A) Give flight and ground training in a balloon for the issuance of a certificate or rating;

(B) Give an endorsement for a pilot certificate with a balloon rating;

(C) Endorse a pilot's logbook for solo operating privileges in a balloon; and

(D) Give ground and flight training and endorsements that are required for a flight review, an operating privilege, or recency-of-experience requirements of this part.

(b) *Limitations*. (1) A person who applies for a commercial pilot certificate with an airplane category or powered-lift category rating and does not hold an instrument rating in the same category and class will be issued a commercial pilot certificate that contains the limitation, "The carriage of passengers for hire in (airplanes) (powered-lifts) on cross-country flights in excess of 50 nautical miles or at night is prohibited." The limitation may be removed when the person satisfactorily accomplishes the requirements listed in § 61.65 of this part for an instrument rating in the same category and class of aircraft listed on the person's commercial pilot certificate.

(2) If a person who applies for a commercial pilot certificate with a balloon rating takes a practical test in a balloon with an airborne heater -

(i) The pilot certificate will contain a limitation restricting the exercise of the privileges of that certificate to a balloon with an airborne heater.

(ii) The limitation specified in paragraph (b)(2)(i) of this section may be removed when the person obtains the required aeronautical experience in a gas balloon and receives a logbook endorsement from an authorized instructor who attests to the person's accomplishment of the required aeronautical experience and ability to satisfactorily operate a gas balloon.

(3) If a person who applies for a commercial pilot certificate with a balloon rating takes a practical test in a gas balloon -

(i) The pilot certificate will contain a limitation restricting the exercise of the privileges of that certificate to a gas balloon.

(ii) The limitation specified in paragraph (b)(3)(i) of this section may be removed when the person obtains the required aeronautical experience in a balloon with an airborne heater and receives a logbook endorsement from an authorized instructor who attests to the person's accomplishment of the required aeronautical experience and ability to satisfactorily operate a balloon with an airborne heater.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40905, July 30, 1997; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016]

§§ 61.135-61.141 [Reserved]

Subpart G - Airline Transport Pilots

§ 61.151 Applicability.

This subpart prescribes the requirements for the issuance of airline transport pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules for persons who hold those certificates and ratings.

§ 61.153 Eligibility requirements: General.

To be eligible for an airline transport pilot certificate, a person must:

(a) Meet the following age requirements:

(1) For an airline transport pilot certificate obtained under the aeronautical experience requirements of §§ 61.159, 61.161, or 61.163, be at least 23 years of age; or

(2) For an airline transport pilot certificate obtained under the aeronautical experience requirements of § 61.160, be at least 21 years of age.

(b) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's pilot certificate as are necessary for the safe operation of the aircraft;

(c) Be of good moral character;

(d) Meet at least one of the following requirements:

(1) Holds a commercial pilot certificate with an instrument rating issued under this part;

(2) Meet the military experience requirements under § 61.73 of this part to qualify for a commercial pilot certificate, and an instrument rating if the person is a rated military pilot or former rated military pilot of an Armed Force of the United States; or

(3) Holds either a foreign airline transport pilot license with instrument privileges, or a foreign commercial pilot license with an instrument rating, that -

(i) Was issued by a contracting State to the Convention on International Civil Aviation; and

(ii) Contains no geographical limitations.

(e) After July 31, 2014, for an airline transport pilot certificate with an airplane category multiengine class rating or an airline transport pilot certificate obtained concurrently with an airplane type rating, receive a graduation certificate from an authorized training provider certifying completion of the airline transport pilot certification training program specified in § 61.156 before applying for the knowledge test required by paragraph (g) of this section;

(f) Meet the aeronautical experience requirements of this subpart that apply to the aircraft category and class rating sought before applying for the practical test;

(g) Pass a knowledge test on the aeronautical knowledge areas of § 61.155(c) of this part that apply to the aircraft category and class rating sought;

(h) Pass the practical test on the areas of operation listed in § 61.157(e) of this part that apply to the aircraft category and class rating sought; and

(i) Comply with the sections of this subpart that apply to the aircraft category and class rating sought.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40905, July 30, 1997; Amdt. 61-124, 74 FR 42559, Aug. 21, 2009; Amdt. 61-130, 78 FR 42374, July 15, 2013]

§ 61.155 Aeronautical knowledge.

(a) *General.* The knowledge test for an airline transport pilot certificate is based on the aeronautical knowledge areas listed in paragraph (c) of this section that are appropriate to the aircraft category and class rating sought.

(b) *Aircraft type rating.* A person who is applying for an additional aircraft type rating to be added to an airline transport pilot certificate is not required to pass a knowledge test if that person's airline transport pilot certificate lists the aircraft category and class rating that is appropriate to the type rating sought.

(c) *Aeronautical knowledge areas.* (1) Applicable Federal Aviation Regulations of this chapter that relate to airline transport pilot privileges, limitations, and flight operations;

(2) Meteorology, including knowledge of and effects of fronts, frontal characteristics, cloud formations, icing, and upper-air data;

(3) General system of weather and NOTAM collection, dissemination, interpretation, and use;

(4) Interpretation and use of weather charts, maps, forecasts, sequence reports, abbreviations, and symbols;

(5) National Weather Service functions as they pertain to operations in the National Airspace System;

(6) Windshear and microburst awareness, identification, and avoidance;

(7) Principles of air navigation under instrument meteorological conditions in the National Airspace System;

(8) Air traffic control procedures and pilot responsibilities as they relate to en route operations, terminal area and radar operations, and instrument departure and approach procedures;

(9) Aircraft loading, weight and balance, use of charts, graphs, tables, formulas, and computations, and their effect on aircraft performance;

(10) Aerodynamics relating to an aircraft's flight characteristics and performance in normal and abnormal flight regimes;

(11) Human factors;

(12) Aeronautical decision making and judgment;

(13) Crew resource management to include crew communication and coordination; and

(14) After July 31, 2014, for airplane category multiengine class rating or airplane type rating, the content of the airline transport pilot certification training program in § 61.156.

(d) An applicant who successfully completes the knowledge test for an airline transport pilot certificate prior to August 1, 2014, must successfully complete the practical test within 24 months from the month in which the knowledge test was successfully completed. An applicant who passes the knowledge test prior to August 1, 2014, but fails to successfully complete the airplane category with a multiengine class rating practical test within 24 months must complete the airline transport pilot certification training program specified in § 61.156 and retake the knowledge test prior to applying for the airplane category with a multiengine class rating practical test.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-130, 78 FR 42374, July 15, 2013; Docket FAA-2010-0100, Amdt. 61-130C, 81 FR 2, Jan. 4, 2016]

§ 61.156 Training requirements: Airplane category - multiengine class rating or airplane type rating concurrently with airline transport pilot certificate.

After July 31, 2014, a person who applies for the knowledge test for an airline transport pilot certificate with an airplane category multiengine class rating must present a graduation certificate from an authorized training provider under part 121, 135, 141, or 142 of this chapter certifying the applicant has completed the following training in a course approved by the Administrator.

(a) *Academic training.* The applicant for the knowledge test must receive at least 30 hours of classroom instruction that includes the following:

(1) At least 8 hours of instruction on aerodynamics including high altitude operations;

(2) At least 2 hours of instruction on meteorology, including adverse weather phenomena and weather detection systems; and

(3) At least 14 hours of instruction on air carrier operations, including the following areas:

- (i) Physiology;
- (ii) Communications;
- (iii) Checklist philosophy;
- (iv) Operational control;
- (v) Minimum equipment list/configuration deviation list;
- (vi) Ground operations;
- (vii) Turbine engines;
- (viii) Transport category aircraft performance;
- (ix) Automation, navigation, and flight path warning systems.

(4) At least 6 hours of instruction on leadership, professional development, crew resource management, and safety culture.

(b) *FSTD training.* The applicant for the knowledge test must receive at least 10 hours of training in a flight simulation training device qualified under part 60 of this chapter that represents a multiengine turbine airplane. The training must include the following:

(1) At least 6 hours of training in a Level C or higher full flight simulator qualified under part 60 of this chapter that represents a multiengine turbine airplane with a maximum takeoff weight of 40,000 pounds or greater. The training must include the following areas:

- (i) Low energy states/stalls;
- (ii) Upset recovery techniques; and
- (iii) Adverse weather conditions, including icing, thunderstorms, and crosswinds with gusts.

(2) The remaining FSTD training may be completed in a Level 4 or higher flight simulation training device. The training must include the following areas:

- (i) Navigation including flight management systems; and
- (ii) Automation including autoflight.

(c) *Deviation authority.* The Administrator may issue deviation authority from the weight requirement in paragraph (b)(1) of this section upon a determination that the objectives of the training can be met in an alternative device.

[Doc. No. FAA-2010-0100, 78 FR 42375, July 15, 2013]

§ 61.157 Flight proficiency.

(a) *General.* (1) The practical test for an airline transport pilot certificate is given for -

- (i) An airplane category and single engine class rating.
- (ii) An airplane category and multiengine class rating.
- (iii) A rotorcraft category and helicopter class rating.
- (iv) A powered-lift category rating.
- (v) An aircraft type rating.

(2) A person who is applying for an airline transport pilot practical test must meet -

(i) The eligibility requirements of § 61.153; and

(ii) The aeronautical knowledge and aeronautical experience requirements of this subpart that apply to the aircraft category and class rating sought.

(b) *Aircraft type rating.* Except as provided in paragraph (c) of this section, a person who applies for an aircraft type rating to be added to an airline transport pilot certificate or applies for a type rating to be concurrently completed with an airline transport pilot certificate:

(1) Must receive and log ground and flight training from an authorized instructor on the areas of operation under this section that apply to the aircraft type rating;

(2) Must receive a logbook endorsement from an authorized instructor that certifies the applicant completed the training on the areas of operation listed under paragraph (e) of this section that apply to the aircraft type rating; and

(3) Must perform the practical test in actual or simulated instrument conditions, except as provided under paragraph (g) of this section.

(c) *Exceptions.* A person who applies for an aircraft type rating to be added to an airline transport pilot certificate or an aircraft type rating concurrently with an airline transport pilot certificate, and who is an employee of a certificate holder operating under part 121 or part 135 of this chapter, does not need to comply with the requirements of paragraph (b) of this section if the applicant presents a training record that shows completion of that certificate holder's approved training program for the aircraft type rating.

(d) *Upgrading type ratings.* Any type rating(s) and limitations on a pilot certificate of an applicant who completes an airline transport pilot practical test will be included at the airline transport pilot certification level, provided the applicant passes the practical test in the same category and class of aircraft for which the applicant holds the type rating(s).

(e) *Areas of operation.* (1) For an airplane category - single engine class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(2) For an airplane category - multiengine class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(3) For a powered-lift category rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(4) For a rotorcraft category - helicopter class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(f) *Proficiency and competency checks conducted under part 121, part 135, or subpart K of part 91.* (1) Successful completion of any of the following checks satisfies the flight proficiency requirements of this section for the issuance of an airline transport pilot certificate and/or the appropriate aircraft rating:

(i) A proficiency check under § 121.441 of this chapter.

(ii) Both a competency check under § 135.293(a)(2) and § 135.293(b) of this chapter and pilot-in-command instrument proficiency check under § 135.297 of this chapter.

(iii) Both a competency check under § 91.1065 of this chapter and a pilot-in-command instrument proficiency check under § 91.1069 of this chapter.

(2) The checks specified in paragraph (f)(1) of this section must be conducted by one of the following:

(i) An FAA Aviation Safety Inspector.

(ii) An Aircrew Program Designee who is authorized to perform proficiency and/or competency checks for the air carrier whose approved training program has been satisfactorily completed by the pilot applicant.

(iii) A Training Center Evaluator with appropriate certification authority who is also authorized to perform the portions of the competency and/or proficiency checks required by paragraph (f)(1) of this section for the air carrier whose approved training program has been satisfactorily completed by the pilot applicant.

(g) *Aircraft not capable of instrument maneuvers and procedures.* An applicant may add a type rating to an airline transport pilot certificate with an aircraft that is not capable of the instrument maneuvers and procedures required on the practical test under the following circumstances -

(1) The rating is limited to “VFR only.”

(2) The type rating is added to an airline transport pilot certificate that has instrument privileges in that category and class of aircraft.

(3) The “VFR only” limitation may be removed for that aircraft type after the applicant:

(i) Passes a practical test in that type of aircraft on the appropriate instrument maneuvers and procedures in § 61.157; or

(ii) Becomes qualified in § 61.73(d) for that type of aircraft.

(h) *Multiengine airplane with a single-pilot station.* An applicant for a type rating, at the ATP certification level, in a multiengine airplane with a single-pilot station must perform the practical test in the multi-seat version of that airplane. The practical test may be performed in the single-seat version of that airplane if the Examiner is in a position to observe the applicant during the practical test in the case where there is no multi-seat version of that multiengine airplane.

(i) *Single engine airplane with a single-pilot station.* An applicant for a type rating, at the ATP certification level, in a single engine airplane with a single-pilot station must perform the practical test in the multi-seat version of that single engine airplane. The practical test may be performed in the single-seat version of that airplane if the Examiner is in a position to observe the applicant during the practical test in the case where there is no multi-seat version of that single engine airplane.

(j) *Waiver authority.* An Examiner who conducts a practical test may waive any task for which the FAA has provided waiver authority.

[Doc. No. FAA-2006-26661, 74 FR 42560, Aug. 21, 2009; Amdt. 61-124A, 74 FR 53647, Oct. 20, 2009; Amdt. 61-130, 78 FR 42375, July 15, 2013]

§ 61.158 [Reserved]

§ 61.159 Aeronautical experience: Airplane category rating.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, a person who is applying for an airline transport pilot certificate with an airplane category and class rating must have at least 1,500 hours of total time as a pilot that includes at least:

(1) 500 hours of cross-country flight time.

(2) 100 hours of night flight time.

(3) 50 hours of flight time in the class of airplane for the rating sought. A maximum of 25 hours of training in a full flight simulator representing the class of airplane for the rating sought may be credited toward the flight time requirement of this paragraph if the training was accomplished as part of an approved training course in parts 121, 135, 141, or 142 of this chapter. A flight training device or aviation training device may not be used to satisfy this requirement.

(4) 75 hours of instrument flight time, in actual or simulated instrument conditions, subject to the following:

(i) Except as provided in paragraph (a)(4)(ii) of this section, an applicant may not receive credit for more than a total of 25 hours of simulated instrument time in a flight simulator or flight training device.

(ii) A maximum of 50 hours of training in a flight simulator or flight training device may be credited toward the instrument

flight time requirements of paragraph (a)(4) of this section if the training was accomplished in a course conducted by a training center certificated under part 142 of this chapter.

(iii) Training in a flight simulator or flight training device must be accomplished in a flight simulator or flight training device, representing an airplane.

(5) 250 hours of flight time in an airplane as a pilot in command, or as second in command performing the duties of pilot in command while under the supervision of a pilot in command, or any combination thereof, which includes at least

(i) 100 hours of cross-country flight time; and

(ii) 25 hours of night flight time.

(6) Not more than 100 hours of the total aeronautical experience requirements of paragraph (a) of this section or § 61.160 may be obtained in a full flight simulator or flight training device provided the device represents an airplane and the aeronautical experience was accomplished as part of an approved training course in parts 121, 135, 141, or 142 of this chapter.

(b) A person who has performed at least 20 night takeoffs and landings to a full stop may substitute each additional night takeoff and landing to a full stop for 1 hour of night flight time to satisfy the requirements of paragraph (a)(2) of this section; however, not more than 25 hours of night flight time may be credited in this manner.

(c) A commercial pilot may credit the following second-in-command flight time or flight-engineer flight time toward the 1,500 hours of total time as a pilot required by paragraph (a) of this section:

(1) Second-in-command time, provided the time is acquired in an airplane -

(i) Required to have more than one pilot flight crewmember by the airplane's flight manual, type certificate, or the regulations under which the flight is being conducted;

(ii) Engaged in operations under subpart K of part 91, part 121, or part 135 of this chapter for which a second in command is required; or

(iii) That is required by the operating rules of this chapter to have more than one pilot flight crewmember.

(2) Flight-engineer time, provided the time -

(i) Is acquired in an airplane required to have a flight engineer by the airplane's flight manual or type certificate;

(ii) Is acquired while engaged in operations under part 121 of this chapter for which a flight engineer is required;

(iii) Is acquired while the person is participating in a pilot training program approved under part 121 of this chapter; and

(iv) Does not exceed more than 1 hour for each 3 hours of flight engineer flight time for a total credited time of no more than 500 hours.

(3) Flight-engineer time, provided the flight time -

(i) Is acquired as a U.S. Armed Forces' flight engineer crewmember in an airplane that requires a flight engineer crewmember by the flight manual;

(ii) Is acquired while the person is participating in a flight engineer crewmember training program for the U.S. Armed Forces; and

(iii) Does not exceed 1 hour for each 3 hours of flight engineer flight time for a total credited time of no more than 500 hours.

(d) An applicant is issued an airline transport pilot certificate with the limitation, "Holder does not meet the pilot in command aeronautical experience requirements of ICAO," as prescribed under Article 39 of the Convention on International Civil Aviation, if the applicant does not meet the ICAO requirements contained in Annex 1 "Personnel Licensing" to the Convention on International Civil Aviation, but otherwise meets the aeronautical experience requirements of this section.

(e) An applicant is entitled to an airline transport pilot certificate without the ICAO limitation specified under paragraph (d) of this section when the applicant presents satisfactory evidence of having met the ICAO requirements under paragraph (d) of this section and otherwise meets the aeronautical experience requirements of this section.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40906, July 30, 1997; Amdt. 61-104, 63 FR 20288, Apr. 23, 1998; Amdt. 61-109, 68 FR 54560, Sept. 17, 2003; Amdt. 61-124, 74 FR 42561, Aug. 21, 2009; Amdt. 61-130, 78 FR 42375, July 15, 2013; Admt. 61-130A, 78 FR 44874, July 25, 2013; Amdt. 61-130B, 78 FR 77573, Dec. 24, 2013]

§ 61.160 Aeronautical experience - airplane category restricted privileges.

(a) Except for a person who has been removed from flying status for lack of proficiency or because of a disciplinary action involving aircraft operations, a U.S. military pilot or former U.S. military pilot may apply for an airline transport pilot certificate with an airplane category multiengine class rating or an airline transport pilot certificate concurrently with an airplane type rating with a minimum of 750 hours of total time as a pilot if the pilot presents:

(1) An official Form DD-214 (Certificate of Release or Discharge from Active Duty) indicating that the person was honorably discharged from the U.S. Armed Forces or an official U.S. Armed Forces record that shows the pilot is currently serving in the U.S. Armed Forces; and

(2) An official U.S. Armed Forces record that shows the person graduated from a U.S. Armed Forces undergraduate pilot training school and received a rating qualification as a military pilot.

(b) A person may apply for an airline transport pilot certificate with an airplane category multiengine class rating or an airline transport pilot certificate concurrently with an airplane type rating with a minimum of 1,000 hours of total time as a pilot if the person:

(1) Holds a Bachelor's degree with an aviation major from an institution of higher education, as defined in § 61.1, that

has been issued a letter of authorization by the Administrator under § 61.169;

(2) Completes 60 semester credit hours of aviation and aviation-related coursework that has been recognized by the Administrator as coursework designed to improve and enhance the knowledge and skills of a person seeking a career as a professional pilot;

(3) Holds a commercial pilot certificate with an airplane category and instrument rating if:

(i) The required ground training was completed as part of an approved part 141 curriculum at the institution of higher education; and

(ii) The required flight training was completed as part of an approved part 141 curriculum at the institution of higher education or at a part 141 pilot school that has a training agreement under § 141.26 of this chapter with the institution of higher education; and

(4) Presents official transcripts or other documentation acceptable to the Administrator from the institution of higher education certifying that the graduate has satisfied the requirements in paragraphs (b)(1) through (3) of this section.

(c) A person may apply for an airline transport pilot certificate with an airplane category multiengine class rating or an airline transport pilot certificate concurrently with an airplane type rating with a minimum of 1,250 hours of total time as a pilot if the person:

(1) Holds an Associate's degree with an aviation major from an institution of higher education, as defined in § 61.1, that has been issued a letter of authorization by the Administrator under § 61.169;

(2) Completes at least 30 semester credit hours of aviation and aviation-related coursework that has been recognized by the Administrator as coursework designed to improve and enhance the knowledge and skills of a person seeking a career as a professional pilot;

(3) Holds a commercial pilot certificate with an airplane category and instrument rating if:

(i) The required ground training was completed as part of an approved part 141 curriculum at the institution of higher education; and

(ii) The required flight training was completed as part of an approved part 141 curriculum at the institution of higher education or at a part 141 pilot school that has a written training agreement under § 141.26 of this chapter with the institution of higher education; and

(4) Presents official transcripts or other documentation acceptable to the Administrator from the institution of higher education certifying that the graduate has satisfied the requirements in paragraphs (c)(1) through (3) of this section.

(d) A graduate of an institution of higher education who completes fewer than 60 semester credit hours but at least 30 credit hours and otherwise satisfies the requirements of paragraph (b) may apply for airline transport pilot certificate with an airplane category multiengine class rating or an airline

transport pilot certificate concurrently with an airplane type rating with a minimum of 1,250 hours of total time as a pilot.

(e) A person who applies for an airline transport pilot certificate under the total flight times listed in paragraphs (a), (b), and (c) of this section must otherwise meet the aeronautical experience requirements of § 61.159, except that the person may apply for an airline transport pilot certificate with 200 hours of cross-country flight time.

(f) A person who has 1,500 hours total time as a pilot, 200 hours of cross-country flight time, and otherwise meets the aeronautical experience requirements of § 61.159 may apply for an airline transport pilot certificate under this section.

(g) An airline transport pilot certificate obtained under this section is subject to the pilot in command limitations set forth in § 61.167(b) and must contain the following limitation, "Restricted in accordance with 14 CFR 61.167." The pilot is entitled to an airline transport pilot certificate without the limitation specified in this paragraph when the applicant presents satisfactory evidence of having met the aeronautical experience requirements of § 61.159 and the age requirement of § 61.153(a)(1).

(h) An applicant who meets the aeronautical experience requirements of paragraphs (a), (b), (c), and (d) of this section is issued an airline transport pilot certificate with the limitation, "Holder does not meet the pilot in command aeronautical experience requirements of ICAO," as prescribed under Article 39 of the Convention on International Civil Aviation if the applicant does not meet the ICAO requirements contained in Annex 1 "Personnel Licensing" to the Convention on International Civil Aviation. An applicant is entitled to an airline transport pilot certificate without the ICAO limitation specified under this paragraph when the applicant presents satisfactory evidence of having met the ICAO requirements and otherwise meets the aeronautical experience requirements of § 61.159.

[Doc. No. FAA-2010-0100, 78 FR 42375, July 15, 2013]

§ 61.161 Aeronautical experience: Rotorcraft category and helicopter class rating.

(a) A person who is applying for an airline transport pilot certificate with a rotorcraft category and helicopter class rating, must have at least 1,200 hours of total time as a pilot that includes at least:

(1) 500 hours of cross-country flight time;

(2) 100 hours of night flight time, of which 15 hours are in helicopters;

(3) 200 hours of flight time in helicopters, which includes at least 75 hours as a pilot in command, or as second in command performing the duties of a pilot in command under the supervision of a pilot in command, or any combination thereof; and

(4) 75 hours of instrument flight time in actual or simulated instrument meteorological conditions, of which at least 50 hours are obtained in flight with at least 25 hours in helicopters

as a pilot in command, or as second in command performing the duties of a pilot in command under the supervision of a pilot in command, or any combination thereof.

(b) Training in a flight simulator or flight training device may be credited toward the instrument flight time requirements of paragraph (a)(4) of this section, subject to the following:

(1) Training in a flight simulator or a flight training device must be accomplished in a flight simulator or flight training device that represents a rotorcraft.

(2) Except as provided in paragraph (b)(3) of this section, an applicant may receive credit for not more than a total of 25 hours of simulated instrument time in a flight simulator and flight training device.

(3) A maximum of 50 hours of training in a flight simulator or flight training device may be credited toward the instrument flight time requirements of paragraph (a)(4) of this section if the aeronautical experience is accomplished in an approved course conducted by a training center certificated under part 142 of this chapter.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40906, July 30, 1997; Amdt. 61-104, 63 FR 20289, Apr. 23, 1998]

§ 61.163 Aeronautical experience: Powered-lift category rating.

(a) A person who is applying for an airline transport pilot certificate with a powered-lift category rating must have at least 1,500 hours of total time as a pilot that includes at least:

(1) 500 hours of cross-country flight time;

(2) 100 hours of night flight time;

(3) 250 hours in a powered-lift as a pilot in command, or as a second in command performing the duties of a pilot in command under the supervision of a pilot in command, or any combination thereof, which includes at least -

(i) 100 hours of cross-country flight time; and

(ii) 25 hours of night flight time.

(4) 75 hours of instrument flight time in actual or simulated instrument conditions, subject to the following:

(i) Except as provided in paragraph (a)(4)(ii) of this section, an applicant may not receive credit for more than a total of 25 hours of simulated instrument time in a flight simulator or flight training device.

(ii) A maximum of 50 hours of training in a flight simulator or flight training device may be credited toward the instrument flight time requirements of paragraph (a)(4) of this section if the training was accomplished in a course conducted by a training center certificated under part 142 of this chapter.

(iii) Training in a flight simulator or flight training device must be accomplished in a flight simulator or flight training device that represents a powered-lift.

(b) Not more than 100 hours of the total aeronautical experience requirements of paragraph (a) of this section may be obtained in a flight simulator or flight training device that represents a powered-lift, provided the aeronautical

experience was obtained in an approved course conducted by a training center certificated under part 142 of this chapter.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40906, July 30, 1997; Amdt. 61-104, 63 FR 20289, Apr. 23, 1998]

§ 61.165 Additional aircraft category and class ratings.

(a) *Rotorcraft category and helicopter class rating.* A person applying for an airline transport certificate with a rotorcraft category and helicopter class rating who holds an airline transport pilot certificate with another aircraft category rating must:

(1) Meet the eligibility requirements of § 61.153 of this part;

(2) Pass a knowledge test on the aeronautical knowledge areas of § 61.155(c) of this part;

(3) Comply with the requirements in § 61.157(b) of this part, if appropriate;

(4) Meet the applicable aeronautical experience requirements of § 61.161 of this part; and

(5) Pass the practical test on the areas of operation of § 61.157(e)(4) of this part.

(b) *Airplane category rating with a single-engine class rating.* A person applying for an airline transport certificate with an airplane category and single-engine class rating who holds an airline transport pilot certificate with another aircraft category rating must:

(1) Meet the eligibility requirements of § 61.153 of this part;

(2) Pass a knowledge test on the aeronautical knowledge areas of § 61.155(c) of this part;

(3) Comply with the requirements in § 61.157(b) of this part, if appropriate;

(4) Meet the applicable aeronautical experience requirements of § 61.159 of this part; and

(5) Pass the practical test on the areas of operation of § 61.157(e)(1) of this part.

(c) *Airplane category rating with a multiengine class rating.* A person applying for an airline transport certificate with an airplane category and multiengine class rating who holds an airline transport certificate with another aircraft category rating must:

(1) Meet the eligibility requirements of § 61.153 of this part;

(2) After July 31, 2014, successfully complete the airline transport pilot certification training program specified in § 61.156;

(3) Pass a knowledge test for an airplane category multiengine class rating or type rating on the aeronautical knowledge areas of § 61.155(c);

(4) Comply with the requirements in § 61.157(b) of this part, if appropriate;

(5) Meet the aeronautical experience requirements of § 61.159 or § 61.160; and

(6) Pass the practical test on the areas of operation of § 61.157(e)(2) of this part.

(d) *Powered-lift category.* A person applying for an airline transport pilot certificate with a powered-lift category rating who holds an airline transport certificate with another aircraft category rating must:

(1) Meet the eligibility requirements of § 61.153 of this part;

(2) Pass a required knowledge test on the aeronautical knowledge areas of § 61.155(c) of this part;

(3) Comply with the requirements in § 61.157(b) of this part, if appropriate;

(4) Meet the applicable aeronautical experience requirements of § 61.163 of this part; and

(5) Pass the required practical test on the areas of operation of § 61.157(e)(3) of this part.

(e) *Additional class rating within the same aircraft category.* Except as provided in paragraph (f) of this section, a person applying for an airline transport pilot certificate with an additional class rating who holds an airline transport certificate in the same aircraft category must -

(1) Meet the eligibility requirements of § 61.153, except paragraph (g) of that section;

(2) Comply with the requirements in § 61.157(b) of this part, if applicable;

(3) Meet the applicable aeronautical experience requirements of subpart G of this part; and

(4) Pass a practical test on the areas of operation of § 61.157(e) appropriate to the aircraft rating sought.

(f) *Adding a multiengine class rating or airplane type rating to an airline transport pilot certificate with a single engine class rating.* A person applying to add a multiengine class rating or airplane type rating to an airline transport pilot certificate with an airplane category single engine class rating must -

(1) Meet the eligibility requirements of § 61.153;

(2) After July 31, 2014, pass a required knowledge test on the aeronautical knowledge areas of § 61.155(c), as applicable to multiengine airplanes; unless a pilot can present valid airline transport pilot knowledge test results from a test taken prior to August 1, 2014.

(3) Comply with the requirements in § 61.157(b), if applicable;

(4) Meet the applicable aeronautical experience requirements of § 61.159; and

(5) Pass a practical test on the areas of operation of § 61.157(e)(2).

(g) *Category class ratings for the operation of aircraft with experimental certificates.* Notwithstanding the provisions of paragraphs (a) through (f) of this section, a person holding an airline transport certificate may apply for a category and class rating limited to a specific make and model of experimental aircraft, provided -

(1) The person has logged at least 5 hours flight time while acting as pilot in command in the same category, class, make,

and model of aircraft that has been issued an experimental certificate;

(2) The person has received a logbook endorsement from an authorized instructor who has determined that he or she is proficient to act as pilot in command of the same category, class, make, and model of aircraft for which application is made; and

(3) The flight time specified in paragraph (g)(1) of this section must be logged between September 1, 2004 and August 31, 2005.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40906, July 30, 1997; Amdt. 61-110, 69 FR 44869, July 27, 2004; Amdt. 61-130, 78 FR 42376, July 15, 2013; Amdt. 61-130B, 78 FR 77574, Dec. 24, 2013; Docket FAA-2010-0100, Amdt. 61-130C, 81 FR 2, Jan. 4, 2016]

§ 61.167 Airline transport pilot privileges and limitations.

(a) *Privileges.* (1) A person who holds an airline transport pilot certificate is entitled to the same privileges as a person who holds a commercial pilot certificate with an instrument rating.

(2) A person who holds an airline transport pilot certificate and has met the aeronautical experience requirements of § 61.159 or § 61.161, and the age requirements of § 61.153(a)(1) of this part may instruct -

(i) Other pilots in air transportation service in aircraft of the category, class, and type, as applicable, for which the airline transport pilot is rated and endorse the logbook or other training record of the person to whom training has been given;

(ii) In flight simulators, and flight training devices representing the aircraft referenced in paragraph (a)(2)(i) of this section, when instructing under the provisions of this section and endorse the logbook or other training record of the person to whom training has been given;

(iii) Only as provided in this section, except that an airline transport pilot who also holds a flight instructor certificate can exercise the instructor privileges under subpart H of this part for which he or she is rated; and

(iv) In an aircraft, only if the aircraft has functioning dual controls, when instructing under the provisions of this section.

(3) Excluding briefings and debriefings, an airline transport pilot may not instruct in aircraft, flight simulators, and flight training devices under this section -

(i) For more than 8 hours in any 24-consecutive-hour period; or

(ii) For more than 36 hours in any 7-consecutive-day period.

(4) An airline transport pilot may not instruct in Category II or Category III operations unless he or she has been trained and successfully tested under Category II or Category III operations, as applicable.

(b) *Limitations.* A person who holds an airline transport pilot certificate and has not satisfied the age requirement of §

61.153(a)(1) and the aeronautical experience requirements of § 61.159 may not:

(1) Act as pilot in command in operations conducted under part 121, § 91.1053(a)(2)(i), or § 135.243(a)(1) of this chapter, or

(2) Serve as second in command in flag or supplemental operations in part 121 of this chapter requiring three or more pilots.

[Doc. No. FAA-2010-0100, 78 FR 42376, July 15, 2013, as amended by Amdt. 61-130B, 78 FR 77574, Dec. 24, 2013; Amdt. 61-130C, 81 FR 2, Jan. 4, 2016]

§ 61.169 Letters of authorization for institutions of higher education.

(a) An institution of higher education that is accredited, as defined in § 61.1, may apply for a letter of authorization for the purpose of certifying its graduates for an airline transport pilot certificate under the academic and aeronautical experience requirements in § 61.160. The application must be in a form and manner acceptable to the Administrator.

(b) An institution of higher education must comply with the provisions of the letter of authorization and may not certify a graduate unless it determines that the graduate has satisfied the requirements of § 61.160, as appropriate.

(c) The Administrator may rescind or amend a letter of authorization if the Administrator determines that the institution of higher education is not complying or is unable to comply with the provisions of the letter of authorization.

[Doc. No. FAA-2010-0100, 78 FR 42377, July 15, 2013]

§§ 61.170-69.171 [Reserved]

Subpart H - Flight Instructors Other than Flight Instructors With a Sport Pilot Rating

§ 61.181 Applicability.

This subpart prescribes the requirements for the issuance of flight instructor certificates and ratings (except for flight instructor certificates with a sport pilot rating), the conditions under which those certificates and ratings are necessary, and the limitations on those certificates and ratings.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004]

§ 61.183 Eligibility requirements.

To be eligible for a flight instructor certificate or rating a person must:

(a) Be at least 18 years of age;

(b) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's flight instructor certificate as are necessary;

(c) Hold either a commercial pilot certificate or airline transport pilot certificate with:

(1) An aircraft category and class rating that is appropriate to the flight instructor rating sought; and

(2) An instrument rating, or privileges on that person's pilot certificate that are appropriate to the flight instructor rating sought, if applying for -

(i) A flight instructor certificate with an airplane category and single-engine class rating;

(ii) A flight instructor certificate with an airplane category and multiengine class rating;

(iii) A flight instructor certificate with a powered-lift rating; or

(iv) A flight instructor certificate with an instrument rating.

(d) Receive a logbook endorsement from an authorized instructor on the fundamentals of instructing listed in § 61.185 of this part appropriate to the required knowledge test;

(e) Pass a knowledge test on the areas listed in § 61.185(a)(1) of this part, unless the applicant:

(1) Holds a flight instructor certificate or ground instructor certificate issued under this part;

(2) Holds a teacher's certificate issued by a State, county, city, or municipality that authorizes the person to teach at an educational level of the 7th grade or higher; or

(3) Is employed as a teacher at an accredited college or university.

(f) Pass a knowledge test on the aeronautical knowledge areas listed in § 61.185(a)(2) and (a)(3) of this part that are appropriate to the flight instructor rating sought;

(g) Receive a logbook endorsement from an authorized instructor on the areas of operation listed in § 61.187(b) of this part, appropriate to the flight instructor rating sought;

(h) Pass the required practical test that is appropriate to the flight instructor rating sought in an:

(1) Aircraft that is representative of the category and class of aircraft for the aircraft rating sought; or

(2) Flight simulator or approved flight training device that is representative of the category and class of aircraft for the rating sought, and used in accordance with a course at a training center certificated under part 142 of this chapter.

(i) Accomplish the following for a flight instructor certificate with an airplane or a glider rating:

(1) Receive a logbook endorsement from an authorized instructor indicating that the applicant is competent and possesses instructional proficiency in stall awareness, spin entry, spins, and spin recovery procedures after providing the applicant with flight training in those training areas in an airplane or glider, as appropriate, that is certificated for spins; and

(2) Demonstrate instructional proficiency in stall awareness, spin entry, spins, and spin recovery procedures. However, upon presentation of the endorsement specified in paragraph (i)(1) of this section an examiner may accept that endorsement as satisfactory evidence of instructional proficiency in stall awareness, spin entry, spins, and spin recovery procedures for the practical test, provided that the practical test is not a retest as a result of the applicant failing

the previous test for deficiencies in the knowledge or skill of stall awareness, spin entry, spins, or spin recovery instructional procedures. If the retest is a result of deficiencies in the ability of an applicant to demonstrate knowledge or skill of stall awareness, spin entry, spins, or spin recovery instructional procedures, the examiner must test the person on stall awareness, spin entry, spins, and spin recovery instructional procedures in an airplane or glider, as appropriate, that is certificated for spins;

(j) Log at least 15 hours as pilot in command in the category and class of aircraft that is appropriate to the flight instructor rating sought; and

(k) Comply with the appropriate sections of this part that apply to the flight instructor rating sought.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40907, July 30, 1997; Amdt. 61-124, 74 FR 42561, Aug. 21, 2009]

§ 61.185 Aeronautical knowledge.

(a) A person who is applying for a flight instructor certificate must receive and log ground training from an authorized instructor on:

(1) Except as provided in paragraph (b) of this section, the fundamentals of instructing, including:

- (i) The learning process;
- (ii) Elements of effective teaching;
- (iii) Student evaluation and testing;
- (iv) Course development;
- (v) Lesson planning; and
- (vi) Classroom training techniques.

(2) The aeronautical knowledge areas for a recreational, private, and commercial pilot certificate applicable to the aircraft category for which flight instructor privileges are sought; and

(3) The aeronautical knowledge areas for the instrument rating applicable to the category for which instrument flight instructor privileges are sought.

(b) The following applicants do not need to comply with paragraph (a)(1) of this section:

(1) The holder of a flight instructor certificate or ground instructor certificate issued under this part;

(2) The holder of a current teacher's certificate issued by a State, county, city, or municipality that authorizes the person to teach at an educational level of the 7th grade or higher; or

(3) A person employed as a teacher at an accredited college or university.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40907, July 30, 1997]

§ 61.187 Flight proficiency.

(a) *General.* A person who is applying for a flight instructor certificate must receive and log flight and ground training from an authorized instructor on the areas of operation listed in this section that apply to the flight instructor rating sought. The applicant's logbook must contain an endorsement from an

authorized instructor certifying that the person is proficient to pass a practical test on those areas of operation.

(b) *Areas of operation.* (1) For an airplane category rating with a single-engine class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subject areas;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Preflight procedures;
- (vi) Airport and seaplane base operations;
- (vii) Takeoffs, landings, and go-arounds;
- (viii) Fundamentals of flight;
- (ix) Performance maneuvers;
- (x) Ground reference maneuvers;
- (xi) Slow flight, stalls, and spins;
- (xii) Basic instrument maneuvers;
- (xiii) Emergency operations; and
- (xiv) Postflight procedures.

(2) For an airplane category rating with a multiengine class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subject areas;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Preflight procedures;
- (vi) Airport and seaplane base operations;
- (vii) Takeoffs, landings, and go-arounds;
- (viii) Fundamentals of flight;
- (ix) Performance maneuvers;
- (x) Ground reference maneuvers;
- (xi) Slow flight and stalls;
- (xii) Basic instrument maneuvers;
- (xiii) Emergency operations;
- (xiv) Multiengine operations; and
- (xv) Postflight procedures.

(3) For a rotorcraft category rating with a helicopter class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subject areas;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Preflight procedures;
- (vi) Airport and heliport operations;
- (vii) Hovering maneuvers;
- (viii) Takeoffs, landings, and go-arounds;
- (ix) Fundamentals of flight;
- (x) Performance maneuvers;
- (xi) Emergency operations;
- (xii) Special operations; and
- (xiii) Postflight procedures.

(4) For a rotorcraft category rating with a gyroplane class rating:

- (i) Fundamentals of instructing;
 - (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;
 - (v) Preflight procedures;
 - (vi) Airport operations;
 - (vii) Takeoffs, landings, and go-arounds;
 - (viii) Fundamentals of flight;
 - (ix) Performance maneuvers;
 - (x) Flight at slow airspeeds;
 - (xi) Ground reference maneuvers;
 - (xii) Emergency operations; and
 - (xiii) Postflight procedures.
- (5) For a powered-lift category rating:
- (i) Fundamentals of instructing;
 - (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;
 - (v) Preflight procedures;
 - (vi) Airport and heliport operations;
 - (vii) Hovering maneuvers;
 - (viii) Takeoffs, landings, and go-arounds;
 - (ix) Fundamentals of flight;
 - (x) Performance maneuvers;
 - (xi) Ground reference maneuvers;
 - (xii) Slow flight and stalls;
 - (xiii) Basic instrument maneuvers;
 - (xiv) Emergency operations;
 - (xv) Special operations; and
 - (xvi) Postflight procedures.
- (6) For a glider category rating:
- (i) Fundamentals of instructing;
 - (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;
 - (v) Preflight procedures;
 - (vi) Airport and gliderport operations;
 - (vii) Launches and landings;
 - (viii) Fundamentals of flight;
 - (ix) Performance speeds;
 - (x) Soaring techniques;
 - (xi) Performance maneuvers;
 - (xii) Slow flight, stalls, and spins;
 - (xiii) Emergency operations; and
 - (xiv) Postflight procedures.
- (7) For an instrument rating with the appropriate aircraft category and class rating:
- (i) Fundamentals of instructing;
 - (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;

- (v) Air traffic control clearances and procedures;
 - (vi) Flight by reference to instruments;
 - (vii) Navigation aids;
 - (viii) Instrument approach procedures;
 - (ix) Emergency operations; and
 - (x) Postflight procedures.
- (c) The flight training required by this section may be accomplished:

- (1) In an aircraft that is representative of the category and class of aircraft for the rating sought; or
- (2) In a flight simulator or flight training device representative of the category and class of aircraft for the rating sought, and used in accordance with an approved course at a training center certificated under part 142 of this chapter.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40907, July 30, 1997; Amdt. 61-124, 74 FR 42561, Aug. 21, 2009]

§ 61.189 Flight instructor records.

(a) A flight instructor must sign the logbook of each person to whom that instructor has given flight training or ground training.

(b) A flight instructor must maintain a record in a logbook or a separate document that contains the following:

(1) The name of each person whose logbook that instructor has endorsed for solo flight privileges, and the date of the endorsement; and

(2) The name of each person that instructor has endorsed for a knowledge test or practical test, and the record shall also indicate the kind of test, the date, and the results.

(c) Each flight instructor must retain the records required by this section for at least 3 years.

[Docket No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016]

§ 61.191 Additional flight instructor ratings.

(a) A person who applies for an additional flight instructor rating on a flight instructor certificate must meet the eligibility requirements listed in § 61.183 of this part that apply to the flight instructor rating sought.

(b) A person who applies for an additional rating on a flight instructor certificate is not required to pass the knowledge test on the areas listed in § 61.185(a)(1) of this part.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40907, July 30, 1997]

§ 61.193 Flight instructor privileges.

(a) A person who holds a flight instructor certificate is authorized within the limitations of that person's flight instructor certificate and ratings to train and issue endorsements that are required for:

- (1) A student pilot certificate;
- (2) A pilot certificate;
- (3) A flight instructor certificate;

- (4) A ground instructor certificate;
- (5) An aircraft rating;
- (6) An instrument rating;
- (7) A flight review, operating privilege, or recency of experience requirement of this part;
- (8) A practical test; and
- (9) A knowledge test.

(b) A person who holds a flight instructor certificate is authorized, in a form and manner acceptable to the Administrator, to:

(1) Accept an application for a student pilot certificate or, for an applicant who holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, a remote pilot certificate with a small UAS rating;

(2) Verify the identity of the applicant; and

(3) Verify that an applicant for a student pilot certificate meets the eligibility requirements in § 61.83 or an applicant for a remote pilot certificate with a small UAS rating meets the eligibility requirements in § 107.61 of this chapter.

[Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1306, Jan. 12, 2016, as amended by Docket FAA-2015-0150, Amdt. 61-137, 81 FR 42208, June 28, 2016]

§ 61.195 Flight instructor limitations and qualifications.

A person who holds a flight instructor certificate is subject to the following limitations:

(a) *Hours of training.* In any 24-consecutive-hour period, a flight instructor may not conduct more than 8 hours of flight training.

(b) *Aircraft Ratings.* A flight instructor may not conduct flight training in any aircraft for which the flight instructor does not hold:

(1) A pilot certificate and flight instructor certificate with the applicable category and class rating; and

(2) If appropriate, a type rating.

(c) *Instrument Rating.* A flight instructor who provides instrument training for the issuance of an instrument rating, a type rating not limited to VFR, or the instrument training required for commercial pilot and airline transport pilot certificates must hold an instrument rating on his or her pilot certificate and flight instructor certificate that is appropriate to the category and class of aircraft used for the training provided.

(d) *Limitations on endorsements.* A flight instructor may not endorse a:

(1) Student pilot's logbook for solo flight privileges, unless that flight instructor has -

(i) Given that student the flight training required for solo flight privileges required by this part; and

(ii) Determined that the student is prepared to conduct the flight safely under known circumstances, subject to any limitations listed in the student's logbook that the instructor considers necessary for the safety of the flight.

(2) Student pilot's logbook for a solo cross-country flight, unless that flight instructor has determined the student's flight preparation, planning, equipment, and proposed procedures are adequate for the proposed flight under the existing conditions and within any limitations listed in the logbook that the instructor considers necessary for the safety of the flight;

(3) Student pilot's logbook for solo flight in a Class B airspace area or at an airport within Class B airspace unless that flight instructor has -

(i) Given that student ground and flight training in that Class B airspace or at that airport; and

(ii) Determined that the student is proficient to operate the aircraft safely.

(4) Logbook of a recreational pilot, unless that flight instructor has -

(i) Given that pilot the ground and flight training required by this part; and

(ii) Determined that the recreational pilot is proficient to operate the aircraft safely.

(5) Logbook of a pilot for a flight review, unless that instructor has conducted a review of that pilot in accordance with the requirements of § 61.56(a) of this part; or

(6) Logbook of a pilot for an instrument proficiency check, unless that instructor has tested that pilot in accordance with the requirements of § 61.57(d) of this part.

(e) *Training in an aircraft that requires a type rating.* A flight instructor may not give flight training in an aircraft that requires the pilot in command to hold a type rating unless the flight instructor holds a type rating for that aircraft on his or her pilot certificate.

(f) *Training received in a multiengine airplane, a helicopter, or a powered-lift.* A flight instructor may not give training required for the issuance of a certificate or rating in a multiengine airplane, a helicopter, or a powered-lift unless that flight instructor has at least 5 flight hours of pilot-in-command time in the specific make and model of multiengine airplane, helicopter, or powered-lift, as appropriate.

(g) *Position in aircraft and required pilot stations for providing flight training.* (1) A flight instructor must perform all training from in an aircraft that complies with the requirements of § 91.109 of this chapter.

(2) A flight instructor who provides flight training for a pilot certificate or rating issued under this part must provide that flight training in an aircraft that meets the following requirements -

(i) The aircraft must have at least two pilot stations and be of the same category, class, and type, if appropriate, that applies to the pilot certificate or rating sought.

(ii) For single-place aircraft, the pre-solo flight training must have been provided in an aircraft that has two pilot stations and is of the same category, class, and type, if appropriate.

(h) *Qualifications of the flight instructor for training first-time flight instructor applicants.* (1) The ground training

provided to an initial applicant for a flight instructor certificate must be given by an authorized instructor who -

(i) Holds a ground or flight instructor certificate with the appropriate rating, has held that certificate for at least 24 calendar months, and has given at least 40 hours of ground training; or

(ii) Holds a ground or flight instructor certificate with the appropriate rating, and has given at least 100 hours of ground training in an FAA-approved course.

(2) Except for an instructor who meets the requirements of paragraph (h)(3)(ii) of this section, a flight instructor who provides training to an initial applicant for a flight instructor certificate must -

(i) Meet the eligibility requirements prescribed in § 61.183 of this part;

(ii) Hold the appropriate flight instructor certificate and rating;

(iii) Have held a flight instructor certificate for at least 24 months;

(iv) For training in preparation for an airplane, rotorcraft, or powered-lift rating, have given at least 200 hours of flight training as a flight instructor; and

(v) For training in preparation for a glider rating, have given at least 80 hours of flight training as a flight instructor.

(3) A flight instructor who serves as a flight instructor in an FAA-approved course for the issuance of a flight instructor rating must hold a flight instructor certificate with the appropriate rating and pass the required initial and recurrent flight instructor proficiency tests, in accordance with the requirements of the part under which the FAA-approved course is conducted, and must -

(i) Meet the requirements of paragraph (h)(2) of this section; or

(ii) Have trained and endorsed at least five applicants for a practical test for a pilot certificate, flight instructor certificate, ground instructor certificate, or an additional rating, and at least 80 percent of those applicants passed that test on their first attempt; and

(A) Given at least 400 hours of flight training as a flight instructor for training in an airplane, a rotorcraft, or for a powered-lift rating; or

(B) Given at least 100 hours of flight training as a flight instructor, for training in a glider rating.

(i) *Prohibition against self-endorsements.* A flight instructor shall not make any self-endorsement for a certificate, rating, flight review, authorization, operating privilege, practical test, or knowledge test that is required by this part.

(j) *Additional qualifications required to give training in Category II or Category III operations.* A flight instructor may not give training in Category II or Category III operations unless the flight instructor has been trained and tested in Category II or Category III operations, pursuant to § 61.67 or § 61.68 of this part, as applicable.

(k) *Training for night vision goggle operations.* A flight instructor may not conduct training for night vision goggle operations unless the flight instructor:

(1) Has a pilot and flight instructor certificate with the applicable category and class rating for the training;

(2) If appropriate, has a type rating on his or her pilot certificate for the aircraft;

(3) Is pilot in command qualified for night vision goggle operations, in accordance with § 61.31(k);

(4) Has logged 100 night vision goggle operations as the sole manipulator of the controls;

(5) Has logged 20 night vision goggle operations as the sole manipulator of the controls in the category and class, and type of aircraft, if aircraft class and type is appropriate, that the training will be given in;

(6) Is qualified to act as pilot in command in night vision goggle operations under § 61.57(f) or (g); and

(7) Has a logbook endorsement from an FAA Aviation Safety Inspector or a person who is authorized by the FAA to provide that logbook endorsement that states the flight instructor is authorized to perform the night vision goggle pilot in command qualification and recent flight experience requirements under § 61.31(k) and § 61.57(f) and (g).

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997; Amdt. 61-103, 62 FR 40907, July 30, 1997; Amdt. 61-124, 74 FR 42561, Aug. 21, 2009; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1307, Jan. 12, 2016]

§ 61.197 Renewal requirements for flight instructor certification.

(a) A person who holds a flight instructor certificate that has not expired may renew that flight instructor certificate by -

(1) Passing a practical test for -

(i) One of the ratings listed on the current flight instructor certificate; or

(ii) An additional flight instructor rating; or

(2) Submitting a completed and signed application with the FAA and satisfactorily completing one of the following renewal requirements -

(i) A record of training students showing that, during the preceding 24 calendar months, the flight instructor has endorsed at least 5 students for a practical test for a certificate or rating and at least 80 percent of those students passed that test on the first attempt.

(ii) A record showing that, within the preceding 24 calendar months, the flight instructor has served as a company check pilot, chief flight instructor, company check airman, or flight instructor in a part 121 or part 135 operation, or in a position involving the regular evaluation of pilots.

(iii) A graduation certificate showing that, within the preceding 3 calendar months, the person has successfully completed an approved flight instructor refresher course consisting of ground training or flight training, or a combination of both.

(iv) A record showing that, within the preceding 12 months from the month of application, the flight instructor passed an official U.S. Armed Forces military instructor pilot proficiency check.

(b) The expiration month of a renewed flight instructor certificate shall be 24 calendar months from -

(1) The month the renewal requirements of paragraph (a) of this section are accomplished; or

(2) The month of expiration of the current flight instructor certificate provided -

(i) The renewal requirements of paragraph (a) of this section are accomplished within the 3 calendar months preceding the expiration month of the current flight instructor certificate, and

(ii) If the renewal is accomplished under paragraph (a)(2) (iii) of this section, the approved flight instructor refresher course must be completed within the 3 calendar months preceding the expiration month of the current flight instructor certificate.

(c) The practical test required by paragraph (a)(1) of this section may be accomplished in a flight simulator or flight training device if the test is accomplished pursuant to an approved course conducted by a training center certificated under part 142 of this chapter.

[Doc. No. 25910, 63 FR 20289, Apr. 23, 1998, as amended by Amdt. 61-124, 74 FR 42562, Aug. 21, 2009]

§ 61.199 Reinstatement requirements of an expired flight instructor certificate.

(a) *Flight instructor certificates.* The holder of an expired flight instructor certificate who has not complied with the flight instructor renewal requirements of § 61.197 may reinstate that flight instructor certificate and ratings by filing a completed and signed application with the FAA and satisfactorily completing one of the following reinstatement requirements:

(1) A flight instructor certification practical test, as prescribed by § 61.183(h), for one of the ratings held on the expired flight instructor certificate.

(2) A flight instructor certification practical test for an additional rating.

(b) *Flight instructor ratings.* (1) A flight instructor rating or a limited flight instructor rating on a pilot certificate is no longer valid and may not be exchanged for a similar rating or a flight instructor certificate.

(2) The holder of a flight instructor rating or a limited flight instructor rating on a pilot certificate may be issued a flight instructor certificate with the current ratings, but only if the person passes the required knowledge and practical test prescribed in this subpart for the issuance of the current flight instructor certificate and rating.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-104, 63 FR 20289, Apr. 23, 1998; Amdt. 61-124, 74 FR 42562, Aug. 21, 2009]

§ 61.201 [Reserved]

Subpart I - Ground Instructors

§ 61.211 Applicability.

This subpart prescribes the requirements for the issuance of ground instructor certificates and ratings, the conditions under which those certificates and ratings are necessary, and the limitations upon those certificates and ratings.

§ 61.213 Eligibility requirements.

(a) To be eligible for a ground instructor certificate or rating a person must:

(1) Be at least 18 years of age;

(2) Be able to read, write, speak, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, then the Administrator may place such operating limitations on that applicant's ground instructor certificate as are necessary;

(3) Except as provided in paragraph (b) of this section, pass a knowledge test on the fundamentals of instructing to include -

- (i) The learning process;
- (ii) Elements of effective teaching;
- (iii) Student evaluation and testing;
- (iv) Course development;
- (v) Lesson planning; and
- (vi) Classroom training techniques.

(4) Pass a knowledge test on the aeronautical knowledge areas in -

(i) For a basic ground instructor rating §§ 61.97, 61.105, and 61.309;

(ii) For an advanced ground instructor rating §§ 61.97, 61.105, 61.125, 61.155, and 61.309; and

(iii) For an instrument ground instructor rating, § 61.65.

(b) The knowledge test specified in paragraph (a)(3) of this section is not required if the applicant:

(1) Holds a ground instructor certificate or flight instructor certificate issued under this part;

(2) Holds a teacher's certificate issued by a State, county, city, or municipality that authorizes the person to teach at an educational level of the 7th grade or higher; or

(3) Is employed as a teacher at an accredited college or university.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44869, July 27, 2004; Amdt. 61-124, 74 FR 42562, Aug. 21, 2009]

§ 61.215 Ground instructor privileges.

(a) A person who holds a basic ground instructor rating is authorized to provide -

(1) Ground training in the aeronautical knowledge areas required for the issuance of a sport pilot certificate,

recreational pilot certificate, private pilot certificate, or associated ratings under this part;

(2) Ground training required for a sport pilot, recreational pilot, and private pilot flight review; and

(3) A recommendation for a knowledge test required for the issuance of a sport pilot certificate, recreational pilot certificate, or private pilot certificate under this part.

(b) A person who holds an advanced ground instructor rating is authorized to provide:

(1) Ground training on the aeronautical knowledge areas required for the issuance of any certificate or rating under this part except for the aeronautical knowledge areas required for an instrument rating.

(2) The ground training required for any flight review except for the training required for an instrument rating.

(3) A recommendation for a knowledge test required for the issuance of any certificate or rating under this part except for an instrument rating.

(c) A person who holds an instrument ground instructor rating is authorized to provide:

(1) Ground training in the aeronautical knowledge areas required for the issuance of an instrument rating under this part;

(2) Ground training required for an instrument proficiency check; and

(3) A recommendation for a knowledge test required for the issuance of an instrument rating under this part.

(d) A person who holds a ground instructor certificate is authorized, within the limitations of the ratings on the ground instructor certificate, to endorse the logbook or other training record of a person to whom the holder has provided the training or recommendation specified in paragraphs (a) through (c) of this section.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-110, 69 FR 44869, July 27, 2004; Amdt. 61-124, 74 FR 42562, Aug. 21, 2009]

§ 61.217 Recent experience requirements.

The holder of a ground instructor certificate may not perform the duties of a ground instructor unless the person can show that one of the following occurred during the preceding 12 calendar months:

(a) Employment or activity as a ground instructor giving pilot, flight instructor, or ground instructor training;

(b) Employment or activity as a flight instructor giving pilot, flight instructor, or ground instructor ground or flight training;

(c) Completion of an approved flight instructor refresher course and receipt of a graduation certificate for that course; or

(d) An endorsement from an authorized instructor certifying that the person has demonstrated knowledge in the subject areas prescribed under § 61.213(a)(3) and (a)(4), as appropriate.

[Doc. No. FAA-2006-26661, 74 FR 42562, Aug. 21, 2009]

Subpart J - Sport Pilots

Source:

Docket No. FAA-2001-11133, 69 FR 44869, July 27, 2004, unless otherwise noted.

§ 61.301 What is the purpose of this subpart and to whom does it apply?

(a) This subpart prescribes the following requirements that apply to a sport pilot certificate:

- (1) Eligibility.
- (2) Aeronautical knowledge.
- (3) Flight proficiency.
- (4) Aeronautical experience.
- (5) Endorsements.
- (6) Privileges and limits.

(b) Other provisions of this part apply to the logging of flight time and testing.

(c) This subpart applies to applicants for, and holders of, sport pilot certificates. It also applies to holders of recreational pilot certificates and higher, as provided in § 61.303.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5221, Feb. 1, 2010]

§ 61.303 If I want to operate a light-sport aircraft, what operating limits and endorsement requirements in this subpart must I comply with?

(a) Use the following table to determine what operating limits and endorsement requirements in this subpart, if any, apply to you when you operate a light-sport aircraft. The medical certificate specified in this table must be in compliance with § 61.2 in regards to currency and validity. If you hold a recreational pilot certificate, but not a medical certificate, you must comply with cross country requirements in § 61.101 (c), even if your flight does not exceed 50 nautical miles from your departure airport. You must also comply with requirements in other subparts of this part that apply to your certificate and the operation you conduct.

| If you hold | And you hold | Then you may operate | And |
|---------------------------|--------------------------------|--|---|
| (1) A medical certificate | (i) A sport pilot certificate, | (A) Any light-sport aircraft for which you hold the endorsements required for its category and class | (I) You must hold any other endorsements required by this subpart, and comply with the limitations in § 61.315. |

| If you hold | And you hold | Then you may operate | And |
|---|--|--|---|
| | (ii) At least a recreational pilot certificate with a category and class rating, | (A) Any light-sport aircraft in that category and class, | (I) You do not have to hold any of the endorsements required by this subpart, nor do you have to comply with the limitations in § 61.315. |
| | (iii) At least a recreational pilot certificate but not a rating for the category and class of light sport aircraft you operate, | (A) That light-sport aircraft, only if you hold the endorsements required in § 61.321 for its category and class, | (I) You must comply with the limitations in § 61.315, except § 61.315(c)(14) and, if a private pilot or higher, § 61.315(c)(7). |
| (2) Only a U.S. driver's license | (i) A sport pilot certificate, | (A) Any light-sport aircraft for which you hold the endorsements required for its category and class. | (I) You must hold any other endorsements required by this subpart, and comply with the limitations in § 61.315. |
| | (ii) At least a recreational pilot certificate with a category and class rating, | (A) Any light-sport aircraft in that category and class, | (I) You do not have to hold any of the endorsements required by this subpart, but you must comply with the limitations in § 61.315. |
| | (iii) At least a recreational pilot certificate but not a rating for the category and class of light-sport aircraft you operate, | (A) That light-sport aircraft, only if you hold the endorsements required in § 61.321 for its category and class, | (I) You must comply with the limitations in § 61.315, except § 61.315(c)(14) and, if a private pilot or higher, § 61.315(c)(7). |
| (3) Neither a medical certificate nor a U.S. driver's license | (i) A sport pilot certificate, | (A) Any light-sport glider or balloon for which you hold the endorsements required for its category and class | (I) You must hold any other endorsements required by this subpart, and comply with the limitations in § 61.315. |
| | (ii) At least a private pilot certificate with a category and class rating for glider or balloon, | (A) Any light-sport glider or balloon in that category and class | (I) You do not have to hold any of the endorsements required by this subpart, nor do you have to comply with the limitations in § 61.315. |
| | (iii) At least a private pilot certificate but not a rating for glider or balloon, | (A) Any light-sport glider or balloon, only if you hold the endorsements required in § 61.321 for its category and class | (I) You must comply with the limitations in § 61.315, except § 61.315(c)(14) and, if a private pilot or higher, § 61.315(c)(7). |

(b) A person using a U.S. driver's license to meet the requirements of this paragraph must -

(1) Comply with each restriction and limitation imposed by that person's U.S. driver's license and any judicial or administrative order applying to the operation of a motor vehicle;

(2) Have been found eligible for the issuance of at least a third-class airman medical certificate at the time of his or her most recent application (if the person has applied for a medical certificate);

(3) Not have had his or her most recently issued medical certificate (if the person has held a medical certificate) suspended or revoked or most recent Authorization for a Special Issuance of a Medical Certificate withdrawn; and

(4) Not know or have reason to know of any medical condition that would make that person unable to operate a light-sport aircraft in a safe manner.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004, as amended by Amdt. 61-124, 74 FR 42562, Aug. 21, 2009; Amdt. 61-125, 75 FR 5221, Feb. 1, 2010]

§ 61.305 What are the age and language requirements for a sport pilot certificate?

(a) To be eligible for a sport pilot certificate you must:

(1) Be at least 17 years old (or 16 years old if you are applying to operate a glider or balloon).

(2) Be able to read, speak, write, and understand English. If you cannot read, speak, write, and understand English because of medical reasons, the FAA may place limits on your certificate as are necessary for the safe operation of light-sport aircraft.

§ 61.307 What tests do I have to take to obtain a sport pilot certificate?

To obtain a sport pilot certificate, you must pass the following tests:

(a) *Knowledge test.* You must pass a knowledge test on the applicable aeronautical knowledge areas listed in § 61.309. Before you may take the knowledge test for a sport pilot certificate, you must receive a logbook endorsement from the authorized instructor who trained you or reviewed and evaluated your home-study course on the aeronautical knowledge areas listed in § 61.309 certifying you are prepared for the test.

(b) *Practical test.* You must pass a practical test on the applicable areas of operation listed in §§ 61.309 and 61.311. Before you may take the practical test for a sport pilot certificate, you must receive a logbook endorsement from the authorized instructor who provided you with flight training on the areas of operation specified in §§ 61.309 and 61.311 in preparation for the practical test. This endorsement certifies that you meet the applicable aeronautical knowledge and experience requirements and are prepared for the practical test.

§ 61.309 What aeronautical knowledge must I have to apply for a sport pilot certificate?

To apply for a sport pilot certificate you must receive and log ground training from an authorized instructor or complete a home-study course on the following aeronautical knowledge areas:

- (a) Applicable regulations of this chapter that relate to sport pilot privileges, limits, and flight operations.
- (b) Accident reporting requirements of the National Transportation Safety Board.
- (c) Use of the applicable portions of the aeronautical information manual and FAA advisory circulars.
- (d) Use of aeronautical charts for VFR navigation using pilotage, dead reckoning, and navigation systems, as appropriate.
- (e) Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts.
- (f) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence.
- (g) Effects of density altitude on takeoff and climb performance.

- (h) Weight and balance computations.
- (i) Principles of aerodynamics, powerplants, and aircraft systems.
- (j) Stall awareness, spin entry, spins, and spin recovery techniques, as applicable.
- (k) Aeronautical decision making and risk management.
- (l) Preflight actions that include -
 - (1) How to get information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and
 - (2) How to plan for alternatives if the planned flight cannot be completed or if you encounter delays.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5221, Feb. 1, 2010]

§ 61.311 What flight proficiency requirements must I meet to apply for a sport pilot certificate?

To apply for a sport pilot certificate you must receive and log ground and flight training from an authorized instructor on the following areas of operation, as appropriate, for airplane single-engine land or sea, glider, gyroplane, airship, balloon, powered parachute land or sea, and weight-shift-control aircraft land or sea privileges:

- (a) Preflight preparation.
- (b) Preflight procedures.
- (c) Airport, seaplane base, and gliderport operations, as applicable.
- (d) Takeoffs (or launches), landings, and go-arounds.
- (e) Performance maneuvers, and for gliders, performance speeds.
- (f) Ground reference maneuvers (not applicable to gliders and balloons).
- (g) Soaring techniques (applicable only to gliders).
- (h) Navigation.
- (i) Slow flight (not applicable to lighter-than-air aircraft and powered parachutes).
- (j) Stalls (not applicable to lighter-than-air aircraft, gyroplanes, and powered parachutes).
- (k) Emergency operations.
- (l) Post-flight procedures.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5221, Feb. 1, 2010]

§ 61.313 What aeronautical experience must I have to apply for a sport pilot certificate?

Use the following table to determine the aeronautical experience you must have to apply for a sport pilot certificate:

| If you are applying for a sport pilot certificate with . . . | Then you must log at least . . . | Which must include at least . . . |
|---|---|--|
| (a) Airplane category and single-engine land or sea class privileges, | (1) 20 hours of flight time, including at least 15 hours of flight training from an authorized instructor in a single-engine airplane and at least 5 hours of solo flight | (i) 2 hours of cross-country flight training, (ii) 10 takeoffs and landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport, (iii) One solo cross-country flight of at least 75 |

| If you are applying for a sport pilot certificate with . . . | Then you must log at least . . . | Which must include at least . . . |
|--|---|---|
| | training in the areas of operation listed in § 61.311, | nautical miles total distance, with a full-stop landing at a minimum of two points and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles between the takeoff and landing locations, and (iv) 2 hours of flight training with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (b) Glider category privileges, and you have not logged at least 20 hours of flight time in a heavier-than-air aircraft, | (1) 10 hours of flight time in a glider, including 10 flights in a glider receiving flight training from an authorized instructor and at least 2 hours of solo flight training in the areas of operation listed in § 61.311, | (i) Five solo launches and landings, and (ii) at least 3 training flights with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (c) Glider category privileges, and you have logged 20 hours flight time in a heavier-than-air aircraft, | (1) 3 hours of flight time in a glider, including five flights in a glider while receiving flight training from an authorized instructor and at least 1 hour of solo flight training in the areas of operation listed in § 61.311, | (i) Three solo launches and landings, and (ii) at least 3 training flights with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (d) Rotorcraft category and gyroplane class privileges, | (1) 20 hours of flight time, including 15 hours of flight training from an authorized instructor in a gyroplane and at least 5 hours of solo flight training in the areas of operation listed in § 61.311, | (i) 2 hours of cross-country flight training, (ii) 10 takeoffs and landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport, (iii) One solo cross-country flight of at least 50 nautical miles total distance, with a full-stop landing at a minimum of two points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles between the takeoff and landing locations, and (iv) 2 hours of flight training with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (e) Lighter-than-air category and airship class privileges, | (1) 20 hours of flight time, including 15 hours of flight training from an authorized instructor in an airship and at least 3 hours performing the duties of pilot in command in an airship with an authorized instructor in the areas of operation listed in § 61.311, | (i) 2 hours of cross-country flight training, (ii) Three takeoffs and landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport, (iii) One cross-country flight of at least 25 nautical miles between the takeoff and landing locations, and (iv) 2 hours of flight training with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (f) Lighter-than-air category and balloon class privileges, | (1) 7 hours of flight time in a balloon, including three flights with an authorized instructor and one flight performing the duties of pilot in command in a balloon | (i) 2 hours of cross-country flight training, and (ii) 1 hours of flight training with an authorized instructor on those areas of operation specified in § 61.311 in |

| If you are applying for a sport pilot certificate with . . . | Then you must log at least . . . | Which must include at least . . . |
|--|---|--|
| | with an authorized instructor in the areas of operation listed in § 61.311, | preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (g) Powered parachute category land or sea class privileges, | (1) 12 hours of flight time in a powered parachute, including 10 hours of flight training from an authorized instructor in a powered parachute, and at least 2 hours of solo flight training in the areas of operation listed in § 61.311 | (i) 1 hour of cross-country flight training, (ii) 20 takeoffs and landings to a full stop in a powered parachute with each landing involving flight in the traffic pattern at an airport; (iii) 10 solo takeoffs and landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport, (iv) One solo flight with a landing at a different airport and one segment of the flight consisting of a straight-line distance of at least 10 nautical miles between takeoff and landing locations, and (v) 1 hours of flight training with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |
| (h) Weight-shift-control aircraft category land or sea class privileges, | (1) 20 hours of light time, including 15 hours of flight training from an authorized instructor in a weight-shift-control aircraft and at least 5 hours of solo flight training in the areas of operation listed in § 61.311, | (i) 2 hours of cross-country flight training, (ii) 10 takeoffs and landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport, (iii) One solo cross-country flight of at least 50 nautical miles total distance, with a full-stop landing at a minimum of two points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles between takeoff and landing locations, and (iv) 2 hours of flight training with an authorized instructor on those areas of operation specified in § 61.311 in preparation for the practical test within the preceding 2 calendar months from the month of the test. |

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004; Amdt. 61-124A, 74 FR 53647, Oct. 20, 2009; Amdt. 61-125, 75 FR 5221, Feb. 1, 2010]

§ 61.315 What are the privileges and limits of my sport pilot certificate?

(a) If you hold a sport pilot certificate you may act as pilot in command of a light-sport aircraft, except as specified in paragraph (c) of this section.

(b) You may share the operating expenses of a flight with a passenger, provided the expenses involve only fuel, oil, airport expenses, or aircraft rental fees. You must pay at least half the operating expenses of the flight.

(c) You may not act as pilot in command of a light-sport aircraft:

(1) That is carrying a passenger or property for compensation or hire.

(2) For compensation or hire.

- (3) In furtherance of a business.
- (4) While carrying more than one passenger.
- (5) At night.
- (6) In Class A airspace.
- (7) In Class B, C, and D airspace, at an airport located in Class B, C, or D airspace, and to, from, through, or at an airport having an operational control tower unless you have met the requirements specified in § 61.325.
- (8) Outside the United States, unless you have prior authorization from the country in which you seek to operate. Your sport pilot certificate carries the limit “Holder does not meet ICAO requirements.”
- (9) To demonstrate the aircraft in flight to a prospective buyer if you are an aircraft salesperson.
- (10) In a passenger-carrying airlift sponsored by a charitable organization.
- (11) At an altitude of more than 10,000 feet MSL or 2,000 feet AGL, whichever is higher.

(12) When the flight or surface visibility is less than 3 statute miles.

(13) Without visual reference to the surface.

(14) If the aircraft:

(i) Has a V_H greater than 87 knots CAS, unless you have met the requirements of § 61.327(b).

(ii) Has a V_H less than or equal to 87 knots CAS, unless you have met the requirements of § 61.327(a) or have logged flight time as pilot in command of an airplane with a V_H less than or equal to 87 knots CAS before April 2, 2010.

(15) Contrary to any operating limitation placed on the airworthiness certificate of the aircraft being flown.

(16) Contrary to any limit on your pilot certificate or airman medical certificate, or any other limit or endorsement from an authorized instructor.

(17) Contrary to any restriction or limitation on your U.S. driver's license or any restriction or limitation imposed by judicial or administrative order when using your driver's license to satisfy a requirement of this part.

(18) While towing any object.

(19) As a pilot flight crewmember on any aircraft for which more than one pilot is required by the type certificate of the aircraft or the regulations under which the flight is conducted.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5221, Feb. 1, 2010; Amdt. 61-125A, 75 FR 15610, Mar. 30, 2010]

§ 61.317 Is my sport pilot certificate issued with aircraft category and class ratings?

Your sport pilot certificate does not list aircraft category and class ratings. When you successfully pass the practical test for a sport pilot certificate, regardless of the light-sport aircraft privileges you seek, the FAA will issue you a sport pilot certificate without any category and class ratings. The FAA will provide you with a logbook endorsement for the category and class of aircraft in which you are authorized to act as pilot in command.

[Doc. No. FAA-2001-11133, 69 FR 44869, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5222, Feb. 1, 2010; Amdt. 61-125A, 75 FR 15610, Mar. 30, 2010]

§ 61.319 [Reserved]

§ 61.321 How do I obtain privileges to operate an additional category or class of light-sport aircraft?

If you hold a sport pilot certificate and seek to operate an additional category or class of light-sport aircraft, you must -

(a) Receive a logbook endorsement from the authorized instructor who trained you on the applicable aeronautical knowledge areas specified in § 61.309 and areas of operation specified in § 61.311. The endorsement certifies you have met the aeronautical knowledge and flight proficiency

requirements for the additional light-sport aircraft privilege you seek;

(b) Successfully complete a proficiency check from an authorized instructor other than the instructor who trained you on the aeronautical knowledge areas and areas of operation specified in §§ 61.309 and 61.311 for the additional light-sport aircraft privilege you seek;

(c) Complete an application for those privileges on a form and in a manner acceptable to the FAA and present this application to the authorized instructor who conducted the proficiency check specified in paragraph (b) of this section; and

(d) Receive a logbook endorsement from the instructor who conducted the proficiency check specified in paragraph (b) of this section certifying you are proficient in the applicable areas of operation and aeronautical knowledge areas, and that you are authorized for the additional category and class light-sport aircraft privilege.

§ 61.323 [Reserved]

§ 61.325 How do I obtain privileges to operate a light-sport aircraft at an airport within, or in airspace within, Class B, C, and D airspace, or in other airspace with an airport having an operational control tower?

If you hold a sport pilot certificate and seek privileges to operate a light-sport aircraft in Class B, C, or D airspace, at an airport located in Class B, C, or D airspace, or to, from, through, or at an airport having an operational control tower, you must receive and log ground and flight training. The authorized instructor who provides this training must provide a logbook endorsement that certifies you are proficient in the following aeronautical knowledge areas and areas of operation:

(a) The use of radios, communications, navigation system/facilities, and radar services.

(b) Operations at airports with an operating control tower to include three takeoffs and landings to a full stop, with each landing involving a flight in the traffic pattern, at an airport with an operating control tower.

(c) Applicable flight rules of part 91 of this chapter for operations in Class B, C, and D airspace and air traffic control clearances.

§ 61.327 Are there specific endorsement requirements to operate a light-sport aircraft based on V_H ?

(a) Except as specified in paragraph (c) of this section, if you hold a sport pilot certificate and you seek to operate a light-sport aircraft that is an airplane with a V_H less than or equal to 87 knots CAS you must -

(1) Receive and log ground and flight training from an authorized instructor in an airplane that has a V_H less than or equal to 87 knots CAS; and

(2) Receive a logbook endorsement from the authorized instructor who provided the training specified in paragraph (a)(1) of this section certifying that you are proficient in the operation of light-sport aircraft that is an airplane with a V_H less than or equal to 87 knots CAS.

(b) If you hold a sport pilot certificate and you seek to operate a light-sport aircraft that has a V_H greater than 87 knots CAS you must -

(1) Receive and log ground and flight training from an authorized instructor in an aircraft that has a V_H greater than 87 knots CAS; and

(2) Receive a logbook endorsement from the authorized instructor who provided the training specified in paragraph (b)(1) of this section certifying that you are proficient in the operation of light-sport aircraft with a V_H greater than 87 knots CAS.

(c) The training and endorsements required by paragraph (a) of this section are not required if you have logged flight time as pilot in command of an airplane with a V_H less than or equal to 87 knots CAS prior to April 2, 2010.

[Doc. No. FAA-2007-29015, 75 FR 5222, Feb. 1, 2010; Amdt. 61-125A, 75 FR 15610, Mar. 30, 2010]

Subpart K - Flight Instructors With a Sport Pilot Rating

Source:

Docket No. FAA-2001-11133, 69 FR 44875, July 27, 2004, unless otherwise noted.

§ 61.401 What is the purpose of this subpart?

(a) This part prescribes the following requirements that apply to a flight instructor certificate with a sport pilot rating:

- (1) Eligibility.
- (2) Aeronautical knowledge.
- (3) Flight proficiency.
- (4) Endorsements.
- (5) Privileges and limits.

(b) Other provisions of this part apply to the logging of flight time and testing.

[Doc. No. FAA-2001-11133, 69 FR 44875, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5222, Feb. 1, 2010]

§ 61.403 What are the age, language, and pilot certificate requirements for a flight instructor certificate with a sport pilot rating?

To be eligible for a flight instructor certificate with a sport pilot rating you must:

- (a) Be at least 18 years old.

(b) Be able to read, speak, write, and understand English. If you cannot read, speak, write, and understand English because of medical reasons, the FAA may place limits on your certificate as are necessary for the safe operation of light-sport aircraft.

(c) Hold at least a sport pilot certificate with category and class ratings or privileges, as applicable, that are appropriate to the flight instructor privileges sought.

[Doc. No. FAA-2001-11133, 69 FR 44875, July 27, 2004, as amended by Amdt. 61-124, 74 FR 42562, Aug. 21, 2009]

§ 61.405 What tests do I have to take to obtain a flight instructor certificate with a sport pilot rating?

To obtain a flight instructor certificate with a sport pilot rating you must pass the following tests:

(a) *Knowledge test.* Before you take a knowledge test, you must receive a logbook endorsement certifying you are prepared for the test from an authorized instructor who trained you or evaluated your home-study course on the aeronautical knowledge areas listed in § 61.407. You must pass knowledge tests on -

(1) The fundamentals of instructing listed in § 61.407(a), unless you meet the requirements of § 61.407(c); and

(2) The aeronautical knowledge areas for a sport pilot certificate applicable to the aircraft category and class for which flight instructor privileges are sought.

(b) *Practical test.* (1) Before you take the practical test, you must -

(i) Receive a logbook endorsement from the authorized instructor who provided you with flight training on the areas of operation specified in § 61.409 that apply to the category and class of aircraft privileges you seek. This endorsement certifies you meet the applicable aeronautical knowledge and experience requirements and are prepared for the practical test;

(ii) If you are seeking privileges to provide instruction in an airplane or glider, receive a logbook endorsement from an authorized instructor indicating that you are competent and possess instructional proficiency in stall awareness, spin entry, spins, and spin recovery procedures after you have received flight training in those training areas in an airplane or glider, as appropriate, that is certificated for spins;

(2) You must pass a practical test -

(i) On the areas of operation listed in § 61.409 that are appropriate to the category and class of aircraft privileges you seek;

(ii) In an aircraft representative of the category and class of aircraft for the privileges you seek;

(iii) In which you demonstrate that you are able to teach stall awareness, spin entry, spins, and spin recovery procedures if you are seeking privileges to provide instruction in an airplane or glider. If you have not failed a practical test based on deficiencies in your ability to demonstrate knowledge or skill in these areas and you provide the endorsement required

by paragraph (b)(1)(ii) of this section, an examiner may accept the endorsement instead of the demonstration required by this paragraph. If you are taking a test because you previously failed a test based on not meeting the requirements of this paragraph, you must pass a practical test on stall awareness, spin entry, spins, and spin recovery instructional competency and proficiency in the applicable category and class of aircraft that is certificated for spins.

§ 61.407 What aeronautical knowledge must I have to apply for a flight instructor certificate with a sport pilot rating?

(a) Except as specified in paragraph (c) of this section you must receive and log ground training from an authorized instructor on the fundamentals of instruction that includes:

- (1) The learning process.
- (2) Elements of effective teaching.
- (3) Student evaluation and testing.
- (4) Course development.
- (5) Lesson planning.
- (6) Classroom training techniques.

(b) You must receive and log ground training from an authorized instructor on the aeronautical knowledge areas applicable to a sport pilot certificate for the aircraft category and class in which you seek flight instructor privileges.

(c) You do not have to meet the requirements of paragraph (a) of this section if you -

- (1) Hold a flight instructor certificate or ground instructor certificate issued under this part;
- (2) Hold a teacher's certificate issued by a State, county, city, or municipality; or
- (3) Are employed as a teacher at an accredited college or university.

[Doc. No. FAA-2001-11133, 69 FR 44875, July 27, 2004, as amended by Amdt. 61-124, 74 FR 42562, Aug. 21, 2009]

§ 61.409 What flight proficiency requirements must I meet to apply for a flight instructor certificate with a sport pilot rating?

You must receive and log ground and flight training from an authorized instructor on the following areas of operation for the aircraft category and class in which you seek flight instructor privileges:

- (a) Technical subject areas.
- (b) Preflight preparation.
- (c) Preflight lesson on a maneuver to be performed in flight.
- (d) Preflight procedures.
- (e) Airport, seaplane base, and gliderport operations, as applicable.
- (f) Takeoffs (or launches), landings, and go-arounds.
- (g) Fundamentals of flight.
- (h) Performance maneuvers and for gliders, performance speeds.
- (i) Ground reference maneuvers (except for gliders and lighter-than-air).
- (j) Soaring techniques.
- (k) Slow flight (not applicable to lighter-than-air and powered parachutes).
- (l) Stalls (not applicable to lighter-than-air, powered parachutes, and gyroplanes).
- (m) Spins (applicable to airplanes and gliders).
- (n) Emergency operations.
- (o) Tumble entry and avoidance techniques (applicable to weight-shift-control aircraft).
- (p) Post-flight procedures.

§ 61.411 What aeronautical experience must I have to apply for a flight instructor certificate with a sport pilot rating?

Use the following table to determine the experience you must have for each aircraft category and class:

| If you are applying for a flight instructor certificate with a sport pilot rating for . . . | Then you must log at least . . . | Which must include at least . . . |
|---|--|---|
| (a) Airplane category and single-engine class privileges, | (1) 150 hours of flight time as a pilot, | (i) 100 hours of flight time as pilot in command in powered aircraft, (ii) 50 hours of flight time in a single-engine airplane, (iii) 25 hours of cross-country flight time, (iv) 10 hours of cross-country flight time in a single-engine airplane, and |
| | | (v) 15 hours of flight time as pilot in command in a single-engine airplane that is a light-sport aircraft. |

| If you are applying for a flight instructor certificate with a sport pilot rating for . . . | Then you must log at least . . . | Which must include at least . . . |
|---|--|---|
| (b) Glider category privileges, | (1) 25 hours of flight time as pilot in command in a glider, 100 flights in a glider, and 15 flights as pilot in command in a glider that is a light-sport aircraft, or (2) 100 hours in heavier-than-air aircraft, 20 flights in a glider, and 15 flights as pilot in command in a glider that is a light-sport aircraft | |
| (c) Rotorcraft category and gyroplane class privileges, | (1) 125 hours of flight time as a pilot, | (i) 100 hours of flight time as pilot in command in powered aircraft, (ii) 50 hours of flight time in a gyroplane, |
| | | (iii) 10 hours of cross-country flight time, |
| | | (iv) 3 hours of cross-country flight time in a gyroplane, and |
| | | (v) 15 hours of flight time as pilot in command in a gyroplane that is a light-sport aircraft. |
| (d) Lighter-than-air category and airship class privileges, | (1) 100 hours of flight time as a pilot, | (i) 40 hours of flight time in an airship, (ii) 20 hours of pilot in command time in an airship, |
| | | (iii) 10 hours of cross-country flight time, |
| | | (iv) 5 hours of cross-country flight time in an airship, and |
| | | (v) 15 hours of flight time as pilot in command in an airship that is a light-sport aircraft. |
| (e) Lighter-than-air category and balloon class privileges, | (1) 35 hours of flight time as pilot-in-command, | (i) 20 hours of flight time in a balloon, (ii) 10 flights in a balloon, and |
| | | (iii) 5 flights as pilot in command in a balloon that is a light-sport aircraft. |
| (f) Weight-shift-control aircraft category privileges, | (1) 150 hours of flight time as a pilot, | (i) 100 hours of flight time as pilot in command in powered aircraft, (ii) 50 hours of flight time in a weight-shift-control aircraft, |
| | | (iii) 25 hours of cross-country flight time, |
| | | (iv) 10 hours of cross-country flight time in a weight-shift-control aircraft, and |
| | | (v) 15 hours of flight time as pilot in command in a weight-shift-control aircraft that is a light-sport aircraft. |
| (g) Powered-parachute category privileges, | (1) 100 hours of flight time as a pilot, | (i) 75 hours of flight time as pilot in command in powered aircraft, |

| If you are applying for a flight instructor certificate with a sport pilot rating | Then you must log at least . . . | Which must include at least . . . |
|---|----------------------------------|--|
| for . . . | | |
| | | (ii) 50 hours of flight time in a powered parachute, |
| | | (iii) 15 hours of cross-country flight time, |
| | | (iv) 5 hours of cross-country flight time in a powered parachute, and |
| | | (v) 15 hours of flight time as pilot in command in a powered parachute that is a light-sport aircraft. |

§ 61.413 What are the privileges of my flight instructor certificate with a sport pilot rating?

(a) If you hold a flight instructor certificate with a sport pilot rating, you are authorized, within the limits of your certificate and rating, to provide training and endorsements that are required for, and relate to -

- (1) A student pilot seeking a sport pilot certificate;
- (2) A sport pilot certificate;
- (3) A flight instructor certificate with a sport pilot rating;
- (4) A powered parachute or weight-shift-control aircraft rating;
- (5) Sport pilot privileges;
- (6) A flight review or operating privilege for a sport pilot;
- (7) A practical test for a sport pilot certificate, a private pilot certificate with a powered parachute or weight-shift-control aircraft rating or a flight instructor certificate with a sport pilot rating;
- (8) A knowledge test for a sport pilot certificate, a private pilot certificate with a powered parachute or weight-shift-control aircraft rating or a flight instructor certificate with a sport pilot rating; and
- (9) A proficiency check for an additional category or class privilege for a sport pilot certificate or a flight instructor certificate with a sport pilot rating.

(b) A person who holds a flight instructor certificate with a sport pilot rating is authorized, in a form and manner acceptable to the Administrator, to:

- (1) Accept an application for a student pilot certificate or, for an applicant who holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, a remote pilot certificate with a small UAS rating;
- (2) Verify the identity of the applicant; and
- (3) Verify that an applicant for a student pilot certificate meets the eligibility requirements in § 61.83.

[Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1307, Jan. 12, 2016, as amended by Docket FAA-2015-0150, Amdt. 61-137, 81 FR 42208, June 28, 2016]

§ 61.415 What are the limits of a flight instructor certificate with a sport pilot rating?

If you hold a flight instructor certificate with a sport pilot rating, you may only provide flight training in a light-sport aircraft and are subject to the following limits:

- (a) You may not provide ground or flight training in any aircraft for which you do not hold:
 - (1) A sport pilot certificate with applicable category and class privileges or a pilot certificate with the applicable category and class rating; and
 - (2) Applicable category and class privileges for your flight instructor certificate with a sport pilot rating.
- (b) You may not provide ground or flight training for a private pilot certificate with a powered parachute or weight-shift-control aircraft rating unless you hold:
 - (1) At least a private pilot certificate with the applicable category and class rating; and
 - (2) Applicable category and class privileges for your flight instructor certificate with a sport pilot rating.
- (c) You may not conduct more than 8 hours of flight training in any 24-consecutive-hour period.
- (d) You may not endorse a:
 - (1) Student pilot's logbook for solo flight privileges, unless you have -
 - (i) Given that student the flight training required for solo flight privileges required by this part; and
 - (ii) Determined that the student is prepared to conduct the flight safely under known circumstances, subject to any limitations listed in the student's logbook that you consider necessary for the safety of the flight.
 - (2) Student pilot's logbook for a solo cross-country flight, unless you have determined the student's flight preparation, planning, equipment, and proposed procedures are adequate for the proposed flight under the existing conditions and within any limitations listed in the logbook that you consider necessary for the safety of the flight.
 - (3) Student pilot's logbook for solo flight in Class B, C, and D airspace areas, at an airport within Class B, C, or D airspace

and to from, through or on an airport having an operational control tower, unless you have -

(i) Given that student ground and flight training in that airspace or at that airport; and

(ii) Determined that the student is proficient to operate the aircraft safely.

(4) Logbook of a pilot for a flight review, unless you have conducted a review of that pilot in accordance with the requirements of § 61.56.

(e) You may not provide training to operate a light-sport aircraft in Class B, C, and D airspace, at an airport located in Class B, C, or D airspace, and to, from, through, or at an airport having an operational control tower, unless you have the endorsement specified in § 61.325, or are otherwise authorized to conduct operations in this airspace and at these airports.

(f) You may not provide training in a light-sport aircraft that is an airplane with a V_H less than or equal to 87 knots CAS unless you have the endorsement specified in § 61.327 (a), or are otherwise authorized to operate that light-sport aircraft.

(g) You may not provide training in a light-sport aircraft with a V_H greater than 87 knots CAS unless you have the endorsement specified in § 61.327 (b), or are otherwise authorized to operate that light-sport aircraft.

(h) You must perform all training in an aircraft that complies with the requirements of § 91.109 of this chapter.

(i) If you provide flight training for a certificate, rating or privilege, you must provide that flight training in an aircraft that meets the following:

(1) The aircraft must have at least two pilot stations and be of the same category and class appropriate to the certificate, rating or privilege sought.

(2) For single place aircraft, pre-solo flight training must be provided in an aircraft that has two pilot stations and is of the same category and class appropriate to the certificate, rating, or privilege sought.

[Doc. No. FAA-2001-11133, 69 FR 44875, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5222, Feb. 1, 2010; Amdt. 61-125A, 75 FR 15610, Mar. 30, 2010; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1307, Jan. 12, 2016]

§ 61.417 Will my flight instructor certificate with a sport pilot rating list aircraft category and class ratings?

Your flight instructor certificate does not list aircraft category and class ratings. When you successfully pass the practical test for a flight instructor certificate with a sport pilot rating, regardless of the light-sport aircraft privileges you seek, the FAA will issue you a flight instructor certificate with a sport pilot rating without any category and class ratings. The FAA will provide you with a logbook endorsement for the category and class of light-sport aircraft you are authorized to provide training in.

§ 61.419 How do I obtain privileges to provide training in an additional category or class of light-sport aircraft?

If you hold a flight instructor certificate with a sport pilot rating and seek to provide training in an additional category or class of light-sport aircraft you must -

(a) Receive a logbook endorsement from the authorized instructor who trained you on the applicable areas of operation specified in § 61.409 certifying you have met the aeronautical knowledge and flight proficiency requirements for the additional category and class flight instructor privilege you seek;

(b) Successfully complete a proficiency check from an authorized instructor other than the instructor who trained you on the areas specified in § 61.409 for the additional category and class flight instructor privilege you seek;

(c) Complete an application for those privileges on a form and in a manner acceptable to the FAA and present this application to the authorized instructor who conducted the proficiency check specified in paragraph (b) of this section; and

(d) Receive a logbook endorsement from the instructor who conducted the proficiency check specified in paragraph (b) of this section certifying you are proficient in the areas of operation and authorized for the additional category and class flight instructor privilege.

§ 61.421 May I give myself an endorsement?

No. If you hold a flight instructor certificate with a sport pilot rating, you may not give yourself an endorsement for any certificate, privilege, rating, flight review, authorization, practical test, knowledge test, or proficiency check required by this part.

§ 61.423 What are the recordkeeping requirements for a flight instructor with a sport pilot rating?

(a) As a flight instructor with a sport pilot rating you must:

(1) Sign the logbook of each person to whom you have given flight training or ground training.

(2) Keep a record of the name, date, and type of endorsement for:

(i) Each person whose logbook you have endorsed for solo flight privileges.

(ii) Each person for whom you have provided an endorsement for a knowledge test, practical test, or proficiency check, and the record must indicate the kind of test or check, and the results.

(iii) Each person whose logbook you have endorsed as proficient to operate -

(A) An additional category or class of light-sport aircraft;

(B) In Class B, C, and D airspace; at an airport located in Class B, C, or D airspace; and to, from, through, or at an airport having an operational control tower;

(C) A light-sport aircraft that is an airplane with a V_H less than or equal to 87 knots CAS; and

(D) A light-sport aircraft with a V_H greater than 87 knots CAS.

(iv) Each person whose logbook you have endorsed as proficient to provide flight training in an additional category or class of light-sport aircraft.

(b) Within 10 days after providing an endorsement for a person to operate or provide training in an additional category and class of light-sport aircraft you must -

(1) Complete, sign, and submit to the FAA the application presented to you to obtain those privileges; and

(2) Retain a copy of the form.

(c) You must keep the records listed in this section for 3 years. You may keep these records in a logbook or a separate document.

[Doc. No. FAA-2001-11133, 69 FR 44875, July 27, 2004, as amended by Amdt. 61-125, 75 FR 5222, Feb. 1, 2010; Amdt. 61-125A, 75 FR 15610, Mar. 30, 2010; Docket FAA-2010-1127, Amdt. 61-135, 81 FR 1307, Jan. 12, 2016]

§ 61.425 How do I renew my flight instructor certificate?

If you hold a flight instructor certificate with a sport pilot rating you may renew your certificate in accordance with the provisions of § 61.197.

§ 61.427 What must I do if my flight instructor certificate with a sport pilot rating expires?

You may exchange your expired flight instructor certificate with a sport pilot rating for a new certificate with a sport pilot rating and any other rating on that certificate by passing a practical test as prescribed in § 61.405(b) or § 61.183(h) for one of the ratings listed on the expired flight instructor certificate. The FAA will reinstate any privilege authorized by the expired certificate.

§ 61.429 May I exercise the privileges of a flight instructor certificate with a sport pilot rating if I hold a flight instructor certificate with another rating?

If you hold a flight instructor certificate, a commercial pilot certificate with an airship rating, or a commercial pilot certificate with a balloon rating issued under this part, and you seek to exercise the privileges of a flight instructor certificate with a sport pilot rating, you may do so without any further showing of proficiency, subject to the following limits:

(a) You are limited to the aircraft category and class ratings listed on your flight instructor certificate, commercial pilot certificate with an airship rating, or commercial pilot certificate with a balloon rating, as appropriate, when exercising your flight instructor privileges and the privileges specified in § 61.413.

(b) You must comply with the limits specified in § 61.415 and the recordkeeping requirements of § 61.423.

(c) If you want to exercise the privileges of your flight instructor certificate in a category or class of light-sport aircraft for which you are not currently rated, you must meet all applicable requirements to provide training in an additional category or class of light-sport aircraft specified in § 61.419.

[Doc. No. FAA-2001-11133, 69 FR 44875, July 27, 2004, as amended by Amdt. 61-124, 74 FR 42562, Aug. 21, 2009; Amdt. 61-125, 75 FR 5222, Feb. 1, 2010]

PART 67 - MEDICAL STANDARDS AND CERTIFICATION

Authority:

49 U.S.C. 106(g), 40113, 44701-44703, 44707, 44709-44711, 45102-45103, 45301-45303.

Source:

Docket No. 27940, 61 FR 11256, Mar. 19, 1996, unless otherwise noted.

Subpart A - General

§ 67.1 Applicability.

This part prescribes the medical standards and certification procedures for issuing medical certificates for airmen and for remaining eligible for a medical certificate.

§ 67.3 Issue.

A person who meets the medical standards prescribed in this part, based on medical examination and evaluation of the person's history and condition, is entitled to an appropriate medical certificate.

[Doc. No. FAA-2007-27812, 73 FR 43065, July 24, 2008]

§ 67.4 Application.

An applicant for first-, second- and third-class medical certification must:

(a) Apply on a form and in a manner prescribed by the Administrator;

(b) Be examined by an aviation medical examiner designated in accordance with part 183 of this chapter. An applicant may obtain a list of aviation medical examiners from the FAA Office of Aerospace Medicine homepage on the FAA Web site, from any FAA Regional Flight Surgeon, or by contacting the Manager of the Aerospace Medical Education Division, P.O. Box 26200, Oklahoma City, Oklahoma 73125.

(c) Show proof of age and identity by presenting a government-issued photo identification (such as a valid U.S. driver's license, identification card issued by a driver's license authority, military identification, or passport). If an applicant

does not have government-issued identification, he or she may use non-photo, government-issued identification (such as a birth certificate or voter registration card) in conjunction with photo identification (such as a work identification card or a student identification card).

[Doc. No. FAA-2007-27812, 73 FR 43065, July 24, 2008]

§ 67.7 Access to the National Driver Register.

At the time of application for a certificate issued under this part, each person who applies for a medical certificate shall execute an express consent form authorizing the Administrator to request the chief driver licensing official of any state designated by the Administrator to transmit information contained in the National Driver Register about the person to the Administrator. The Administrator shall make information received from the National Driver Register, if any, available on request to the person for review and written comment.

Subpart B - First-Class Airman Medical Certificate

§ 67.101 Eligibility.

To be eligible for a first-class airman medical certificate, and to remain eligible for a first-class airman medical certificate, a person must meet the requirements of this subpart.

§ 67.103 Eye.

Eye standards for a first-class airman medical certificate are:

(a) Distant visual acuity of 20/20 or better in each eye separately, with or without corrective lenses. If corrective lenses (spectacles or contact lenses) are necessary for 20/20 vision, the person may be eligible only on the condition that corrective lenses are worn while exercising the privileges of an airman certificate.

(b) Near vision of 20/40 or better, Snellen equivalent, at 16 inches in each eye separately, with or without corrective lenses. If age 50 or older, near vision of 20/40 or better,

Snellen equivalent, at both 16 inches and 32 inches in each eye separately, with or without corrective lenses.

(c) Ability to perceive those colors necessary for the safe performance of airman duties.

(d) Normal fields of vision.

(e) No acute or chronic pathological condition of either eye or adnexa that interferes with the proper function of an eye, that may reasonably be expected to progress to that degree, or that may reasonably be expected to be aggravated by flying.

(f) Bifoveal fixation and vergence-phoria relationship sufficient to prevent a break in fusion under conditions that may reasonably be expected to occur in performing airman duties. Tests for the factors named in this paragraph are not required except for persons found to have more than 1 prism diopter of hyperphoria, 6 prism diopters of esophoria, or 6 prism diopters of exophoria. If any of these values are exceeded, the Federal Air Surgeon may require the person to be examined by a qualified eye specialist to determine if there is bifoveal fixation and an adequate vergence-phoria relationship. However, if otherwise eligible, the person is issued a medical certificate pending the results of the examination.

§ 67.105 Ear, nose, throat, and equilibrium.

Ear, nose, throat, and equilibrium standards for a first-class airman medical certificate are:

(a) The person shall demonstrate acceptable hearing by at least one of the following tests:

(1) Demonstrate an ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 6 feet from the examiner, with the back turned to the examiner.

(2) Demonstrate an acceptable understanding of speech as determined by audiometric speech discrimination testing to a score of at least 70 percent obtained in one ear or in a sound field environment.

(3) Provide acceptable results of pure tone audiometric testing of unaided hearing acuity according to the following table of worst acceptable thresholds, using the calibration standards of the American National Standards Institute, 1969 (11 West 42d Street, New York, NY 10036):

| Frequency (Hz) | 500 Hz | 1000 Hz | 2000 Hz | 3000 Hz | |
|-----------------|--------|---------|---------|---------|----|
| Better ear (Db) | | 35 | 30 | 30 | 40 |
| Poorer ear (Db) | | 35 | 50 | 50 | 60 |

(b) No disease or condition of the middle or internal ear, nose, oral cavity, pharynx, or larynx that -

(1) Interferes with, or is aggravated by, flying or may reasonably be expected to do so; or

(2) Interferes with, or may reasonably be expected to interfere with, clear and effective speech communication.

(c) No disease or condition manifested by, or that may reasonably be expected to be manifested by, vertigo or a disturbance of equilibrium.

§ 67.107 Mental.

Mental standards for a first-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, “psychosis” refers to a mental disorder in which:

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section -

(i) “Substance” includes: Alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidine or similarly acting arylcyclohexylamines; cannabis; inhalants; and other psychoactive drugs and chemicals; and

(ii) “Substance dependence” means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by -

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result, an alcohol test result of 0.04 or greater alcohol concentration, or a refusal to submit to a drug or alcohol test required by the U.S. Department of Transportation or an agency of the U.S. Department of Transportation; or

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds -

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

[Doc. No. 27940, 61 FR 11256, Mar. 19, 1996, as amended by Amdt. 67-19, 71 FR 35764, June 21, 2006]

§ 67.109 Neurologic.

Neurologic standards for a first-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) Epilepsy;

(2) A disturbance of consciousness without satisfactory medical explanation of the cause; or

(3) A transient loss of control of nervous system function(s) without satisfactory medical explanation of the cause.

(b) No other seizure disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

§ 67.111 Cardiovascular.

Cardiovascular standards for a first-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) Myocardial infarction;

(2) Angina pectoris;

(3) Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant;

(4) Cardiac valve replacement;

(5) Permanent cardiac pacemaker implantation; or

(6) Heart replacement;

(b) A person applying for first-class medical certification must demonstrate an absence of myocardial infarction and other clinically significant abnormality on electrocardiographic examination:

(1) At the first application after reaching the 35th birthday; and

(2) On an annual basis after reaching the 40th birthday.

(c) An electrocardiogram will satisfy a requirement of paragraph (b) of this section if it is dated no earlier than 60 days before the date of the application it is to accompany and was

performed and transmitted according to acceptable standards and techniques.

§ 67.113 General medical condition.

The general medical standards for a first-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.

(b) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No medication or other treatment that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the medication or other treatment involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

§ 67.115 Discretionary issuance.

A person who does not meet the provisions of §§ 67.103 through 67.113 may apply for the discretionary issuance of a certificate under § 67.401.

Subpart C - Second-Class Airman Medical Certificate

§ 67.201 Eligibility.

To be eligible for a second-class airman medical certificate, and to remain eligible for a second-class airman medical certificate, a person must meet the requirements of this subpart.

§ 67.203 Eye.

Eye standards for a second-class airman medical certificate are:

| Frequency (Hz) | 500 Hz | 1000 Hz | 2000 Hz | 3000 Hz | |
|-----------------|--------|---------|---------|---------|----|
| Better ear (Db) | | 35 | 30 | 30 | 40 |
| Poorer ear (Db) | | 35 | 50 | 50 | 60 |

(a) Distant visual acuity of 20/20 or better in each eye separately, with or without corrective lenses. If corrective lenses (spectacles or contact lenses) are necessary for 20/20 vision, the person may be eligible only on the condition that corrective lenses are worn while exercising the privileges of an airman certificate.

(b) Near vision of 20/40 or better, Snellen equivalent, at 16 inches in each eye separately, with or without corrective lenses. If age 50 or older, near vision of 20/40 or better, Snellen equivalent, at both 16 inches and 32 inches in each eye separately, with or without corrective lenses.

(c) Ability to perceive those colors necessary for the safe performance of airman duties.

(d) Normal fields of vision.

(e) No acute or chronic pathological condition of either eye or adnexa that interferes with the proper function of an eye, that may reasonably be expected to progress to that degree, or that may reasonably be expected to be aggravated by flying.

(f) Bifoveal fixation and vergence-phoria relationship sufficient to prevent a break in fusion under conditions that may reasonably be expected to occur in performing airman duties. Tests for the factors named in this paragraph are not required except for persons found to have more than 1 prism diopter of hyperphoria, 6 prism diopters of esophoria, or 6 prism diopters of exophoria. If any of these values are exceeded, the Federal Air Surgeon may require the person to be examined by a qualified eye specialist to determine if there is bifoveal fixation and an adequate vergence-phoria relationship. However, if otherwise eligible, the person is issued a medical certificate pending the results of the examination.

§ 67.205 Ear, nose, throat, and equilibrium.

Ear, nose, throat, and equilibrium standards for a second-class airman medical certificate are:

(a) The person shall demonstrate acceptable hearing by at least one of the following tests:

(1) Demonstrate an ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 6 feet from the examiner, with the back turned to the examiner.

(2) Demonstrate an acceptable understanding of speech as determined by audiometric speech discrimination testing to a score of at least 70 percent obtained in one ear or in a sound field environment.

(3) Provide acceptable results of pure tone audiometric testing of unaided hearing acuity according to the following table of worst acceptable thresholds, using the calibration standards of the American National Standards Institute, 1969:

(b) No disease or condition of the middle or internal ear, nose, oral cavity, pharynx, or larynx that -

(1) Interferes with, or is aggravated by, flying or may reasonably be expected to do so; or

(2) Interferes with, or may reasonably be expected to interfere with, clear and effective speech communication.

(c) No disease or condition manifested by, or that may reasonably be expected to be manifested by, vertigo or a disturbance of equilibrium.

§ 67.207 Mental.

Mental standards for a second-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, “psychosis” refers to a mental disorder in which:

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section -

(i) “Substance” includes: Alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidine or similarly acting arylcyclohexylamines; cannabis; inhalants; and other psychoactive drugs and chemicals; and

(ii) “Substance dependence” means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by -

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result, an alcohol test result of 0.04 or greater alcohol concentration, or a refusal to submit

to a drug or alcohol test required by the U.S. Department of Transportation or an agency of the U.S. Department of Transportation; or

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds -

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

[Doc. No. 27940, 61 FR 11256, Mar. 19, 1996, as amended by Amdt. 67-19, 71 FR 35764, June 21, 2006]

§ 67.209 Neurologic.

Neurologic standards for a second-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) Epilepsy;

(2) A disturbance of consciousness without satisfactory medical explanation of the cause; or

(3) A transient loss of control of nervous system function(s) without satisfactory medical explanation of the cause;

(b) No other seizure disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

§ 67.211 Cardiovascular.

Cardiovascular standards for a second-class medical certificate are no established medical history or clinical diagnosis of any of the following:

(a) Myocardial infarction;

(b) Angina pectoris;

- (c) Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant;
- (d) Cardiac valve replacement;
- (e) Permanent cardiac pacemaker implantation; or
- (f) Heart replacement.

§ 67.213 General medical condition.

The general medical standards for a second-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.

(b) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No medication or other treatment that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the medication or other treatment involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

§ 67.215 Discretionary issuance.

A person who does not meet the provisions of §§ 67.203 through 67.213 may apply for the discretionary issuance of a certificate under § 67.401.

Subpart D - Third-Class Airman Medical Certificate

§ 67.301 Eligibility.

To be eligible for a third-class airman medical certificate, or to remain eligible for a third-class airman medical

| Frequency (Hz) | 500 Hz | 1000 Hz | 2000 Hz | 3000 Hz |
|-----------------|--------|---------|---------|---------|
| Better ear (Db) | 35 | 30 | 30 | 40 |
| Poorer ear (Db) | 35 | 50 | 50 | 60 |

(b) No disease or condition of the middle or internal ear, nose, oral cavity, pharynx, or larynx that -

certificate, a person must meet the requirements of this subpart.

§ 67.303 Eye.

Eye standards for a third-class airman medical certificate are:

(a) Distant visual acuity of 20/40 or better in each eye separately, with or without corrective lenses. If corrective lenses (spectacles or contact lenses) are necessary for 20/40 vision, the person may be eligible only on the condition that corrective lenses are worn while exercising the privileges of an airman certificate.

(b) Near vision of 20/40 or better, Snellen equivalent, at 16 inches in each eye separately, with or without corrective lenses.

(c) Ability to perceive those colors necessary for the safe performance of airman duties.

(d) No acute or chronic pathological condition of either eye or adnexa that interferes with the proper function of an eye, that may reasonably be expected to progress to that degree, or that may reasonably be expected to be aggravated by flying.

§ 67.305 Ear, nose, throat, and equilibrium.

Ear, nose, throat, and equilibrium standards for a third-class airman medical certificate are:

(a) The person shall demonstrate acceptable hearing by at least one of the following tests:

(1) Demonstrate an ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 6 feet from the examiner, with the back turned to the examiner.

(2) Demonstrate an acceptable understanding of speech as determined by audiometric speech discrimination testing to a score of at least 70 percent obtained in one ear or in a sound field environment.

(3) Provide acceptable results of pure tone audiometric testing of unaided hearing acuity according to the following table of worst acceptable thresholds, using the calibration standards of the American National Standards Institute, 1969:

(1) Interferes with, or is aggravated by, flying or may reasonably be expected to do so; or

(2) Interferes with clear and effective speech communication.

(c) No disease or condition manifested by, or that may reasonably be expected to be manifested by, vertigo or a disturbance of equilibrium.

§ 67.307 Mental.

Mental standards for a third-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, “psychosis” refers to a mental disorder in which -

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section -

(i) “Substance” includes: alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidine or similarly acting arylcyclohexylamines; cannabis; inhalants; and other psychoactive drugs and chemicals; and

(ii) “Substance dependence” means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by -

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result, an alcohol test result of 0.04 or greater alcohol concentration, or a refusal to submit to a drug or alcohol test required by the U.S. Department of Transportation or an agency of the U.S. Department of Transportation; or

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds -

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

[Doc. No. 27940, 61 FR 11256, Mar. 19, 1996, as amended by Amdt. 67-19, 71 FR 35764, June 21, 2006]

§ 67.309 Neurologic.

Neurologic standards for a third-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) Epilepsy;

(2) A disturbance of consciousness without satisfactory medical explanation of the cause; or

(3) A transient loss of control of nervous system function(s) without satisfactory medical explanation of the cause.

(b) No other seizure disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

§ 67.311 Cardiovascular.

Cardiovascular standards for a third-class airman medical certificate are no established medical history or clinical diagnosis of any of the following:

(a) Myocardial infarction;

(b) Angina pectoris;

(c) Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant;

(d) Cardiac valve replacement;

- (e) Permanent cardiac pacemaker implantation; or
- (f) Heart replacement.

§ 67.313 General medical condition.

The general medical standards for a third-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.

(b) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No medication or other treatment that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the medication or other treatment involved, finds -

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

§ 67.315 Discretionary issuance.

A person who does not meet the provisions of §§ 67.303 through 67.313 may apply for the discretionary issuance of a certificate under § 67.401.

Subpart E - Certification Procedures

§ 67.401 Special issuance of medical certificates.

(a) At the discretion of the Federal Air Surgeon, an Authorization for Special Issuance of a Medical Certificate (Authorization), valid for a specified period, may be granted to a person who does not meet the provisions of subparts B, C, or D of this part if the person shows to the satisfaction of the Federal Air Surgeon that the duties authorized by the class of medical certificate applied for can be performed without endangering public safety during the period in which the Authorization would be in force. The Federal Air Surgeon may authorize a special medical flight test, practical test, or medical evaluation for this purpose. A medical certificate of the appropriate class may be issued to a person who does not meet the provisions of subparts B, C, or D of this part if that person possesses a valid Authorization and is otherwise

eligible. An airman medical certificate issued in accordance with this section shall expire no later than the end of the validity period or upon the withdrawal of the Authorization upon which it is based. At the end of its specified validity period, for grant of a new Authorization, the person must again show to the satisfaction of the Federal Air Surgeon that the duties authorized by the class of medical certificate applied for can be performed without endangering public safety during the period in which the Authorization would be in force.

(b) At the discretion of the Federal Air Surgeon, a Statement of Demonstrated Ability (SODA) may be granted, instead of an Authorization, to a person whose disqualifying condition is static or nonprogressive and who has been found capable of performing airman duties without endangering public safety. A SODA does not expire and authorizes a designated aviation medical examiner to issue a medical certificate of a specified class if the examiner finds that the condition described on its face has not adversely changed.

(c) In granting an Authorization or SODA, the Federal Air Surgeon may consider the person's operational experience and any medical facts that may affect the ability of the person to perform airman duties including -

(1) The combined effect on the person of failure to meet more than one requirement of this part; and

(2) The prognosis derived from professional consideration of all available information regarding the person.

(d) In granting an Authorization or SODA under this section, the Federal Air Surgeon specifies the class of medical certificate authorized to be issued and may do any or all of the following:

(1) Limit the duration of an Authorization;

(2) Condition the granting of a new Authorization on the results of subsequent medical tests, examinations, or evaluations;

(3) State on the Authorization or SODA, and any medical certificate based upon it, any operational limitation needed for safety; or

(4) Condition the continued effect of an Authorization or SODA, and any second- or third-class medical certificate based upon it, on compliance with a statement of functional limitations issued to the person in coordination with the Director of Flight Standards or the Director's designee.

(e) In determining whether an Authorization or SODA should be granted to an applicant for a third-class medical certificate, the Federal Air Surgeon considers the freedom of an airman, exercising the privileges of a private pilot certificate, to accept reasonable risks to his or her person and property that are not acceptable in the exercise of commercial or airline transport pilot privileges, and, at the same time, considers the need to protect the safety of persons and property in other aircraft and on the ground.

(f) An Authorization or SODA granted under the provisions of this section to a person who does not meet the applicable provisions of subparts B, C, or D of this part may

be withdrawn, at the discretion of the Federal Air Surgeon, at any time if -

(1) There is adverse change in the holder's medical condition;

(2) The holder fails to comply with a statement of functional limitations or operational limitations issued as a condition of certification under this section;

(3) Public safety would be endangered by the holder's exercise of airman privileges;

(4) The holder fails to provide medical information reasonably needed by the Federal Air Surgeon for certification under this section; or

(5) The holder makes or causes to be made a statement or entry that is the basis for withdrawal of an Authorization or SODA under § 67.403.

(g) A person who has been granted an Authorization or SODA under this section based on a special medical flight or practical test need not take the test again during later physical examinations unless the Federal Air Surgeon determines or has reason to believe that the physical deficiency has or may have degraded to a degree to require another special medical flight test or practical test.

(h) The authority of the Federal Air Surgeon under this section is also exercised by the Manager, Aeromedical Certification Division, and each Regional Flight Surgeon.

(i) If an Authorization or SODA is withdrawn under paragraph (f) of this section the following procedures apply:

(1) The holder of the Authorization or SODA will be served a letter of withdrawal, stating the reason for the action;

(2) By not later than 60 days after the service of the letter of withdrawal, the holder of the Authorization or SODA may request, in writing, that the Federal Air Surgeon provide for review of the decision to withdraw. The request for review may be accompanied by supporting medical evidence;

(3) Within 60 days of receipt of a request for review, a written final decision either affirming or reversing the decision to withdraw will be issued; and

(4) A medical certificate rendered invalid pursuant to a withdrawal, in accordance with paragraph (a) of this section, shall be surrendered to the Administrator upon request.

[Doc. No. 27940, 61 FR 11256, Mar. 19, 1996, as amended by Amdt. 67-20, 73 FR 43066, July 24, 2008; Amdt. 67-21, 77 FR 16668, Mar. 22, 2012]

§ 67.403 Applications, certificates, logbooks, reports, and records: Falsification, reproduction, or alteration; incorrect statements.

(a) No person may make or cause to be made -

(1) A fraudulent or intentionally false statement on any application for a medical certificate or on a request for any Authorization for Special Issuance of a Medical Certificate (Authorization) or Statement of Demonstrated Ability (SODA) under this part;

(2) A fraudulent or intentionally false entry in any logbook, record, or report that is kept, made, or used, to show

compliance with any requirement for any medical certificate or for any Authorization or SODA under this part;

(3) A reproduction, for fraudulent purposes, of any medical certificate under this part; or

(4) An alteration of any medical certificate under this part.

(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for -

(1) Suspending or revoking all airman, ground instructor, and medical certificates and ratings held by that person;

(2) Withdrawing all Authorizations or SODA's held by that person; and

(3) Denying all applications for medical certification and requests for Authorizations or SODA's.

(c) The following may serve as a basis for suspending or revoking a medical certificate; withdrawing an Authorization or SODA; or denying an application for a medical certificate or request for an authorization or SODA:

(1) An incorrect statement, upon which the FAA relied, made in support of an application for a medical certificate or request for an Authorization or SODA.

(2) An incorrect entry, upon which the FAA relied, made in any logbook, record, or report that is kept, made, or used to show compliance with any requirement for a medical certificate or an Authorization or SODA.

§ 67.405 Medical examinations: Who may perform?

(a) *First-class.* Any aviation medical examiner who is specifically designated for the purpose may perform examinations for the first-class medical certificate.

(b) *Second- and third-class.* Any aviation medical examiner may perform examinations for the second-or third-class medical certificate.

[Doc. No. FAA-2007-27812, 73 FR 43066, July 24, 2008]

§ 67.407 Delegation of authority.

(a) The authority of the Administrator under 49 U.S.C. 44703 to issue or deny medical certificates is delegated to the Federal Air Surgeon to the extent necessary to -

(1) Examine applicants for and holders of medical certificates to determine whether they meet applicable medical standards; and

(2) Issue, renew, and deny medical certificates, and issue, renew, deny, and withdraw Authorizations for Special Issuance of a Medical Certificate and Statements of Demonstrated Ability to a person based upon meeting or failing to meet applicable medical standards.

(b) Subject to limitations in this chapter, the delegated functions of the Federal Air Surgeon to examine applicants for and holders of medical certificates for compliance with applicable medical standards and to issue, renew, and deny medical certificates are also delegated to aviation medical examiners and to authorized representatives of the Federal Air Surgeon within the FAA.

(c) The authority of the Administrator under 49 U.S.C. 44702, to reconsider the action of an aviation medical

examiner is delegated to the Federal Air Surgeon; the Manager, Aeromedical Certification Division; and each Regional Flight Surgeon. Where the person does not meet the standards of §§ 67.107(b)(3) and (c), 67.109(b), 67.113(b) and (c), 67.207(b)(3) and (c), 67.209(b), 67.213(b) and (c), 67.307(b)(3) and (c), 67.309(b), or 67.313(b) and (c), any action taken under this paragraph other than by the Federal Air Surgeon is subject to reconsideration by the Federal Air Surgeon. A certificate issued by an aviation medical examiner is considered to be affirmed as issued unless an FAA official named in this paragraph (authorized official) reverses that issuance within 60 days after the date of issuance. However, if within 60 days after the date of issuance an authorized official requests the certificate holder to submit additional medical information, an authorized official may reverse the issuance within 60 days after receipt of the requested information.

(d) The authority of the Administrator under 49 U.S.C. 44709 to re-examine any civil airman to the extent necessary to determine an airman's qualification to continue to hold an airman medical certificate, is delegated to the Federal Air Surgeon and his or her authorized representatives within the FAA.

§ 67.409 Denial of medical certificate.

(a) Any person who is denied a medical certificate by an aviation medical examiner may, within 30 days after the date of the denial, apply in writing and in duplicate to the Federal Air Surgeon, Attention: Manager, Aeromedical Certification Division, AAM-300, Federal Aviation Administration, P.O. Box 26080, Oklahoma City, Oklahoma 73126, for reconsideration of that denial. If the person does not ask for reconsideration during the 30-day period after the date of the denial, he or she is considered to have withdrawn the application for a medical certificate.

(b) The denial of a medical certificate -

(1) By an aviation medical examiner is not a denial by the Administrator under 49 U.S.C. 44703.

(2) By the Federal Air Surgeon is considered to be a denial by the Administrator under 49 U.S.C. 44703.

(3) By the Manager, Aeromedical Certification Division, or a Regional Flight Surgeon is considered to be a denial by the Administrator under 49 U.S.C. 44703 except where the person does not meet the standards of §§ 67.107(b)(3) and (c), 67.109(b), or 67.113(b) and (c); 67.207(b)(3) and (c), 67.209(b), or 67.213(b) and (c); or 67.307(b)(3) and (c), 67.309(b), or 67.313(b) and (c).

(c) Any action taken under § 67.407(c) that wholly or partly reverses the issue of a medical certificate by an aviation medical examiner is the denial of a medical certificate under paragraph (b) of this section.

(d) If the issue of a medical certificate is wholly or partly reversed by the Federal Air Surgeon; the Manager, Aeromedical Certification Division; or a Regional Flight Surgeon, the person holding that certificate shall surrender it, upon request of the FAA.

§ 67.411 [Reserved]

§ 67.413 Medical records.

(a) Whenever the Administrator finds that additional medical information or history is necessary to determine whether you meet the medical standards required to hold a medical certificate, you must:

(1) Furnish that information to the FAA; or

(2) Authorize any clinic, hospital, physician, or other person to release to the FAA all available information or records concerning that history.

(b) If you fail to provide the requested medical information or history or to authorize its release, the FAA may suspend, modify, or revoke your medical certificate or, in the case of an applicant, deny the application for a medical certificate.

(c) If your medical certificate is suspended, modified, or revoked under paragraph (b) of this section, that suspension or modification remains in effect until you provide the requested information, history, or authorization to the FAA and until the FAA determines that you meet the medical standards set forth in this part.

[Doc. No. FAA-2007-27812, 73 FR 43066, July 24, 2008]

§ 67.415 Return of medical certificate after suspension or revocation.

The holder of any medical certificate issued under this part that is suspended or revoked shall, upon the Administrator's request, return it to the Administrator.

SUBCHAPTER E - AIRSPACE

PART 71 - DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

Authority:

49 U.S.C. 106(f), 106(g), 40103, 40113, 40120, E.O. 10854, 24 FR 9565, 3 CFR, 1959-1963 Comp., p. 389.

Source:

Amdt. 71-14, 56 FR 65654, Dec. 17, 1991, unless otherwise noted.

Special Federal Aviation Regulation No. 97

Editorial Note:

For the text of SFAR No. 97, see part 91 of this chapter.

§ 71.1 Applicability.

A listing for Class A, B, C, D, and E airspace areas; air traffic service routes; and reporting points can be found in FAA Order 7400.11A, Airspace Designations and Reporting Points, dated August 3, 2016. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552 (a) and 1 CFR part 51. The approval to incorporate by reference FAA Order 7400.11A is effective September 15, 2016, through September 15, 2017. During the incorporation by reference period, proposed changes to the listings of Class A, B, C, D, and E airspace areas; air traffic service routes; and reporting points will be published in full text as proposed rule documents in the Federal Register. Amendments to the listings of Class A, B, C, D, and E airspace areas; air traffic service routes; and reporting points will be published in full text as final rules in the Federal Register. Periodically, the final rule amendments will be integrated into a revised edition of the Order and submitted to the Director of the Federal Register for approval for incorporation by reference in this section. Copies of FAA Order 7400.11A may be obtained from Airspace Policy Group, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591, (202) 267-8783. An electronic version of the Order is available on the FAA Web site at http://www.faa.gov/air_traffic/publications. Copies of FAA Order 7400.11A may be inspected in Docket No. FAA-2016-XXXX; Amendment No. 71-48 on <http://www.regulations.gov>. A copy of FAA Order 7400.11A may be inspected at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

[Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.1 was revised, effective Sept. 15, 2016 through Sept. 15, 2017.

§ 71.3 [Reserved]**§ 71.5 Reporting points.**

The reporting points listed in subpart H of FAA Order 7400.11A (incorporated by reference, see § 71.1) consist of geographic locations at which the position of an aircraft must be reported in accordance with part 91 of this chapter.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55268, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.5 was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

§ 71.7 Bearings, radials, and mileages.

All bearings and radials in this part are true and are applied from point of origin and all mileages in this part are stated as nautical miles.

§ 71.9 Overlapping airspace designations.

(a) When overlapping airspace designations apply to the same airspace, the operating rules associated with the more restrictive airspace designation apply.

(b) For the purpose of this section -

- (1) Class A airspace is more restrictive than Class B, Class C, Class D, Class E, or Class G airspace;
- (2) Class B airspace is more restrictive than Class C, Class D, Class E, or Class G airspace;
- (3) Class C airspace is more restrictive than Class D, Class E, or Class G airspace;
- (4) Class D airspace is more restrictive than Class E or Class G airspace; and
- (5) Class E is more restrictive than Class G airspace.

§ 71.11 Air Traffic Service (ATS) routes.

Unless otherwise specified, the following apply:

(a) An Air Traffic Service (ATS) route is based on a centerline that extends from one navigation aid, fix, or intersection, to another navigation aid, fix, or intersection (or through several navigation aids, fixes, or intersections) specified for that route.

(b) An ATS route does not include the airspace of a prohibited area.

[Doc. No. FAA-2003-14698, 68 FR 16947, Apr. 8, 2003, as amended by Amdt. 71-33, 70 FR 23004, May 3, 2005]

§ 71.13 Classification of Air Traffic Service (ATS) routes.

Unless otherwise specified, ATS routes are classified as follows:

- (a) In subpart A of this part:
 - (1) Jet routes.
 - (2) Area navigation (RNAV) routes.
- (b) In subpart E of this part:
 - (1) VOR Federal airways.
 - (2) Colored Federal airways.
 - (i) Green Federal airways.
 - (ii) Amber Federal airways.
 - (iii) Red Federal airways.
 - (iv) Blue Federal airways.
 - (3) Area navigation (RNAV) routes.

[Doc. No. FAA-2003-14698, 68 FR 16947, Apr. 8, 2003]

§ 71.15 Designation of jet routes and VOR Federal airways.

Unless otherwise specified, the place names appearing in the descriptions of airspace areas designated as jet routes in subpart A of FAA Order 7400.11A, and as VOR Federal airways in subpart E of FAA Order 7400.11A, are the names of VOR or VORTAC navigation aids. FAA Order 7400.11A is incorporated by reference in § 71.1.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55268, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.15 was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

Subpart A - Class A Airspace

§ 71.31 Class A airspace.

The airspace descriptions contained in § 71.33 and the routes contained in subpart A of FAA Order 7400.11A (incorporated by reference, see § 71.1) are designated as Class A airspace within which all pilots and aircraft are subject to the rating requirements, operating rules, and equipment requirements of part 91 of this chapter.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55268, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.31 was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

§ 71.33 Class A airspace areas.

(a) That airspace of the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States, from 18,000 feet MSL to and including FL600 excluding the states of Alaska and Hawaii.

(b) That airspace of the State of Alaska, including that airspace overlying the waters within 12 nautical miles of

the coast, from 18,000 feet MSL to and including FL600 but not including the airspace less than 1,500 feet above the surface of the earth and the Alaska Peninsula west of longitude 160°00#00# West.

(c) The airspace areas listed as offshore airspace areas in subpart A of FAA Order 7400.11A (incorporated by reference, see § 71.1) that are designated in international airspace within areas of domestic radio navigational signal or ATC radar coverage, and within which domestic ATC procedures are applied.

[Amdt. 71-14, 56 FR 65654, Dec. 17, 1991]

Editorial Note:

For Federal Register citations affecting § 71.33, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.33(c) was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

Subpart B - Class B Airspace

§ 71.41 Class B airspace.

The Class B airspace areas listed in subpart B of FAA Order 7400.11A (incorporated by reference, see § 71.1) consist of specified airspace within which all aircraft operators are subject to the minimum pilot qualification requirements, operating rules, and aircraft equipment requirements of part 91 of this chapter. Each Class B airspace area designated for an airport in subpart B of FAA Order 7400.11A (incorporated by reference, see § 71.1) contains at least one primary airport around which the airspace is designated.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55268, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.41 was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

Subpart C - Class C Airspace

§ 71.51 Class C airspace.

The Class C airspace areas listed in subpart C of FAA Order 7400.11A (incorporated by reference, see § 71.1) consist of specified airspace within which all aircraft operators are subject to operating rules and equipment requirements specified in part 91 of this chapter. Each Class C airspace area designated for an airport in subpart C of FAA Order 7400.11A (incorporated by reference, see § 71.1) contains at least one primary airport around which the airspace is designated.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55269, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.51 was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

Subpart D - Class D Airspace

§ 71.61 Class D airspace.

The Class D airspace areas listed in subpart D of FAA Order 7400.11A (incorporated by reference, see § 71.1) consist of specified airspace within which all aircraft operators are subject to operating rules and equipment requirements specified in part 91 of this chapter. Each Class D airspace area designated for an airport in subpart D of FAA Order 7400.11A (incorporated by reference, see § 71.1) contains at least one primary airport around which the airspace is designated.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55269, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.61 was amended by removing the words "FAA Order 7400.9Z" and adding, in their place, the words "FAA Order 7400.11A.", effective Sept. 15, 2016 through Sept. 15, 2017.

Subpart E - Class E Airspace

§ 71.71 Class E airspace.

Class E Airspace consists of:

(a) The airspace of the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous states and Alaska, extending upward from 14,500 feet MSL up to, but not including 18,000 feet MSL, and the airspace above FL600, excluding -

(1) The Alaska peninsula west of longitude 160°00#00# W.; and

(2) The airspace below 1,500 feet above the surface of the earth.

(b) The airspace areas designated for an airport in subpart E of FAA Order 7400.11A (incorporated by reference, see § 71.1) within which all aircraft operators are subject to the operating rules specified in part 91 of this chapter.

(c) The airspace areas listed as domestic airspace areas in subpart E of FAA Order 7400.11A (incorporated by reference, see § 71.1) which extend upward from 700 feet or more above the surface of the earth when designated in conjunction with an airport for which an approved instrument approach procedure has been prescribed, or from 1,200 feet or more above the surface of the earth for the purpose of transitioning to or from the terminal or en route environment. When such areas are designated in conjunction with airways or routes, the extent of such designation has the lateral extent identical to that of a Federal airway and extends upward from 1,200 feet or higher. Unless otherwise specified, the airspace areas in the paragraph extend upward from 1,200 feet or higher above the surface to, but not including, 14,500 feet MSL.

(d) The Federal airways described in subpart E of FAA Order 7400.11A (incorporated by reference, see § 71.1).

(e) The airspace areas listed as en route domestic airspace areas in subpart E of FAA Order 7400.11A (incorporated by reference, see § 71.1). Unless otherwise specified, each airspace area has a lateral extent identical to that of a Federal airway and extends upward from 1,200 feet above the surface of the earth to the overlying or adjacent controlled airspace.

(f) The airspace areas listed as offshore airspace areas in subpart E of FAA Order 7400.11A (incorporated by reference, see § 71.1) that are designated in international airspace within areas of domestic radio navigational signal or ATC radar coverage, and within which domestic ATC procedures are applied. Unless otherwise specified, each airspace area extends upward from a specified altitude up to, but not including, 18,000 feet MSL.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55269, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR

51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, paragraphs (b), (c), (d), (e), and (f) of § 71.71 were amended by removing the words “FAA Order 7400.9Z” and adding, in their place, the words “FAA Order 7400.11A.”, effective Sept. 15, 2016 through Sept. 15, 2017.

Subparts F-G [Reserved]**Subpart H - Reporting Points****§ 71.901 Applicability.**

Unless otherwise designated:

(a) Each reporting point listed in subpart H of FAA Order 7400.11A (incorporated by reference, see § 71.1) applies to all directions of flight. In any case where a geographic location is designated as a reporting point for less than all airways passing through that point, or for a particular direction of flight along an airway only, it is so indicated by including the airways or direction of flight in the designation of geographical location.

(b) Place names appearing in the reporting point descriptions indicate VOR or VORTAC facilities identified by those names.

[Doc. No. 29334, 73 FR 54495, Sept. 22, 2008, as amended by Amdt. 71-40, 73 FR 60940, Oct. 15, 2008; Amdt. 71-41, 74 FR 46490, Sept. 10, 2009; Amdt. 71-42, 75 FR 55269, Sept. 10, 2010; Amdt. 71-43, 76 FR 53329, Aug. 26, 2011; Amdt. 71-44, 77 FR 50908, Aug. 23, 2012; Amdt. 71-45, 78 FR 52848, Aug. 27, 2013; Amdt. 71-46, 79 FR 51888, Sept. 2, 2014; Amdt. 71-47, 80 FR 51937, Aug. 27, 2015; Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016]

Effective Date Note:

By Docket FAA-2016-8926, Amdt. 71-48, 81 FR 55372, Aug. 19, 2016, § 71.901 was amended by removing the words “FAA Order 7400.9Z” and adding, in their place, the words “FAA Order 7400.11A.”, effective Sept. 15, 2016 through Sept. 15, 2017.

PART 73 - SPECIAL USE AIRSPACE**Authority:**

49 U.S.C. 106(f), 106(g), 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959-1963 Comp., p. 389.

Source:

46 FR 779, Jan. 2, 1981, unless otherwise noted.

Subpart A - General**§ 73.1 Applicability.**

The airspace that is described in subpart B and subpart C of this part is designated as special use airspace. These parts prescribe the requirements for the use of that airspace.

§ 73.3 Special use airspace.

(a) Special use airspace consists of airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activities, or both.

(b) The vertical limits of special use airspace are measured by designated altitude floors and ceilings expressed as flight levels or as feet above mean sea level. Unless otherwise specified, the word “to” (an altitude or flight level) means “to and including” (that altitude or flight level).

(c) The horizontal limits of special use airspace are measured by boundaries described by geographic coordinates or other appropriate references that clearly define their perimeter.

(d) The period of time during which a designation of special use airspace is in effect is stated in the designation.

§ 73.5 Bearings; radials; miles.

(a) All bearings and radials in this part are true from point of origin.

(b) Unless otherwise specified, all mileages in this part are stated as statute miles.

Subpart B - Restricted Areas**§ 73.11 Applicability.**

This subpart designates restricted areas and prescribes limitations on the operation of aircraft within them.

§ 73.13 Restrictions.

No person may operate an aircraft within a restricted area between the designated altitudes and during the time of designation, unless he has the advance permission of

(a) The using agency described in § 73.15; or

(b) The controlling agency described in § 73.17.

§ 73.15 Using agency.

(a) For the purposes of this subpart, the following are using agencies;

(1) The agency, organization, or military command whose activity within a restricted area necessitated the area being so designated.

(b) Upon the request of the FAA, the using agency shall execute a letter establishing procedures for joint use of a restricted area by the using agency and the controlling agency,

under which the using agency would notify the controlling agency whenever the controlling agency may grant permission for transit through the restricted area in accordance with the terms of the letter.

(c) The using agency shall -

(1) Schedule activities within the restricted area;

(2) Authorize transit through, or flight within, the restricted area as feasible; and

(3) Contain within the restricted area all activities conducted therein in accordance with the purpose for which it was designated.

§ 73.17 Controlling agency.

For the purposes of this part, the controlling agency is the FAA facility that may authorize transit through or flight within a restricted area in accordance with a joint-use letter issued under § 73.15.

§ 73.19 Reports by using agency.

(a) Each using agency shall prepare a report on the use of each restricted area assigned thereto during any part of the preceding 12-month period ended September 30, and transmit it by the following January 31 of each year to the Manager, Air Traffic Division in the regional office of the Federal Aviation Administration having jurisdiction over the area in which the restricted area is located, with a copy to the Program Director for Air Traffic Airspace Management, Federal Aviation Administration, Washington, DC 20591.

(b) In the report under this section the using agency shall:

(1) State the name and number of the restricted area as published in this part, and the period covered by the report.

(2) State the activities (including average daily number of operations if appropriate) conducted in the area, and any other pertinent information concerning current and future electronic monitoring devices.

(3) State the number of hours daily, the days of the week, and the number of weeks during the year that the area was used.

(4) For restricted areas having a joint-use designation, also state the number of hours daily, the days of the week, and the number of weeks during the year that the restricted area was released to the controlling agency for public use.

(5) State the mean sea level altitudes or flight levels (whichever is appropriate) used in aircraft operations and the maximum and average ordinate of surface firing (expressed in feet, mean sea level altitude) used on a daily, weekly, and yearly basis.

(6) Include a chart of the area (of optional scale and design) depicting, if used, aircraft operating areas, flight patterns, ordnance delivery areas, surface firing points, and target, fan, and impact areas. After once submitting an appropriate chart, subsequent annual charts are not required unless there is a change in the area, activity or altitude (or flight levels) used, which might alter the depiction of the activities originally reported. If no change is to be submitted, a statement indicating "no change" shall be included in the report.

(7) Include any other information not otherwise required under this part which is considered pertinent to activities carried on in the restricted area.

(c) If it is determined that the information submitted under paragraph (b) of this section is not sufficient to evaluate the nature and extent of the use of a restricted area, the FAA may request the using agency to submit supplementary reports. Within 60 days after receiving a request for additional information, the using agency shall submit such information as the Program Director for Air Traffic Airspace Management considers appropriate. Supplementary reports must be sent to the FAA officials designated in paragraph (a) of this section.

(Secs. 307 and 313(a), Federal Aviation Act of 1958 (49 U.S.C. 1348 and 1354(a)))

[Doc. No. 15379, 42 FR 54798, Oct. 11, 1977, as amended by Amdt. 73-5, 54 FR 39292, Sept. 25, 1989; Amdt. 73-6, 58 FR 42001, Aug. 6, 1993; Amdt. 73-8, 61 FR 26435, May 28, 1996; Amdt. 73-8, 63 FR 16890, Apr. 7, 1998]

Editorial Note:

The restricted areas formerly carried as §§ 608.21 to 608.72 of this title were transferred to part 73 as §§ 73.21 to 73.72 under subpart B but are not carried in the Code of Federal Regulations. For Federal Register citations affecting these restricted areas, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

Subpart C - Prohibited Areas

§ 73.81 Applicability.

This subpart designates prohibited areas and prescribes limitations on the operation of aircraft therein.

§ 73.83 Restrictions.

No person may operate an aircraft within a prohibited area unless authorization has been granted by the using agency.

§ 73.85 Using agency.

For the purpose of this subpart, the using agency is the agency, organization or military command that established the requirements for the prohibited area.

Editorial Note:

Sections 73.87 through 73.99 are reserved for descriptions of designated prohibited areas. For Federal Register citations affecting these prohibited areas, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

SUBCHAPTER F - AIR TRAFFIC AND GENERAL OPERATING RULES

PART 91 - GENERAL OPERATING AND FLIGHT RULES

Authority:

49 U.S.C. 106(f), 106(g), 1155, 40101, 40103, 40105, 40113, 40120, 44101, 44111, 44701, 44704, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506-46507, 47122, 47508, 47528-47531, 47534, Pub. L. 114-190, 130 Stat. 615 (49 U.S.C. 44703 note); articles 12 and 29 of the Convention on International Civil Aviation (61 Stat. 1180), (126 Stat. 11).

Special Federal Aviation Regulation No. 50-2 - Special Flight Rules in the Vicinity of the Grand Canyon National Park, AZ

Section 1. Applicability. This rule prescribes special operating rules for all persons operating aircraft in the following airspace, designated as the Grand Canyon National Park Special Flight Rules Area:

That airspace extending upward from the surface up to but not including 14,500 feet MSL within an area bounded by a line beginning at lat. 36°09#30# N., long. 114°03#00# W.; northeast to lat. 36°14#00# N., long. 113°09#50# W.; thence northeast along the boundary of the Grand Canyon National Park to lat. 36°24#47# N., long. 112°52#00# W.; to lat. 36°30#30# N., long. 112°36#15# W. to lat. 36°21#30# N., long. 112°00#00# W. to lat. 36°35#30# N., long. 111°53#10# W., to lat. 36°53#00# N., long. 111°36#45# W. to lat. 36°53#00# N., long. 111°33#00# W.; to lat. 36°19#00# N., long. 111°50#50# W.; to lat. 36°17#00# N., long. 111°42#00# W.; to lat. 35°59#30# N., long. 111°42#00# W.; to lat. 35°57#30# N., long. 112°03#55# W.; thence counterclockwise via the 5 statute mile radius of the Grand Canyon Airport airport reference point (lat. 35°57#09# N., long. 112°08#47# W.) to lat. 35°57#30# N., long. 112°14#00# W.; to lat. 35°57#30# N., long. 113°11#00# W.; to lat. 35°42#30# N., long. 113°11#00# W.; to 35°38#30# N.; long. 113°27#30# W.; thence counterclockwise via the 5 statute mile radius of the Peach Springs VORTAC to lat. 35°41#20# N., long. 113°36#00# W.; to lat. 35°55#25# N., long. 113°49#10# W.; to lat. 35°57#45# N., 113°45#20# W.; thence northwest along the park boundary to lat. 36°02#20# N., long. 113°50#15# W.; to 36°00#10# N., long. 113°53#45# W.; thence to the point of beginning.

Section 3. Aircraft operations: general. Except in an emergency, no person may operate an aircraft in the Special Flight Rules, Area under VFR on or after September 22, 1988,

or under IFR on or after April 6, 1989, unless the operation -
(a) Is conducted in accordance with the following procedures:

Note:

The following procedures do not relieve the pilot from see-and-avoid responsibility or compliance with FAR 91.119.

(1) Unless necessary to maintain a safe distance from other aircraft or terrain -

(i) Remain clear of the areas described in Section 4; and

(ii) Remain at or above the following altitudes in each sector of the canyon:

Eastern section from Lees Ferry to North Canyon and North Canyon to Boundary Ridge: as prescribed in Section 5.

Boundary Ridge to Supai Point (Yumtheska Point): 10,000 feet MSL.

Western section from Diamond Creek to the Grant Wash Cliffs: 8,000 feet MSL.

(2) Proceed through the four flight corridors describe in Section 4 at the following altitudes unless otherwise authorized in writing by the Flight Standards District Office:

Northbound

11,500 or

13,500 feet MSL

Southbound

>10,500 or

>12,500 feet MSL

(b) Is authorized in writing by the Flight Standards District Office and is conducted in compliance with the conditions contained in that authorization. Normally authorization will be granted for operation in the areas described in Section 4 or below the altitudes listed in Section 5 only for operations of aircraft necessary for law enforcement, firefighting, emergency medical treatment/evacuation of persons in the vicinity of the Park; for support of Park maintenance or activities; or for aerial access to and maintenance of other property located within the Special Flight Rules Area. Authorization may be issued on a continuing basis.

(c)(1) Prior to November 1, 1988, is conducted in accordance with a specific authorization to operate in that airspace incorporated in the operator's part 135 operations specifications in accordance with the provisions of SFAR 50-1, notwithstanding the provisions of Sections 4 and 5; and

(2) On or after November 1, 1988, is conducted in accordance with a specific authorization to operate in that airspace incorporated in the operated in the operator's operations specifications and approved by the Flight Standards District Office in accordance with the provisions of SFAR 50-2.

(d) Is a search and rescue mission directed by the U.S. Air Force Rescue Coordination Center.

(e) Is conducted within 3 nautical miles of Whitmore Airstrip, Pearce Ferry Airstrip, North Rim Airstrip, Cliff Dwellers Airstrip, or Marble Canyon Airstrip at an altitudes

less than 3,000 feet above airport elevation, for the purpose of landing at or taking off from that facility. Or

(f) Is conducted under an IFR clearance and the pilot is acting in accordance with ATC instructions. An IFR flight plan may not be filed on a route or at an altitude that would require operation in an area described in Section 4.

Section 4. Flight-free zones. Except in an emergency or if otherwise necessary for safety of flight, or unless otherwise authorized by the Flight Standards District Office for a purpose listed in Section 3(b), no person may operate an aircraft in the Special Flight Rules Area within the following areas:

(a) Desert View Flight-Free Zone. Within an area bounded by a line beginning at Lat. 35°59#30# N., Long. 111°46#20# W. to 35°59#30# N., Long. 111°52#45# W.; to Lat. 36°04#50# N., Long. 111°52#00# W.; to Lat. 36°06#00# N., Long. 111°46#20# W.; to the point of origin; but not including the airspace at and above 10,500 feet MSL within 1 mile of the western boundary of the zone. The area between the Desert View and Bright Angel Flight-Free Zones is designated the “Zuni Point Corridor.”

(b) Bright Angel Flight-Free Zone. Within an area bounded by a line beginning at Lat. 35°59#30# N., Long. 111°55#30# W.; to Lat. 35°59#30# N., Long. 112°04#00# W.; thence counterclockwise via the 5 statute mile radius of the Grand Canyon Airport point (Lat. 35°57#09# N., Long. 112°08#47# W.) to Lat. 36°01#30# N., Long. 112°11#00# W.; to Lat. 36°06#15# N., Long. 112°12#50# W.; to Lat. 36°14#40# N., Long. 112°08#50# W.; to Lat. 36°14#40# N., Long. 111°57#30# W.; to Lat. 36°12#30# N., Long. 111°53#50# W.; to the point of origin; but not including the airspace at and above 10,500 feet MSL within 1 mile of the eastern boundary between the southern boundary and Lat. 36°04#50# N. or the airspace at and above 10,500 feet MSL within 2 miles of the northwest boundary. The area bounded by the Bright Angel and Shinumo Flight-Free Zones is designated the “Dragon Corridor.”

(c) Shinumo Flight-Free Zone. Within an area bounded by a line beginning at Lat. 36°04#00# N., Long. 112°16#40# W.; northwest along the park boundary to a point at Lat. 36°12#47# N., Long. 112°30#53# W.; to Lat. 36°21#15# N., Long. 112°20#20# W.; east along the park boundary to Lat. 36°21#15# N., Long. 112°13#55# W.; to Lat. 36°14#40# N., Long. 112°11#25# W.; to the point of origin. The area between the Thunder River/Toroweap and Shinumo Flight Free Zones is designated the “Fossil Canyon Corridor.”

(d) Toroweap/Thunder River Flight-Free Zone. Within an area bounded by a line beginning at Lat. 36°22#45# N., Long. 112°20#35# W.; thence northwest along the boundary of the Grand Canyon National Park to Lat. 36°17#48# N., Long. 113°03#15# W.; to Lat. 36°15#00# N., Long. 113°07#10# W.; to Lat. 36°10#30# N., Long. 113°07#10# W.; thence east along the Colorado River to the confluence of Havasu Canyon (Lat. 36°18#40# N., Long. 112°45#45# W.;) including that area within a 1.5 nautical mile radius of Toroweap Overlook (Lat. 36°12#45# N., Long. 113°03#30# W.); to the point of

origin; but not including the following airspace designated as the “Tuckup Corridor”: at or above 10,500 feet MSL within 2 nautical miles either side of a line extending between Lat. 36°24#47# N., Long. 112°48#50# W. and Lat. 36°17#10# N., Long. 112°48#50# W.; to the point of origin.

Section 5. Minimum flight altitudes. Except in an emergency or if otherwise necessary for safety of flight, or unless otherwise authorized by the Flight Standards District Office for a purpose listed in Section 3(b), no person may operate an aircraft in the Special Flight Rules Area at an altitude lower than the following:

(a) Eastern section from Lees Ferry to North Canyon: 5,000 feet MSL.

(b) Eastern section from North Canyon to Boundary Ridge: 6,000 feet MSL.

(c) Boundary Ridge to Supai (Yumtheska) Point: 7,500 feet MSL.

(d) Supai Point to Diamond Creek: 6,500 feet MSL.

(e) Western section from Diamond Creek to the Grand Wash Cliffs: 5,000 feet MSL.

Section 9. Termination date. Section 1. Applicability, Section 4, Flight-free zones, and Section 5. Minimum flight altitudes, expire on April 19, 2001.

Note:

[Removed]

[66 FR 1003, Jan. 4, 2001, as amended at 66 FR 16584, Mar. 26, 2001; 72 FR 9846, Mar. 6, 2007]

Special Federal Aviation Regulation No. 60 - Air Traffic Control System Emergency Operation

1. Each person shall, before conducting any operation under the Federal Aviation Regulations (14 CFR chapter I), be familiar with all available information concerning that operation, including Notices to Airmen issued under § 91.139 and, when activated, the provisions of the National Air Traffic Reduced Complement Operations Plan available for inspection at operating air traffic facilities and Regional air traffic division offices, and the General Aviation Reservation Program. No operator may change the designated airport of intended operation for any flight contained in the October 1, 1990, OAG.

2. Notwithstanding any provision of the Federal Aviation Regulations to the contrary, no person may operate an aircraft in the Air Traffic Control System:

a. Contrary to any restriction, prohibition, procedure or other action taken by the Director of the Office of Air Traffic Systems Management (Director) pursuant to paragraph 3 of this regulation and announced in a Notice to Airmen pursuant to § 91.139 of the Federal Aviation Regulations.

b. When the National Air Traffic Reduced Complement Operations Plan is activated pursuant to paragraph 4 of this regulation, except in accordance with the pertinent provisions

of the National Air Traffic Reduced Complement Operations Plan.

3. Prior to or in connection with the implementation of the RCOP, and as conditions warrant, the Director is authorized to:

a. Restrict, prohibit, or permit VFR and/or IFR operations at any airport, Class B airspace area, Class C airspace area, or other class of controlled airspace.

b. Give priority at any airport to flights that are of military necessity, or are medical emergency flights, Presidential flights, and flights transporting critical Government employees.

c. Implement, at any airport, traffic management procedures, that may include reduction of flight operations. Reduction of flight operations will be accomplished, to the extent practical, on a pro rata basis among and between air carrier, commercial operator, and general aviation operations. Flights cancelled under this SFAR at a high density traffic airport will be considered to have been operated for purposes of part 93 of the Federal Aviation Regulations.

4. The Director may activate the National Air Traffic Reduced Complement Operations Plan at any time he finds that it is necessary for the safety and efficiency of the National Airspace System. Upon activation of the RCOP and notwithstanding any provision of the FAR to the contrary, the Director is authorized to suspend or modify any airspace designation.

5. Notice of restrictions, prohibitions, procedures and other actions taken by the Director under this regulation with respect to the operation of the Air Traffic Control system will be announced in Notices to Airmen issued pursuant to § 91.139 of the Federal Aviation Regulations.

6. The Director may delegate his authority under this regulation to the extent he considers necessary for the safe and efficient operation of the National Air Traffic Control System.

(Authority: 49 U.S.C. app. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514, 35 FR 4247, 3 CFR, 1966-1970 Comp., p. 902; 49 U.S.C. 106(g))

[Doc. No. 26351, 55 FR 40760, Oct. 4, 1990, as amended by Amdt. 91-227, 56 FR 65652, Dec. 17, 1991]

Special Federal Aviation Regulation No. 79 - Prohibition Against Certain Flights Within the Flight Information Region (FIR) of the Democratic People's Republic of Korea (DPRK)

1. *Applicability.* This rule applies to the following persons:

(a) All U.S. air carriers or commercial operators.

(b) All persons exercising the privileges of an airman certificate issued by the FAA, except such persons operating U.S.-registered aircraft for a foreign air carrier.

(c) All operators of aircraft registered in the United States except where the operator of such aircraft is a foreign air carrier.

2. *Flight Prohibition.* Except as provided in paragraphs 3 and 4 of this SFAR, no person described in paragraph 1 may conduct flight operations through the Pyongyang FIR west of 132 degrees east longitude.

3. *Permitted Operations.* This SFAR does not prohibit persons described in paragraph 1 from conducting flight operations within the Pyongyang FIR west of 132 degrees east longitude where such operations are authorized either by exemption issued by the Administrator or by another agency of the United States Government with FAA approval.

4. *Emergency situations.* In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command on an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR parts 121, 125, or 135, each person who deviates from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons therefore.

5. *Expiration.* This Special Federal Aviation Regulation No. 79 will remain in effect until further notice.

[Doc. No. 28831, 62 FR 20078, Apr. 24, 1997, as amended at 63 FR 8017, Feb. 17, 1998; 63 FR 19286, Apr. 17, 1998]

Special Federal Aviation Regulation No. 97 - Special Operating Rules for the Conduct of Instrument Flight Rules (IFR) Area Navigation (RNAV) Operations using Global Positioning Systems (GPS) in Alaska

Those persons identified in Section 1 may conduct IFR en route RNAV operations in the State of Alaska and its airspace on published air traffic routes using TSO C145a/C146a navigation systems as the only means of IFR navigation. Despite contrary provisions of parts 71, 91, 95, 121, 125, and 135 of this chapter, a person may operate aircraft in accordance with this SFAR if the following requirements are met.

Section 1. Purpose, use, and limitations

a. This SFAR permits TSO C145a/C146a GPS (RNAV) systems to be used for IFR en route operations in the United States airspace over and near Alaska (as set forth in paragraph c of this section) at Special Minimum En Route Altitudes (MEA) that are outside the operational service volume of ground-based navigation aids, if the aircraft operation also meets the requirements of sections 3 and 4 of this SFAR.

b. Certificate holders and part 91 operators may operate aircraft under this SFAR provided that they comply with the requirements of this SFAR.

c. Operations conducted under this SFAR are limited to United States Airspace within and near the State of Alaska as defined in the following area description:

From 62°00#00.000# N, Long. 141°00#00.00# W.; to Lat. 59°47#54.11# N., Long. 135°28#38.34# W.; to Lat. 56°00#04.11# N., Long. 130°00#07.80# W.; to Lat. 54°43#00.00# N., Long. 130°37#00.00# W.; to Lat. 51°24#00.00# N., Long. 167°49#00.00# W.; to Lat. 50°08#00.00# N., Long. 176°34#00.00# W.; to Lat. 45°42#00.00# N., Long. #162°55#00.00# E.; to Lat. 50°05#00.00# N., Long. #159°00#00.00# E.; to Lat. 54°00#00.00# N., Long. #169°00#00.00# E.; to Lat. 60°00 00.00# N., Long. #180°00# 00.00# E; to Lat. 65°00#00.00# N., Long. 168°58#23.00# W.; to Lat. 90°00#00.00# N., Long. 00°00#0.00# W.; to Lat. 62°00#00.000# N, Long. 141°00#00.00# W.

(d) No person may operate an aircraft under IFR during the en route portion of flight below the standard MEA or at the special MEA unless the operation is conducted in accordance with sections 3 and 4 of this SFAR.

Section 2. Definitions and abbreviations

For the purposes of this SFAR, the following definitions and abbreviations apply.

Area navigation (RNAV). RNAV is a method of navigation that permits aircraft operations on any desired flight path.

Area navigation (RNAV) route. RNAV route is a published route based on RNAV that can be used by suitably equipped aircraft.

Certificate holder. A certificate holder means a person holding a certificate issued under part 119 or part 125 of this chapter or holding operations specifications issued under part 129 of this chapter.

Global Navigation Satellite System (GNSS). GNSS is a world-wide position and time determination system that uses satellite ranging signals to determine user location. It encompasses all satellite ranging technologies, including GPS and additional satellites. Components of the GNSS include GPS, the Global Orbiting Navigation Satellite System, and WAAS satellites.

Global Positioning System (GPS). GPS is a satellite-based radio navigational, positioning, and time transfer system. The system provides highly accurate position and velocity information and precise time on a continuous global basis to properly equipped users.

Minimum crossing altitude (MCA). The minimum crossing altitude (MCA) applies to the operation of an aircraft proceeding to a higher minimum en route altitude when crossing specified fixes.

Required navigation system. Required navigation system means navigation equipment that meets the performance requirements of TSO C145a/C146a navigation systems certified for IFR en route operations.

Route segment. Route segment is a portion of a route bounded on each end by a fix or NAVAID.

Special MEA. Special MEA refers to the minimum en route altitudes, using required navigation systems, on published routes outside the operational service volume of ground-based navigation aids and are depicted on the published Low Altitude and High Altitude En Route Charts using the color blue and with the suffix "G." For example, a GPS MEA of 4000 feet MSL would be depicted using the color blue, as 4000G.

Standard MEA. Standard MEA refers to the minimum en route IFR altitude on published routes that uses ground-based navigation aids and are depicted on the published Low Altitude and High Altitude En Route Charts using the color black.

Station referenced. Station referenced refers to radio navigational aids or fixes that are referenced by ground based navigation facilities such as VOR facilities.

Wide Area Augmentation System (WAAS). WAAS is an augmentation to GPS that calculates GPS integrity and correction data on the ground and uses geo-stationary satellites to broadcast GPS integrity and correction data to GPS/WAAS users and to provide ranging signals. It is a safety critical system consisting of a ground network of reference and integrity monitor data processing sites to assess current GPS performance, as well as a space segment that broadcasts that assessment to GNSS users to support en route through precision approach navigation. Users of the system include all aircraft applying the WAAS data and ranging signal.

Section 3. Operational Requirements

To operate an aircraft under this SFAR, the following requirements must be met:

a. Training and qualification for operations and maintenance personnel on required navigation equipment used under this SFAR.

b. Use authorized procedures for normal, abnormal, and emergency situations unique to these operations, including degraded navigation capabilities, and satellite system outages.

c. For certificate holders, training of flight crewmembers and other personnel authorized to exercise operational control on the use of those procedures specified in paragraph b of this section.

d. Part 129 operators must have approval from the State of the operator to conduct operations in accordance with this SFAR.

e. In order to operate under this SFAR, a certificate holder must be authorized in operations specifications.

Section 4. Equipment Requirements

a. The certificate holder must have properly installed, certificated, and functional dual required navigation systems as defined in section 2 of this SFAR for the en route operations covered under this SFAR.

b. When the aircraft is being operated under part 91, the aircraft must be equipped with at least one properly installed, certificated, and functional required navigation system as defined in section 2 of this SFAR for the en route operations covered under this SFAR.

Section 5. Expiration date

This Special Federal Aviation Regulation will remain in effect until rescinded.

[Doc. No. FAA-2003-14305, 68 FR 14077, Mar. 21, 2003]

**Special Federal Aviation Regulation No. 104 -
Prohibition Against Certain Flights by Syrian
Air Carriers to the United States**

1. *Applicability.* This Special Federal Aviation Regulation (SFAR) No. 104 applies to any air carrier owned or controlled by Syria that is engaged in scheduled international air services.

2. *Special flight restrictions.* Except as provided in paragraphs 3 and 4 of this SFAR No. 104, no air carrier described in paragraph 1 may take off from or land in the territory of the United States.

3. *Permitted operations.* This SFAR does not prohibit overflights of the territory of the United States by any air carrier described in paragraph 1.

4. *Emergency situations.* In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft of any air carrier described in paragraph 1 may deviate from this SFAR to the extent required by that emergency. Each person who deviates from this rule must, within 10 days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations or the aircraft involved in the deviation, including a description of the deviation and the reasons therefor.

5. *Duration.* This SFAR No. 104 will remain in effect until further notice.

[Doc. No. FAA-2004-17763, 69 FR 31719, June 4, 2004]

**Special Federal Aviation Regulation No. 108 -
Mitsubishi MU-2B Series Special Training,
Experience, and Operating Requirements**

Link to an amendment published at 81 FR 61591, Sept. 7, 2016.

1. *Applicability.* After February 5, 2009, this Special Federal Aviation Regulation (SFAR) applies to all persons who operate the Mitsubishi MU-2B series airplane including those who act as pilot-in-command, act as second-in-command, or other persons who manipulate the controls while under the supervision of a pilot-in-command. This SFAR also applies to those persons who provide pilot training for the Mitsubishi MU-2B series airplane. The requirements in this SFAR are in addition to the requirements of 14 CFR parts 61, 91, and 135 of this chapter.

2. *Compliance and Eligibility.* (a) Except as provided in paragraph (b) of this section, no person may manipulate the controls, act as pilot-in-command, act as second-in-command, or provide pilot training for the Mitsubishi MU-2B series airplane unless that person meets the applicable requirements of this SFAR.

(b) A person, who does not meet the requirements of this SFAR, may manipulate the controls of the Mitsubishi MU-2B series airplane if a pilot-in-command meeting the applicable requirements of this SFAR is occupying a pilot station, and the flight is being conducted for one of the following reasons -

(1) The pilot-in-command is providing pilot training to the manipulator of the controls, and no passengers or cargo are carried on board the airplane;

(2) The pilot-in-command is conducting a maintenance test flight with a second pilot or certificated mechanic, and no passengers or cargo are carried on board the airplane; or

(3) The pilot-in-command is conducting a simulated instrument flight and is using a safety pilot other than the pilot-in-command who manipulates the controls for the purposes of 14 CFR 91.109, and no passengers or cargo are carried on board the airplane.

(c) A person is required to complete *Initial/transition training* if that person has fewer than -

(1) 50 hours of documented flight time manipulating the controls while serving as pilot-in-command of a Mitsubishi MU-2B series airplane in the preceding 24 months; or

(2) 500 hours of documented flight time manipulating the controls while serving as pilot-in-command of a Mitsubishi MU-2B series airplane.

(d) A person is eligible to receive *Requalification training* in lieu of Initial/transition training if that person has at least -

(1) 50 hours of documented flight time manipulating the controls while serving as pilot-in-command of a Mitsubishi MU-2B series airplane in the preceding 24 months; or

(2) 500 hours of documented flight time manipulating the controls while serving as pilot-in-command of a Mitsubishi MU-2B series airplane.

(e) A person is required to complete *Recurrent training* within the preceding 12 months. Successful completion of Initial/transition or Requalification training within the preceding 12 months satisfies the requirement of Recurrent training. A person must successfully complete Initial/transition training or Requalification training before being eligible to receive Recurrent training.

(f) Successful completion of Initial/transition training or Requalification training is a one-time requirement. A person may elect to retake Initial/transition training or Requalification training in lieu of Recurrent training.

(g) A person is required to complete *Differences training* if that person operates more than one MU-2B model. Differences training between the K and M models of the MU-2B airplane, and the J and L models of the MU-2B airplane, may be accomplished with Level A training. All other Differences training must be accomplished with Level B training. Persons that are operating two models of the MU-2B airplane are required to receive 1.5 hours of Differences training. Persons that are operating three or more models of the MU-2B airplane are required to receive 3.0 hours of Differences training. An additional 1.5 hours of Differences training is required for each model added at a later date. Differences Training is not

a recurring annual requirement. Once a person has received Differences training between the applicable different models, no additional Differences training between those models is required.

3. *Required Pilot Training.* (a) Except as provided in section 2 paragraph (b) of this SFAR, no person may manipulate the controls, act as pilot-in-command, or act as second-in-command of a Mitsubishi MU-2B series airplane for the purpose of flight unless -

(1) The applicable requirements for ground and flight training on Initial/transition, Requalification, Recurrent, and Differences training have been completed, as specified in this SFAR, including Appendices A through D of this SFAR; and

(2) That person's logbook has been endorsed in accordance with paragraph (f) of this section.

(b) No person may manipulate the controls, act as pilot-in-command, or act as second-in-command, of a Mitsubishi MU-2B series airplane for the purpose of flight unless -

(1) That person satisfactorily completes, if applicable, annual Recurrent pilot training on the *Special Emphasis Items*, and all items listed in the *Training Course Final Phase Check* as specified in Appendix C of this SFAR; and

(2) That person's logbook has been endorsed in accordance with paragraph (f) of this section.

(c) Satisfactory completion of the competency check required by 14 CFR 135.293 within the preceding 12 calendar months may not be substituted for the Mitsubishi MU-2B series airplane annual recurrent flight training of this section.

(d) Satisfactory completion of a Federal Aviation Administration sponsored pilot proficiency award program, as described in 14 CFR 61.56(e) may not be substituted for the Mitsubishi MU-2B series airplane annual recurrent flight training of this section.

(e) If a person complies with the requirements of paragraph (a) or (b) of this section in the calendar month before or the calendar month after the month in which compliance with these paragraphs are required, that person is considered to have accomplished the training requirement in the month the training is due.

(f) The endorsement required under paragraph (a) and (b) of this section must be made by -

(1) A certificated flight instructor meeting the qualifications of section 5 of this SFAR; or

(2) For persons operating the Mitsubishi MU-2B series airplane for a part 119 certificate holder within the last 12 calendar months, the 14 CFR part 119 certificate holder's flight instructor if authorized by the FAA and if that flight instructor meets the requirements of section 5 of this SFAR.

(g) All training conducted for the Mitsubishi MU-2B series airplane must be completed in accordance with the applicable MU-2B series checklist listed in table 1 of this SFAR or an MU-2B series airplane checklist that has been accepted by the Federal Aviation Administration's MU-2B Flight Standardization Board.

Table 1 to SFAR 108 - MU-2B Series Airplane Manufacturer's Checklists

| Model | Type certificate | Cockpit checklist | Date the checklist was accepted by the FSB |
|-----------|------------------|-------------------|--|
| | | MHI document No. | |
| MU-2B-60 | A10SW | YET06220C | 2/12/2007 |
| MU-2B-40 | A10SW | YET06256A | 2/12/2007 |
| MU-2B-36A | A10SW | YET06257B | 2/12/2007 |
| MU-2B-36 | A2PC | YET06252B | 2/12/2007 |
| MU-2B-35 | A2PC | YET06251B | 2/12/2007 |
| MU-2B-30 | A2PC | YET06250A | 3/2/2007 |
| MU-2B-26A | A10SW | YET06255A | 2/12/2007 |
| MU-2B-26 | A2PC | YET06249A | 3/2/2007 |
| MU-2B-26 | A10SW | YET06254A | 3/2/2007 |
| MU-2B-25 | A10SW | YET06253A | 3/2/2007 |
| MU-2B-25 | A2PC | YET06248A | 3/2/2007 |
| MU-2B-20 | A2PC | YET06247A | 2/12/2007 |
| MU-2B-15 | A2PC | YET06246A | 3/2/2007 |
| MU-2B-10 | A2PC | YET06245A | 3/2/2007 |
| MU-2B | A2PC | YET06244A | 3/2/2007 |

4. *Aeronautical Experience.* No person may act as pilot-in-command of a Mitsubishi MU-2B series airplane for the

purpose of flight unless that person holds an airplane category and multi-engine land class rating, and has logged a minimum

of 100 flight hours of pilot-in-command time in multi-engine airplanes.

5. *Instruction, Checking and Evaluation.* (a) *Flight Instructor (Airplane).* No flight instructor may provide instruction or conduct a flight review in a Mitsubishi MU-2B series airplane unless that flight instructor meets the requirements of this paragraph.

(1) Each flight instructor who provides flight training in the Mitsubishi MU-2B series airplane must meet the pilot training and documentation requirements of section 3 of this SFAR before giving flight instruction in the Mitsubishi MU-2B series airplane.

(2) Each flight instructor who provides flight training in the Mitsubishi MU-2B series airplane must meet the currency requirements of paragraphs (a) and (c) of section 6 of this SFAR before giving flight instruction in the Mitsubishi MU-2B series airplane.

(3) Each flight instructor who provides flight training in the Mitsubishi MU-2B series airplane must have a minimum total pilot time of 2,000 pilot-in-command hours, 800 pilot-in-command hours in multiengine airplanes.

(4) Each flight instructor who provides flight training in the Mitsubishi MU-2B series airplane must have -

(i) 300 pilot-in-command hours in the Mitsubishi MU-2B series airplane, 50 hours of which must have been within the preceding 12 months; or

(ii) 100 pilot-in-command hours in the Mitsubishi MU-2B series airplane, 25 hours of which must have been within the preceding 12 months, and 300 hours providing instruction in a FAA-approved Mitsubishi MU-2B simulator or FAA-approved Mitsubishi MU-2B flight training device, 25 hours of which must have been within the preceding 12 months.

(b) *Flight Instructor (Simulator/ Flight Training Device).* No flight instructor may provide instruction for the Mitsubishi MU-2B series airplane unless that instructor meets the requirements of this paragraph.

(1) Each flight instructor who provides flight training for the Mitsubishi MU-2B series airplane must meet the pilot training and documentation requirements of section 3 of this SFAR before giving flight instruction for the Mitsubishi MU-2B series airplane.

(2) Each flight instructor who provides flight training for the Mitsubishi MU-2B series airplane must meet the currency requirements of paragraph (c) of section 6 of this SFAR before giving flight instruction for the Mitsubishi MU-2B series airplane.

(3) Each flight instructor who provides flight training for the Mitsubishi MU-2B series airplane must have -

(i) A minimum total pilot time of 2000 pilot-in-command hours and 800 pilot-in-command hours in multiengine airplanes; and

(ii) Within the preceding 12 months, either 50 hours of Mitsubishi MU-2B series airplane pilot-in-command experience or 50 hours providing simulator or flight training device instruction for the Mitsubishi MU-2B.

(c) *Checking and Evaluation.* No person may provide checking or evaluation for the Mitsubishi MU-2B series airplane unless that person meets the requirements of this paragraph.

(1) For the purpose of checking, designated pilot examiners, training center evaluators, and check airmen must have completed the appropriate training in the Mitsubishi MU-2B series airplane in accordance with section 3 of this SFAR.

(2) For checking conducted in the Mitsubishi MU-2B series airplane, each designated pilot examiner and check airman must have 100 hours pilot-in-command flight time in the Mitsubishi MU-2B series airplane and maintain currency in accordance with section 6 of this SFAR.

6. *Currency Requirements and Flight Review.* (a) The takeoff and landing currency requirements of 14 CFR 61.57 must be maintained in the Mitsubishi MU-2B series airplane. Takeoff and landings in other multiengine airplanes do not meet the takeoff landing currency requirements for the Mitsubishi MU-2B series airplane. Takeoff and landings in either the short-body or long-body Mitsubishi MU-2B model airplane may be credited toward takeoff and landing currency for both Mitsubishi MU-2B model groups.

(b) Instrument experience obtained in other category and class of aircraft may be used to satisfy the instrument currency requirements of 14 CFR 61.57 for the Mitsubishi MU-2B series airplane.

(c) Satisfactory completion of a flight review to satisfy the requirements of 14 CFR 61.56 is valid for operation of a Mitsubishi MU-2B series airplane only if that flight review is conducted in a Mitsubishi MU-2B series airplane. The flight review for Mitsubishi MU-2B series airplanes must include the *Special Emphasis Items*, and all items listed in the *Training Course Final Phase Check* of Appendix C of this SFAR.

(d) A person who successfully completes the Initial/transition, Requalification, or Recurrent training requirements, as described in section 3 of this SFAR, also meets the requirements of 14 CFR 61.56 and need not accomplish a separate flight review provided that at least 1 hour of the flight training was conducted in the Mitsubishi MU-2B series airplane.

7. *Operating Requirements.* (a) Except as provided in paragraph (b) of this section, no person may operate a Mitsubishi MU-2B airplane in single pilot operations unless that airplane has a functional autopilot.

(b) A person may operate a Mitsubishi MU-2B airplane in single pilot operations without a functional autopilot when -

(1) Operating under day visual flight rule requirements; or
(2) Authorized under a FAA approved minimum equipment list for that airplane, operating under instrument flight rule requirements in daytime visual meteorological conditions.

(c) No person may operate a Mitsubishi MU-2B series airplane unless a copy of the appropriate Mitsubishi Heavy Industries MU-2B Airplane Flight Manual is carried on board

the airplane and is accessible during each flight at the pilot station.

(d) No person may operate a Mitsubishi MU-2B series airplane unless an MU-2B series airplane checklist, appropriate for the model being operated and accepted by the Federal Aviation Administration MU-2B Flight Standardization Board, is accessible for each flight at the pilot station and is used by the flight crewmembers when operating the airplane.

(e) No person may operate a Mitsubishi MU-2B series airplane contrary to the MU-2B training program in the Appendices of this SFAR.

(f) If there are any differences between the training and operating requirements of this SFAR and the MU-2B Airplane Flight Manual's procedures sections (Normal, Abnormal, and Emergency) and the MU-2B airplane series checklist specified in section 3(g), table 1, the person operating the airplane must operate the airplane in accordance with the training specified in section 3(g), table 1.

8. *Credit for Prior Training.* Initial/transition or requalification training conducted between July 27, 2006, and April 7, 2008, using Mitsubishi Heavy Industries MU-2B Training Program, Part number YET 05301, Revision Original, dated July 27, 2006, or Revision 1, dated September 19, 2006, is considered to be compliant with this SFAR, if the student met the eligibility requirements for the applicable category of training and the student's instructor met the experience requirements of this SFAR.

9. *Incorporation by Reference.* You must proceed in accordance with the Mitsubishi Heavy Industries MU-2B Checklists as listed in Table 1 of this SFAR which are incorporated by reference. The Director of the Federal Register approved this incorporation by reference in accordance with 5 U.S.C. section 552(a) and 1 CFR part 51. The Mitsubishi Heavy Industries MU-2B Checklists are distributed by Turbine Aircraft Services, Inc. You may obtain a copy from Turbine Aircraft Services Inc., 4550 Jimmy Doolittle Drive, Addison, Texas 75001, USA. You may

inspect a copy at U.S. Department of Transportation, Docket Management Facility, Room W 12-140, West Building Ground Floor, 1200 New Jersey Ave., SE., Washington, DC 20590-0001, or at the National Archives and Records Administration at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

10. *Expiration.* This SFAR will remain in effect until further notice.

Appendix A to SFAR 108 - MU-2B General Training Requirements

(a) The Mitsubishi MU-2B Training Program consists of both ground and flight training. The minimum pilot training requirement hours are shown in Table 1 of this appendix for ground instruction and Table 2 of this appendix for flight instruction. An additional ground training requirement for Differences Training is shown in Table 3.

(b) The MU-2B is certificated by the Federal Aviation Administration (FAA) as a single pilot airplane. No training credit is given for second in command (SIC) training and no credit is given for right seat time under this program. Only the sole manipulator of the controls of the MU-2B airplane, Flight Training Device (FTD), or Level C or D simulator can receive training credit under this program.

(c) The training program references the applicable MU-2B airplane flight manual (AFM) in several sections. There may be differences between sequencing of procedures found in the AFM's procedures sections and the checklists, procedures, and techniques found within this training program. The FAA's Mitsubishi MU-2B SFAR requires that if there are any differences between the AFM's procedures sections (Normal, Abnormal, and Emergency) and the training and operating requirements of the Mitsubishi MU-2B SFAR, the person operating the airplane must operate the airplane in accordance with the training specified in the SFAR and this MU-2B training program.

(d) Minimum Programmed Training Hours
Table 1 to Appendix A of SFAR 108

Ground instruction

| Initial/transition | Requalification | Recurrent |
|--------------------|-----------------|-----------|
| 20 hours | 12 hours | 8 hours. |

Table 2 to Appendix A of SFAR 108

Flight instruction

| Initial/transition | Requalification | Recurrent |
|---|----------------------------|--|
| 12 hours with a minimum of 6 hours at Level E | 8 hours Level C or Level E | 4 hours at Level E, or 6 hours at Level C. |

Table 3 to Appendix A of SFAR 108

Differences training

| | |
|--------------------|----------------------------|
| 2 models currently | 1.5 hours at Level A or B. |
|--------------------|----------------------------|

| | |
|------------------------------|----------------------------|
| More than 2 models currently | 3 hours at Level A or B. |
| Each additional model added | 1.5 hours at Level A or B. |

(e) Definitions of Levels of Training as Used in This Appendix

(1) LEVEL A Training - Training that is conducted through self instruction by the pilot.

(2) LEVEL B Training - Training that is conducted in the classroom environment with the aid of a qualified instructor who meets the requirements of this SFAR.

(3) LEVEL C Training - Training that is accomplished in an FAA-approved Level 5, 6, or 7 Flight Training Device (FTD). In addition to the basic FTD requirements, the FTD must be representative of the MU-2B cockpit controls and be specifically approved by the FAA for the MU-2B airplane.

(4) LEVEL E Training - Training that must be accomplished in the MU-2B airplane, Level C simulator, or Level D simulator.

Appendix B to SFAR 108 - MU-2B Ground Training Curriculum Contents

All items in the ground training curriculum must be covered. The order of presentation is at the discretion of the instructor. The student must satisfactorily complete a written or oral exam given by the training provider based on this MU-2B Training Program.

I. Aircraft General

A. Introduction

B. Airplane (Structures/Aerodynamics/Engines) Overview

1. Fuselage
2. Wing
3. Empennage
4. Doors
5. Windshield and Windows

C. Airplane Systems

1. Electrical Power
2. Lighting
3. Fuel System
4. Powerplant
5. Environmental
6. Fire Protection
7. Ice and Rain Protection
8. Landing Gear and Brakes
9. Flight Controls and Trim
10. Pilot Static System/Flight Instruments
11. Oxygen System

D. Operating Limitations

1. Weights
2. Center of Gravity and Loading
3. Airspeeds
4. Maneuvering Load Factors
5. Takeoff And Landing Operations
6. Enroute Operations

E. Required Placards

F. Instrument Markings

G. Flight Characteristics

1. Control System
2. Stability and Stall Characteristics
3. Single Engine Operation
4. Maneuvering and Trim
5. Takeoff and Landing

II. Electrical Power

A. General Description

B. DC Electrical System

1. DC Power Generation
2. DC Power Distribution
3. Battery System
4. External Power System

C. AC Electrical System

1. AC Power Generation
2. Controls and Indicators
3. AC Power Distribution

D. Limitations

1. General Limitations
2. Instrument Markings

III. Lighting

A. Exterior Lighting System

1. Navigation Lights
2. Anti-Collision Lights
3. Wing Inspection Lights
4. Taxi Lights
5. Landing Lights
6. Rotating Beacon
7. Operation

B. Interior Lighting System

1. Flight Compartment Lights
2. Passenger Compartment Lights

C. Emergency Lighting System

1. Cockpit Emergency Lighting
2. Aircraft Emergency Lighting

D. Procedures

1. Normal
2. Abnormal
3. Emergency

IV. Master Caution System

A. System Description and Operation

1. Master Caution Light and Reset Switch
2. Annunciator and Indicator Panels
3. Operation Lights
4. System Tests

B. Procedures

V. Fuel System

A. Fuel Storage

1. Refueling/Balancing
2. De-Fueling and Draining
3. Tank Vent System

- B. Fuel Distribution
 - 1. Fuel Transfer
 - 2. Fuel Balancing
 - 3. Boost Pump Operation
- C. Fuel Indicating
 - 1. Fuel Quantity
 - 2. Low Fuel Warning
- D. Fuel System Limitations
 - 1. Approved Fuels
 - 2. Fuel Anti-Icing Additives
 - 3. Fuel Temperature Limitations
 - 4. Fuel Transfer and Fuel Imbalance
 - 5. Fuel Pumps
 - 6. Refueling
 - 7. Capacity
 - 8. Unusable Fuel
- VI. Powerplant
 - A. Engine Description
 - 1. Major Sections
 - 2. Cockpit Controls
 - 3. Instrumentation
 - 4. Operation
 - B. Engine Systems
 - 1. Lubrication
 - 2. Fuel
 - 3. Ignition
 - 4. Engine Starting
 - 5. Anti-Ice
 - C. Propeller System
 - 1. Ground Operations
 - 2. In-Flight Operations
 - 3. Synchronization
 - 4. De-Ice
 - D. Ground Checks
 - 1. Overspeed Governor
 - 2. SRL and Delta P/P
 - 3. NTS and Feather Valve
 - 4. Supplementary NTS
 - E. In Flight Post Maintenance Checks
 - 1. NTS In-Flight
 - 2. Flight Idle Fuel Flow
 - F. Limitations
 - 1. Powerplant
 - 2. Engine Starting Conditions
 - 3. Airstart Envelope
 - 4. Engine Starting
 - 5. Oil
 - 6. Fuel
 - 7. Starter/Generator
 - 8. External Power
 - 9. Instrument Markings (as applicable)
 - a. TPE331-10-511M
 - b. TPE331-5/6-252/251M
 - c. TPE331-1-151M
 - G. Engine Malfunctions and Failures
 - 1. Propeller Coupling
 - 2. Torque Sensor
 - 3. Engine Overspeed
 - 4. Fuel Control Spline
- VII. Fire Protection
 - A. Introduction
 - B. Engine Fire Detection
 - 1. System Description
 - 2. Annunciator
 - C. Portable Fire Extinguishers
- VIII. Pneumatics
 - A. System Description
 - B. System Operation
 - 1. Air Sources
 - 2. Limitations
 - C. Wing and Tail De-Ice
 - 1. System Description
 - 2. Controls
 - D. Entrance and Baggage Door Seal
 - 1. Air Source
 - 2. Operation
- IX. Ice and Rain Protection
 - A. General Description
 - B. Wing De-Ice
 - 1. System Description
 - 2. Operation
 - 3. Controls and Indications
 - C. Engine Anti-Ice
 - 1. System Description
 - 2. Operation
 - 3. Controls and Indications
 - D. Window Defog
 - 1. Controls
 - 2. Operation
 - E. Tail De-Ice
 - 1. Horizontal Stabilizer De-Ice
 - 2. Vertical Stabilizer De-Ice
 - F. Pitot Static System Anti-Icing
 - 1. Pitot Tube Heating
 - 2. Static Port Heating
 - 3. AOA Transmitter Heating
 - G. Windshield De-Ice/Anti-Ice
 - 1. System Description
 - 2. Controls and Indications
 - H. Windshield Wiper
 - 1. System Description
 - 2. Control and Operation
 - I. Propeller De-Ice
 - 1. System Description
 - 2. Controls and Indications
 - J. Ice Detector
 - 1. System Description
 - 2. Controls and Indications
 - 3. Operation
 - K. Limitations

- 1. Temperatures
- 2. Cycling
- X. Air Conditioning
 - A. System Description and Operation
 - 1. Refrigeration Unit (ACM)
 - 2. Air Distribution
 - 3. Ventilation
 - 4. Temperature Control
 - 5. Water Separator
 - B. Limitations
- XI. Pressurization
 - A. General
 - B. Component Description
 - 1. Cabin Pressure Controller
 - 2. Altitude Pressure Regulator
 - 3. Ram Air
 - 4. Outflow Safety Valves
 - 5. Air Filters
 - 6. Manual Control Valve
 - 7. Pneumatic Relays
 - 8. Venturi
 - C. System Operation
 - 1. Ground Operation
 - 2. Takeoff Mode
 - 3. In-Flight Operation
 - 4. Landing Operation
 - D. Emergency Operation
 - 1. High Altitude
 - 2. Low Altitude
 - E. Limitations
 - 1. Maximum Differential
 - 2. Landing Limitations
- XII. Landing Gear and Brakes
 - A. General Description
 - 1. Landing Gear Doors
 - 2. Controls and Indicators
 - 3. Warning Systems
 - 4. Emergency Extension
 - B. Nosewheel Steering
 - C. Landing Gear/Brakes/Tires
 - D. Limitations
 - 1. Airspeed (with flaps)
 - 2. Emergency Extension
 - 3. Tire Speed
 - 4. Brake Energy
- XIII. Flight Controls
 - A. Primary Flight Controls (Elevator/Rudder/Spoilers)
 - 1. Description
 - 2. Operations
 - B. Trim Systems
 - 1. System Description
 - 2. Roll Trim
 - a. Normal Operation
 - b. Emergency Operation
 - 3. Rudder Trim
 - 4. Pitch Trim
 - a. General
 - b. Operations
 - c. Trim-in-Motion Alert System
- C. Secondary Flight Controls
 - 1. System Description
 - 2. Flaps
- D. Limitations
 - 1. Instrument Markings
 - 2. Placards
- E. Flight Characteristics
 - 1. Control Systems
 - 2. Stability and Stall Characteristics
 - 3. Single Engine Operation
 - 5. Maneuvering and Trim
 - 6. Takeoff and Landing
- XIV. Avionics
 - A. Pitot-Static System
 - 1. System Description
 - 2. Pilot's System
 - 3. Co-Pilot's System
 - 4. Alternate Static
 - B. Air Data Computer
 - C. Attitude Instrument Displays (EFIS and Standard)
 - 1. EADI
 - 2. Standard Attitude Gyro
 - D. AHRS
 - 1. System Description
 - 2. Controls and Indications
 - E. Navigation
 - 1. Nav Systems Descriptions
 - 2. Compass System Descriptions
 - 3. Display Systems
 - 4. Terrain Awareness System
 - 5. Traffic Avoidance System
 - F. Communications
 - 1. VHF Communications Systems
 - 2. Audio Control
 - G. Standby Flight Instruments
 - 1. System Description
 - 2. Controls and Indications
 - H. Automatic Flight Control System
 - 1. Controls and Indications
 - 2. Yaw Damper
 - 3. Trim-in-Motion Alert System
 - 4. Autopilot Automatic Disconnect
 - 5. Aural Alert System
 - I. Angle of Attack (AOA) System
 - 1. System Description
 - 2. Controls and Indications
 - J. Limitations
- XV. Oxygen System
 - A. System Description
 - B. Crew Oxygen
 - 1. Oxygen Cylinder Assembly

- 2. Pressure Gauge
- 3. Outlet Valves
- 4. Duration
- C. Passenger Oxygen
 - 1. System Description
 - 2. Duration
 - D. Limitations
- XVI. Performance and Planning
 - A. Takeoff Performance Charts
 - 1. Runway Requirements
 - 2. Normal and with One Engine Inoperative
 - B. Climb Performance
 - 1. Normal and with One Engine Inoperative
 - 2. Obstacle Clearance
 - 3. Power Assurance Charts
 - C. Cruise Performance
 - 1. Power Charts
 - 2. Maximum Practical Altitude
 - 3. Cruise Speeds/Engine Health
 - 4. Buffet Boundary
 - D. Landing Performance
 - 1. Runway Requirements
 - a. Dry Runway
 - b. Wet Runway
 - 2. Go-Around
 - a. One Engine Inoperative
 - b. All Engines
- XVII. Weight and Balance
 - A. Aircraft Loading Procedures
 - B. Limitations
 - 1. Weight Limits
 - 2. C.G. Limits
 - C. Plotter
 - 1. Description
 - 2. Use
 - D. Calculations
 - 1. AFM Procedures
 - 2. Examples
- XVIII. General Subjects
 - A. Controlled Flight into Terrain Awareness
 - B. CRM/SPRM
 - 1. Crew Resource Management
 - 2. Single Pilot Resource Management
 - C. MU-2B Flight Standardization Board Report

Appendix C to SFAR 108 - MU-2B Final Phase Check and Flight Training Requirements

(I) MU-2B Final Phase Check Requirements

(A) Completion of the MU-2B Training Program in this appendix requires successful completion of a final phase check taken in the MU-2B airplane or a Level C or D simulator for Initial/Transition training. The final phase check for Requalification or Recurrent Training may be taken in the MU-2B airplane, a Level C or D simulator, or in a Level 5, 6, or 7 FAA-approved MU-2B Flight Training Device (FTD).

The final phase check must be conducted by a qualified flight instructor who meets the requirements of the MU-2B SFAR. Simultaneous training and checking is not allowed for Initial/Transition training.

(B) For pilots operating under 14 CFR part 135, checking must be done in accordance with applicable regulations. For the purpose of recurrent testing in 14 CFR 135.293(b), the MU-2B is considered a separate type of aircraft.

(C) The final phase check must be conducted using the standards contained in the FAA Commercial Pilot - Airplane Multi-Engine Land, and Instrument Rating - Airplane Practical Test Standards (PTS).

(D) The final phase check portion of the training is comprised of the following tasks for *all* airmen (instrument rated and non instrument rated). An (*) indicates those maneuvers for Initial/Transition training which must be completed in the MU-2B airplane, or a Level C or D simulator.

- (1) Preflight Check.
- (2) Start and Taxi Procedures.
- (3) * Normal Takeoff (X-Wind) (Two Engine).
- (4) * Takeoff Engine Failure.
- (5) Rejected Takeoff.
- (6) * Steep Turns.
- (7) * Approach to Stalls (3) (must include Accelerated Stalls).
- (8) * Maneuvering with One Engine Inoperative - Loss of Directional Control (V_{mc}).
- (9) Abnormal and Emergency Procedures - To include MU-2B operation in icing conditions without the autopilot or without trim-in-motion or automatic autopilot disconnect.
- (10) * Precision Approach (One Engine Inoperative).
- (11) Go Around/Rejected Landing.
- (12) Normal Landing (X-Wind).
- (13) * Landing with One Engine Inoperative.
- (14) * Landing with Non-Standard Flap Configuration (0 or 5 degrees).
- (15) Postflight Procedures.

(E) The following additional tasks are required for those airmen who possess an instrument rating. An (*) indicates those maneuvers for Initial/Transition training which must be completed in the MU-2B airplane, or a Level C or D simulator.

- (1) Preflight Check.
- (2) Unusual Attitudes.
- (3) Abnormal and Emergency Procedures.
- (4) Basic Instrument Flight Maneuvers.
- (5) Area Arrival and Departure.
- (6) Holding.
- (7) Precision Approach (Two Engine).
- (8) * Non-Precision Approaches (2) - Must include a Non-Precision Approach with One Engine Inoperative.
- (9) Missed Approach from either Precision or Non Precision Instrument Approach (Two Engine).
- (10) Landing from a Straight-In or Circling Approach.
- (11) Circling Approach.

(12) Postflight Procedures.

(F) A form titled "Training Course Final Phase Check" has been included in this appendix for use in creating a training and final check record for the student and the training provider.

(II) MU-2B Required Flight Training Tasks

(A) General Flight Training Requirements: All flight training maneuvers must be consistent with this training program and the applicable MU-2B checklist accepted by the FAA. The maneuver profiles shown in Appendix D to this SFAR No. 108 are presented to show the required training scenarios. Profiles conducted in flight require planning and care on the part of both the instructor and student in order to provide the highest level of safety possible. The maneuver profiles shown in Appendix D to this SFAR No. 108 do not account for local geographic and flight conditions. The instructor and student must consider local conditions when performing these maneuvers in flight.

(B) Special Emphasis Items: Certain aspects of pilot knowledge, skills and abilities must be emphasized and evaluated during the training and checking process of the MU-2B Training Program.

(1) Accelerated stall awareness and recovery procedures with emphasis on configuration management. Awareness of the margin to stall in all flight operations and configurations must be emphasized throughout training.

(2) V_{mc} awareness and early recognition must be trained and checked. Minimum airspeeds for one engine inoperative must be emphasized in all configurations.

(3) Airspeed management and recognition of airspeed deterioration below recommended speeds and recovery methods in this training program must be emphasized throughout training and checking.

(4) Knowledge of icing conditions and encounters must be emphasized throughout training and checking including: Equipment requirements, certification standards, minimum airspeeds, and the use of the autopilot and other applicable AFM procedures.

(5) Airplane performance characteristics with all engines operating and with one engine inoperative must be emphasized.

(C) MU-2B Flight Training Program Proficiency Standards.

(1) Each pilot, regardless of the level of pilot certificate held, must be trained to and maintain the proficiency standards described below.

(a) General VFR/IFR.

(i) Bank Angle - ± 5 degrees of prescribed bank angle

(ii) Heading - ± 10 degrees

(iii) Altitude - ± 100 feet

(iv) Airspeed - ± 10 knots

(b) Instrument Approach - Final Approach Segment.

Precision Approach

(i) Heading - ± 10 degrees

(ii) Altitude - ± 100 feet

(iii) Airspeed - ± 10 knots prior to final

(iv) Airspeed - ± 10 knots after established on final

(v) Glide Slope (GS)/Localizer Deviation - Within scale - not below GS

Non-Precision Approach

Straight In

(vi) Initial Approach Altitude - ± 100 feet

(vii) Heading - ± 10 degrees

(viii) Altitude (MDA) - + 100, #0 feet

(ix) Airspeed - + 10 knots

(x) Course Deviation Indicator - Within scale or ± 10 degrees on RMI

Circling Approach

(xi) Maximum Bank - 30 degrees

(xii) Heading - Within 10 degrees

(xiii) Altitude - + 100, #0 feet

(xiv) Airspeed - Within 10 knots but not less than V_{ref}

(c) In all cases, a pilot must show complete mastery of the aircraft with the outcome of each maneuver or procedure never seriously in doubt.

(D) Maneuvers and Procedures. All flight training maneuvers and procedures must be conducted as they are applicable to the MU-2B and each type of operations involved.

Preflight

(1) Preflight Inspection - The pilot must -

(a) Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose of inspecting it; and

(b) Demonstrate the use of the appropriate checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight.

(2) Taxiing - this maneuver includes taxiing in compliance with instructions issued by the appropriate ATC facility or by the person conducting the check.

(3) Pre-Takeoff Checks - The pilot must satisfactorily complete all pre-takeoff aircraft systems and powerplant checks before takeoff.

Takeoff and Departure

(1) Normal - One normal takeoff, which for the purpose of this maneuver, begins when the airplane is taxied into position on the runway to be used.

(2) Instrument Takeoff - Takeoff with simulated instrument conditions at or before reaching an altitude of 200 feet above the airport elevation and visibility of 1800 RVR.

(3) Crosswind - One crosswind takeoff, if practical, under the existing meteorological, airport and traffic conditions.

(4) Powerplant Failure - One takeoff with a simulated failure of the most critical powerplant at a point after V_{lof} . In the MU-2B airplane, all simulated powerplant failures must

only be initiated when the person conducting the training or checking determines that it is safe under the prevailing conditions. The instructor must assure that the power lever does not move beyond the flight idle gate.

(5) Rejected Takeoff - A rejected takeoff performed in an airplane during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.

(6) Area departure - Demonstrate adequate knowledge of departure procedures, establishing appropriate ATC communications and following clearances.

Flight Maneuvers and Procedures

(1) Steep bank turns - Each steep turn must involve a bank angle of 50 degrees with a heading change of at least 180 degrees but no more than 360 degrees.

(2) Approaches to stalls - Must be performed in each of the following configurations; takeoff, clean, and landing. One approach to a stall must be performed in either the takeoff, clean, or landing configuration while in a turn with a bank angle between 15 degrees and 30 degrees.

(3) Accelerated stalls - must be done in the flaps 20 and flaps 0 configurations.

(4) Recovery procedures must be initiated at the first indication of a stall.

Normal and Abnormal Procedures and Operations

(1) Runway trim.

(2) Normal and abnormal operations of the following systems:

(a) Pressurization.

(b) Pneumatic.

(c) Air conditioning.

(d) Fuel.

(e) Electrical.

(f) Flight control.

(g) Anti-icing and de-icing.

(h) Autopilot.

(i) Stall warning devices, as applicable.

(j) Airborne radar and weather detection devices.

(k) Other systems, devices or aids available.

(l) Electrical, flight control and flight instrument system malfunction or failure.

(m) Landing gear and flap system malfunction or failure.

(n) Failure of navigation or communications equipment.

Flight Emergency Procedures

(1) Powerplant failure.

(2) Powerplant, cabin, flight deck, wing and electrical fires.

(3) Smoke control.

(4) Fuel jettisoning, as applicable.

(5) Any other emergency procedures outlined in the appropriate AFM or FAA-accepted checklist.

Instrument Procedures

(1) Area departure.

(2) Use of navigation systems including adherence to assigned course and/or radial.

(3) Holding procedures.

(4) Aircraft approach category airspeeds.

(5) Approach procedures: Each instrument approach must be performed according to all procedures and limitations approved for that facility. An instrument approach procedure begins when the airplane is over the initial approach fix for the approach procedure being used and ends when the airplane touches down on the runway or when transition to missed approach configuration is completed.

(a) ILS, ILS/DME, approach.

(i) A manually controlled ILS with a powerplant inoperative; occurring before initiating the final approach course and continuing to full stop or through the missed approach procedure.

(ii) A manually controlled ILS utilizing raw data to 200 feet or decision height (DH).

(iii) An ILS with the autopilot coupled.

(b) Non-precision approaches.

(i) NDB, NDB/DME approach, straight in or circle.

(ii) VOR, VOR/DME, straight in or circle.

(iii) LOC, LOC/DME, LOC backcourse.

(iv) GPS approach (If the aircraft/FTD/flight simulator has a GPS installed, the applicant must demonstrate GPS approach proficiency.)

(v) ASR approach.

(c) Missed approach procedure: One missed approach procedure must be a complete approved missed approach procedure as published or as assigned by ATC.

(i) From a precision approach.

(ii) From a non-precision approach.

(iii) With a simulated powerplant failure.

(d) Circling approach.

(i) The circling approach must be made to the authorized MDA and followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on the runway.

(ii) The circling approach must be performed without excessive maneuvering and without exceeding the normal operating limits of the airplane and the angle of bank must not exceed 30°.

Landings and Approaches to Landings

(1) Airport orientation.

(2) Normal landings with stabilized approach.

(3) Crosswind landings.

(4) From a precision instrument approach.

(5) From a precision instrument approach with a powerplant inoperative.

(6) From a non-precision instrument approach.

(7) From a non-precision instrument approach with a powerplant inoperative.

- (8) From a circling approach or VFR traffic pattern.
- (9) Go Around/Rejected landings - a normal missed approach procedure or a visual go-around after the landing is rejected. The landing should be rejected at approximately 50 feet and approximately over the runway threshold.

- (10) Zero flap landing.
 - (a) Runway requirements.
 - (b) Airspeeds.

| TRAINING COURSE FINAL PHASE CHECK | | | | | |
|---|-------------------|---------------|----------------------|--------------------|-----|
| NAME OF AIRMAN <i>(last, first, middle initial)</i> | | | GRADE OF CERTIFICATE | CERTIFICATE NUMBER | |
| DATE OF CHECK | LOCATION OF CHECK | TYPE OF CHECK | MU-2B MODEL | FTD MODEL | |
| SCHOOL NAME | INSTRUCTOR NAME | CFI NUMBER | EXPIRES | | |
| FLIGHT MANEUVERS GRADE <i>(S-Satisfactory U-Unsatisfactory)</i> | | | | | |
| MANEUVERS REQUIRED FOR ALL AIRMEN | | | | A/C | FTD |
| PREFLIGHT CHECK | | | | | |
| START AND TAXI PROCEDURES | | | | | |
| *NORMAL TAKEOFF (X WIND) (TWO ENGINE) | | | | | |
| *TAKEOFF ENGINE FAILURE | | | | | |
| REJECTED TAKEOFF | | | | | |
| *STEEP TURNS | | | | | |
| *APPROACH TO STALL (3) | | | | | |
| *MANEUVERING WITH ONE ENGINE INOP (VMC) | | | | | |
| ABNORMAL AND EMERGENCY PROCEDURES - TO INCLUDE THE MU-2 OPERATION IN ICING CONDITIONS WITHOUT THE AUTOPILOT OR WITHOUT TRIM-IN-MOTION/AUTOMATIC AUTOPILOT DISCONNECT. | | | | | |
| *PRECISION APPROACH (ONE ENGINE INOPERATIVE) | | | | | |
| GO AROUND / REJECTED LANDING | | | | | |
| NORMAL LANDING (X WIND) | | | | | |
| *LANDING WITH ONE ENGINE INOPERATIVE | | | | | |
| *LANDING WITH NON-STANDARD FLAP CONFIG | | | | | |
| POST FLIGHT PROCEDURES | | | | | |
| ADDITIONAL MANEUVERS REQUIRED FOR INSTRUMENT RATED AIRMEN | | | | A/C | FTD |
| PREFLIGHT CHECK | | | | | |
| UNUSUAL ATTITUDES | | | | | |
| ABNORMAL AND EMERGENCY PROCEDURES | | | | | |
| BASIC INSTRUMENT FLIGHT MANEUVERS | | | | | |
| AREA ARRIVAL AND DEPARTURE | | | | | |
| HOLDING | | | | | |
| PRECISION APPROACH (TWO ENGINE) | | | | | |
| *NON-PRECISION APPROACHES (2) | | | | | |
| MISSED APPROACH FROM EITHER PRECISION OR NON-PRECISION APPROACH (TWO ENGINE) MUST INCLUDE AN APPROACH WITH ONE ENGINE INOP | | | | | |
| LANDING FROM A STRAIGHT-IN/CIRCLING APPROACH | | | | | |
| CIRCLING APPROACH | | | | | |
| POST FLIGHT PROCEDURES | | | | | |
| RESULTS OF CHECK | SATISFACTORY | | FLIGHT TIMES | AIRCRAFT | FTD |
| INSTRUCTOR SIGNATURE | UNSATISFACTORY | | AIRMAN SIGNATURE | | |

Appendix D to SFAR 108 - MU-2B Maneuver Profiles

(A) The Maneuver Profiles are provided to develop pilot proficiency with the procedures and techniques contained within this MU-2B Flight Training Program.

(B) Though constructed for use in the airplane they may also be used in the Flight Training Device (FTD). When an FTD is used, a maneuver may be performed at lower altitudes or carried to its completion. When training is conducted in the MU-2B airplane, all maneuvers must be performed in a

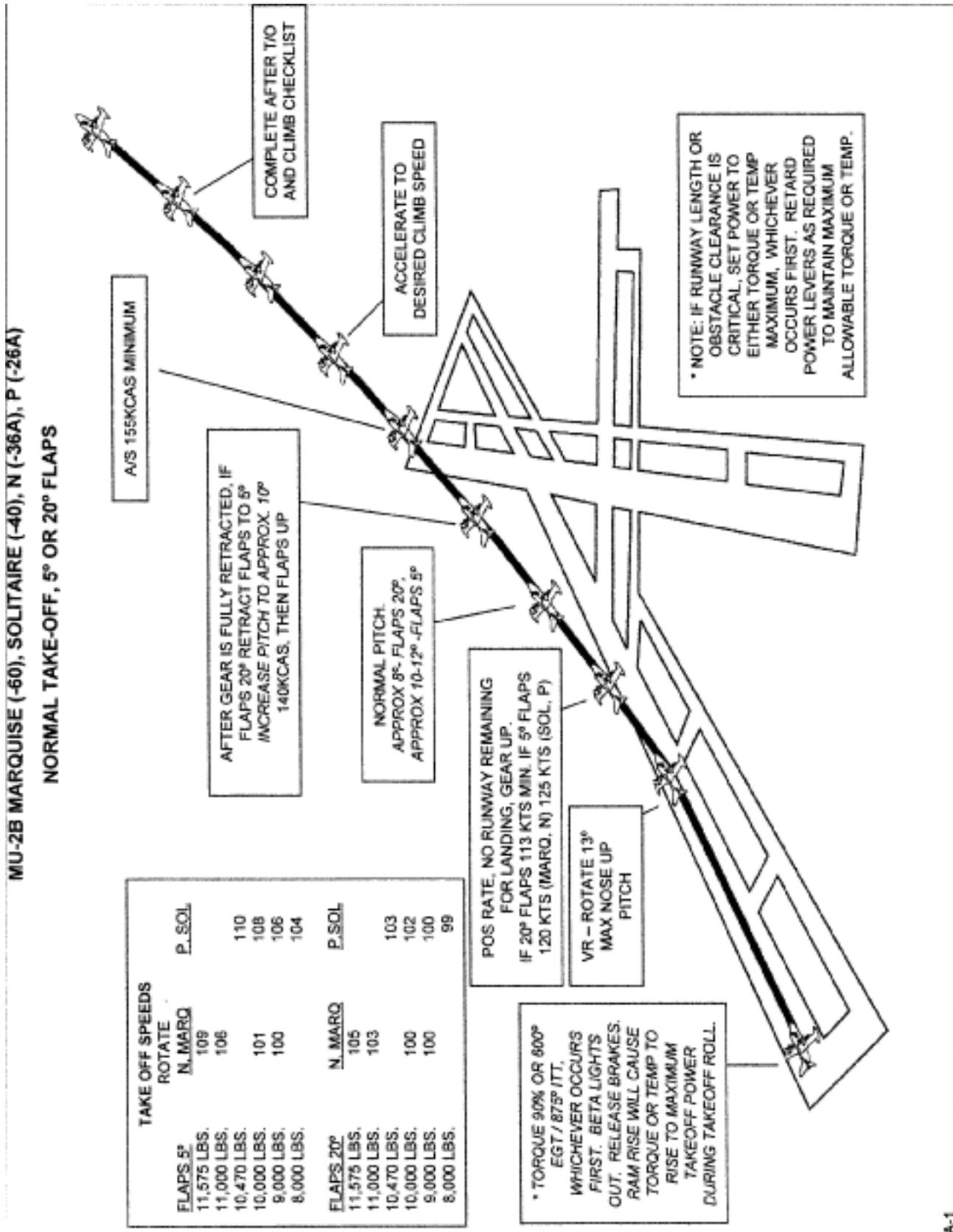
manner sufficient to evaluate the performance of the student while never jeopardizing the safety of the flight.

(C) The maneuvers profiles are broken down into three sections by similar aircraft model groups. The three sections of this program are:

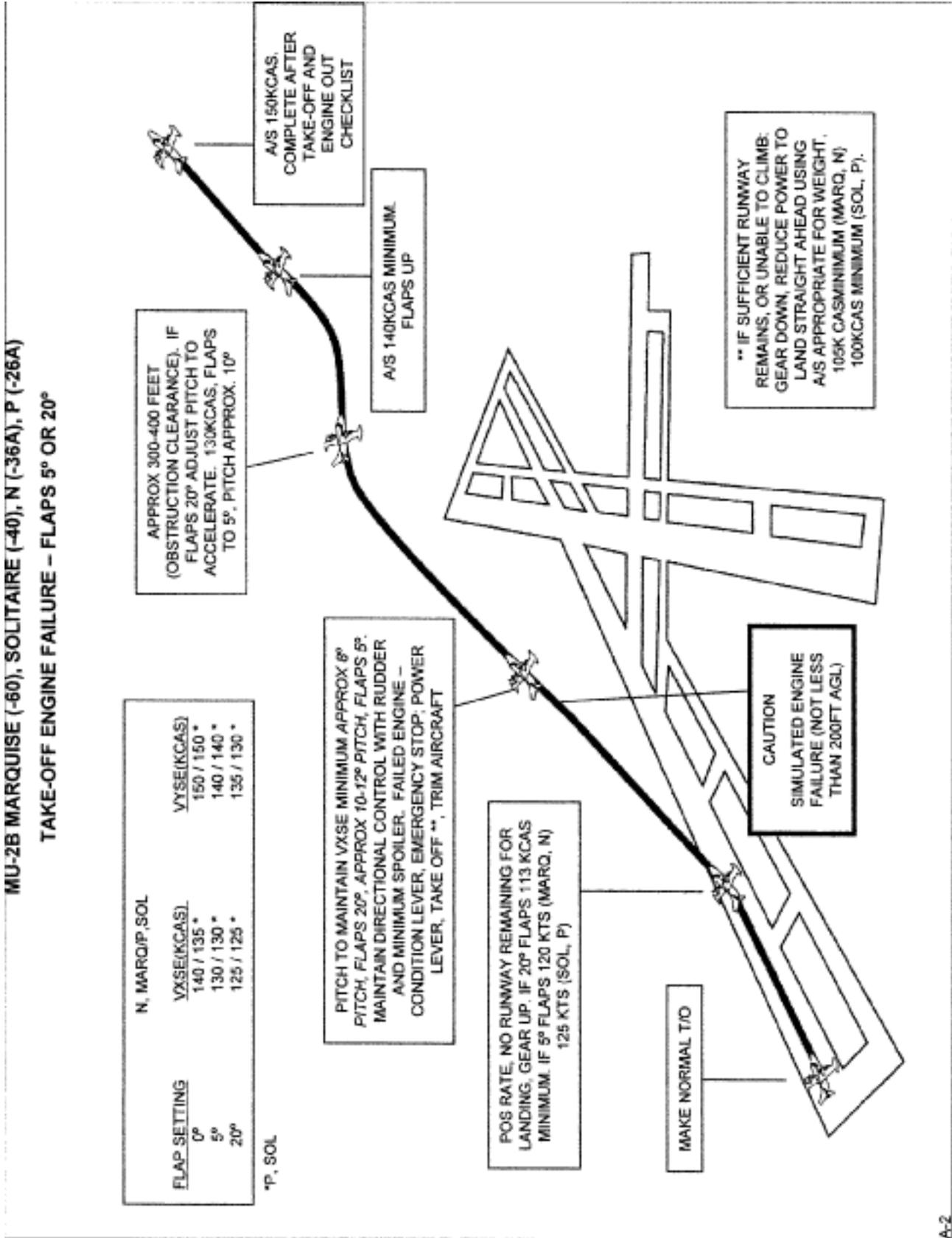
(1) Marquise (#60), Solitaire (-40), N (-36A), P (-26A) - Figures A-1 through A-28

(2) J (-35), K (-25), L (-;36), M (-26) - Figures B-1 through B-28

(3) B, D (-10), F (-20), G (-30) - Figures C-1 through C-28

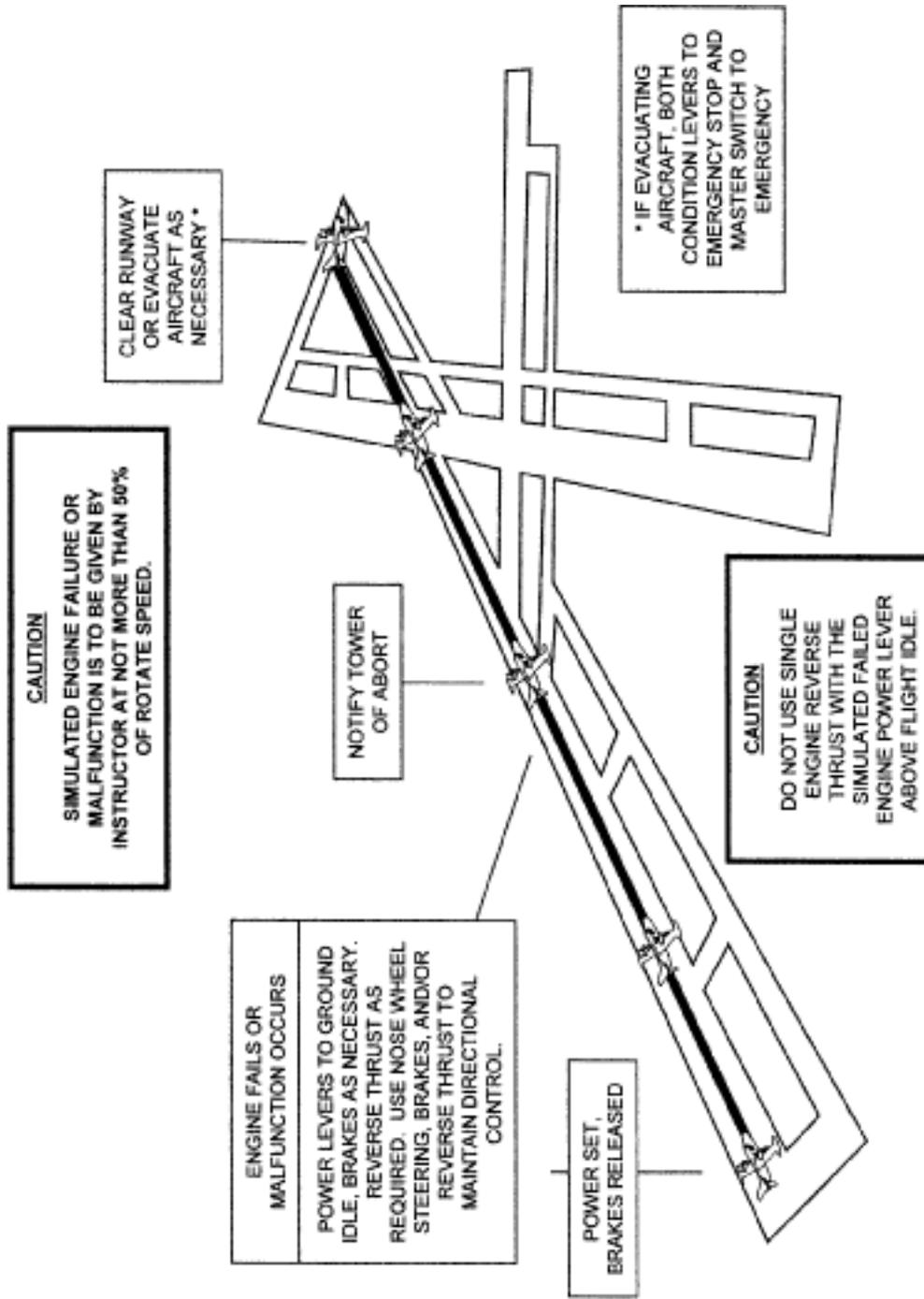


A-1



A-2

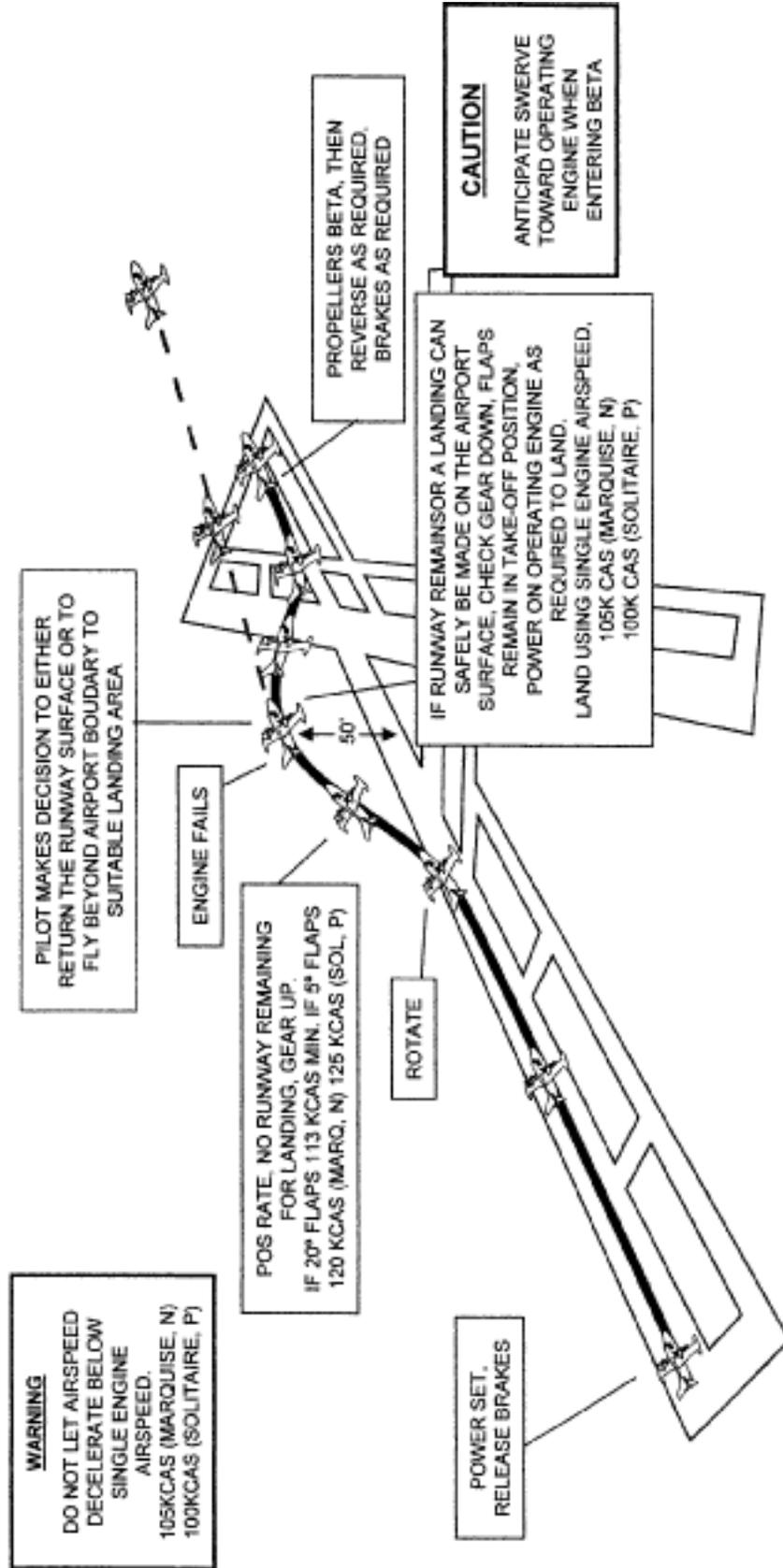
MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
TAKE-OFF ENGINE FAILURE ON RUNWAY



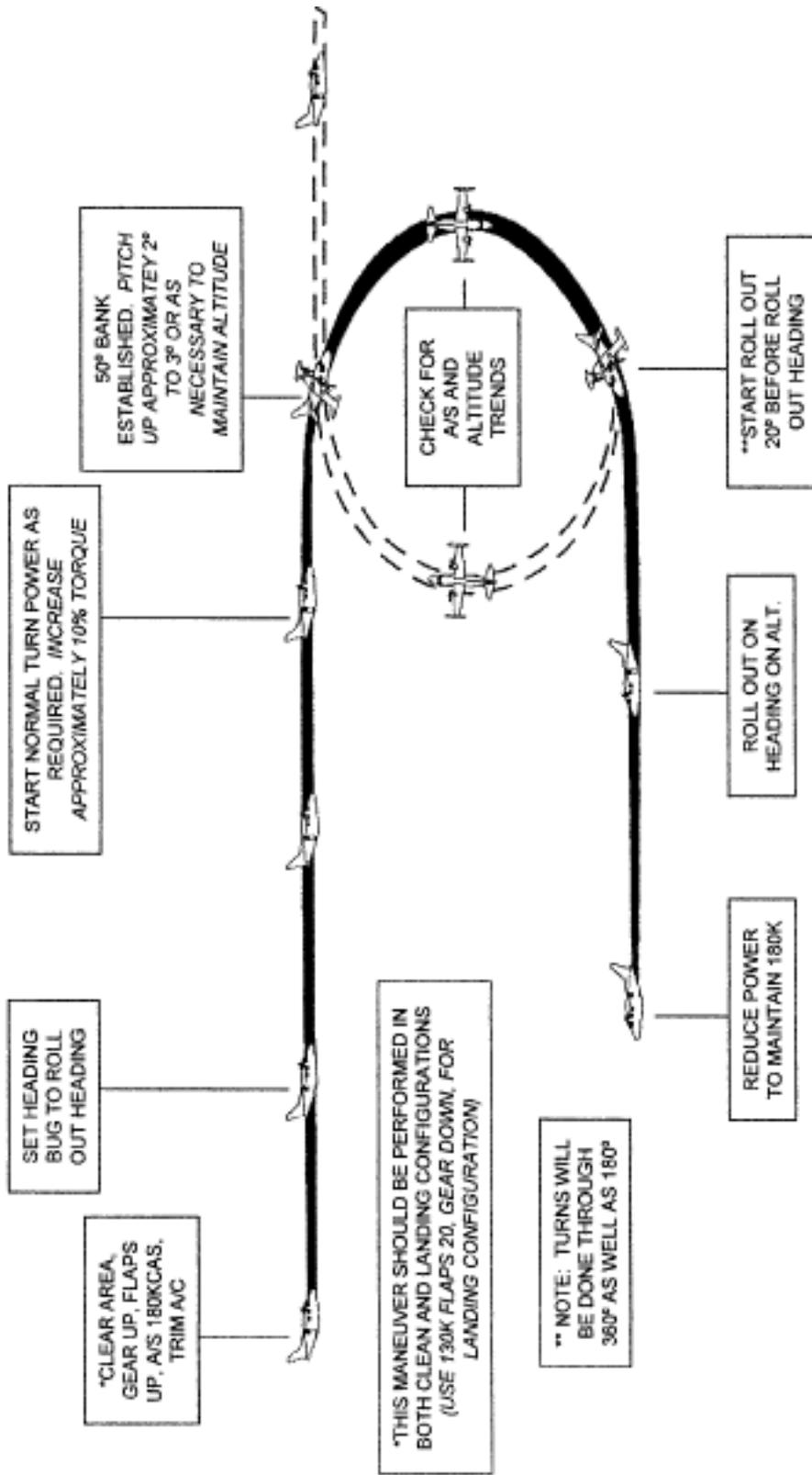
MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

TAKE-OFF ENGINE FAILURE - UNABLE TO CLIMB

CLASSROOM DISCUSSION OR FTD USE ONLY



**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
STEEP TURNS**



MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

SLOW FLIGHT MANEUVERING

MINIMUM CONTROLLABLE AIRSPEED

SLOW FLIGHT MANEUVERING IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

START WITH CLEAN CONFIGURATION AND CHANGE AIRCRAFT CONFIGURATION FROM CLEAN TO FULL FLAP AND GEAR IN STAGES. USE A MAXIMUM OF 15° BANK AND PERFORM HEADING CHANGES OF 90° LEFT AND RIGHT. CONSTANT ALTITUDE IS REQUIRED THROUGHOUT.

MAINTAIN 115KCAS IN ALL CONFIGURATIONS.

**APPROXIMATE POWER SETTINGS ARE:

| | | |
|-----------------|-------------------------|------------------|
| CLEAN | TORQUE (35%) PER ENGINE | APPROX PITCH +12 |
| 5° FLAP | TORQUE (32%) PER ENGINE | APPROX PITCH +8 |
| 5° FLAP & GEAR | TORQUE (44%) PER ENGINE | APPROX PITCH +9 |
| 20° FLAP & GEAR | TORQUE (42%) PER ENGINE | APPROX PITCH +4 |
| 40° FLAP & GEAR | TORQUE (54%) PER ENGINE | APPROX PITCH 0 |

** NOTE: POWER SETTINGS WILL VARY WITH AIRCRAFT WEIGHT AND ALTITUDE.

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
N, MARQUISE / P, SOLITAIRE

| | | |
|---------------|----------|----------|
| ANGLE OF BANK | 0° | 15° |
| FLAPS UP | 106/104* | 108/106* |
| 5° | 96/ 98* | 100/ 99* |
| 20° | 87/ 88* | 88/ 88* |
| 40° | 81/ 78* | 83/ 79* |

*P, SOL
Vinc FLAPS 5° 99K (MARQ. N), 100KCAS (SOL. P)
FLAPS 20° 99K (MARQ. N), 93KCAS (SOL. P)

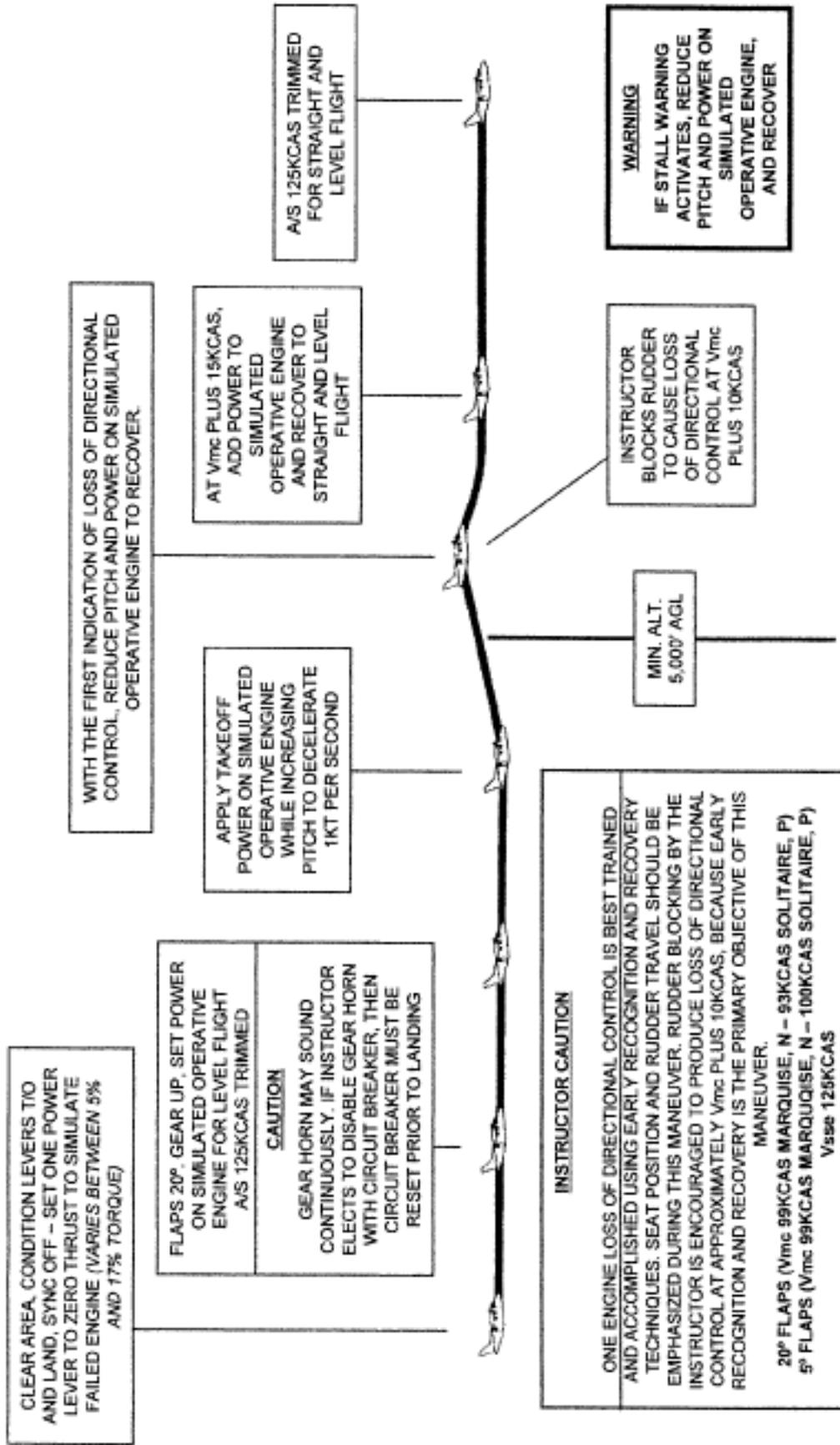
CAUTION
STALL WARNING MAY ACTIVATE
4 TO 9 KCAS ABOVE STALL

MINIMUM CONTROLLABLE AIRSPEED IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

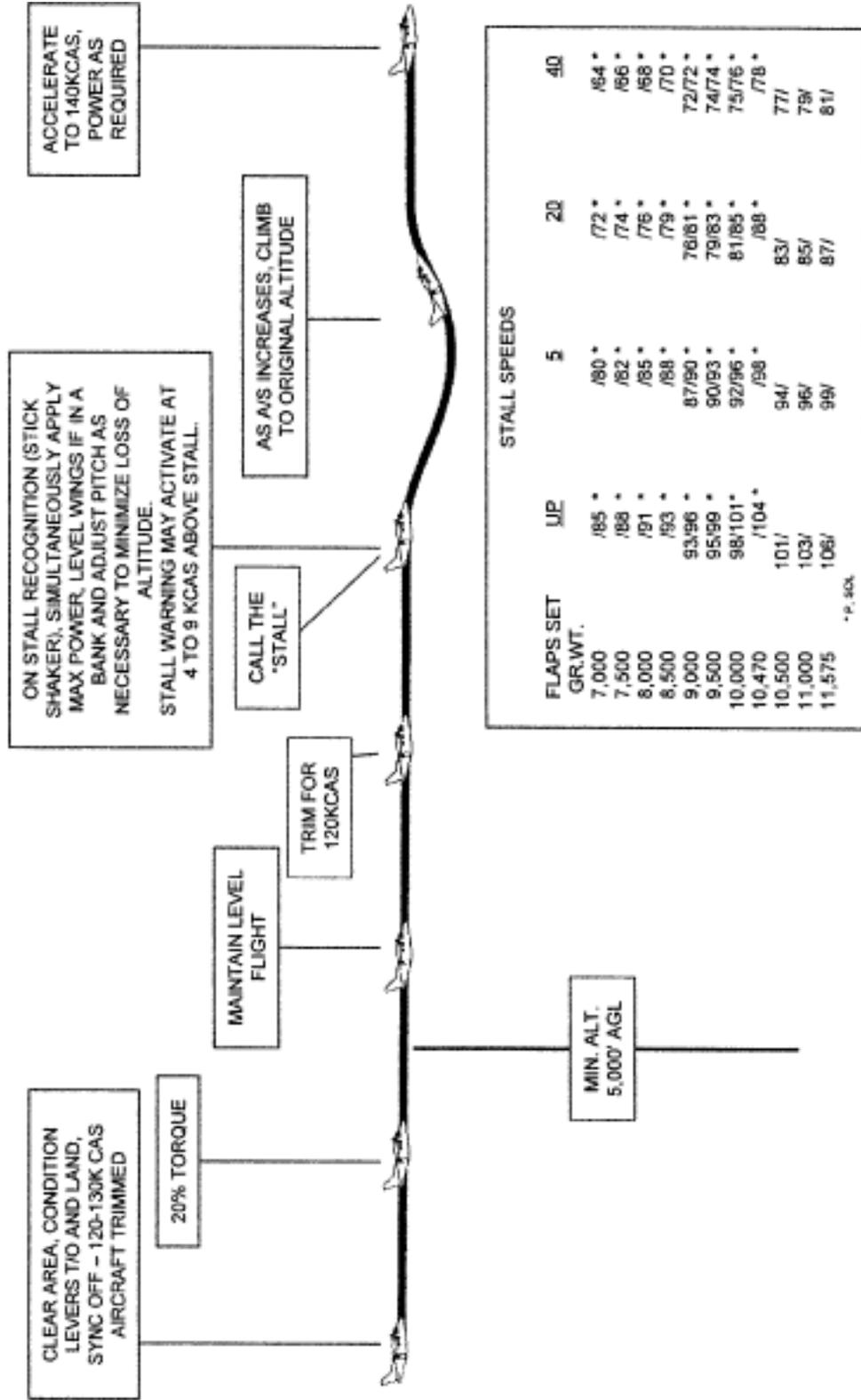
THE MANEUVER MAY BE DONE IN ANY COMBINATION OF GEAR OR FLAP CONFIGURATIONS. IF BANK IS TO BE USED, IT SHOULD BE DONE AT BANK OF NOT MORE THAN 15° BEGIN THE MANEUVER BY CONFIGURING THE AIRCRAFT IN THE DESIRED GEAR AND FLAP CONFIGURATION. SLOW THE AIRCRAFT UNTIL THE STALL WARNING (STICK SHAKER) IS ACTIVATED AND ADD POWER TO MAINTAIN ALTITUDE AND A SPEED JUST ABOVE AEROYNAMIC STALL. DO NOT ALLOW THE AIRCRAFT TO REACH AEROYNAMIC STALL BUFFET.

**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ONE ENGINE INOPERATIVE MANEUVERING LOSS OF
DIRECTIONAL CONTROL**



A-7

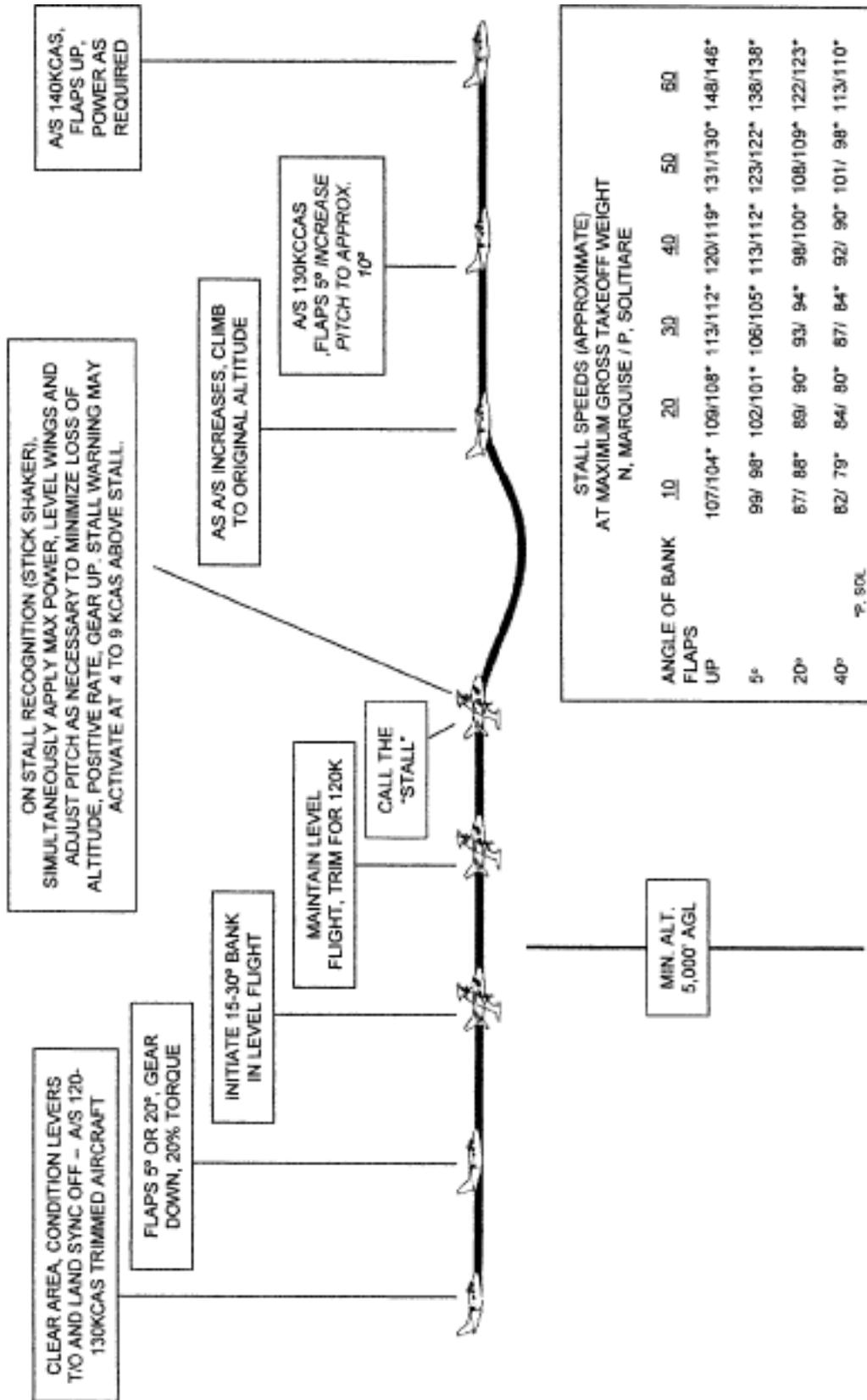
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
APPROACH TO STALL CLEAN CONFIGURATION / WINGS LEVEL**



MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

APPROACH TO STALL

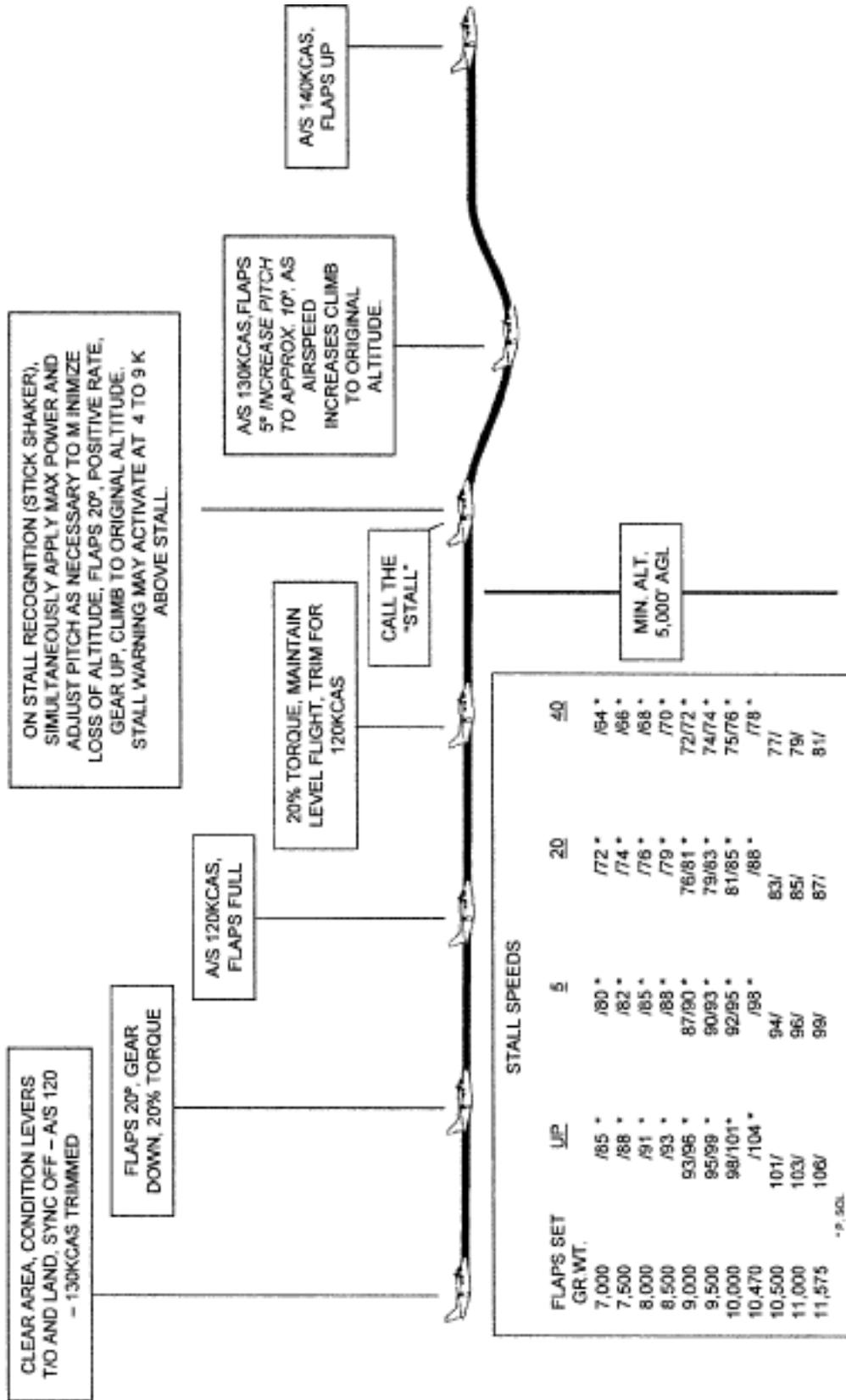
TAKEOFF CONFIGURATION 15-30° BANK



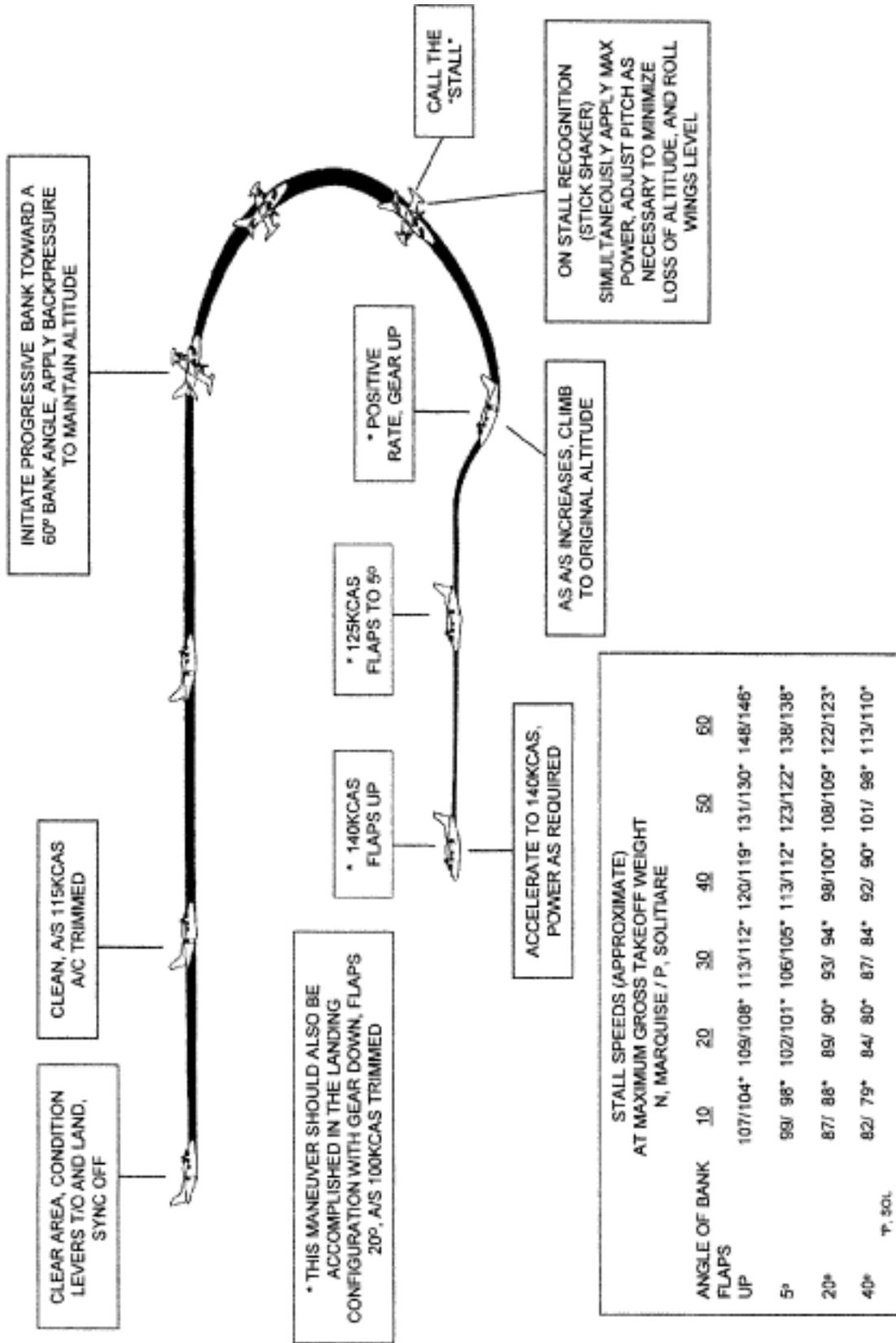
MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

APPROACH TO STALL

GEAR DOWN – FULL FLAPS

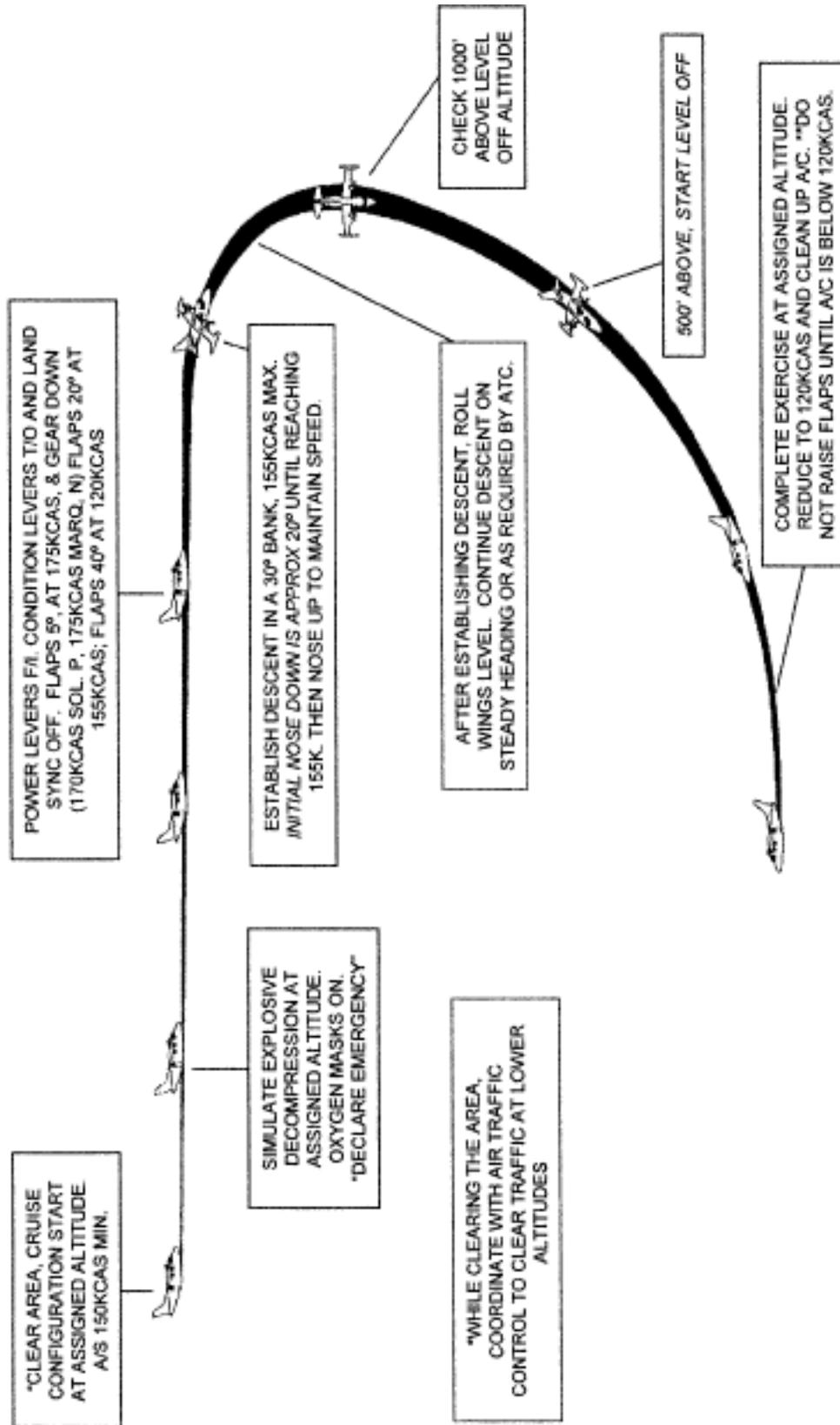


**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ACCELERATED STALLS**

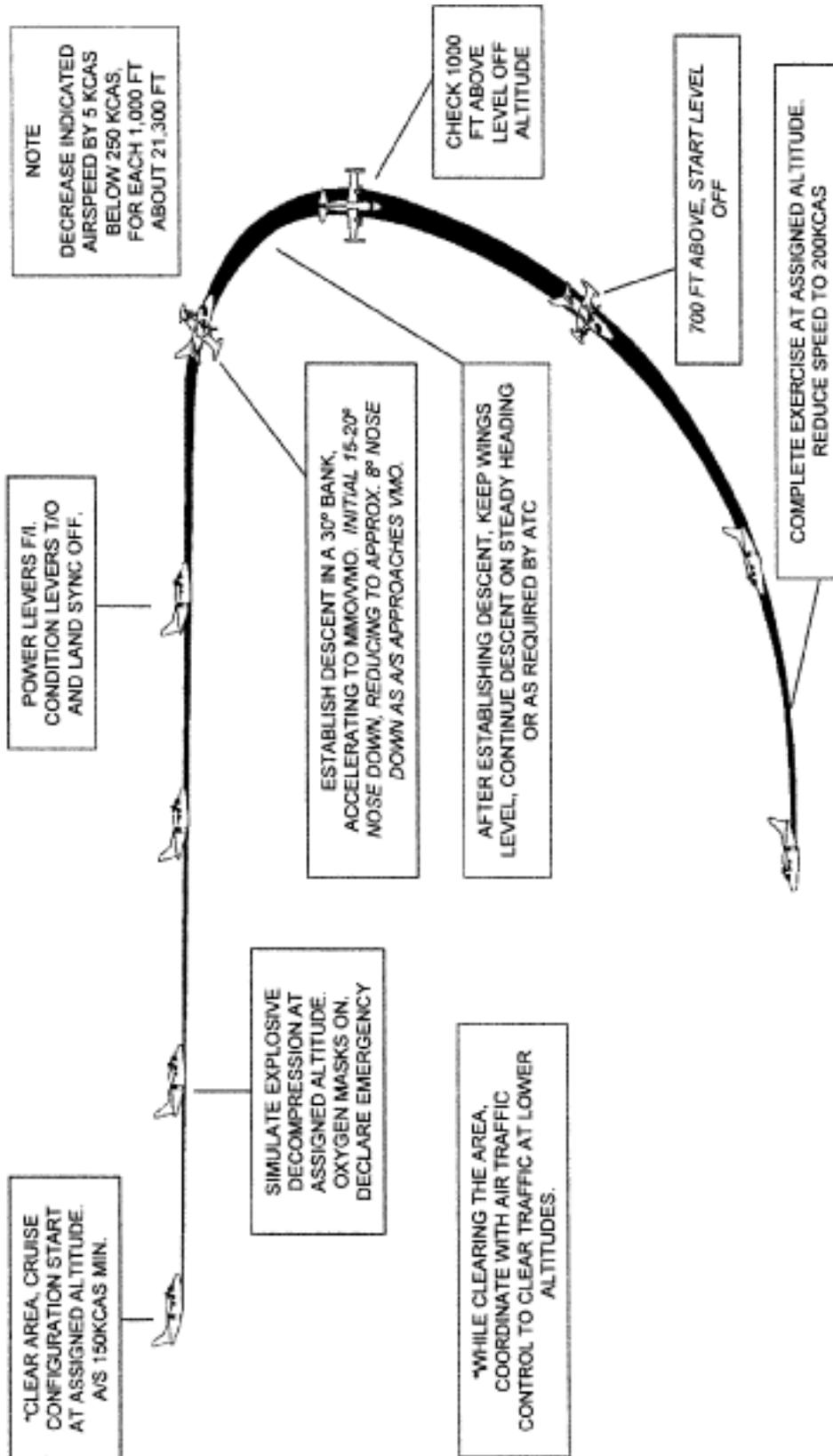


A-11

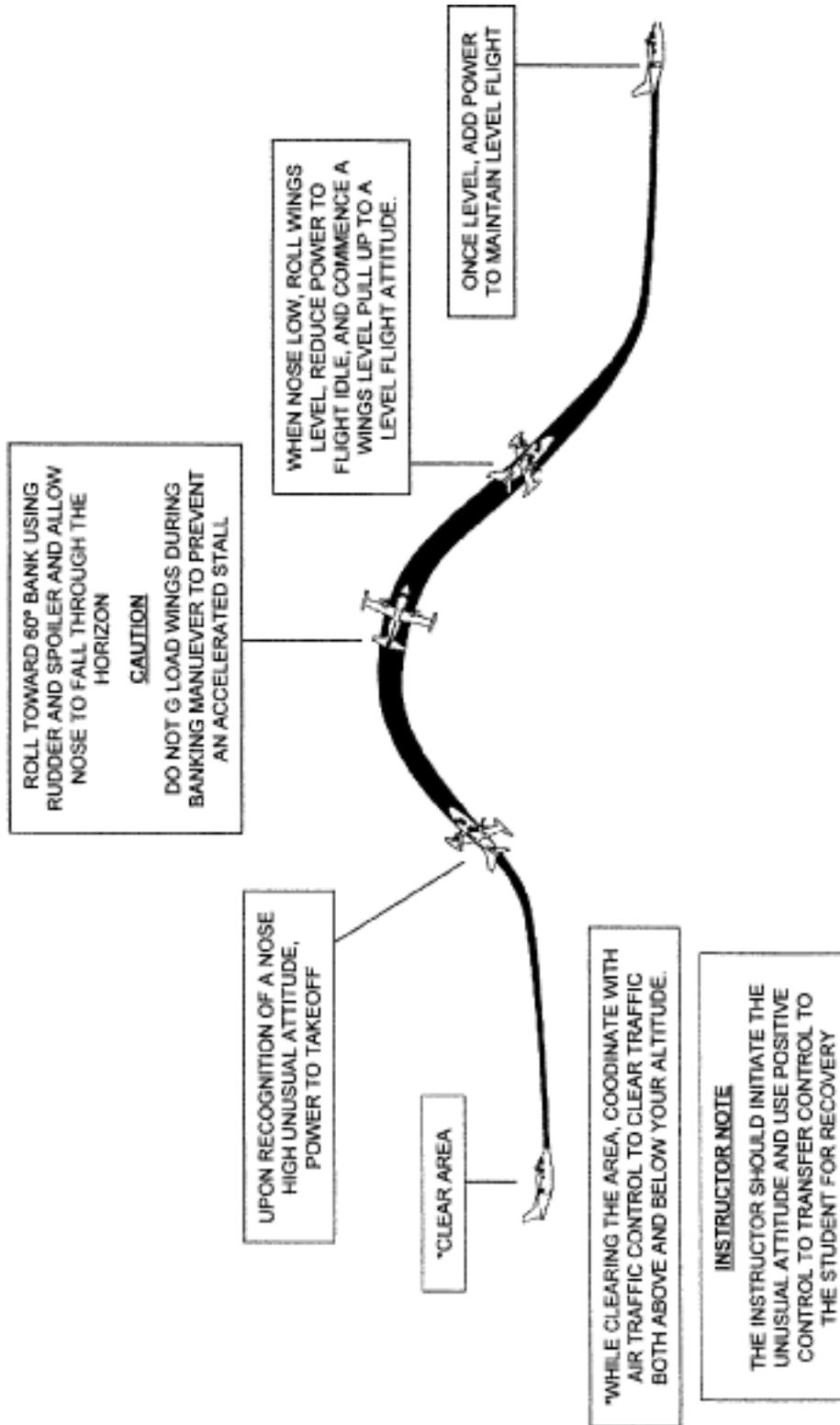
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
EMERGENCY DESCENT (LOW SPEED)**



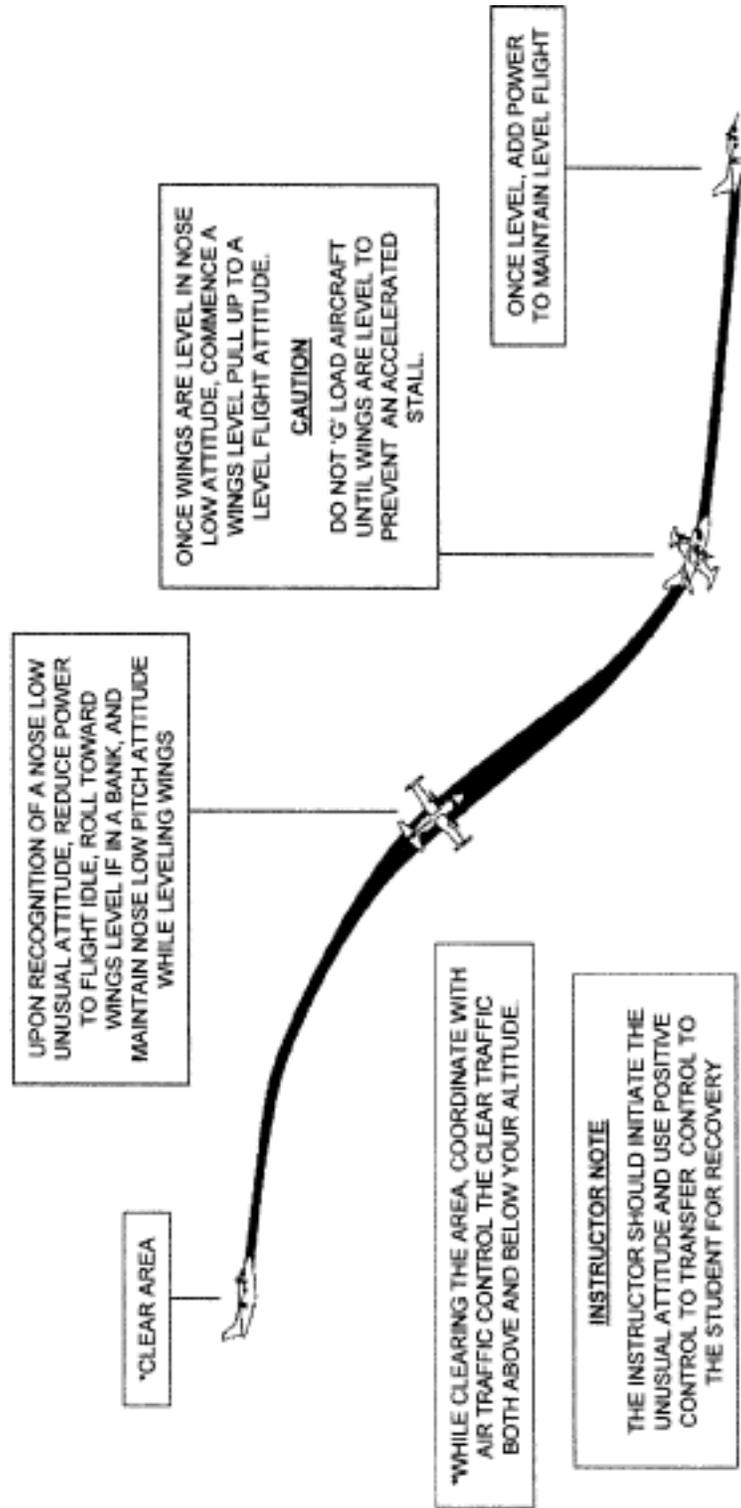
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
EMERGENCY DESCENT (HIGH SPEED)**



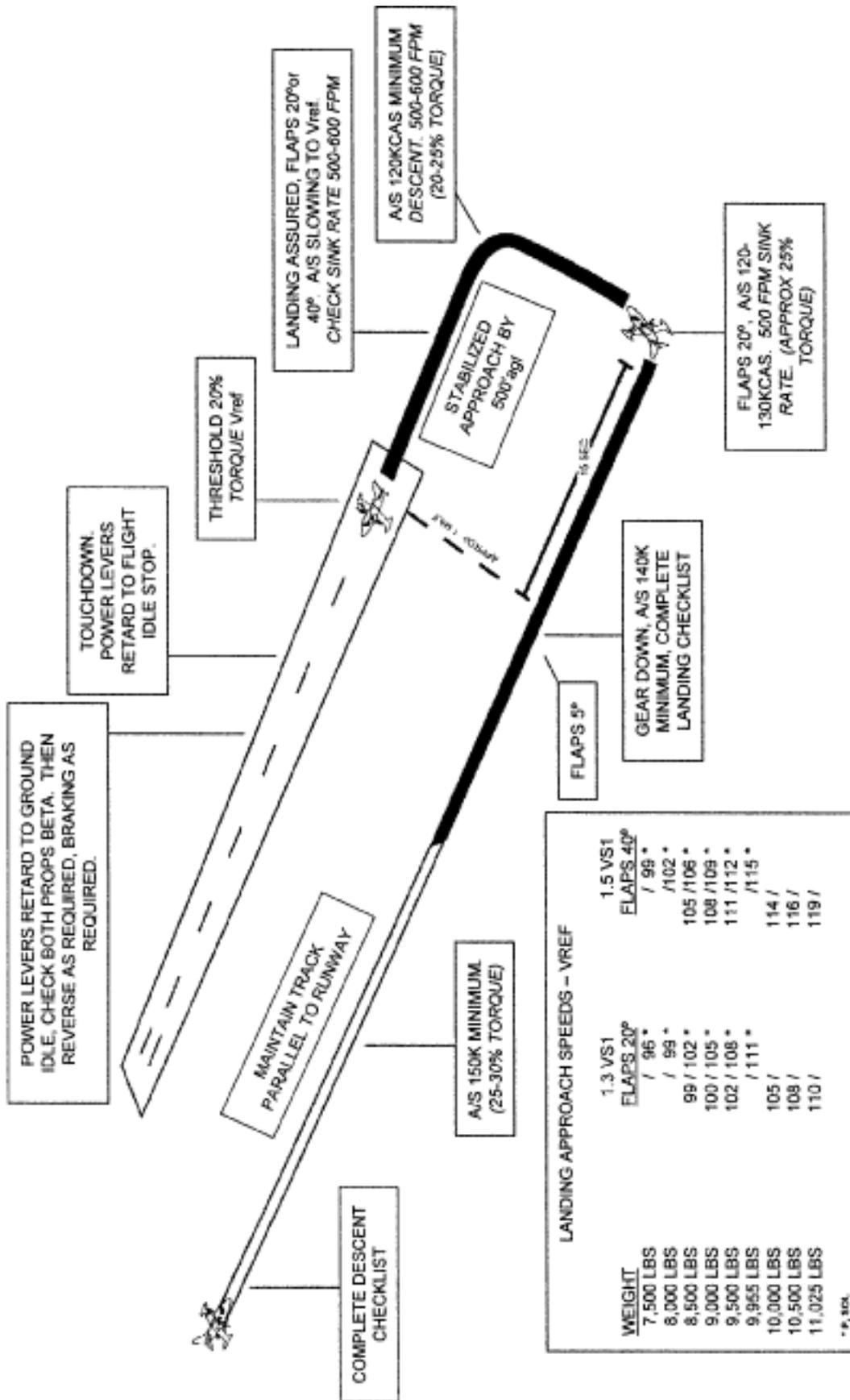
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
UNUSUAL ATTITUDE RECOVERY (NOSE HIGH)**



**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
UNUSUAL ATTITUDE RECOVERY (NOSE LOW)**



**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
NORMAL LANDING (20° or 40° FLAPS)**



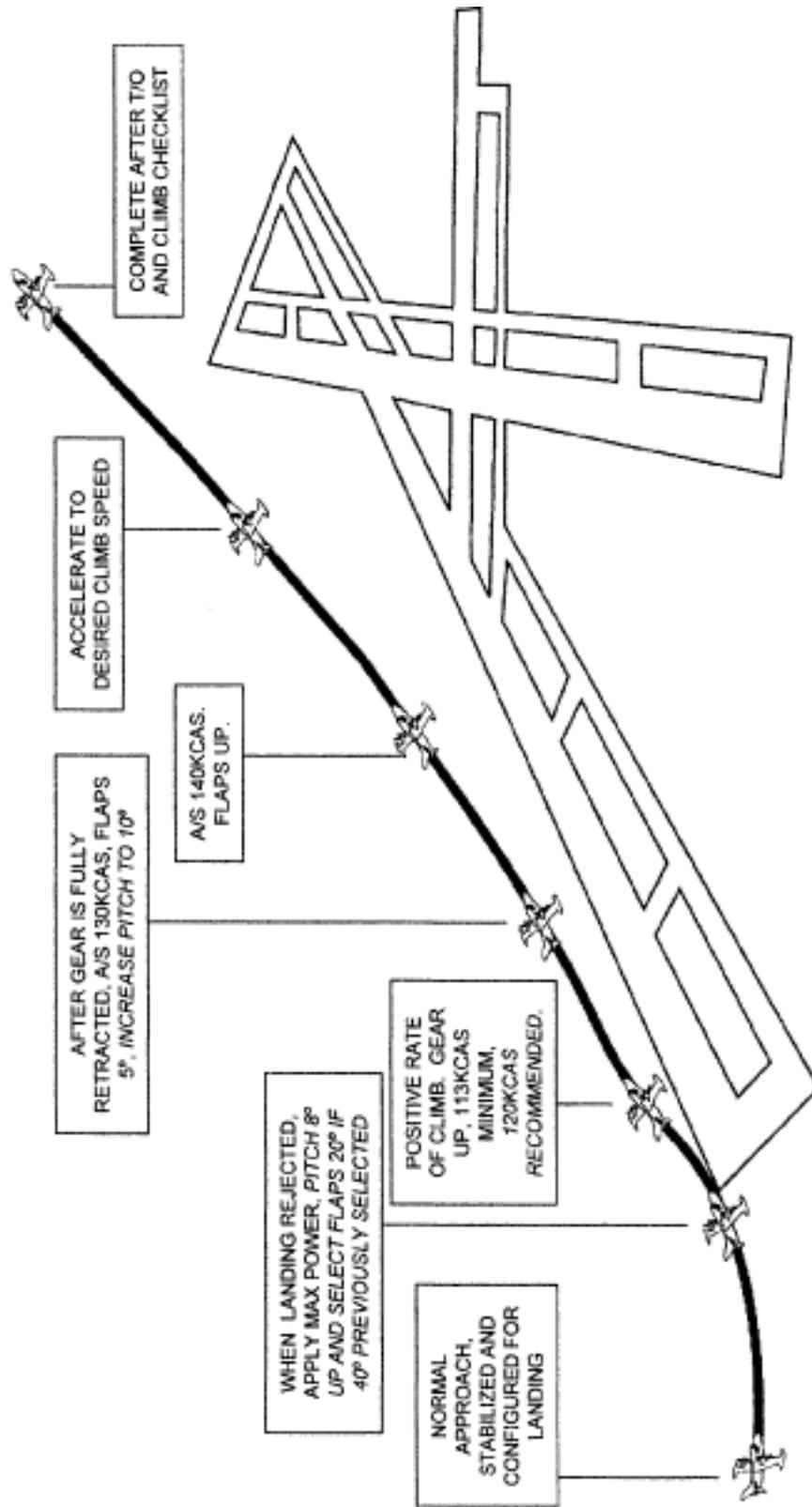
LANDING APPROACH SPEEDS – VREF

| WEIGHT | 1.3 VS1 | | 1.5 VS1 | |
|------------|-----------|-----------|-----------|-----------|
| | FLAPS 20° | FLAPS 40° | FLAPS 20° | FLAPS 40° |
| 7,500 LBS | 95* | 99* | 99 | 102* |
| 8,000 LBS | 99 | 102* | 105 | 106* |
| 8,500 LBS | 100 | 105* | 108 | 109* |
| 9,000 LBS | 102 | 108* | 111 | 112* |
| 9,500 LBS | 105 | 111* | 114 | 115* |
| 9,955 LBS | 108 | | 116 | |
| 10,000 LBS | 110 | | 119 | |
| 10,500 LBS | | | | |
| 11,025 LBS | | | | |

*P, 30s.

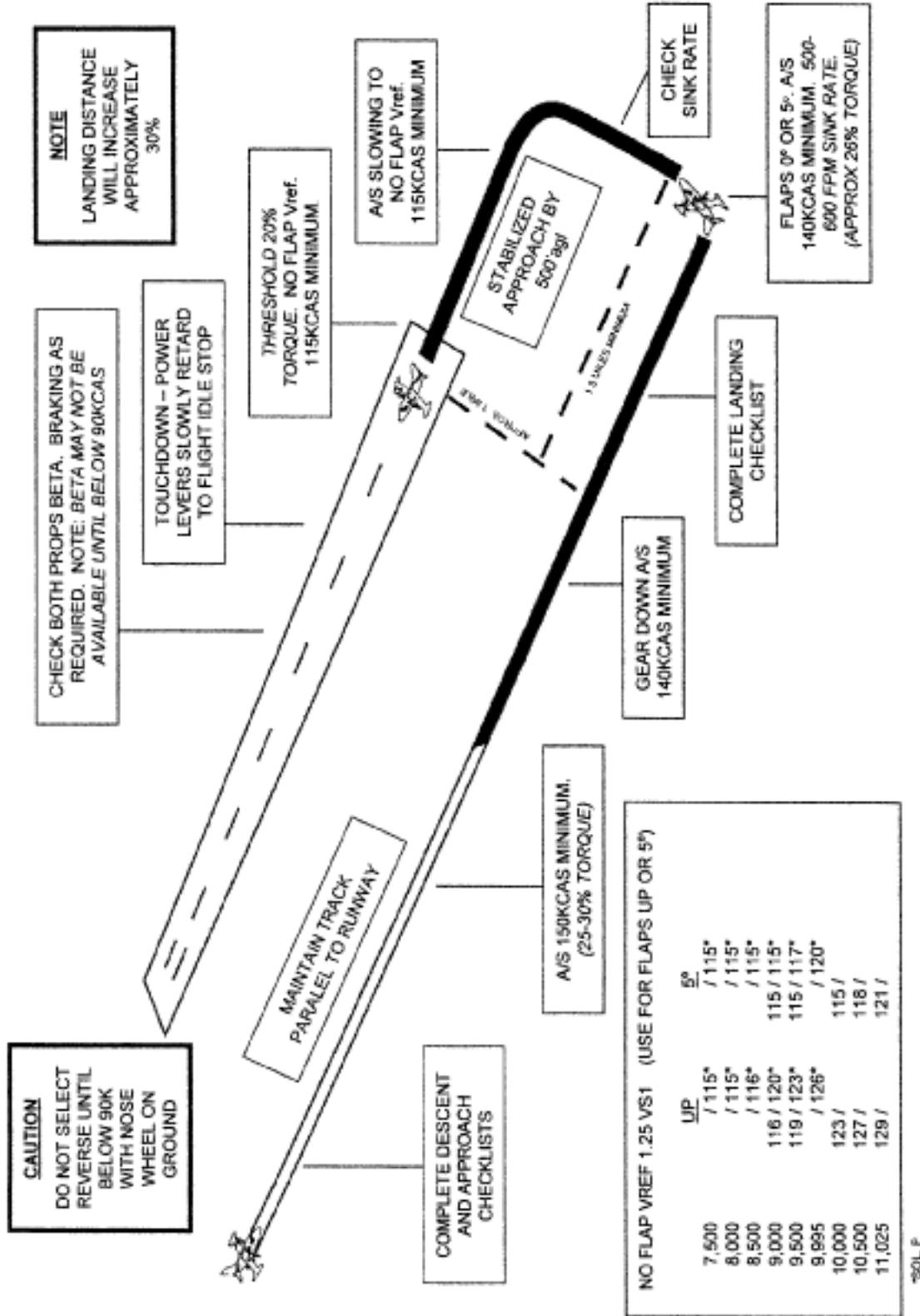
A-16

**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
GO AROUND - REJECTED LANDING**



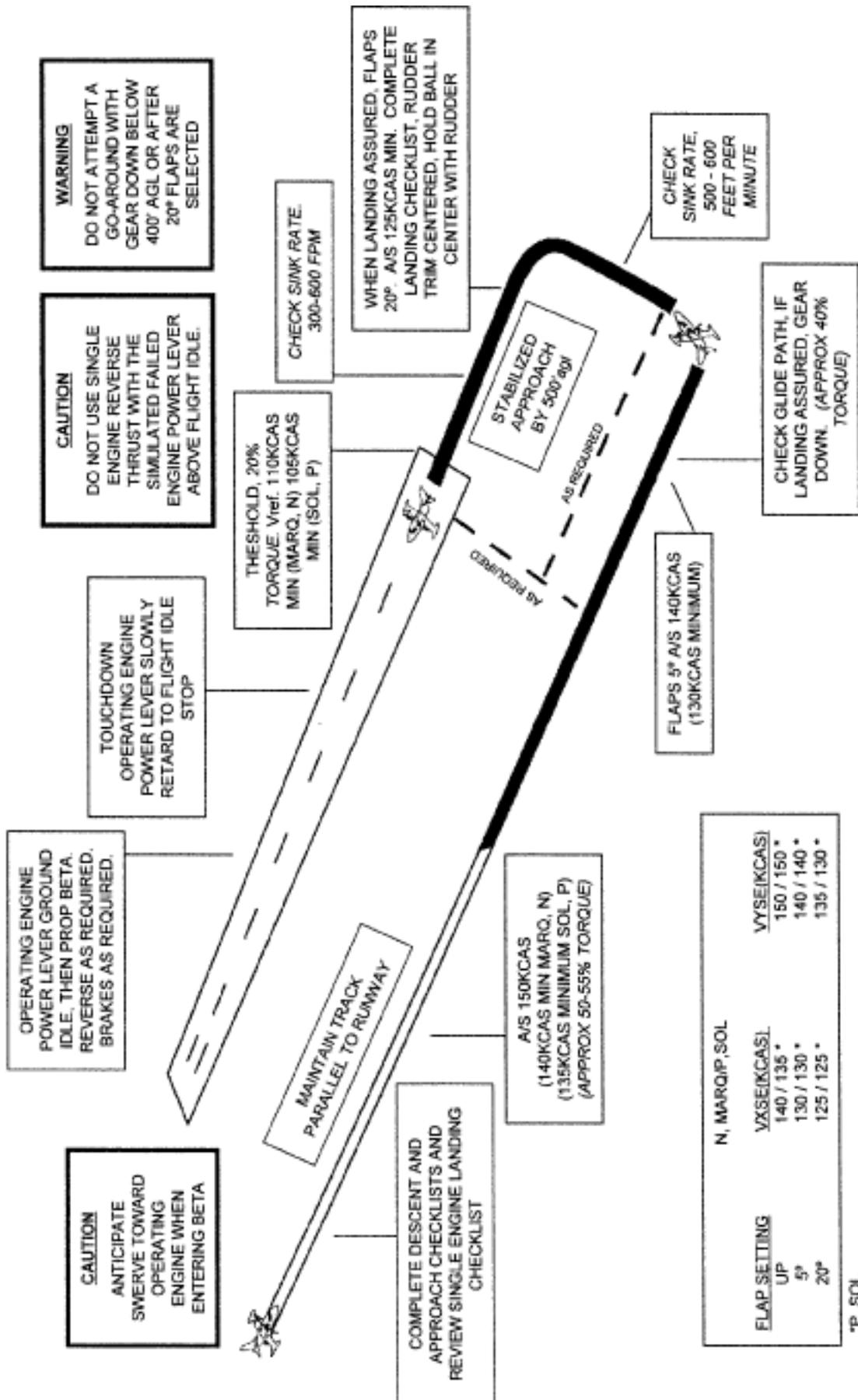
A-17

**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
NO FLAP OR 5° FLAP LANDING**

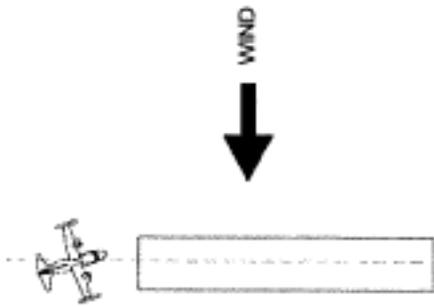


A-18

**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ONE ENGINE INOPERATIVE LANDING**

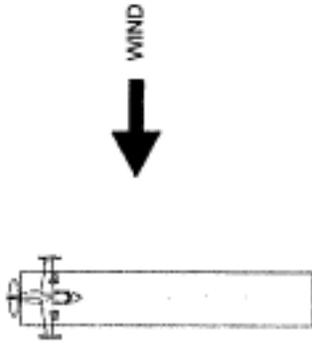
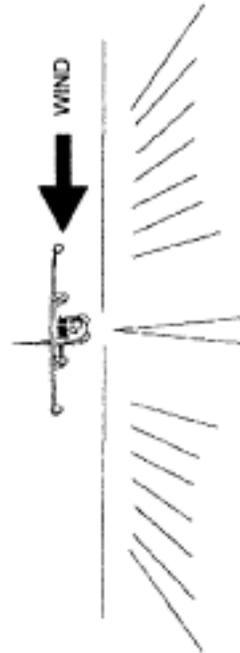


MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
CROSSWIND LANDING



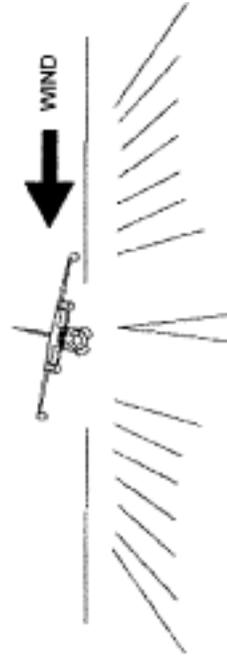
AIRCRAFT WILL BE FLOWN DOWN AN EXTENSION OF THE RUNWAY CENTER LINE WITH DRIFT CORRECTION ESTABLISHED SUFFICIENTLY IN ADVANCE TO PERMIT CENTER LINE TO BE FLOWN WITH ONLY MINOR COORDINATED CORRECTIONS

INCREASE V_{ref} FOR CROSSWIND LANDING BY ONE-HALF THE STEADY WIND SPEED PLUS ONE-HAF THE GUST SPEED NOT TO EXCEED V_{ref} PLUS 10 KIAS.

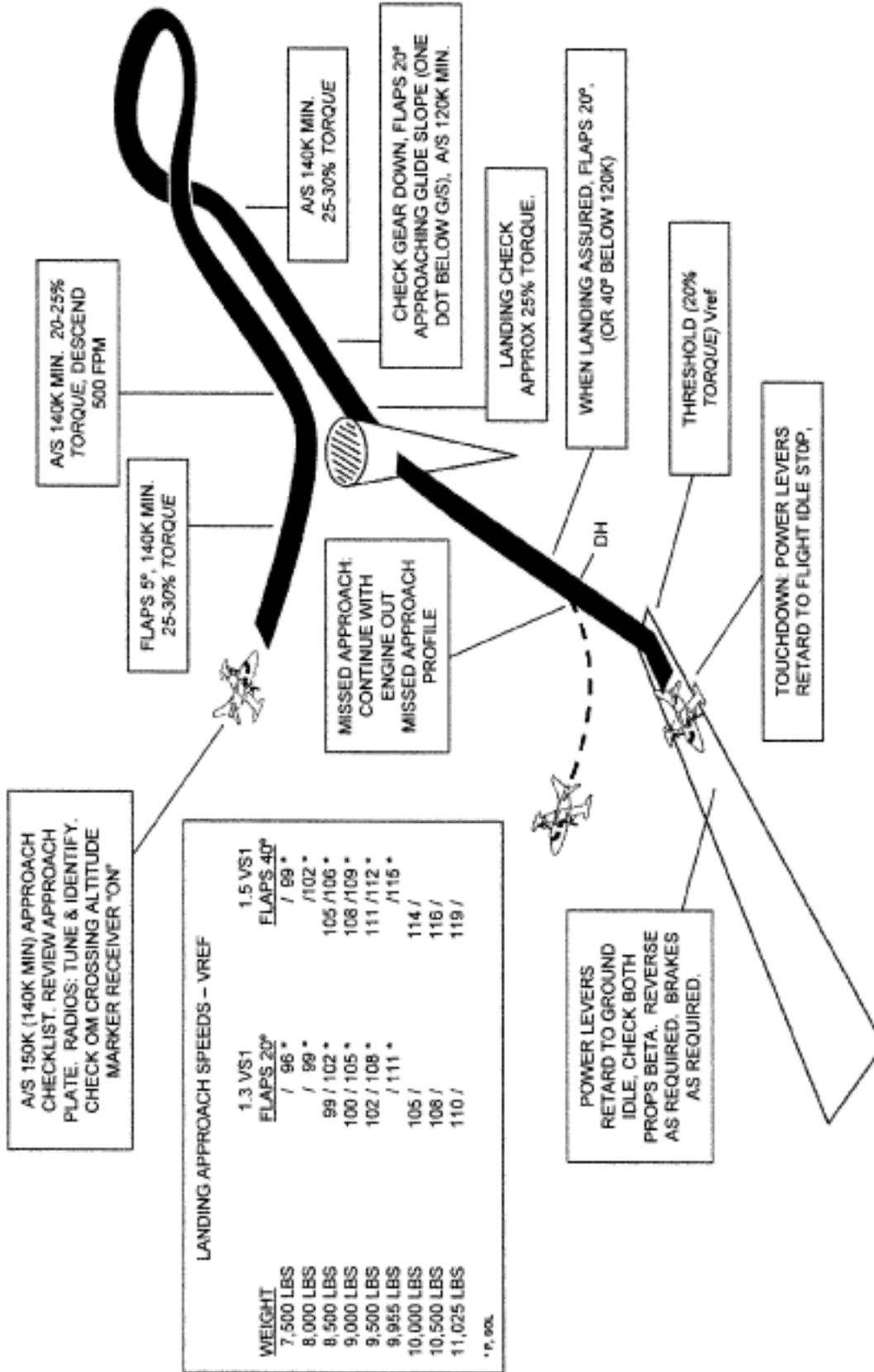


PRIOR TO TOUCHDOWN, THE UPWIND WING IS LOWERED AND SMOOTHLY MODULATED. OPPOSITE RUDDER IS APPLIED SO THAT AIRCRAFT PATH CONTINUES DOWN RUNWAY CENTERLINE. THE AIRCRAFT SHOULD NOT BE ALLOWED TO DEVELOP ANY TENDENCY TO DRIFT DOWNWIND.

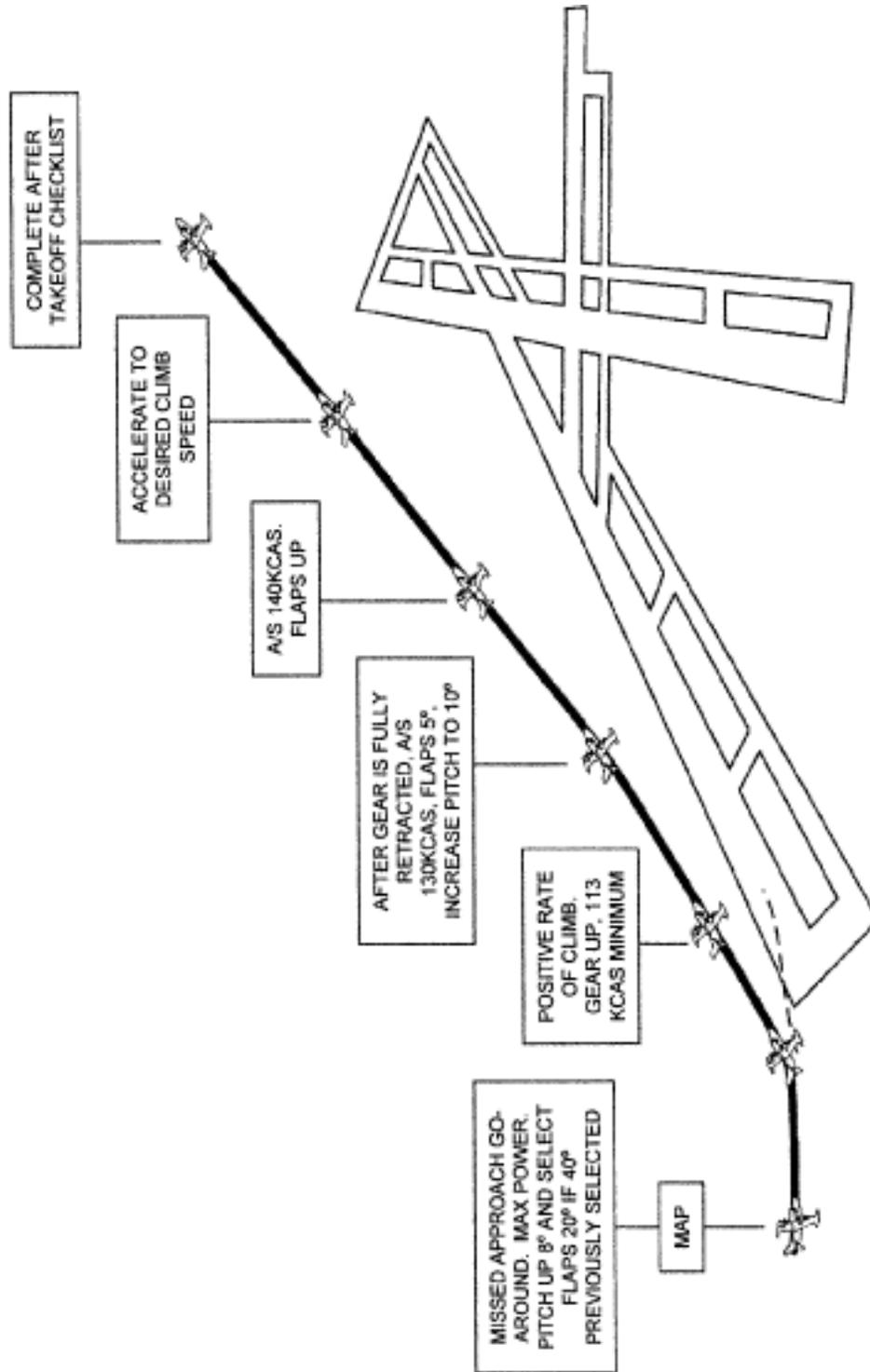
** NOTE: RUDDERS CENTERED BEFORE NOSE WHEEL TOUCHDOWN. SPOILERS INTO WIND AS NECESSARY TO KEEP WINGS LEVEL.



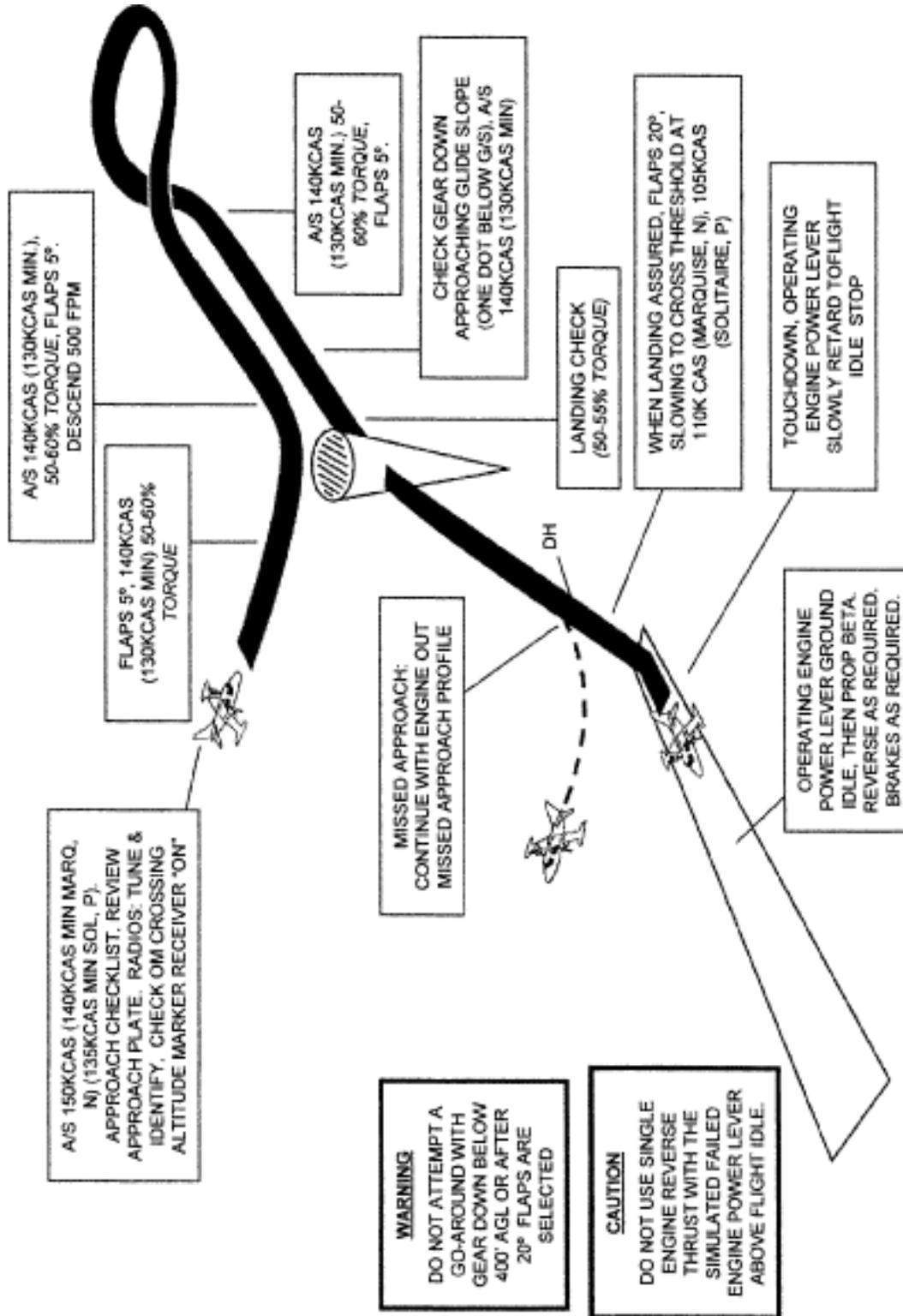
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ILS AND MISSED APPROACH**



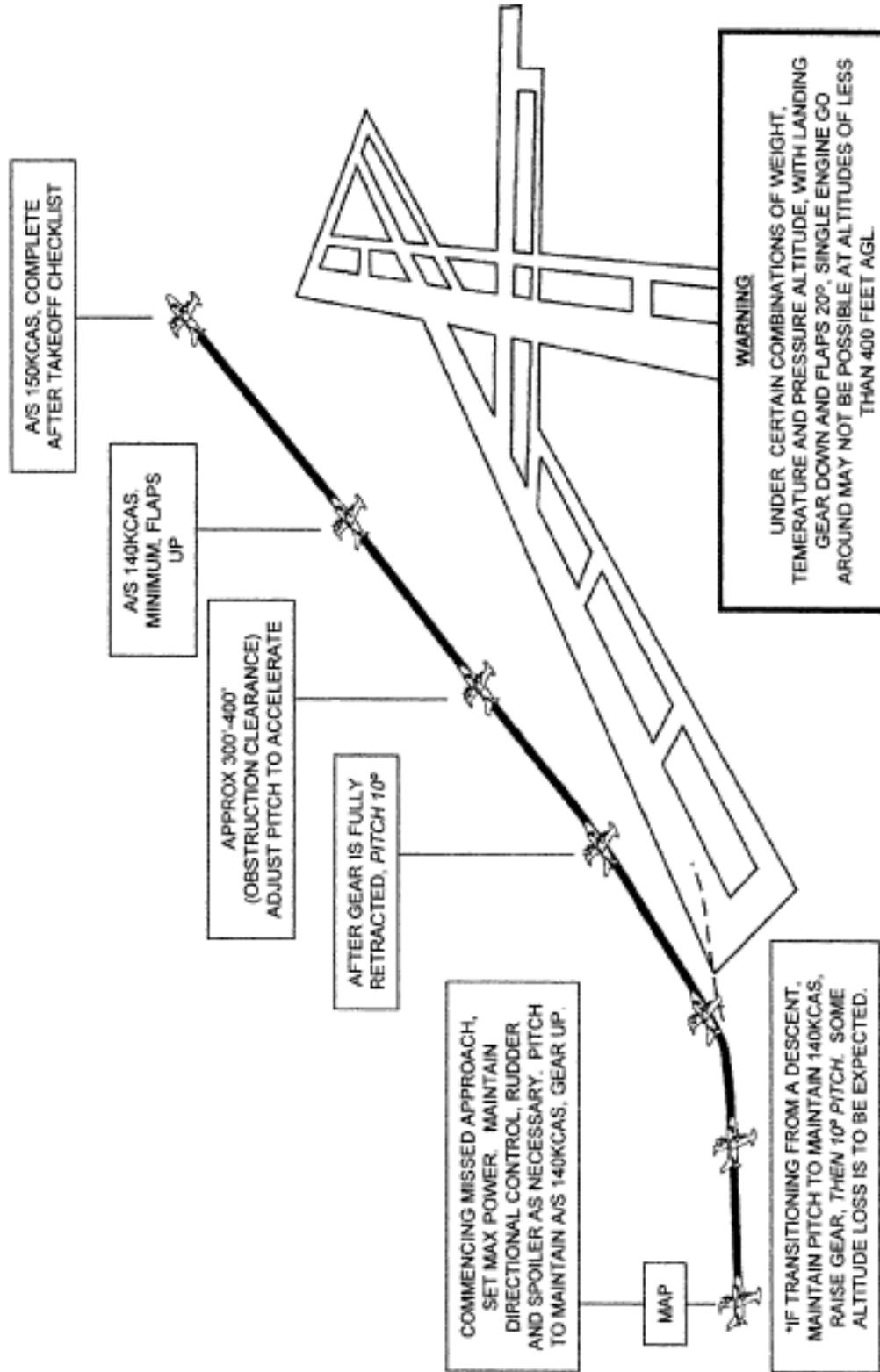
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
TWO ENGINE MISSED APPROACH**



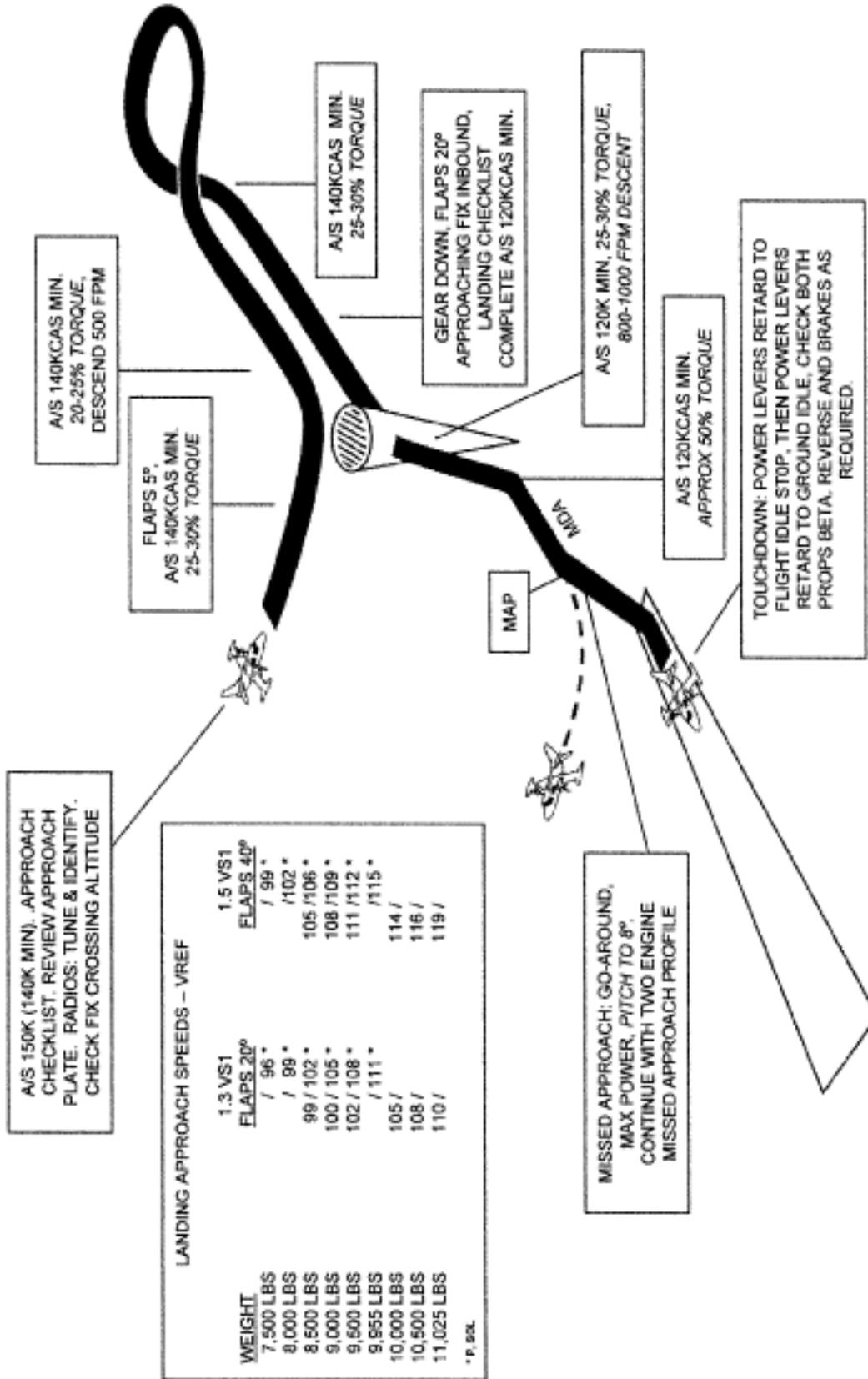
**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ONE ENGINE INOPERATIVE ILS AND MISSED APPROACH**



**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ONE ENGINE INOPERATIVE MISSED APPROACH**

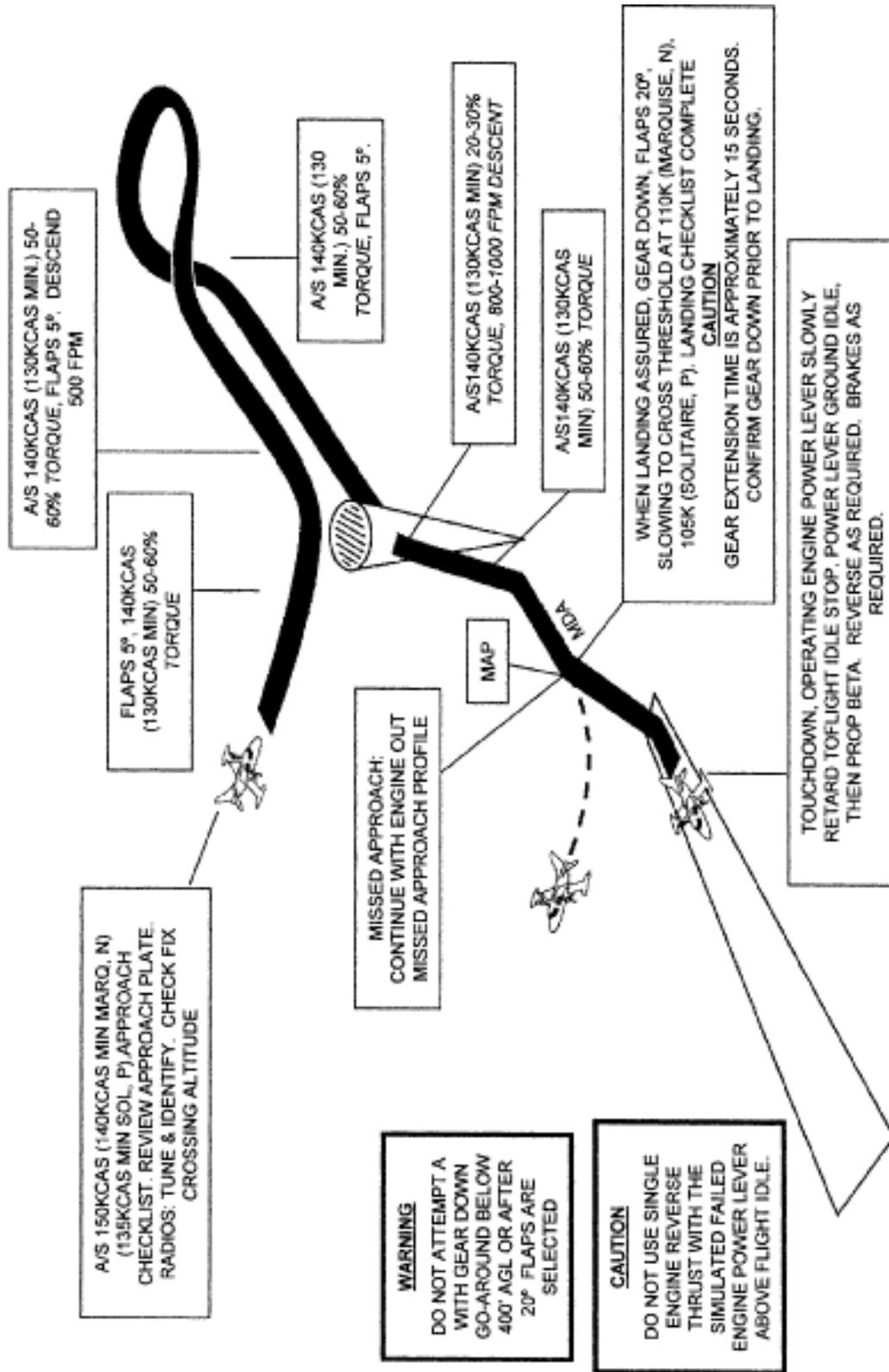


**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
NON-PRECISION AND MISSED APPROACH**

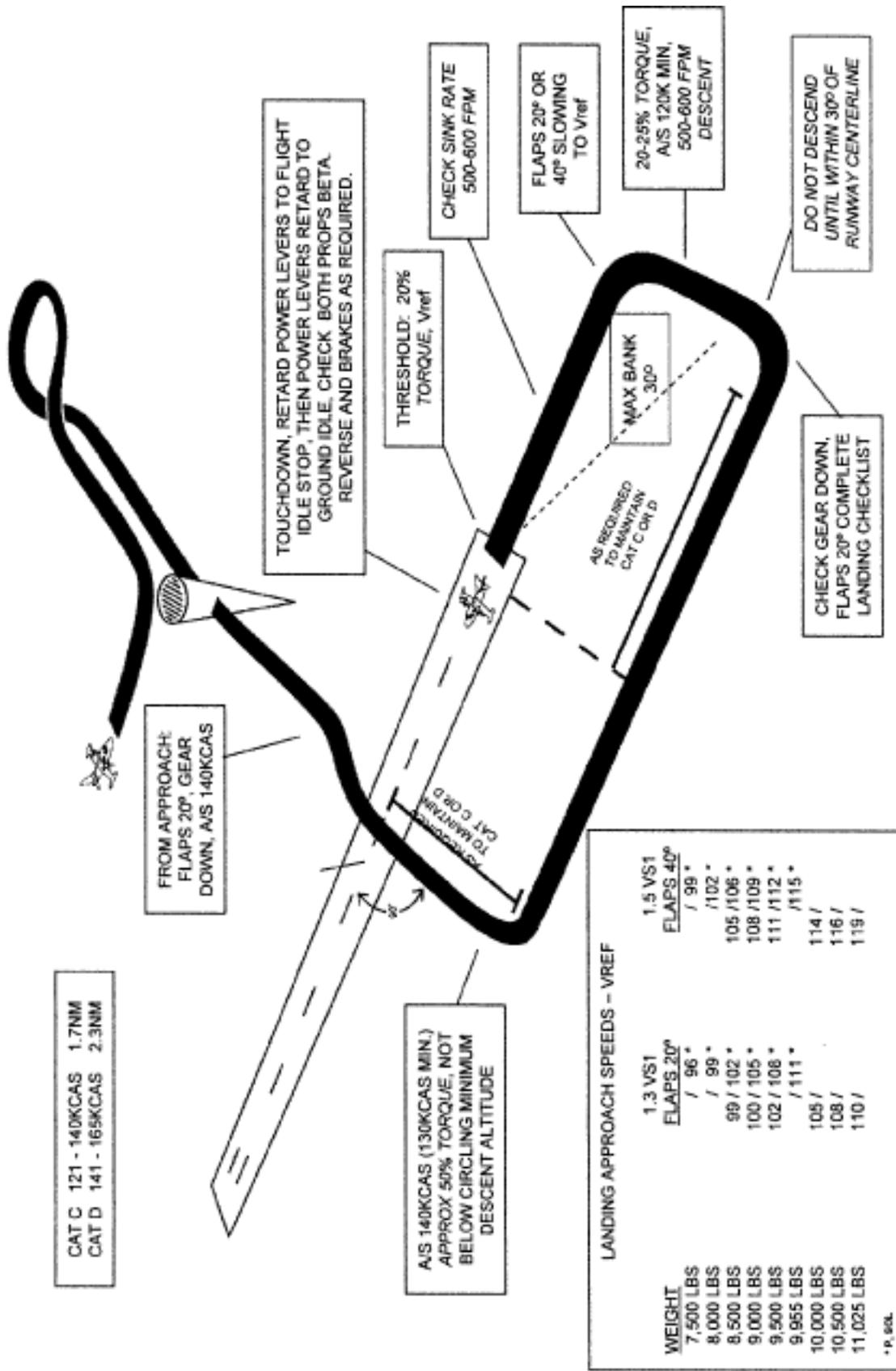


A-25

**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ONE ENGINE INOPERATIVE NON-PRECISION AND MISSED APPROACH**



**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
CIRCLING APPROACH AT WEATHER MINIMUMS**



CAT C 121 - 140KCAS 1.7NM
CAT D 141 - 165KCAS 2.3NM

A/S 140KCAS (130KCAS MIN.)
APPROX 50% TORQUE, NOT
BELOW CIRCLING MINIMUM
DESCENT ALTITUDE

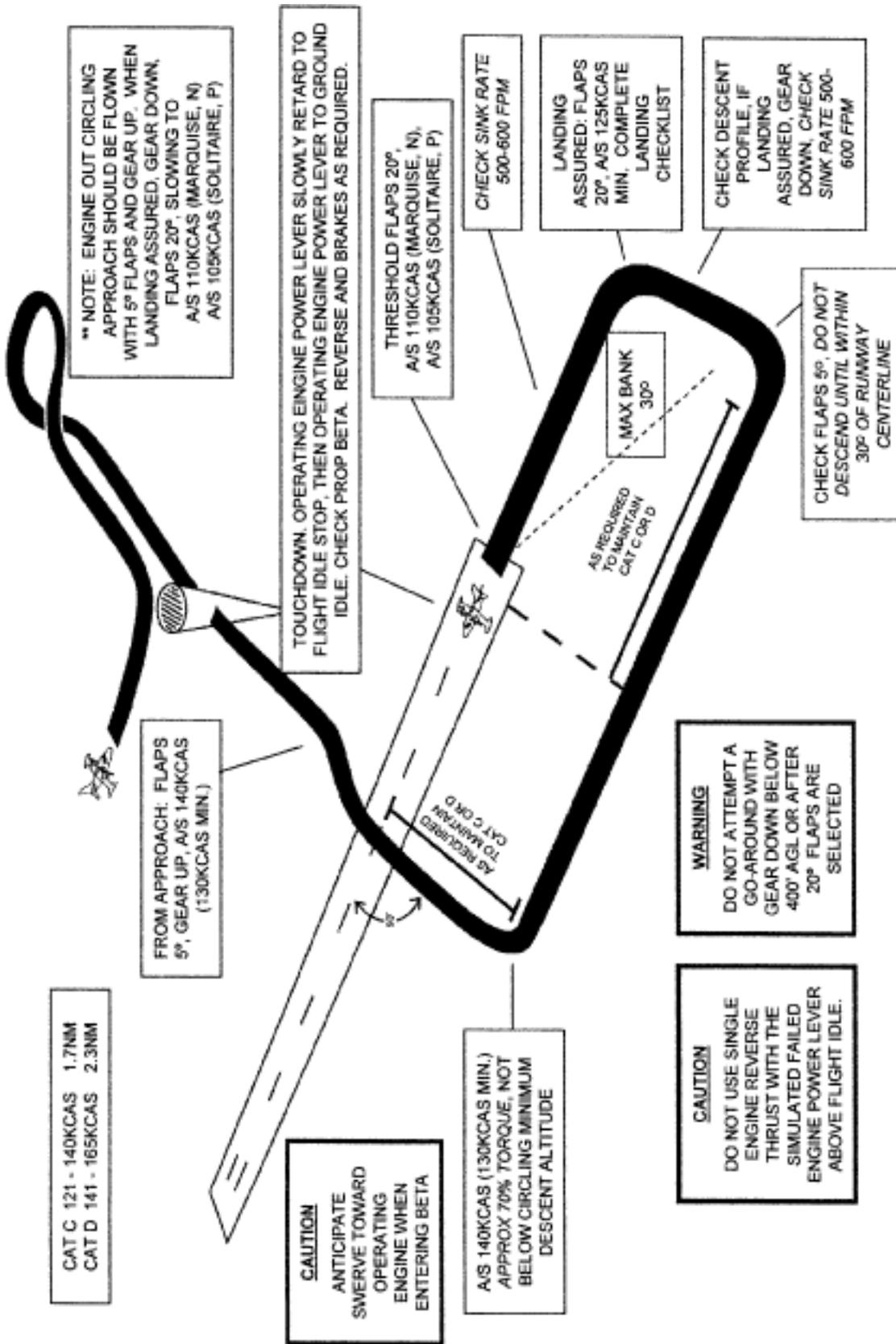
LANDING APPROACH SPEEDS - VREF

| WEIGHT | 1.3 VS1 | | 1.5 VS1 | |
|------------|------------|------------|------------|------------|
| | FLAPS 20° | FLAPS 40° | FLAPS 20° | FLAPS 40° |
| 7,500 LBS | / 96* | / 99* | / 99* | / 102* |
| 8,000 LBS | / 99* | / 102* | 105 / 106* | 108 / 109* |
| 8,500 LBS | 99 / 102* | 100 / 105* | 108 / 109* | 111 / 112* |
| 9,000 LBS | 100 / 105* | 102 / 108* | 111 / 112* | 115* |
| 9,500 LBS | 102 / 108* | / 111* | / 115* | |
| 9,955 LBS | / 111* | | | |
| 10,000 LBS | 105 / | 114 / | 114 / | 116 / |
| 10,500 LBS | 108 / | 116 / | 116 / | 119 / |
| 11,025 LBS | 110 / | 119 / | 119 / | |

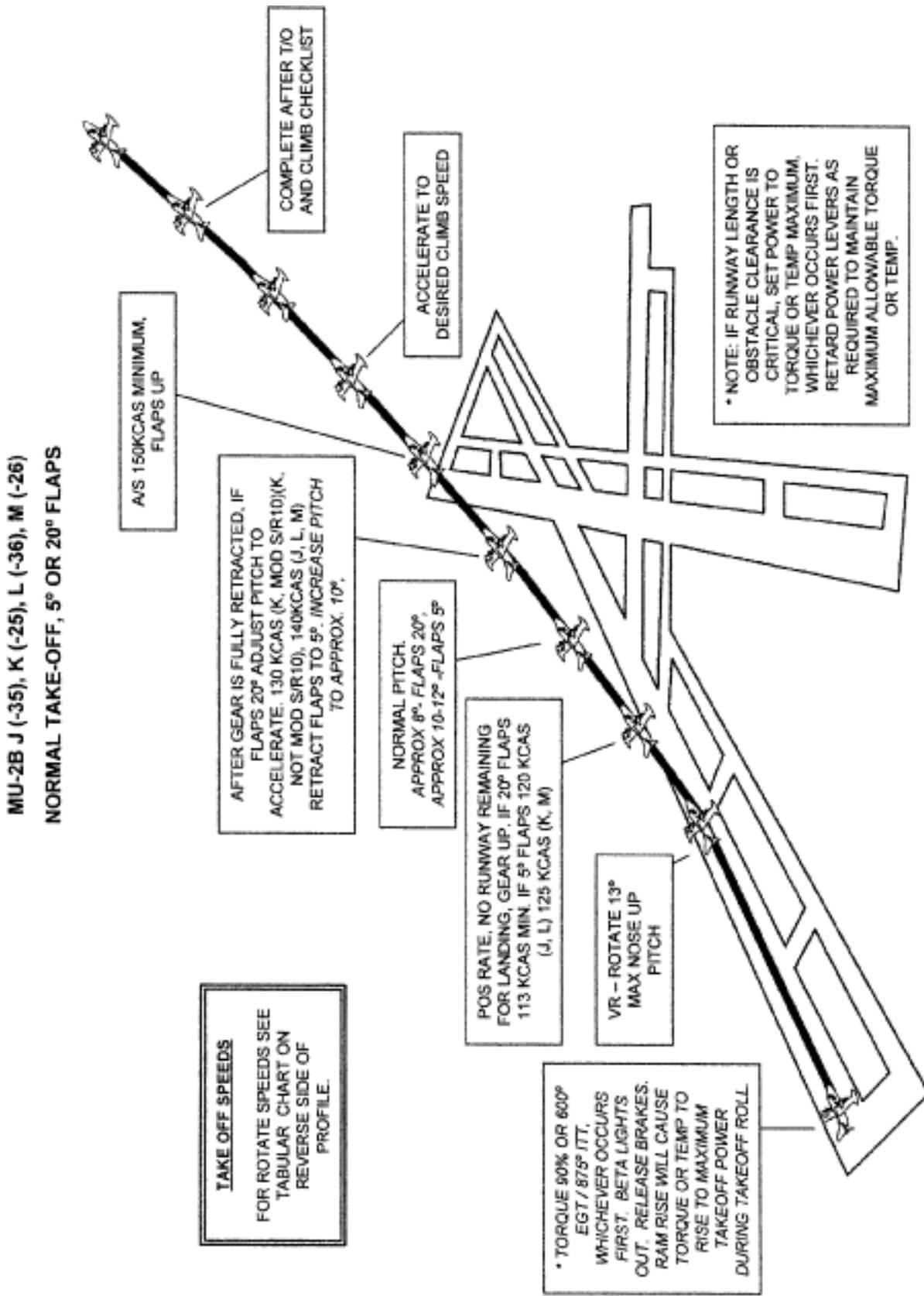
* P. 804.

A-27

**MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
ONE ENGINE INOPERATIVE CIRCLING APPROACH AT WEATHER MINIMUMS**



A-28

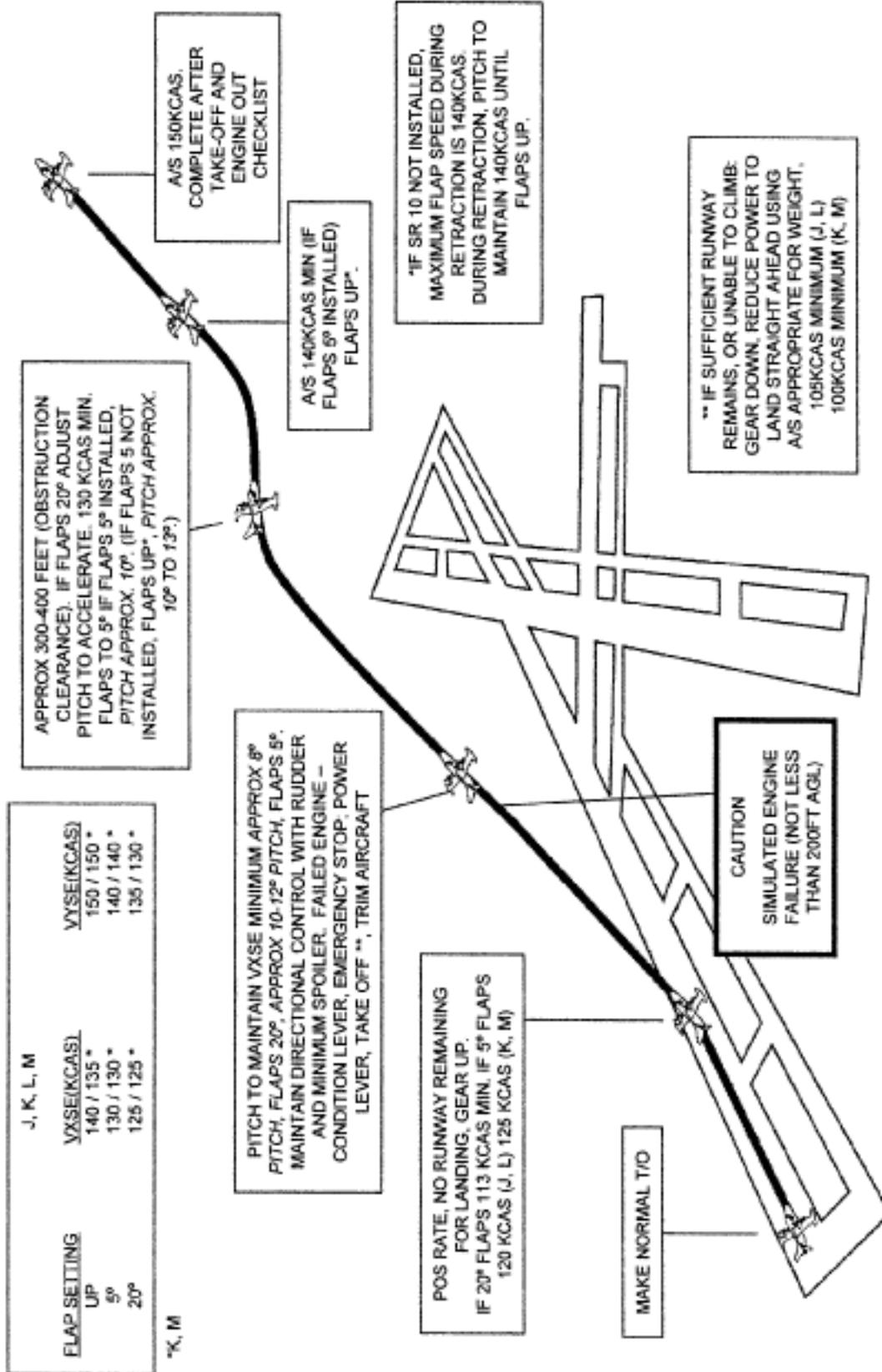


B-1

| TAKE OFF SPEEDS | | | | | |
|-----------------|-----|-----|-----|---|-----|
| ROTATE | | | | | |
| | K | M | J | L | |
| FLAPS 5° | | | | | |
| 11,575 LBS | | | | | 109 |
| 11,000 LBS | | | 109 | | 106 |
| 10,800 LBS | | 110 | | | 105 |
| 10,470 LBS | | 108 | | | 104 |
| 10,000 LBS | | | 105 | | 101 |
| 9,920 LBS | 108 | | | | 101 |
| 9,500 LBS | 107 | 107 | 103 | | 101 |
| 9,000 LBS | 106 | 106 | 101 | | 100 |
| 8,000 LBS | 104 | 104 | 100 | | |
| 7,500 LBS | 102 | | | | |
| FLAPS 20° | | | | | |
| 11,575 LBS | | | | | 105 |
| 11,000 LBS | | | | | 103 |
| 10,800 LBS | | | 105 | | |
| 10,470 LBS | | 103 | | | |
| 10,000 LBS | | 102 | 102 | | 100 |
| 9,920 LBS | 102 | | | | |
| 9,500 LBS | 101 | 101 | 101 | | 100 |
| 9,000 LBS | 100 | 100 | 100 | | 100 |
| 8,000 LBS | 99 | 99 | 100 | | 100 |
| 7,500 LBS | 98 | | | | |

D-18

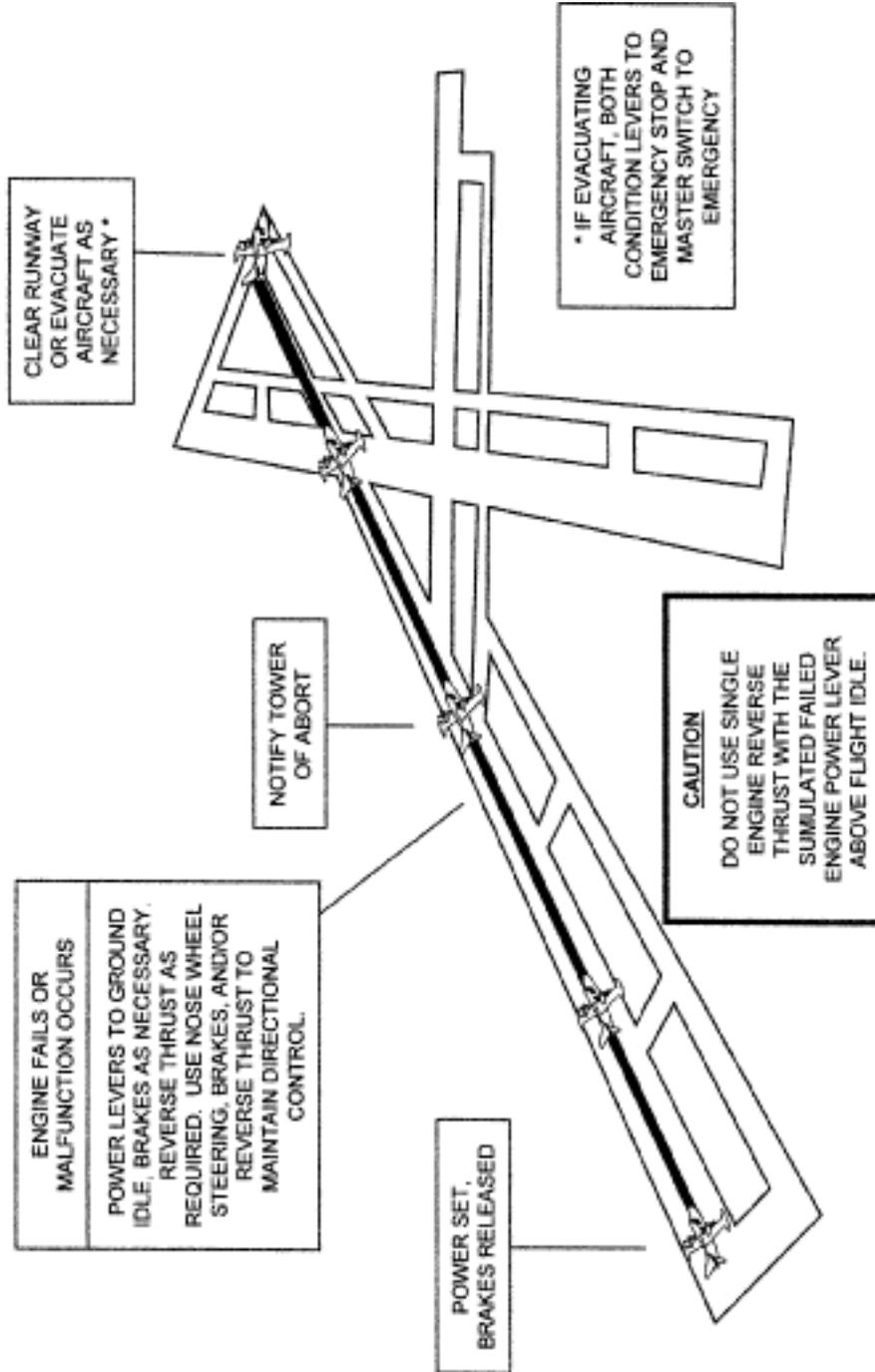
**MU-2B J (-35), K (-25), L (-36), M (-26)
TAKE-OFF ENGINE FAILURE – FLAPS 5° OR 20°**



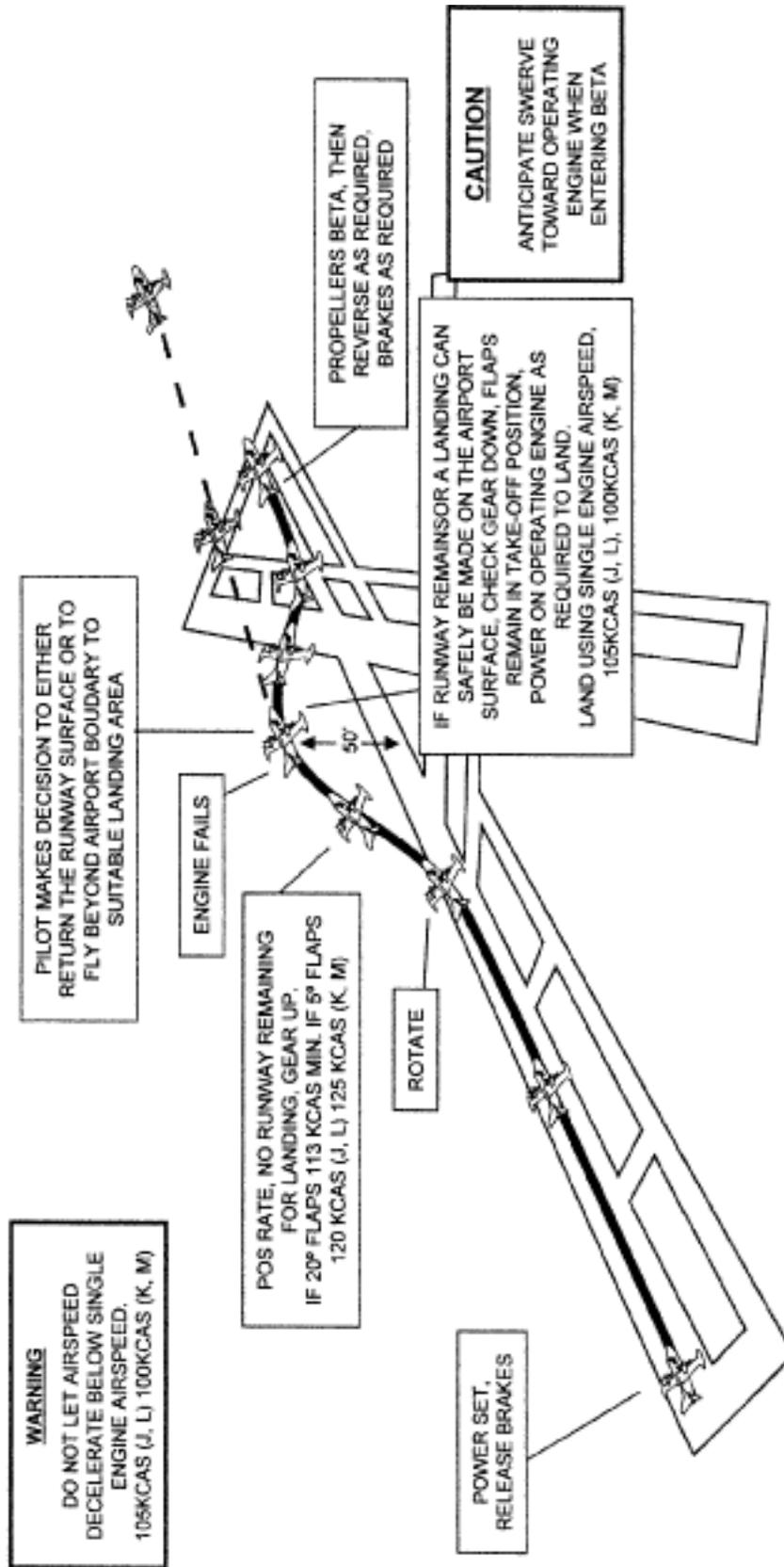
B-2

**MU-2B J (-35), K (-25), L (-36), M (-26)
TAKE-OFF ENGINE FAILURE ON RUNWAY**

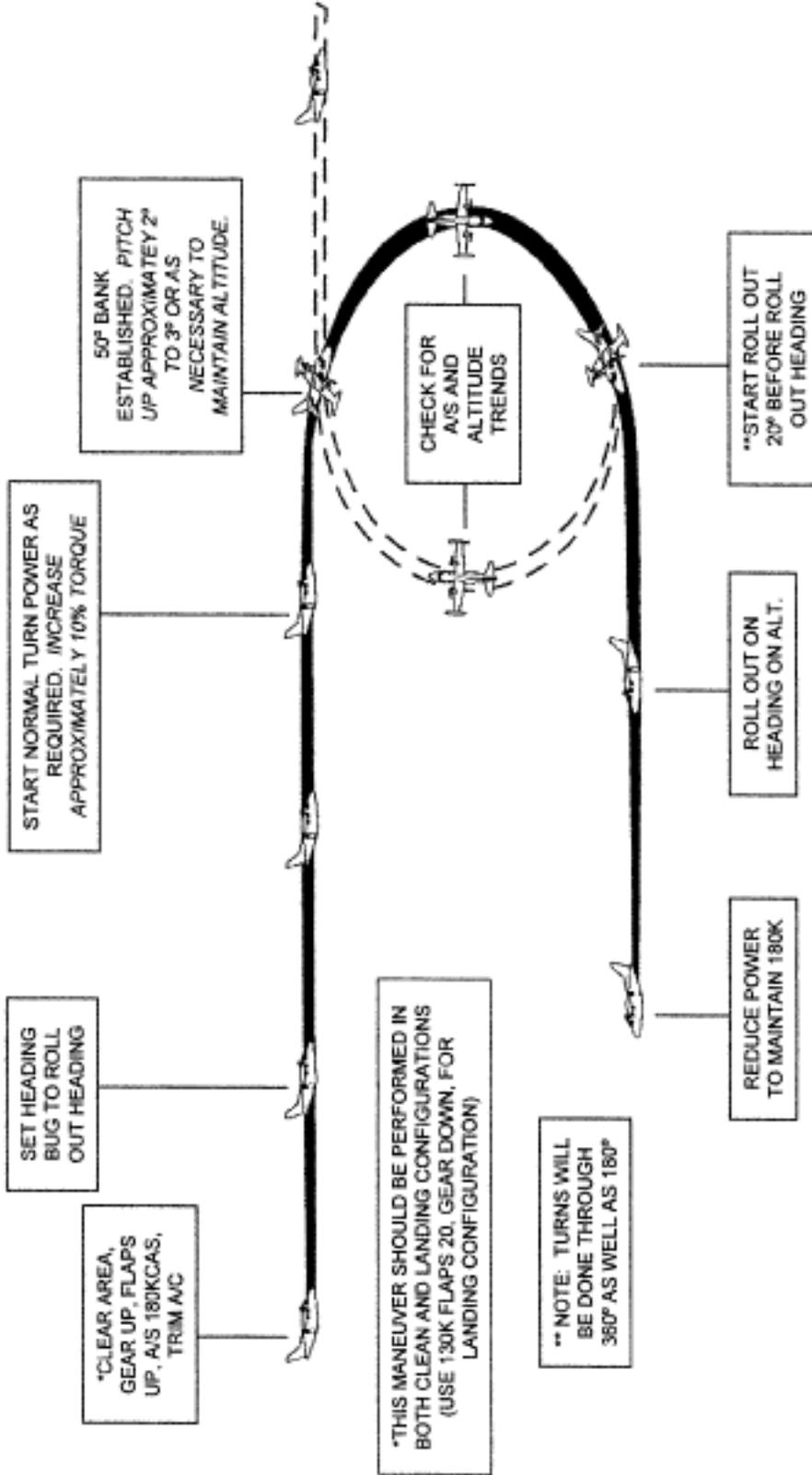
CAUTION
SIMULATED ENGINE FAILURE OR MALFUNCTION IS TO BE GIVEN BY INSTRUCTOR AT NOT MORE THAN 50% OF ROTATE SPEEDS.



MU-2B J (-35), K (-25), L (-36), M (-26)
TAKE-OFF ENGINE FAILURE - UNABLE TO CLIMB
CLASSROOM DISCUSSION OR FTD USE ONLY



MU-2B J (-35), K (-25), L (-36), M (-26)
STEEP TURNS



B-5

MU-2B J (-35), K (-25), L (-36), M (-26)
SLOW FLIGHT MANEUVERING
MINIMUM CONTROLLABLE AIRSPEED

SLOW FLIGHT MANEUVERING IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

START WITH CLEAN CONFIGURATION AND CHANGE AIRCRAFT CONFIGURATION FROM CLEAN TO FULL FLAP AND GEAR IN STAGES. USE A MAXIMUM OF 15° BANK AND PERFORM HEADING CHANGES OF 90° LEFT AND RIGHT. CONSTANT ALTITUDE IS REQUIRED THROUGHOUT.

MAINTAIN 115KCAS IN ALL CONFIGURATIONS.

**APPROXIMATE POWER SETTINGS ARE:

| | | |
|-----------------|-------------------------|------------------|
| CLEAN | TORQUE (35%) PER ENGINE | APPROX PITCH +12 |
| 5° FLAP | TORQUE (32%) PER ENGINE | APPROX PITCH +8 |
| 5° FLAP & GEAR | TORQUE (44%) PER ENGINE | APPROX PITCH +9 |
| 20° FLAP & GEAR | TORQUE (42%) PER ENGINE | APPROX PITCH +4 |
| 40° FLAP & GEAR | TORQUE (54%) PER ENGINE | APPROX PITCH 0 |

** NOTE: POWER SETTINGS WILL VARY WITH AIRCRAFT WEIGHT AND ALTITUDE.

STALL SPEEDS (APPROXIMATE)
 AT MAXIMUM GROSS TAKEOFF WEIGHT
 J, K, L, M

| ANGLE OF BANK FLAPS | J / L / K / M | J / L / K / M |
|------------------------|-----------------|-----------------|
| | 0° | 15° |
| UP | 104/106/101/104 | 107/108/103/106 |
| 5° | 98/ 99/ 95/ 98 | 103/101/ 97/100 |
| 20° | 85/ 87/ 85/ 87 | 88/ 89/ 87/ 89 |
| 40° | 79/ 81/ 76/ 78 | 82/ 83/ 78/ 80 |

V100 FLAPS 5° 99KCAS (J, L), 100KCAS (K, M)
 FLAPS 20° 90KCAS (J), 99KCAS (L), 98KCAS (K, M)

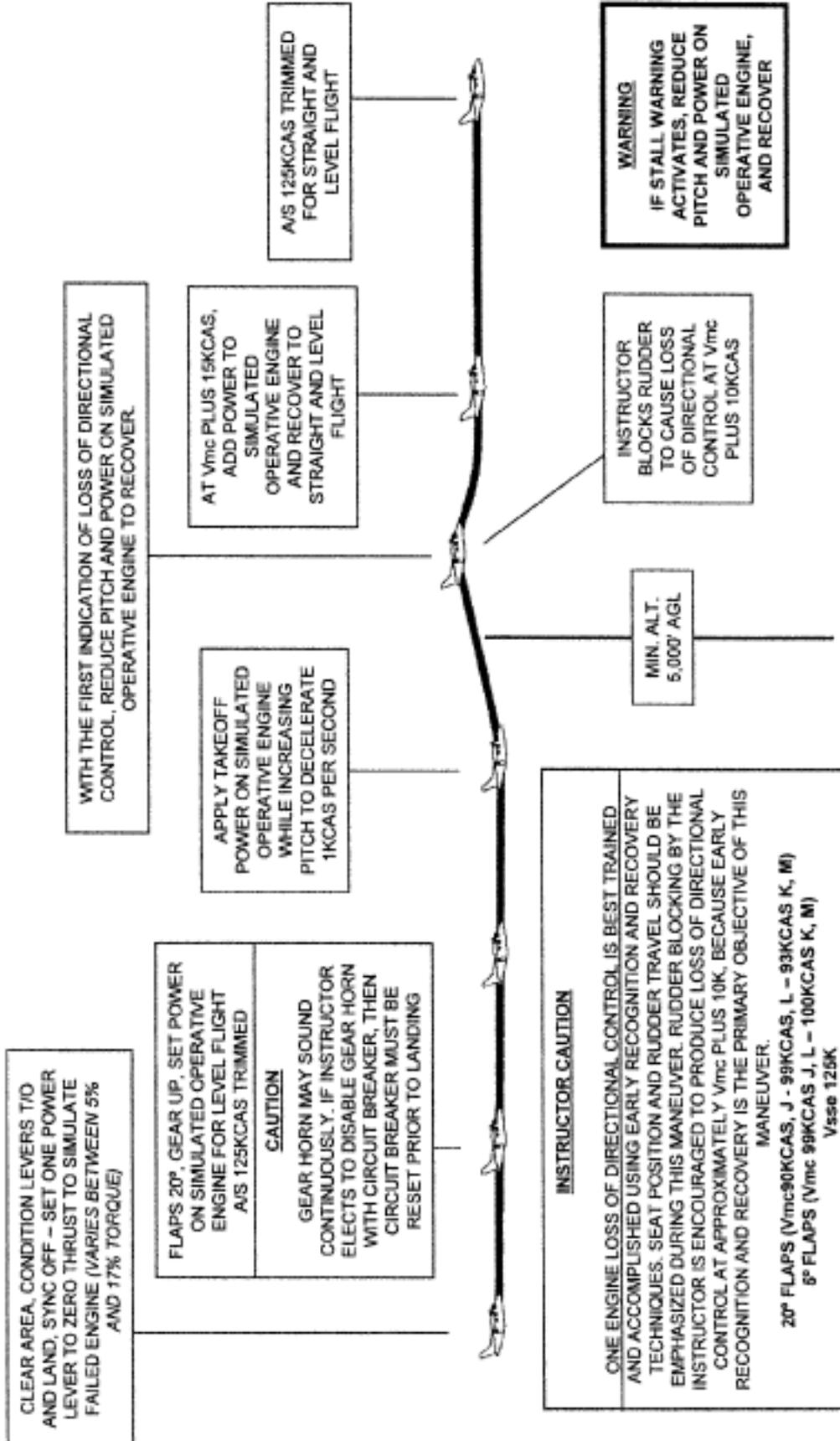
CAUTION
 STALL WARNING MAY ACTIVATE
 4 TO 9 KTS ABOVE STALL

MINIMUM CONTROLLABLE AIRSPEED IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

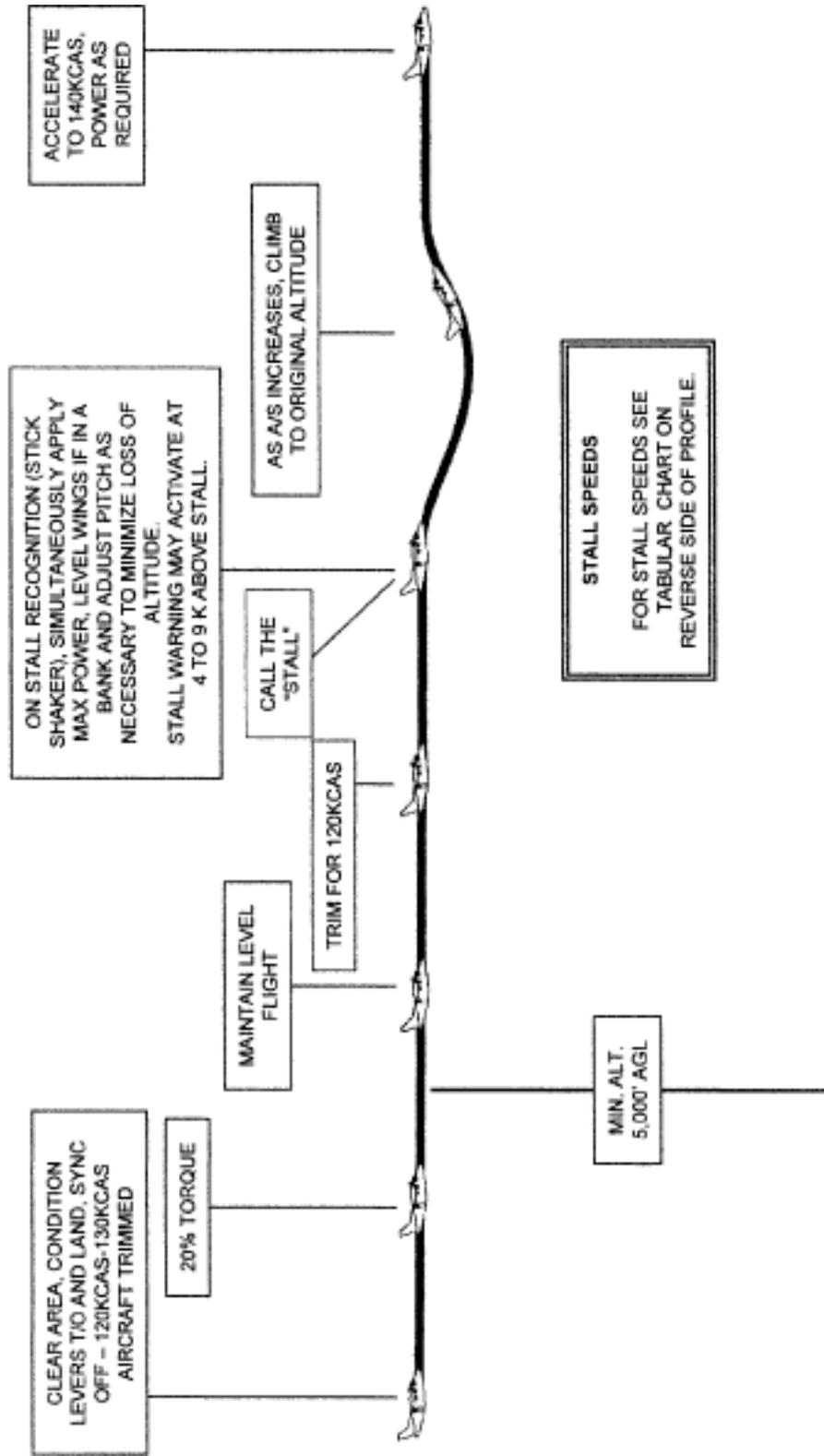
THE MANEUVER MAY BE DONE IN ANY COMBINATION OF GEAR OR FLAP CONFIGURATIONS. IF BANK IS TO BE USED, IT SHOULD BE DONE AT BANK OF NOT MORE THAN 10°. BEGIN THE MANEUVER BY CONFIGURING THE AIRCRAFT IN THE DESIRED GEAR AND FLAP CONFIGURATION. SLOW THE AIRCRAFT UNTIL THE STALL WARNING (STICK SHAKER) IS ACTIVATED AND ADD POWER TO MAINTAIN ALTITUDE AND A SPEED JUST ABOVE AERODYNAMIC STALL. DO NOT ALLOW THE AIRCRAFT TO REACH AERODYNAMIC STALL BUFFET.

**MU-2B J (-35), K (-25), L (-36), M (-26)
ONE ENGINE INOPERATIVE MANEUVERING
LOSS OF DIRECTIONAL CONTROL**



B-7

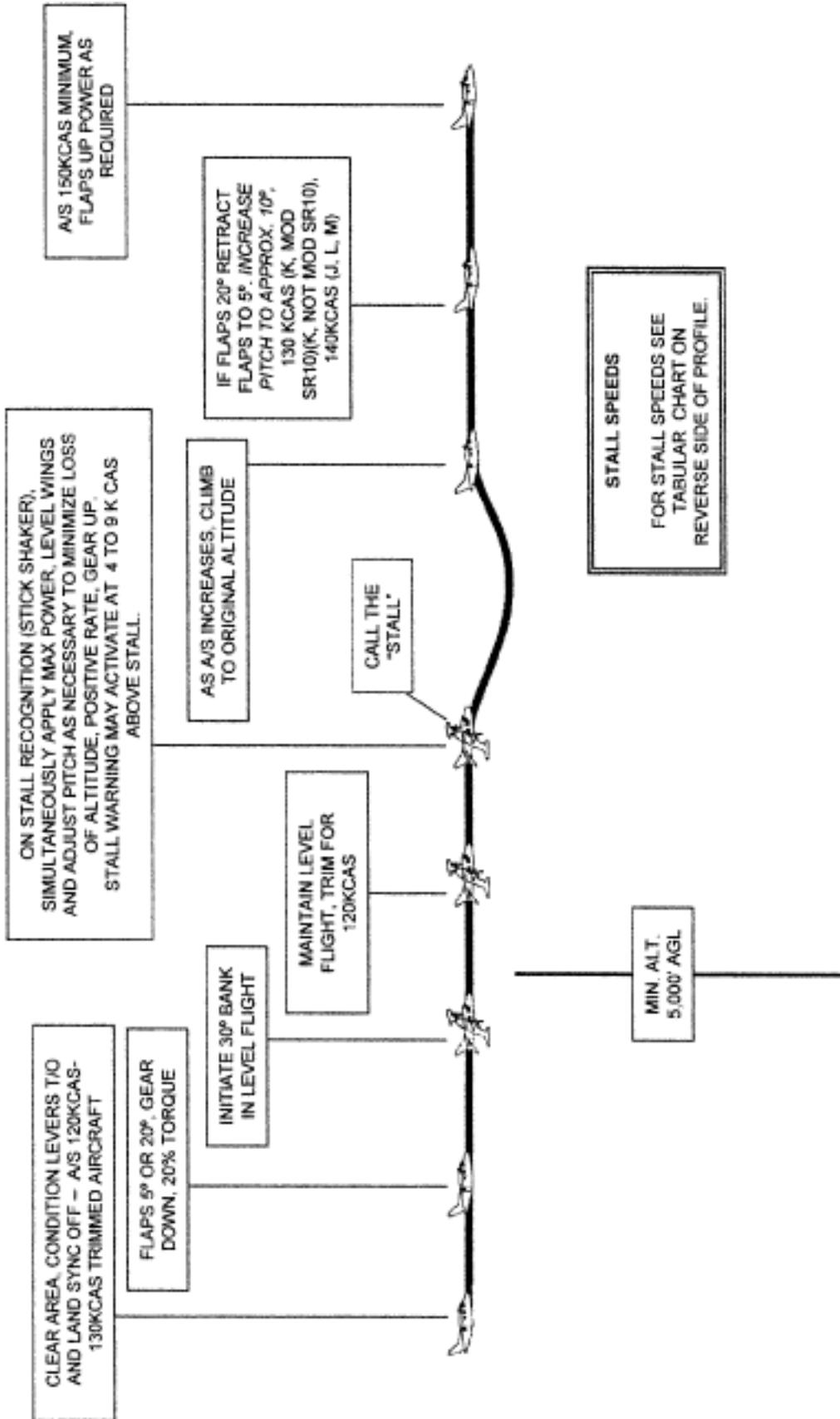
MU-2B J (-35), K (-25), L (-36), M (-26)
APPROACH TO STALL CLEAN CONFIGURATION / WINGS LEVEL



| FLAPS SET GR.WT. | STALL SPEEDS | | | |
|---------------------|----------------|----------------|----------------|----------------|
| | 0 | 5 | 20 | 40 |
| | K./M./J./L | K./M./J./L | K./M./J./L | K./M./J./L |
| 7,000 | 85/ 85/ | 80/ 80/ | 72/ 72/ | 64/ 64/ |
| 7,500 | 88/ 88/ | 83/ 83/ | 74/ 75/ | 67/ 68/ |
| 8,000 | 91/ 91/ 90/ | 86/ 85/ 84/ | 77/ 77/ 74/ | 69/ 68/ 69 |
| 8,500 | 94/ 94/ 93/ | 89/ 88/ 87/ | 79/ 79/ 77/ | 71/ 70/ 71/ |
| 9,000 | 97/ 96/ 95/ 93 | 91/ 91/ 89/ 88 | 82/ 81/ 79/ 77 | 73/ 72/ 73/ 72 |
| 9,500 | 99/ 99/ 98/ 96 | 93/ 93/ 92/ 90 | 84/ 83/ 81/ 79 | 75/ 74/ 75/ 74 |
| 9,920 | 101/ | 95/ | 85/ | 76/ |
| 10,000 | /102/100/ 98 | / 96/ 94/ 92 | / 86/ 84/ 81 | / 76/ 77/ 76 |
| 10,470 | /104/ | / 98/ | / 88/ | / 78/ |
| 10,500 | /103/101 | / 96/ 94 | / 85/ 83 | / 79/ 77 |
| 10,800 | /104/ | / 98/ | / 86/ | / 80/ 78 |
| 11,000 | /103 | / 97 | / 85 | / 79 |
| 11,500 | /106 | / 99 | / 87 | / 81 |

B-8a

**MU-2B J (-35), K (-25), L (-36), M (-26)
 APPROACH TO STALL
 TAKEOFF CONFIGURATION 15-30° BANK**



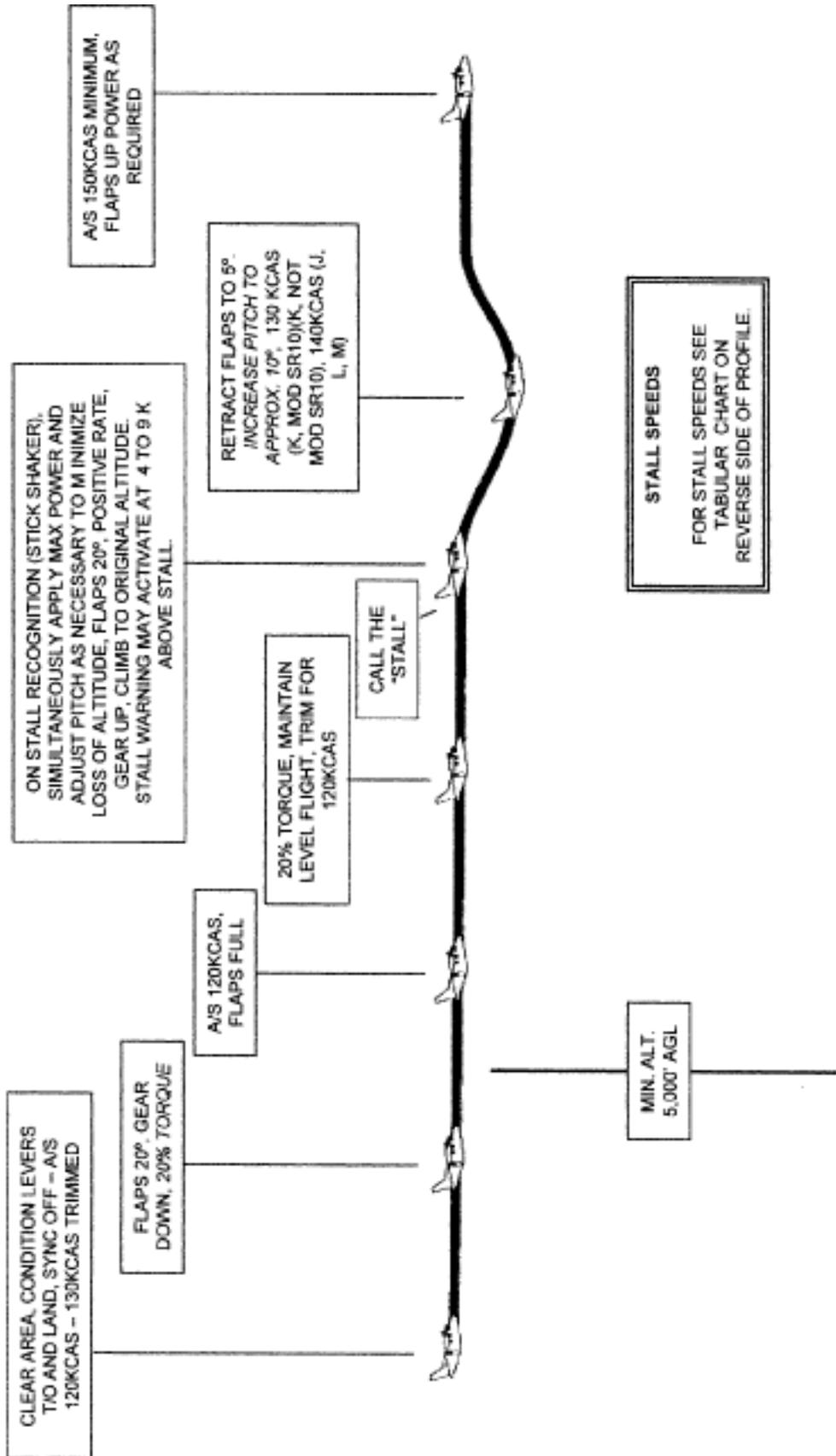
| | | STALL SPEEDS (APPROXIMATE) AT MAXIMUM GROSS TAKEOFF WEIGHT | | | | | |
|---------------|---------|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | J, K, L, M | | | | | |
| BANK ANGLE | | 10 | 20 | 30 | 40 | 50 | 60 |
| FLAPS | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M |
| UP | J/L/K/M | 106/107/102/105 | 108/109/105/108 | 112/114/109/112 | 120/121/116/120 | 130/132/128/130 | 148/150/143/147 |
| 5° | J/L/K/M | 99/100/ 96/ 98 | 101/102/ 98/101 | 105/107/102/105 | 112/113/108/112 | 122/123/119/122 | 138/140/134/138 |
| 20° | J/L/K/M | 87/ 88/ 86/ 88 | 89/ 90/ 89/ 90 | 92 /94/ 92/ 94 | 98/100/ 97/100 | 108/109/107/109 | 122/123/120/123 |
| 40° | J/L/K/M | 81/ 82/ 77/ 79 | 83/ 84/ 79/ 81 | 86/ 87/ 82/ 84 | 92/ 93/ 87/ 90 | 100/102/ 96/ 98 | 112/115/108/110 |

B-08

MU-2B J (-35), K (-25), L (-36), M (-26)

APPROACH TO STALL

GEAR DOWN - FULL FLAPS

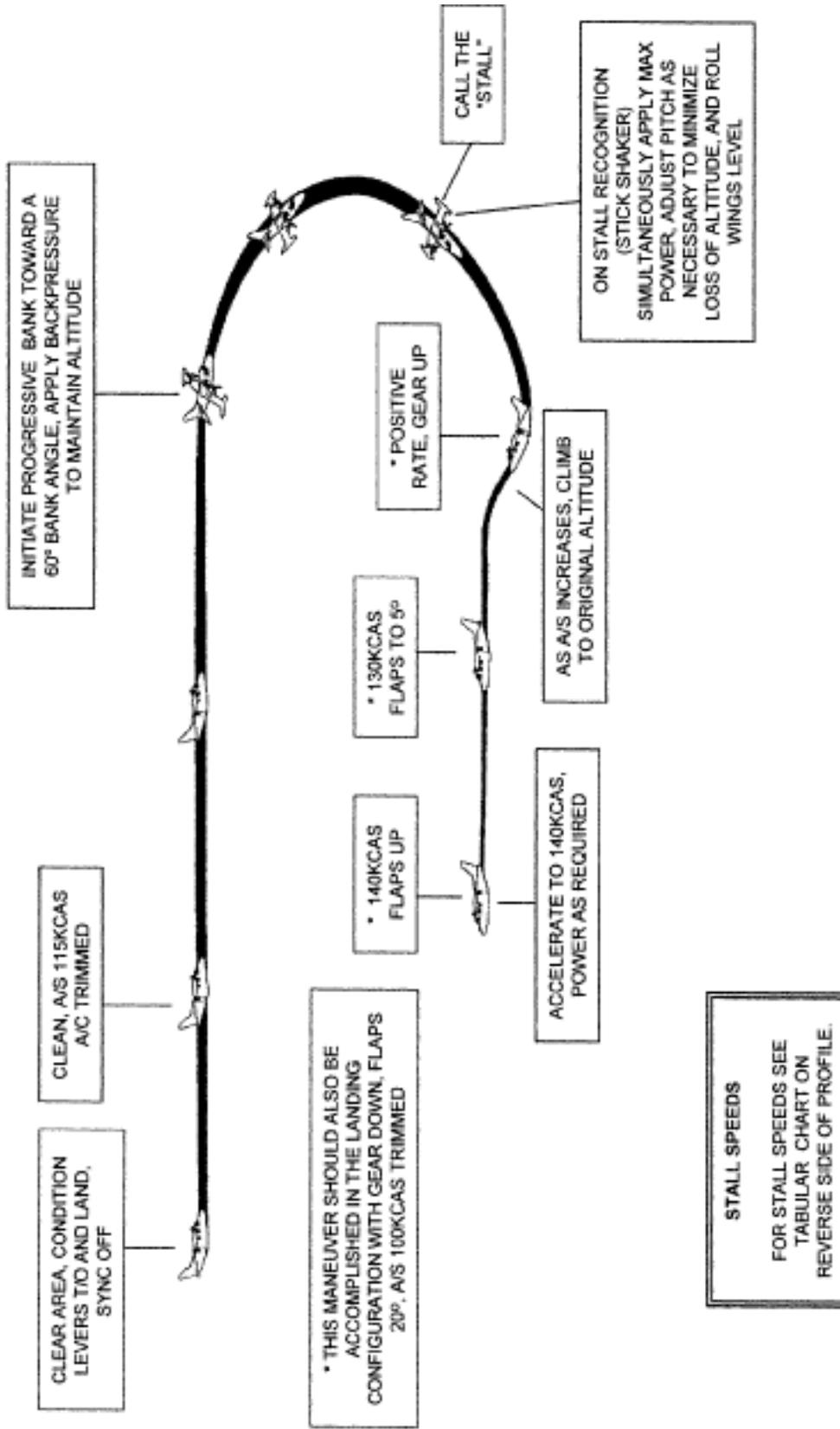


| FLAPS SET GR.WT. | STALL SPEEDS | | | |
|---------------------|----------------|----------------|----------------|----------------|
| | 0 | 5 | 20 | 40 |
| | K/M/J/L | K/M/J/L | K/M/J/L | K/M/J/L |
| 7,000 | 85/ 85/ | 80/ 80/ | 72/ 72/ | 64/ 64/ |
| 7,500 | 88/ 88/ | 83/ 83/ | 74/ 75/ | 67/ 68/ |
| 8,000 | 91/ 91/ 90/ | 86/ 85/ 84/ | 77/ 77/ 74/ | 69/ 68/ 69 |
| 8,500 | 94/ 94/ 93/ | 89/ 89/ 87/ | 79/ 79/ 77/ | 71/ 70/ 71/ |
| 9,000 | 97/ 96/ 95/ 93 | 91/ 91/ 89/ 88 | 82/ 81/ 79/ 77 | 73/ 72/ 73/ 72 |
| 9,500 | 99 /99/ 96/ 96 | 93/ 93/ 92/ 90 | 84/ 83/ 81/ 79 | 75/ 74/ 75/ 74 |
| 9,920 | 101/ | 95/ | 85/ | 76/ |
| 10,000 | /102/100/ 98 | / 96/ 94/ 92 | / 86/ 84/ 81 | / 76/ 77/ 76 |
| 10,470 | /104/ | / 98/ | / 88/ | / 78/ |
| 10,500 | /103/101 | / 98/ 94 | / 85/ 83 | / 79/ 77 |
| 10,800 | /104/ | / 97/ | / 85/ | / 80/ 78 |
| 11,000 | /103 | / 97 | / 85 | / 79 |
| 11,500 | /106 | / 99 | / 87 | / 81 |

B-10a

MU-2B J (-35), K (-25), L (-36), M (-26)

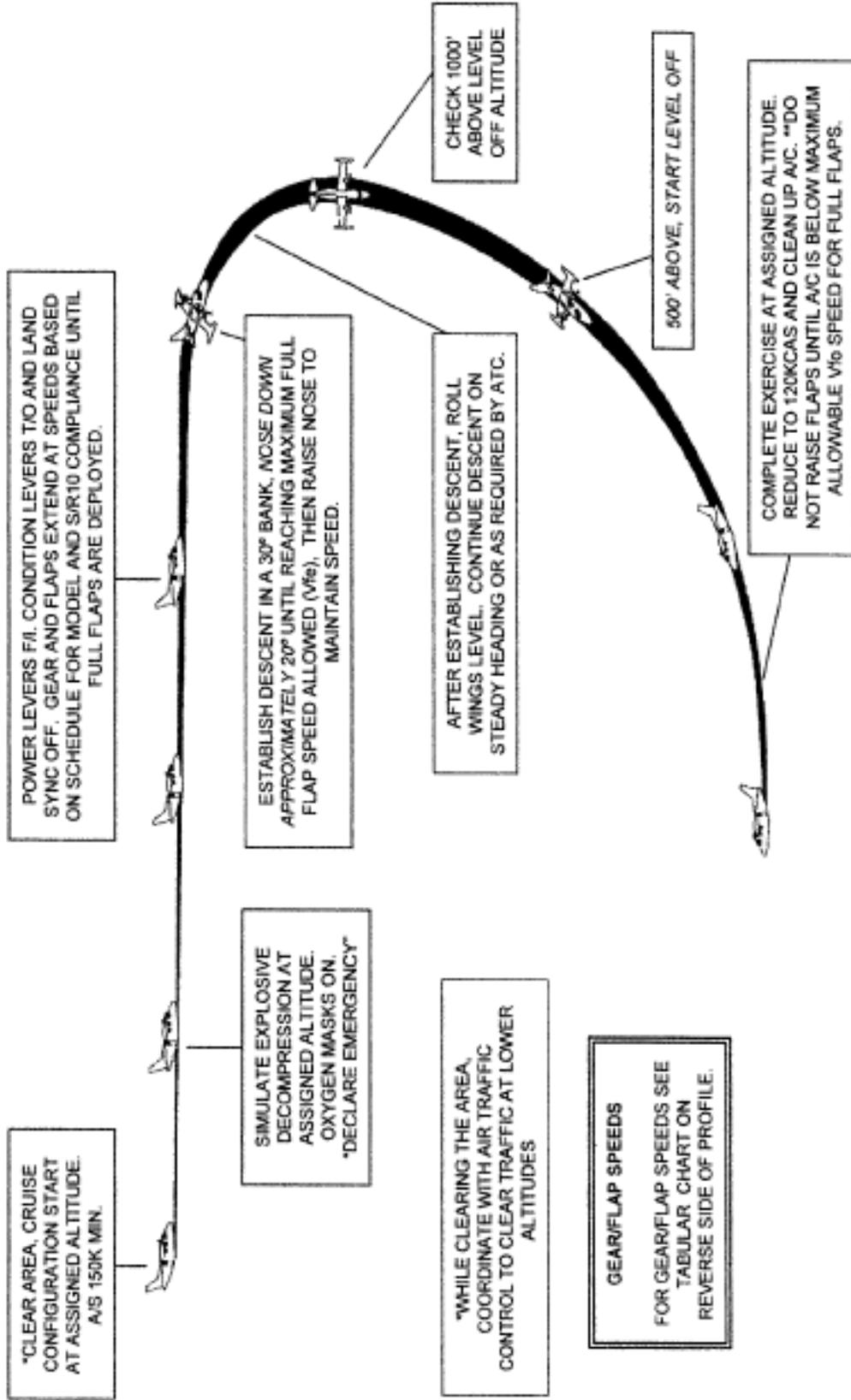
ACCELERATED STALLS



| STALL SPEEDS (APPROXIMATE) AT MAXIMUM GROSS TAKEOFF WEIGHT J, K, L, M | | | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| BANK ANGLE | 10 | 20 | 30 | 40 | 50 | 60 |
| FLAPS | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M | J/L/K/M |
| UP | 106/107/102/105 | 108/109/105/108 | 112/114/109/112 | 120/121/116/120 | 130/132/128/130 | 148/150/143/147 |
| 5° | 89/100/ 96/ 98 | 101/102/ 98/101 | 105/107/102/105 | 112/113/109/112 | 122/123/119/122 | 138/140/134/138 |
| 20° | 87/ 83/ 86/ 88 | 89/ 90/ 88/ 90 | 92 /94/ 92/ 94 | 98/100/ 97/100 | 108/109/107/109 | 122/123/120/123 |
| 40° | 81/ 82/ 77/ 79 | 83/ 84/ 79/ 81 | 86/ 87/ 82/ 84 | 92/ 93/ 87/ 90 | 100/102/ 96/ 98 | 112/115/108/110 |

B-11a

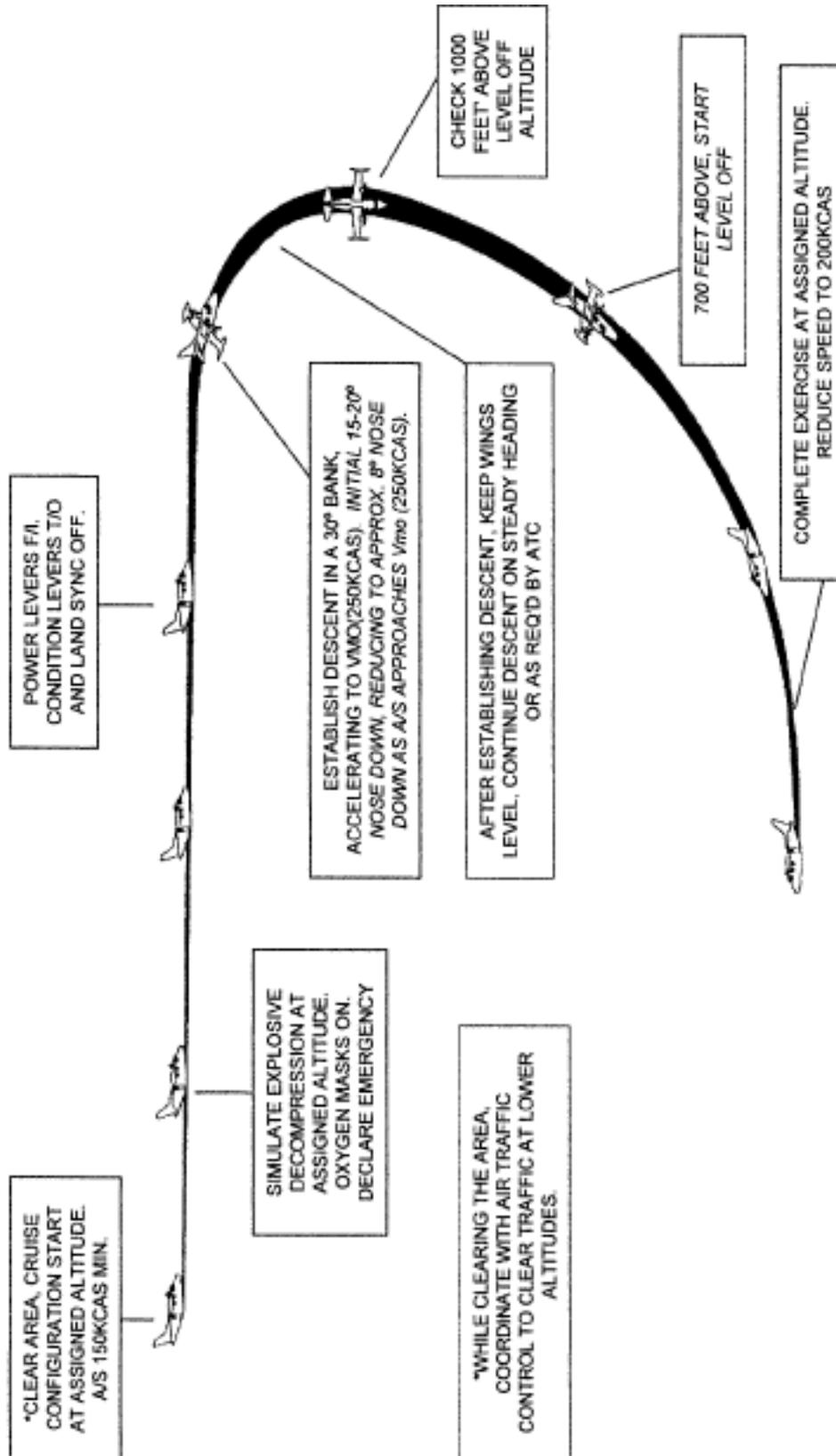
**MU-2B J (-35), K (-25), L (-36), M (-26)
EMERGENCY DESCENT (LOW SPEED)**



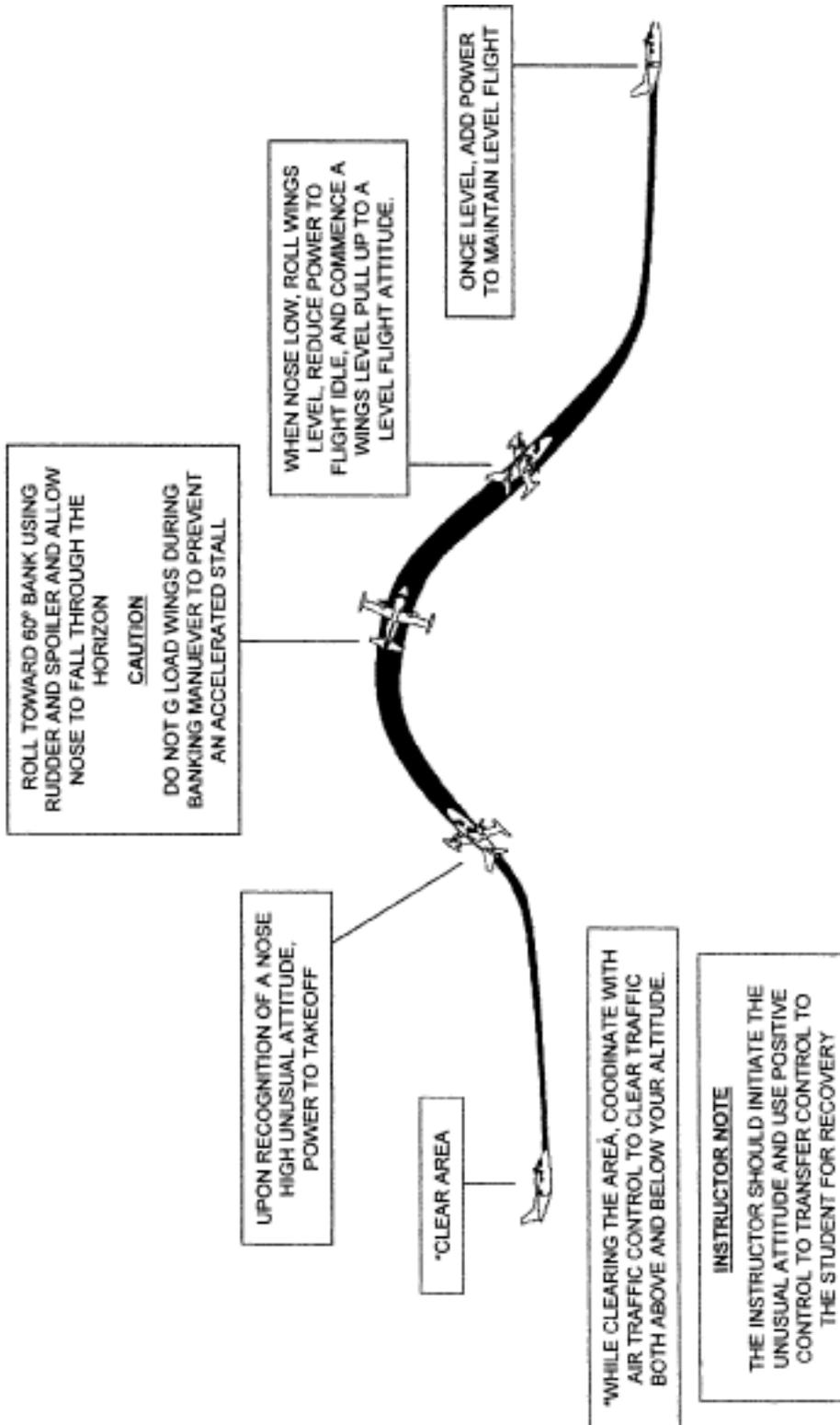
| <u>GEAR AND FLAP EXTEND SCHEDULE</u> | | | |
|---|---------|-----------|-----------------------|
| (K+ AND J+ ARE MODIFIED BY S/R10) | | | |
| GEAR | | | |
| K, K+: | 160KCAS | | |
| M, J, J+: | 170KCAS | | |
| L: | 175KCAS | | |
| FLAPS | | <u>5°</u> | <u>20°</u> <u>40°</u> |
| J: S/N 548 – 609 NOT MODIFIED BY S/R10 | 146KCAS | 146KCAS | 120KCAS |
| J+: S/N 548 – 609 MODIFIED BY S/R10 AND S/N 610 - 654 | 175KCAS | 146KCAS | 120KCAS |
| K: S/N 239 – 279 NOT MODIFIED BY S/R10 | 140KCAS | 140KCAS | 120KCAS |
| K+: S/N 239 – 279 MODIFIED BY S/R10 AND S/N 280 - 318 | 175KCAS | 140KCAS | 120KCAS |
| L / M | 175KCAS | 155KCAS | 120KCAS |

B-12a

**MU-2B J (-35), K (-25), L (-36), M (-26)
EMERGENCY DESCENT (HIGH SPEED)**

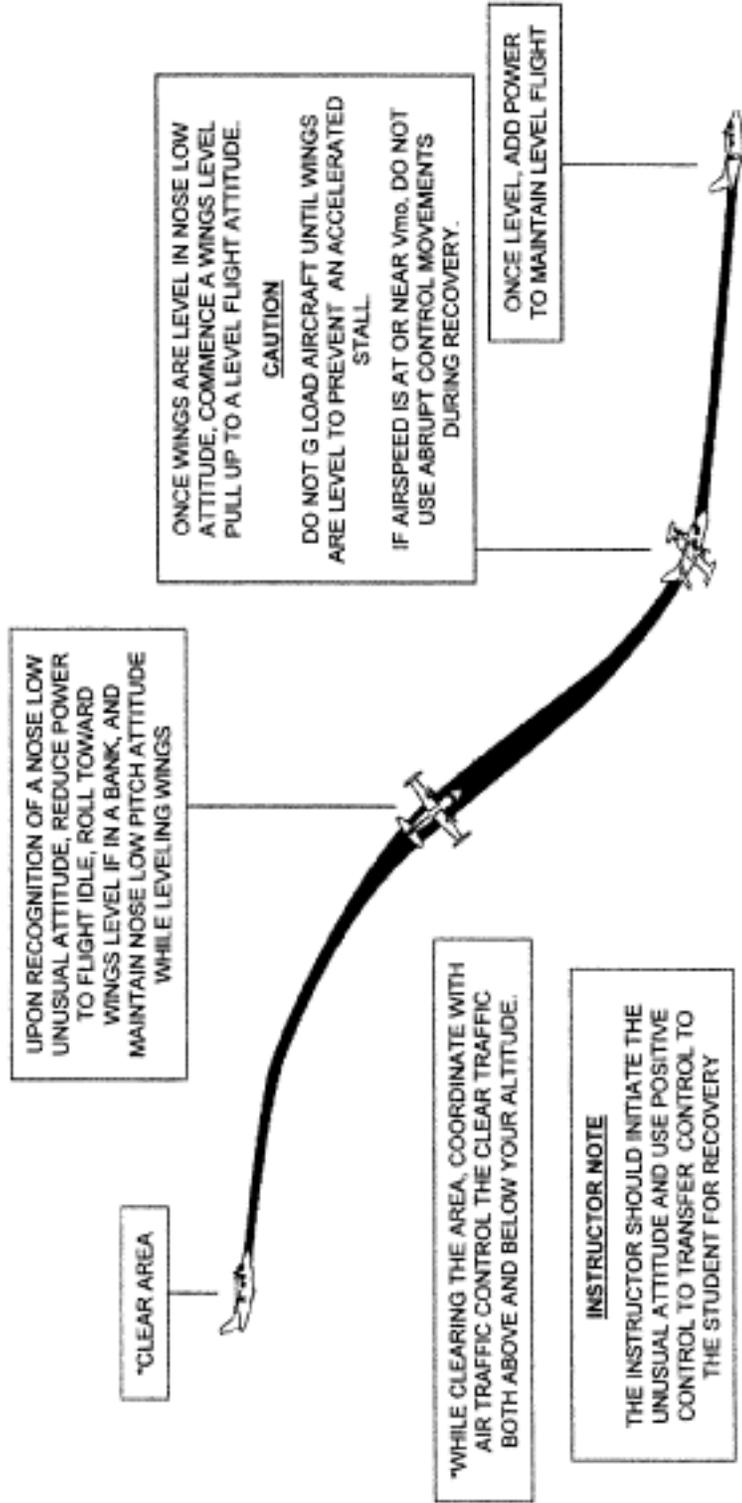


MU-2B J (-35), K (-25), L (-36), M (-26)
UNUSUAL ATTITUDE RECOVERY (NOSE HIGH)

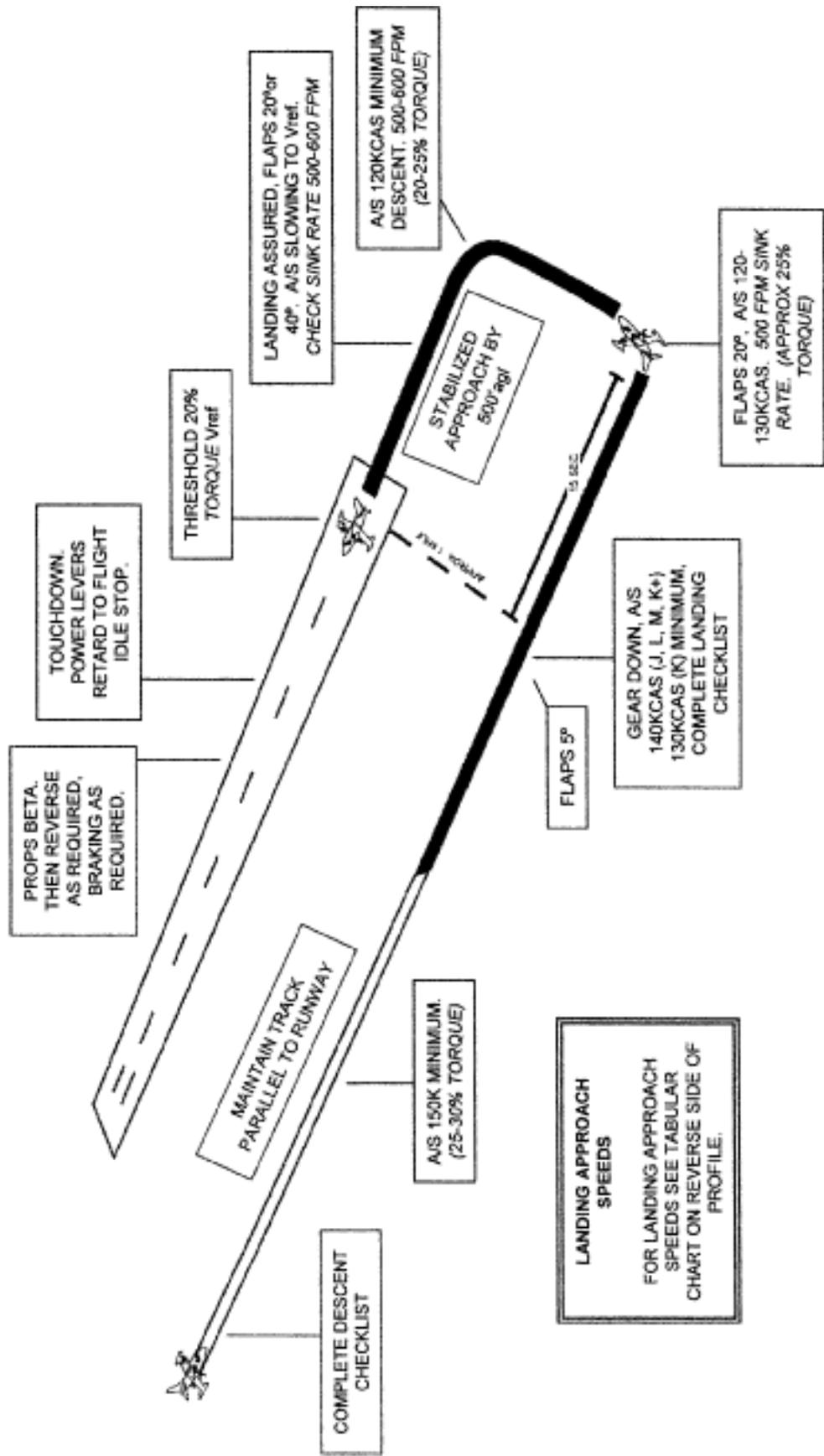


B-14

MU-2B J (-35), K (-25), L (-36), M (-26)
UNUSUAL ATTITUDE RECOVERY (NOSE LOW)



**MU-2B J (-35), K (-25), L (-36), M (-26)
NORMAL LANDING (20° or 40° FLAPS)**

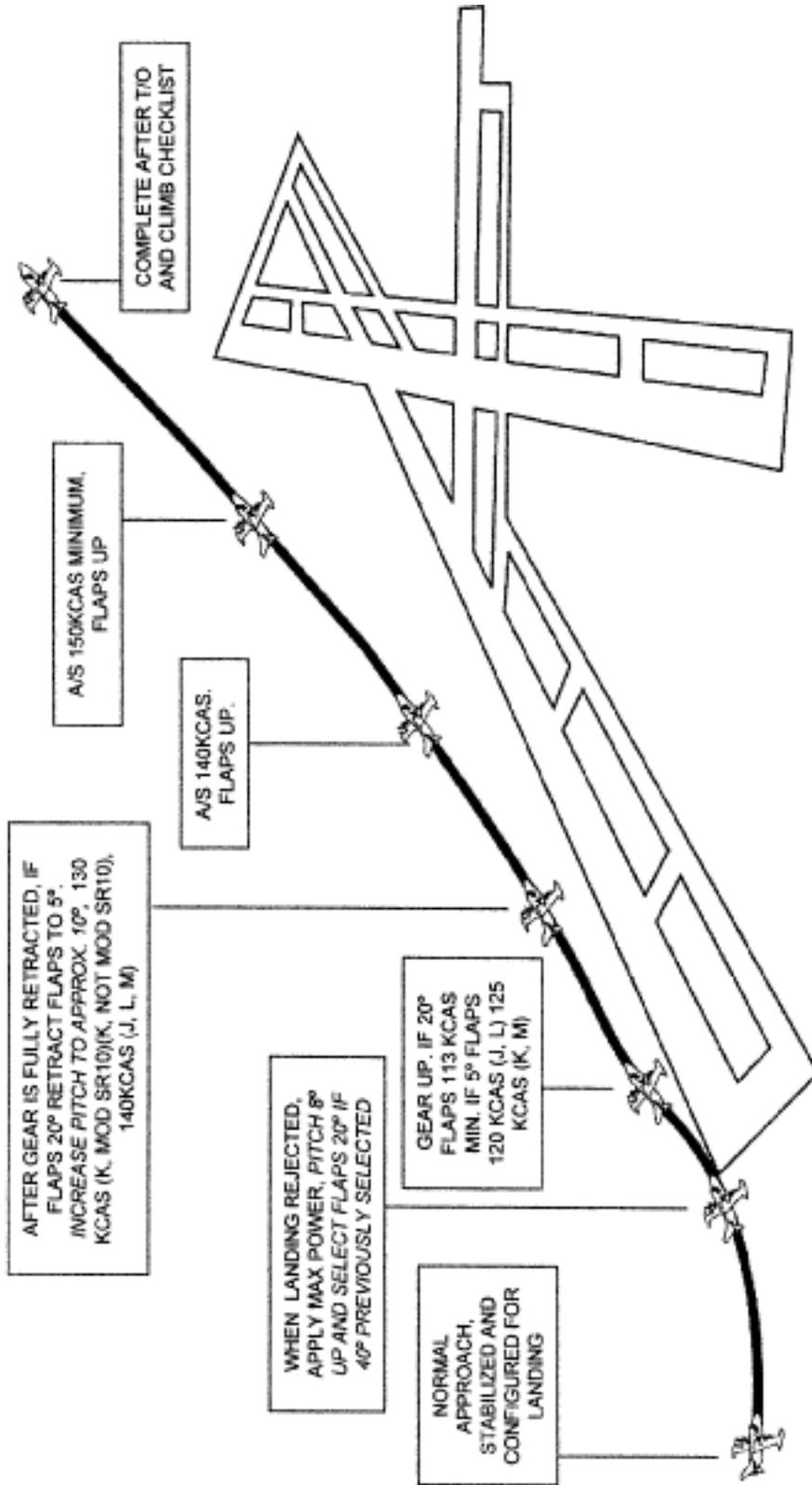


B-16

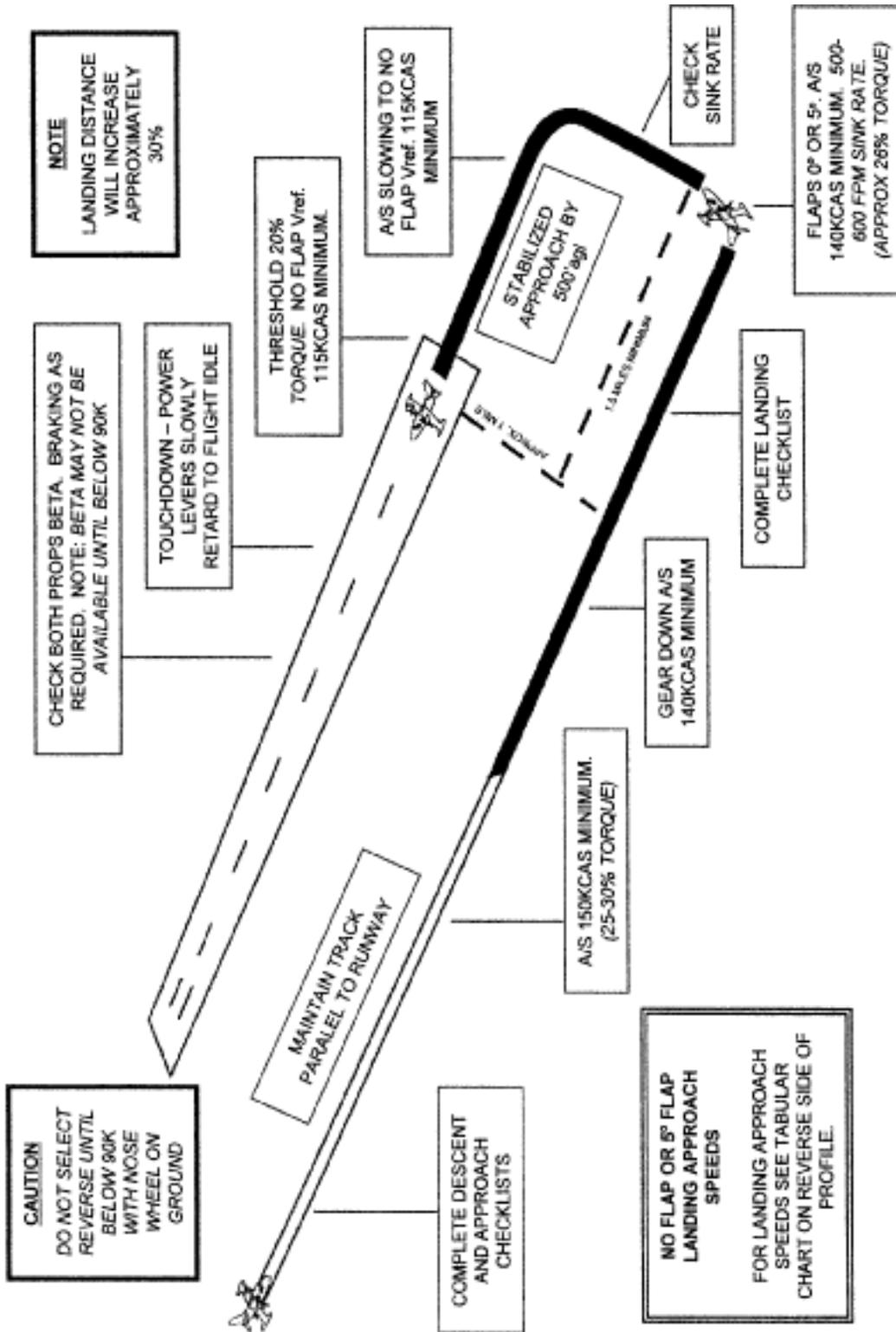
| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | | | | | |
|--------|------------------------------|-----|-----|---|-----|---------------------|----|---|-----|-----|--|--|-----|--|
| | J, K, L, M | | | | | FLAPS 40° (1.5 VS1) | | | | | | | | |
| | K | M | J | L | K | M | J | L | K | M | | | | |
| 7,000 | 93 | 96 | | | | 96 | | | | 96 | | | | |
| 7,500 | 96 | 100 | 93 | | 99 | 100 | | | 100 | 100 | | | | |
| 8,000 | 100 | 103 | 96 | | 103 | 103 | | | 103 | 103 | | | | |
| 8,500 | 103 | 106 | 100 | | 106 | 106 | 99 | | 106 | 106 | | | 105 | |
| 9,000 | 106 | 109 | 103 | | 109 | 109 | 99 | | 109 | 109 | | | 108 | |
| 9,435 | 108 | | | | 112 | | | | 112 | | | | | |
| 9,500 | | 112 | 106 | | 103 | | | | 112 | | | | 111 | |
| 9,955 | | 115 | | | | | | | 115 | | | | | |
| 10,000 | | | 109 | | 105 | | | | | | | | 114 | |
| 10,260 | | | 110 | | | | | | | | | | 117 | |
| 10,500 | | | | | 108 | | | | | | | | | |
| 11,000 | | | | | 110 | | | | | | | | | |
| 11,025 | | | | | 110 | | | | | | | | | |

B-16a

**MU-2B J (-35), K (-25), L (-36), M (-26)
GO AROUND - REJECTED LANDING**



**MU-2B J (-35), K (-25), L (-36), M (-26)
NO FLAP OR 5° FLAP LANDING**



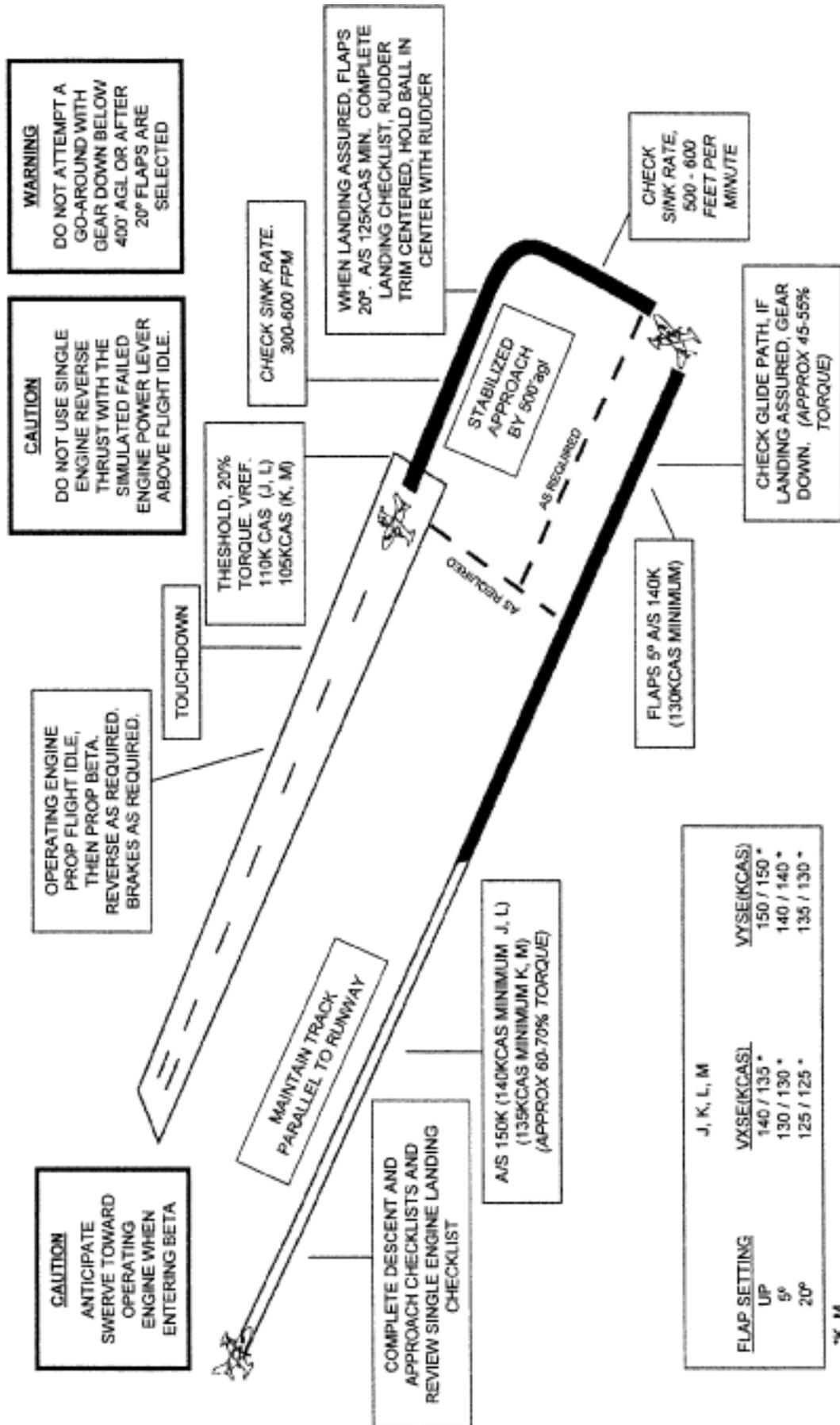
B-18

NO FLAP Vref 1.25 VS1
(BUT NOT BELOW 115KCAS)
USE FOR FLAP UP OR 5°
J, K, L, M

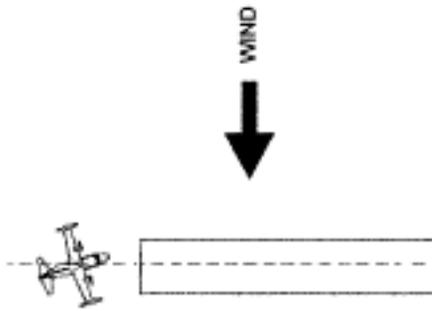
| WEIGHT | FLAPS UP | | | | | FLAPS 5° | | | | | | |
|--------|----------|-----|-----|-----|-----|----------|---|---|---|-----|-----|-----|
| | J | K | L | M | J | K | L | M | J | K | L | M |
| 7,500 | | 115 | | | | 115 | | | | 115 | | |
| 8,000 | 115 | 115 | | 115 | 115 | 115 | | | | 115 | | 115 |
| 8,500 | 117 | 118 | | 118 | 115 | 115 | | | | 115 | | 115 |
| 9,000 | 119 | 122 | 117 | 120 | 115 | 115 | | | | 115 | 115 | 115 |
| 9,435 | | 124 | | | | 117 | | | | 117 | | |
| 9,500 | 123 | | 120 | 124 | 115 | | | | | 115 | 115 | 117 |
| 9,955 | | | | 127 | | | | | | | | 119 |
| 10,000 | 125 | | 123 | | 118 | | | | | | | |
| 10,260 | 128 | | | | | | | | | | | |
| 10,500 | | | 127 | | | | | | | | 118 | |
| 11,000 | | | 129 | | | | | | | | 124 | |
| 11,025 | | | 129 | | | | | | | | 124 | |

B-18a

**MU-2B J (-35), K (-25), L (-36), M (-26)
ONE ENGINE INOPERATIVE LANDING**

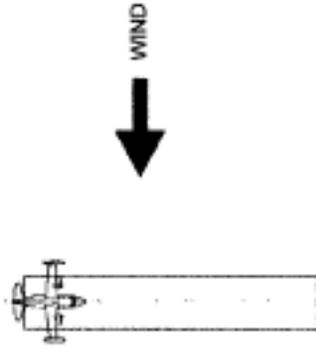
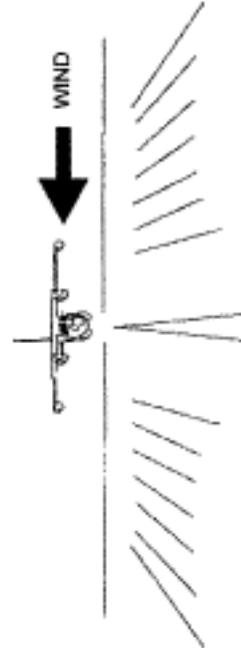


**MU-2B J (-35), K (-25), L (-36), M (-26)
CROSSWIND LANDING**



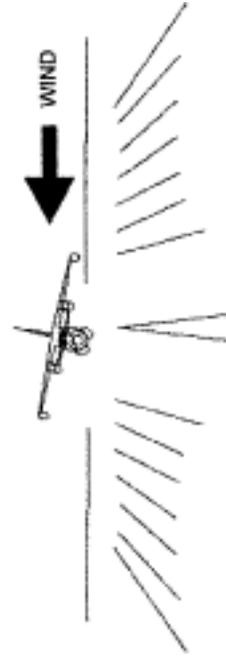
AIRCRAFT WILL BE FLOWN DOWN AN EXTENSION OF THE RUNWAY CENTER LINE WITH DRIFT CORRECTION ESTABLISHED SUFFICIENTLY IN ADVANCE TO PERMIT CENTER LINE TO BE FLOWN WITH ONLY MINOR COORDINATED CORRECTIONS

INCREASE V_{ref} FOR CROSSWIND LANDING BY ONE-HALF THE STEADY WIND SPEED PLUS ONE-HALF THE GUST SPEED NOT TO EXCEED V_{ref} PLUS 10 KCAS.

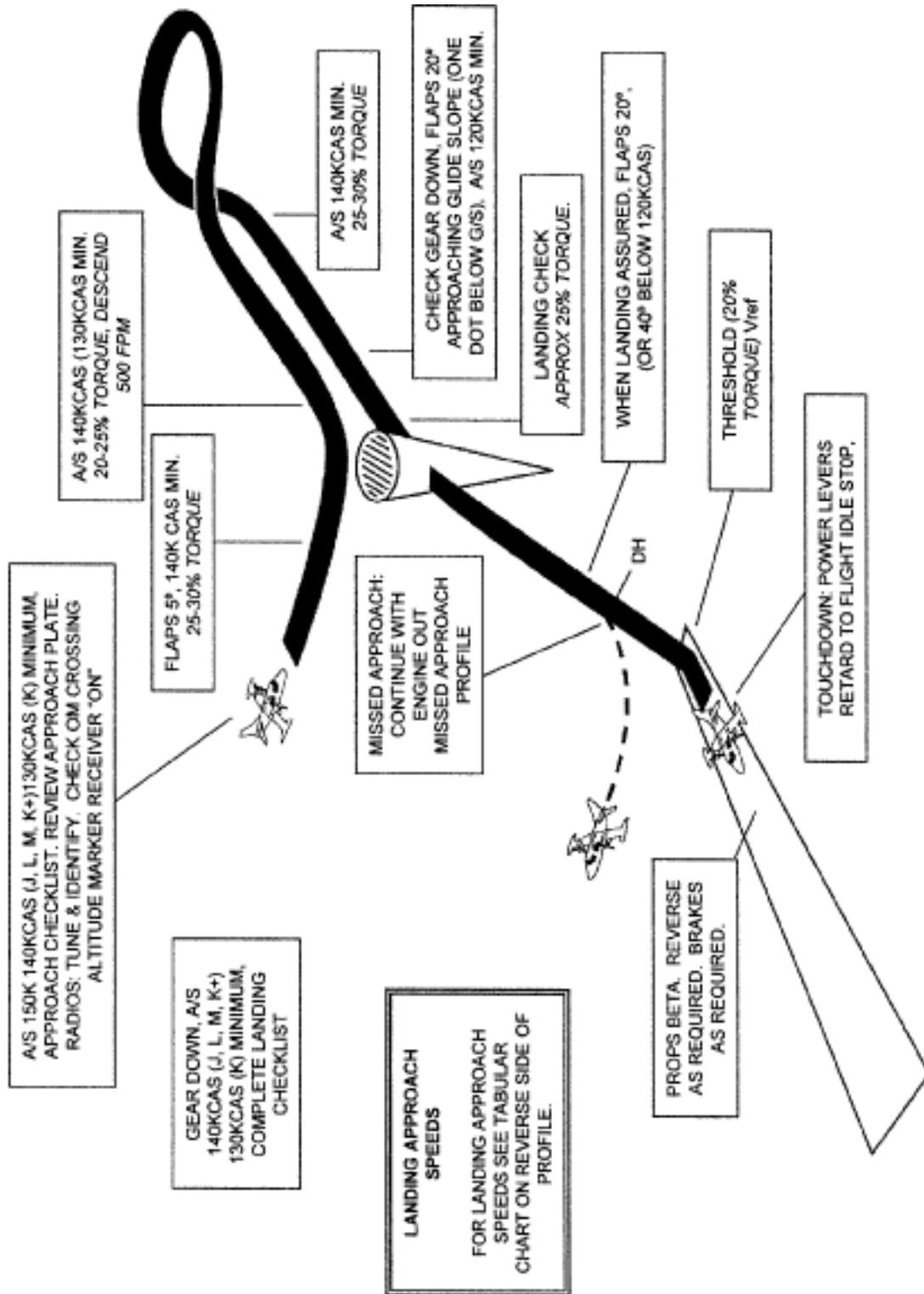


PRIOR TO TOUCHDOWN, THE UPWIND WING IS LOWERED AND SMOOTHLY MODULATED. OPPOSITE RUDDER IS APPLIED SO THAT AIRCRAFT PATH CONTINUES DOWN RUNWAY CENTERLINE. THE AIRCRAFT SHOULD NOT BE ALLOWED TO DEVELOP ANY TENDENCY TO DRIFT DOWNWIND.

** NOTE: RUDDERS CENTERED BEFORE NOSE WHEEL TOUCHDOWN. SPOILERS INTO WIND AS NECESSARY TO KEEP WINGS LEVEL.



**MU-2B J (-35), K (-25), L (-36), M (-26)
ILS AND MISSED APPROACH**

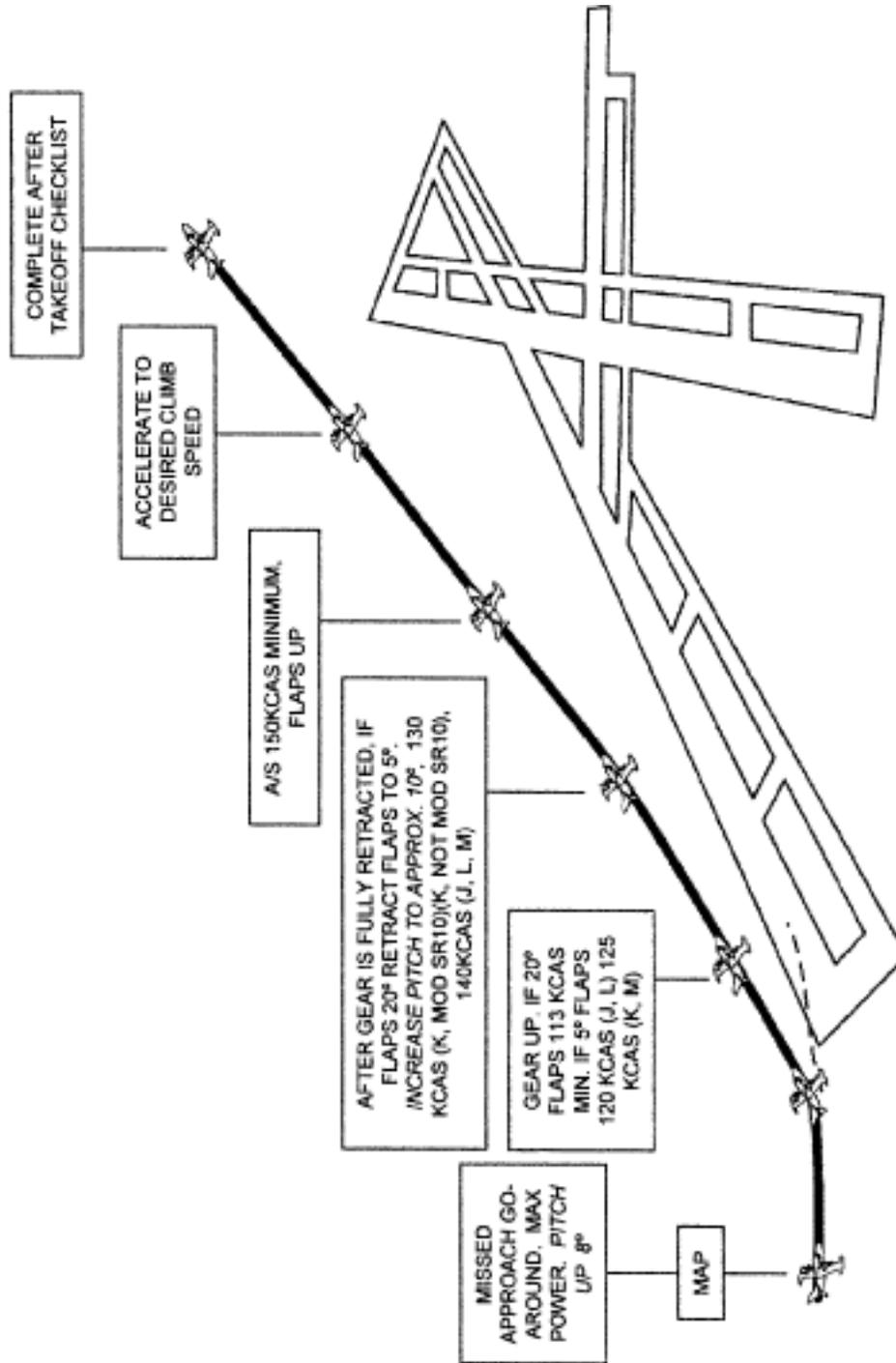


B-21

| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | | | |
|--------|------------------------------|-----|-----|-----|-----|---------------------|---|---|-----|-----|---|-----|
| | J, K, L, M | | | | | FLAPS 40° (1.5 VS1) | | | | | | |
| | K | M | J | L | K | M | J | L | K | M | J | L |
| 7,000 | 93 | 96 | | | | 96 | | | | 96 | | |
| 7,500 | 96 | 100 | 93 | | 99 | 100 | | | 99 | 100 | | 100 |
| 8,000 | 100 | 103 | 96 | | 103 | 103 | | | 103 | 103 | | 103 |
| 8,500 | 103 | 106 | 100 | 99 | 106 | 106 | | | 106 | 106 | | 106 |
| 9,000 | 106 | 109 | 103 | 99 | 109 | 109 | | | 109 | 109 | | 109 |
| 9,435 | 108 | | | | 112 | | | | 112 | | | |
| 9,500 | | 112 | 106 | 103 | | 112 | | | 112 | | | 111 |
| 9,955 | | 115 | | | | 115 | | | 115 | | | |
| 10,000 | | | 109 | 105 | | | | | | 115 | | 114 |
| 10,260 | | | 110 | | | | | | | 117 | | |
| 10,500 | | | | 108 | | | | | | | | 117 |
| 11,000 | | | | 110 | | | | | | | | 119 |
| 11,025 | | | | 110 | | | | | | | | 119 |

B-21a

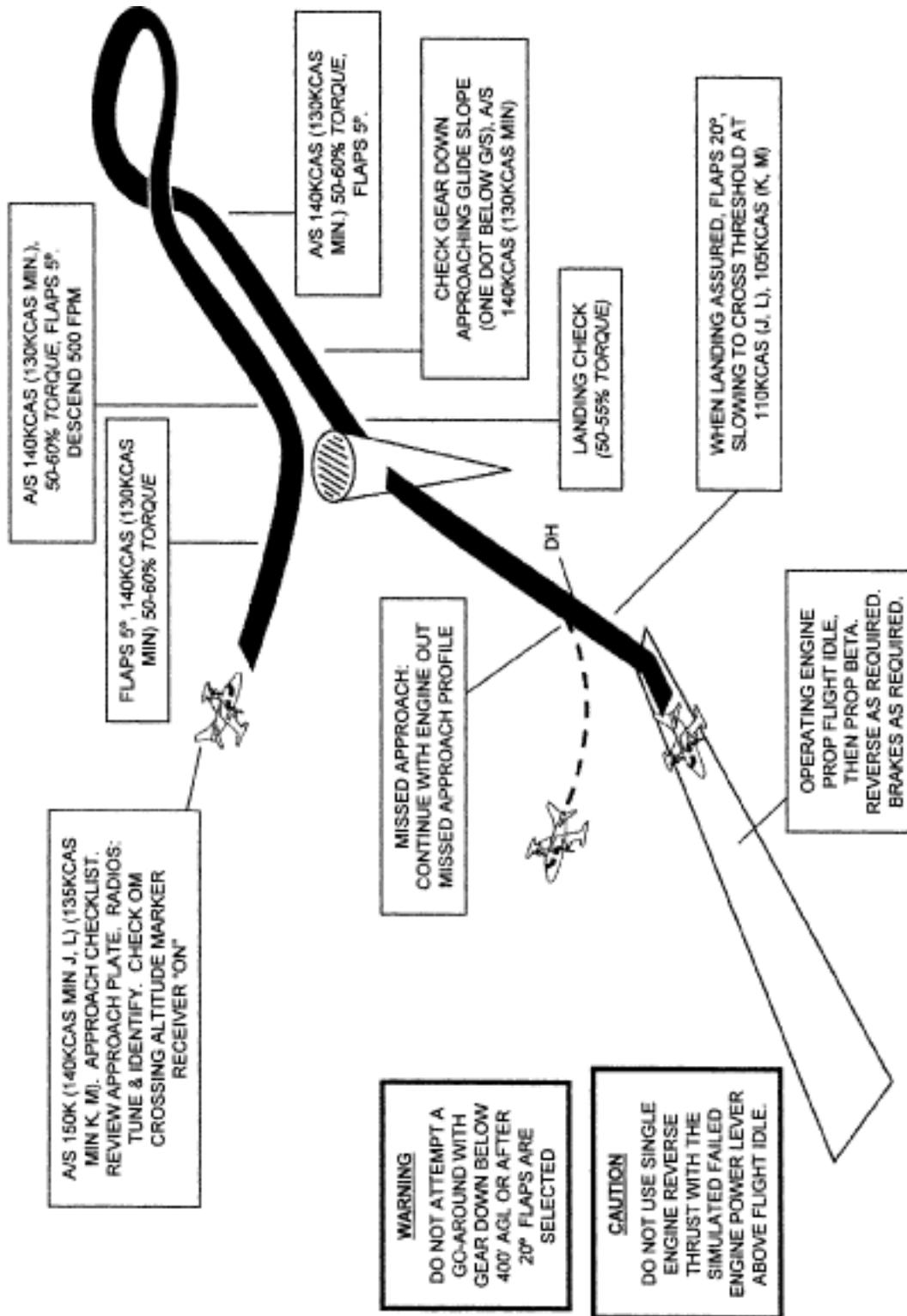
**MU-2B J (-35), K (-25), L (-36), M (-26)
TWO ENGINE MISSED APPROACH**



B-22

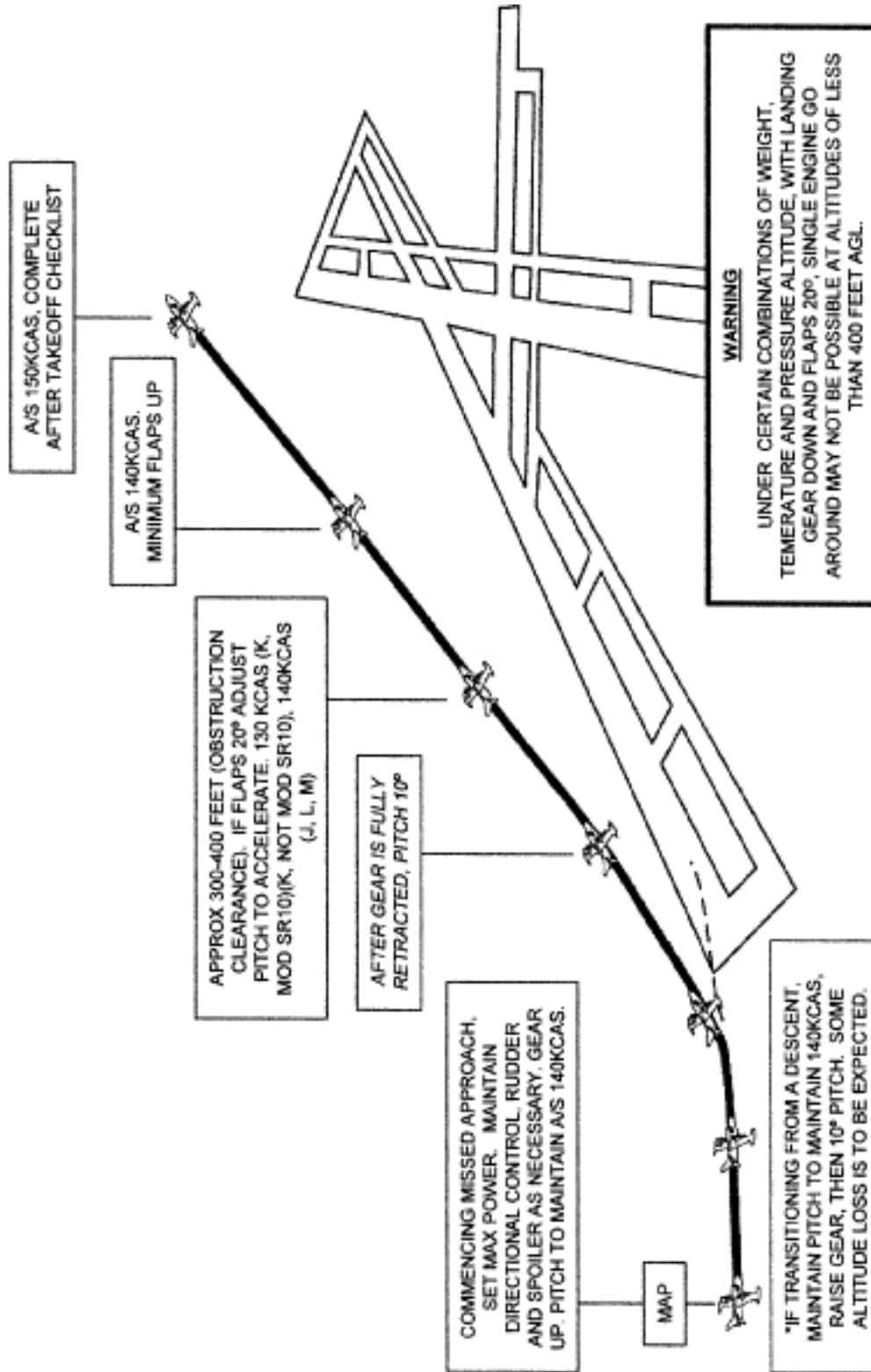
MU-2B J (-35), K (-25), L (-36), M (-26)

ONE ENGINE INOPERATIVE ILS AND MISSED APPROACH



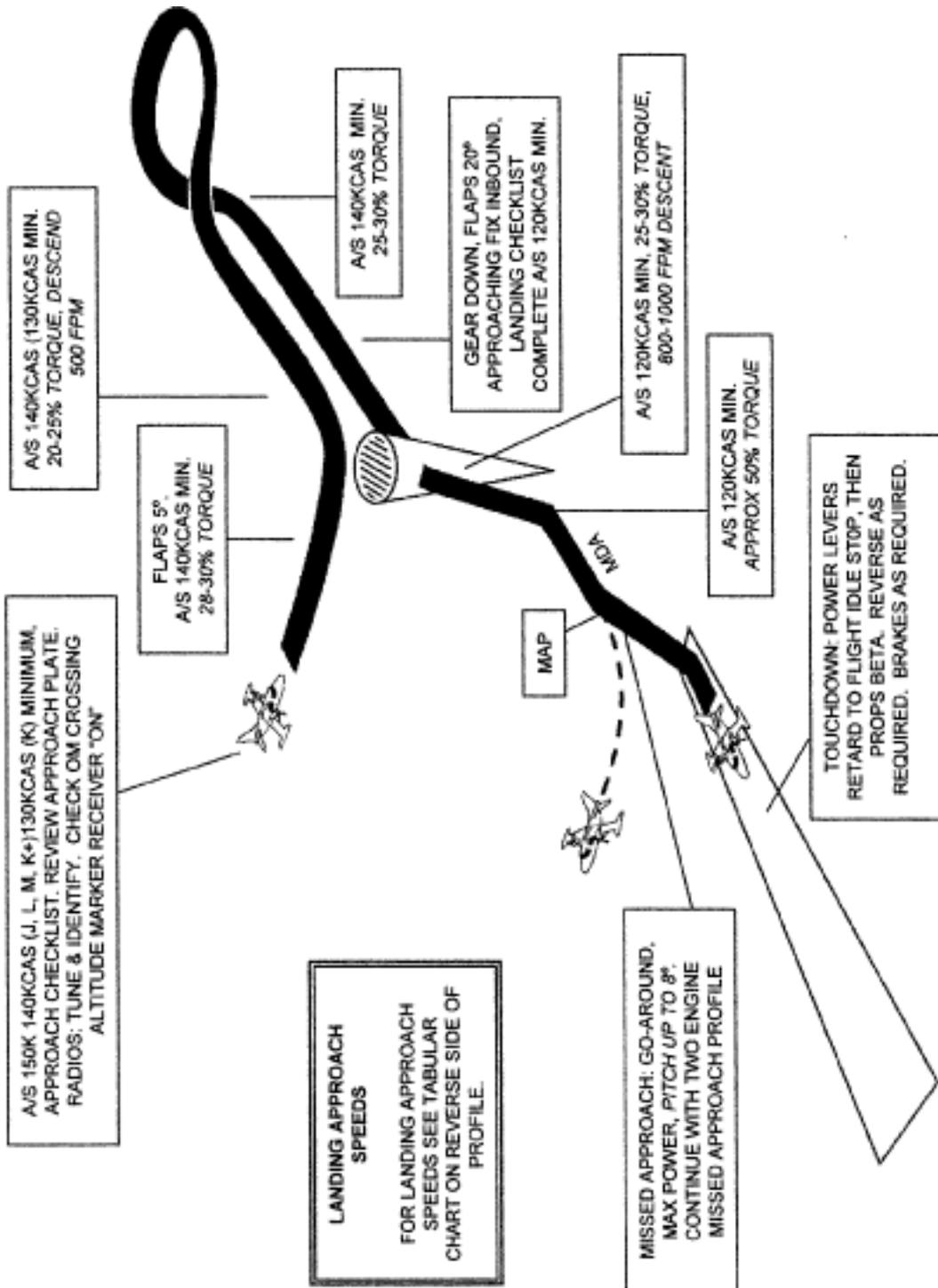
B-23

**MU-2B J (-35), K (-25), L (-36), M (-26)
ONE ENGINE INOPERATIVE MISSED APPROACH**



B-24

**MU-2B J (-35), K (-25), L (-36), M (-26)
NON-PRECISION AND MISSED APPROACH**

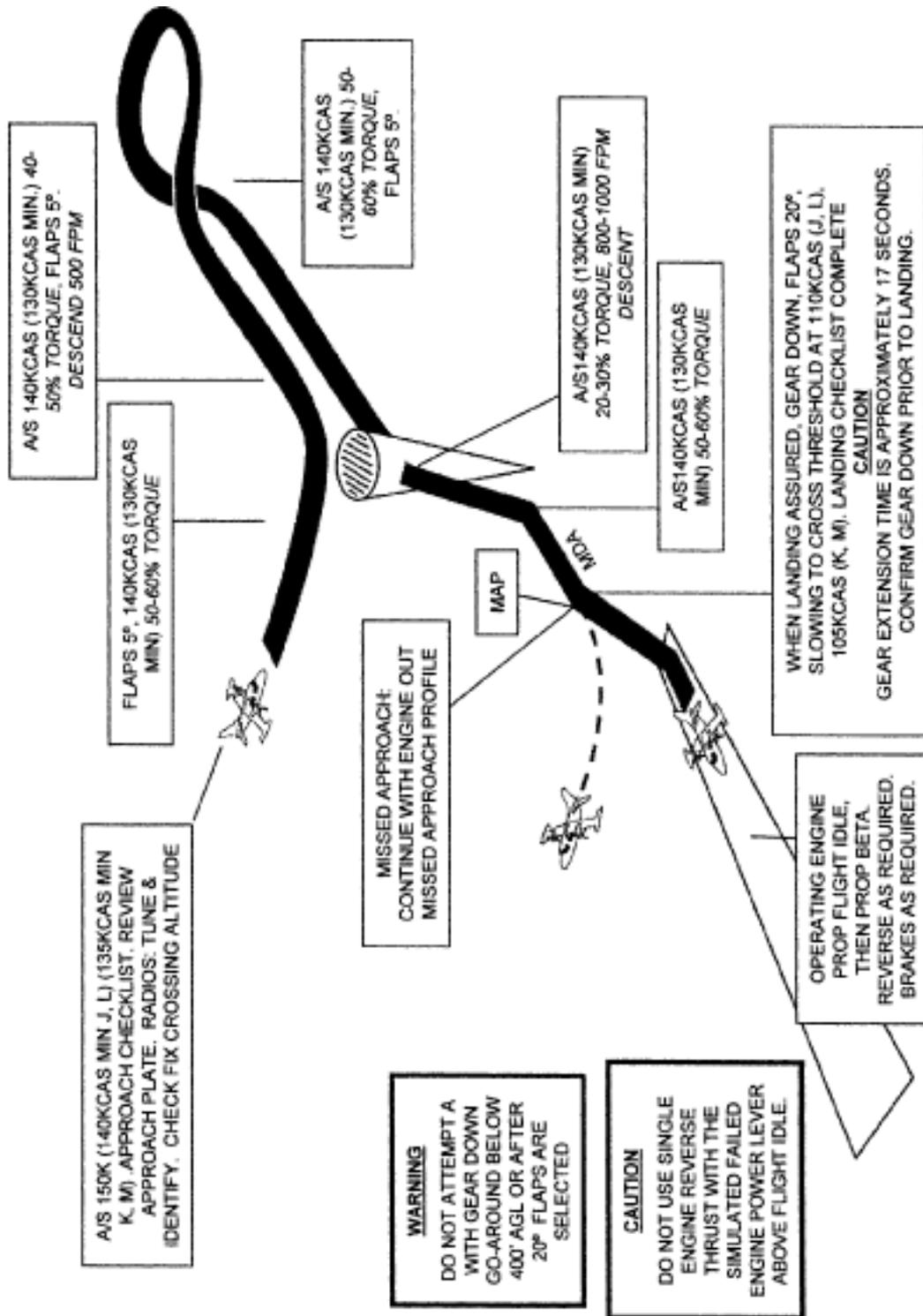


B-25

| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | | | | | |
|--------|------------------------------|-----|-----|-----|-----|---------------------|-----|-----|-----|---|--|--|--|-----|
| | J, K, L, M | | | | | FLAPS 40° (1.5 VS1) | | | | | | | | |
| | K | M | J | L | K | M | J | L | K | L | | | | |
| 7,000 | 93 | 96 | | | | 96 | | | | | | | | |
| 7,500 | 96 | 100 | 93 | | 99 | 100 | 100 | | 100 | | | | | |
| 8,000 | 100 | 103 | 96 | | 103 | 103 | 103 | | 103 | | | | | |
| 8,500 | 103 | 106 | 100 | 99 | 106 | 106 | 106 | 105 | 106 | | | | | 105 |
| 9,000 | 106 | 109 | 103 | 99 | 109 | 109 | 109 | 108 | 109 | | | | | 108 |
| 9,435 | 108 | | | | 112 | | | | 112 | | | | | |
| 9,500 | | 112 | 106 | 103 | | 112 | 112 | 111 | | | | | | 111 |
| 9,955 | | 115 | | | | 115 | | | | | | | | 111 |
| 10,000 | | | 109 | 105 | | | 115 | 114 | | | | | | 114 |
| 10,260 | | | 110 | | | | | 117 | | | | | | 117 |
| 10,500 | | | | 108 | | | | | | | | | | 117 |
| 11,000 | | | | 110 | | | | | | | | | | 119 |
| 11,025 | | | | 110 | | | | | | | | | | 119 |

B-25a

MU-2B J (-35), K (-25), L (-36), M (-26)
ONE ENGINE INOPERATIVE NON-PRECISION AND MISSED APPROACH

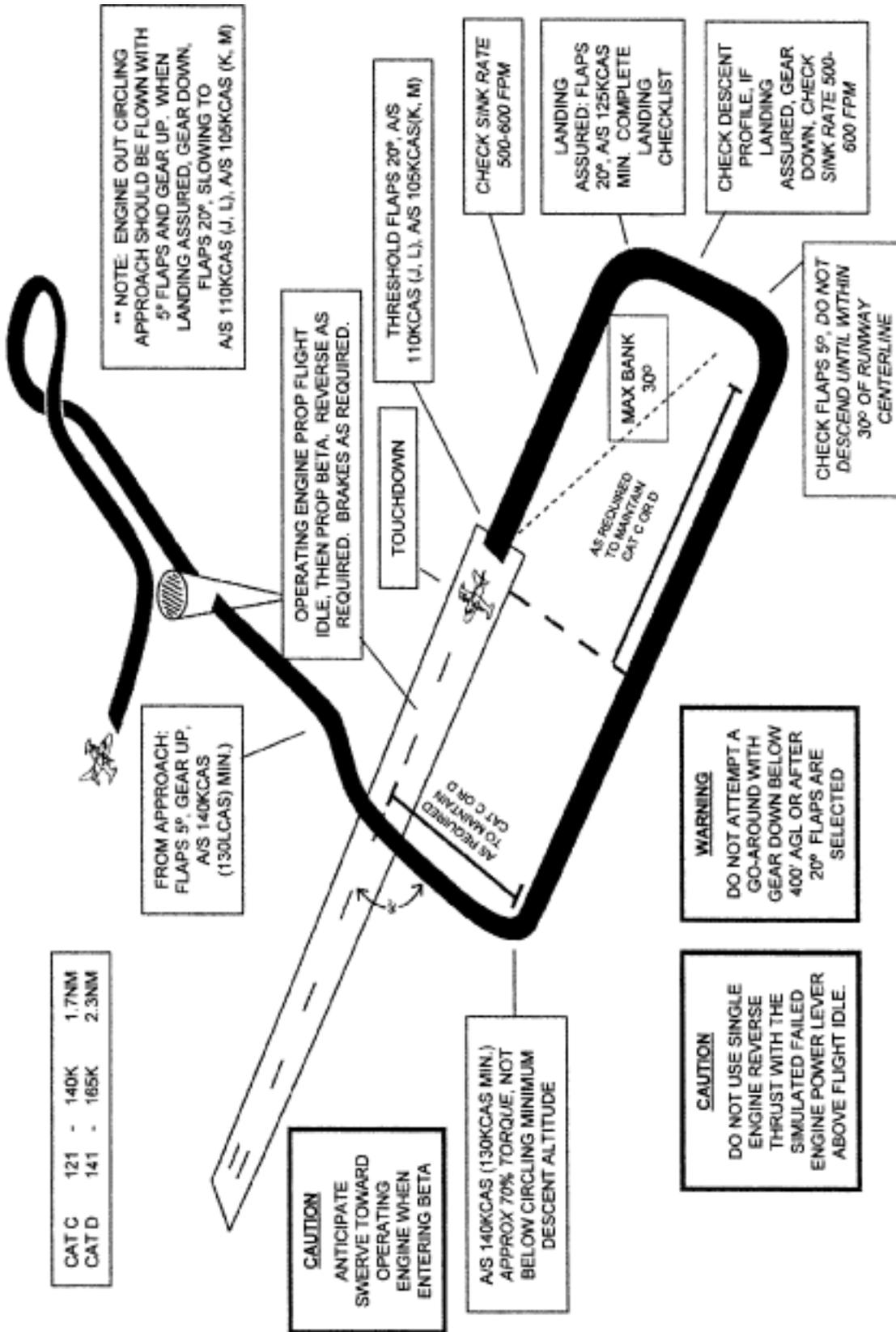


B-26

| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | | | | | |
|--------|------------------------------|-----|-----|---|-----|---------------------|-----|-----|---|---|--|-----|--|-----|
| | J, K, L, M | | | | | FLAPS 40° (1.5 VS1) | | | | | | | | |
| | K | M | J | L | K | M | J | L | K | L | | | | |
| 7,000 | 93 | 96 | | | | 96 | | | | | | | | |
| 7,500 | 96 | 100 | 93 | | 99 | 100 | 100 | | | | | 100 | | |
| 8,000 | 100 | 103 | 96 | | 103 | 103 | 103 | | | | | 103 | | |
| 8,500 | 103 | 106 | 100 | | 106 | 106 | 106 | 99 | | | | 106 | | 105 |
| 9,000 | 106 | 109 | 103 | | 109 | 109 | 109 | 99 | | | | 109 | | 108 |
| 9,435 | 108 | | | | 112 | | | | | | | | | |
| 9,500 | | 112 | 106 | | 103 | | | 103 | | | | 112 | | 111 |
| 9,855 | | 115 | | | | | | | | | | 115 | | |
| 10,000 | | | 109 | | 105 | | | | | | | | | 114 |
| 10,260 | | | 110 | | | | | | | | | | | 117 |
| 10,500 | | | | | 108 | | | | | | | | | |
| 11,000 | | | | | 110 | | | | | | | | | 119 |
| 11,025 | | | | | 110 | | | | | | | | | 119 |

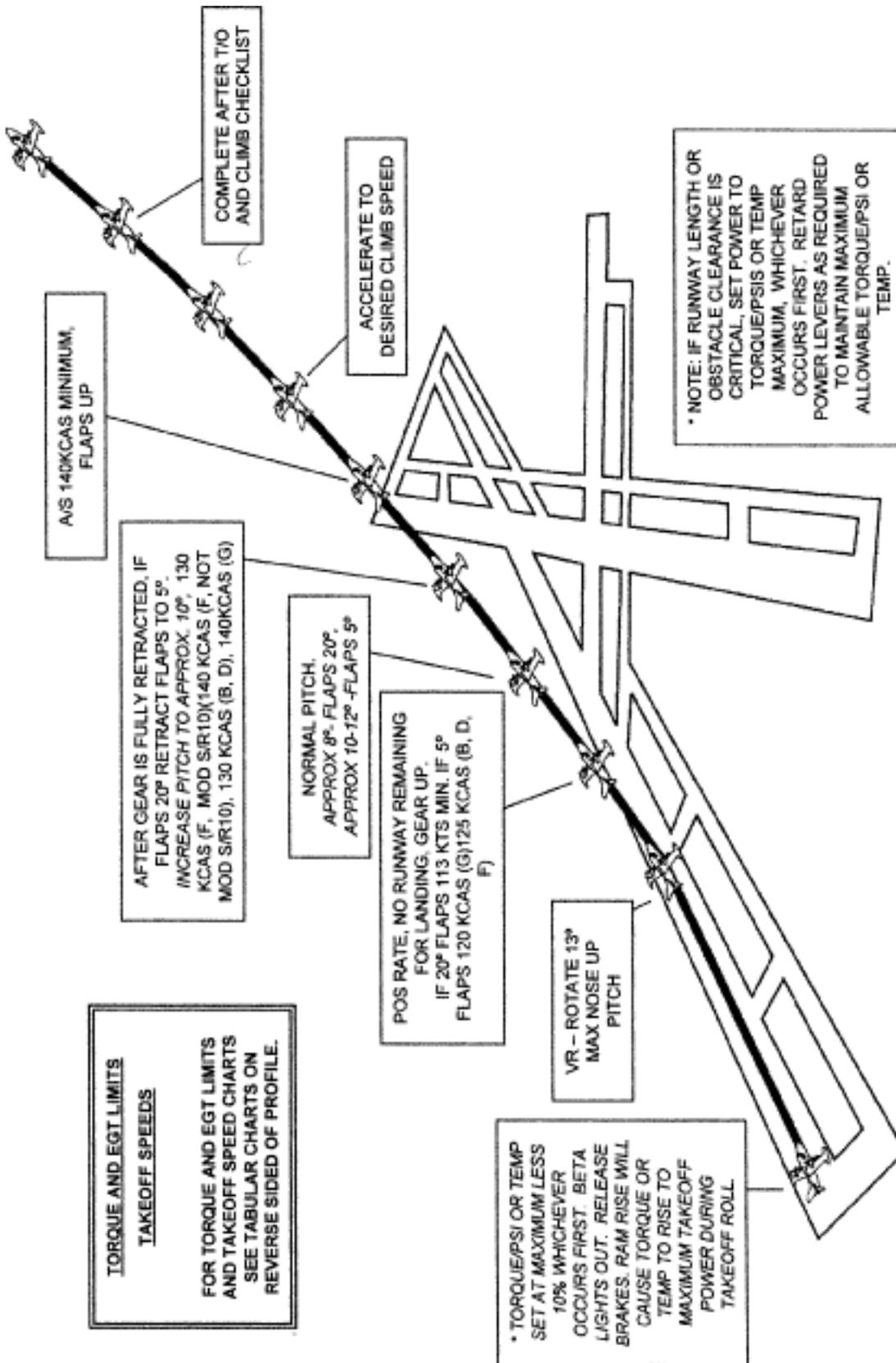
B-27a

MU-2B J (-35), K (-25), L (-36), M (-26)
ONE ENGINE INOPERATIVE CIRCLING APPROACH AT WEATHER MINIMUMS



B-28

**MU-2B B, D (-10), F (-20), G (-30)
NORMAL TAKE-OFF, 5° OR 20° FLAPS**



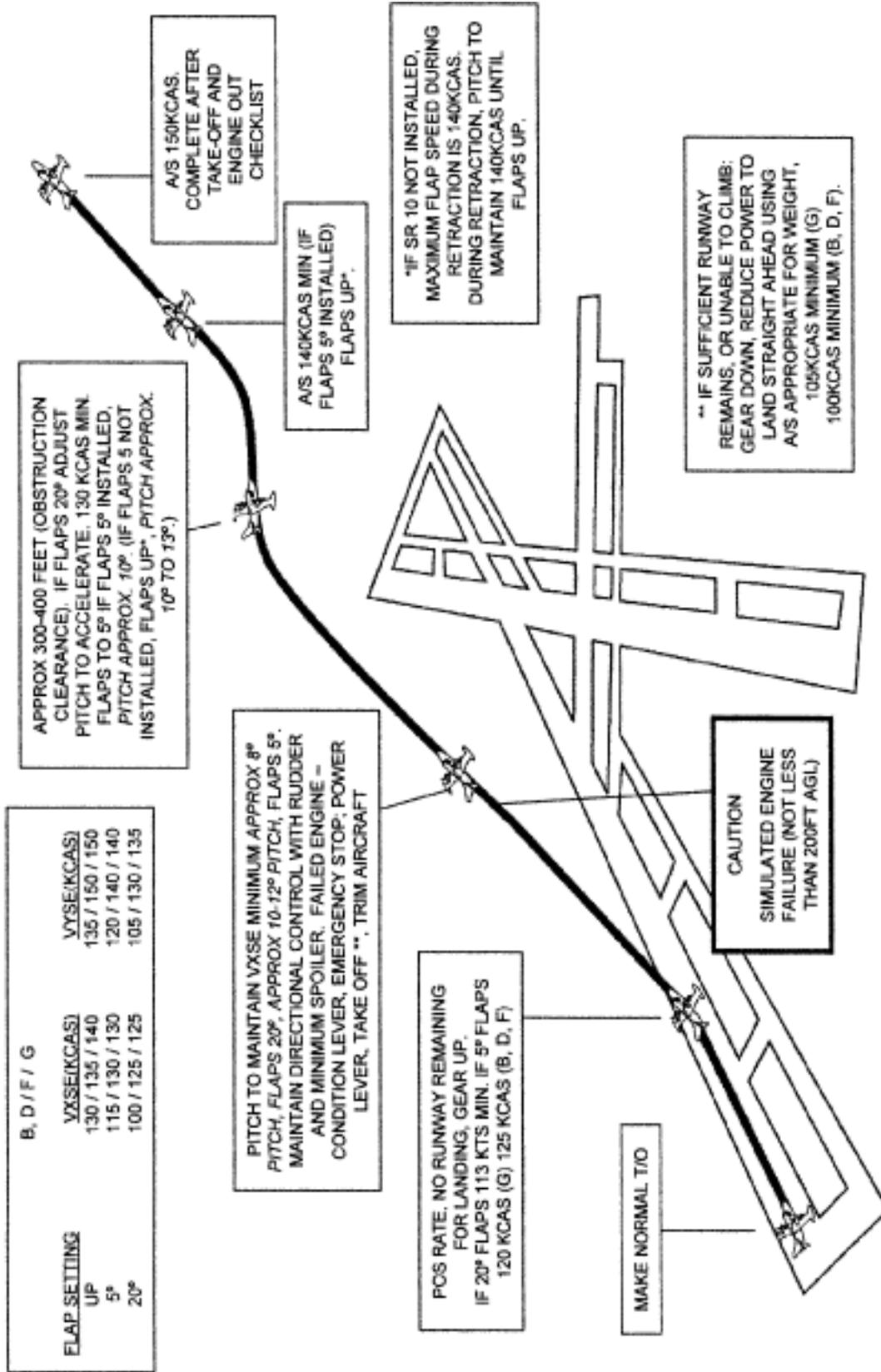
| TORQUE LIMITS | |
|---|-----------------------------------|
| B, D | 64 PSI |
| F, G | 50 PSI (STATIC) |
| | 64 PSI (RAM CONDITIONS 5 MINUTES) |
| EGT LIMITS DEPEND ON OUTSIDE AIR TEMPERATURE, CHECK EGT LIMITS PRIOR TO DEPARTURE. | |

| ELAPS. 5° | TAKE OFF SPEEDS | | | | | |
|------------|-----------------|-----|-----|-----|-----|-----|
| | B | B± | D | E | Q | Q |
| 10,800 LBS | | | | | 109 | 105 |
| 10,000 LBS | | | | | | |
| 9,820 LBS | | | | 108 | | |
| 9,500 LBS | | | 111 | 107 | 103 | |
| 9,350 LBS | | | 110 | 106 | 101 | |
| 8,930 LBS | 109 | | 107 | 104 | 100 | |
| 8,000 LBS | 106 | | 106 | 102 | | |
| 7,500 LBS | 104 | | 104 | | | |
| 7,000 LBS | | | | | | |
| FLAPS 20° | B | B± | D | E | Q | Q |
| 10,800 LBS | | | | | 105 | 102 |
| 10,000 LBS | | | | | | |
| 9,920 LBS | | | | 102 | | |
| 9,500 LBS | | | | 101 | 101 | |
| 9,350 LBS | | 104 | 104 | | | |
| 9,000 LBS | | 103 | 103 | 100 | 100 | |
| 8,930 LBS | 103 | | | | | |
| 8,000 LBS | 101 | 101 | 101 | 99 | 100 | |
| 7,500 LBS | 100 | 100 | 100 | 98 | | |
| 7,000 LBS | 99 | 99 | 99 | | | |

B: NOT MODIFIED BY H S/B 036 AND S/B 092
B±: MODIFIED BY S/B 036 AND S/B 092

C-1a

**MU-2B B, D (-10), F (-20), G (-30)
TAKE-OFF ENGINE FAILURE – FLAPS 5° OR 20°**



**MU-2B B, D (-10), F (-20), G (-30)
TAKE-OFF ENGINE FAILURE ON RUNWAY**

CAUTION
SIMULATED ENGINE FAILURE OR MALFUNCTION IS TO BE GIVEN BY INSTRUCTOR AT NOT MORE THAN 50% OF ROTATE SPEEDS.

ENGINE FAILS OR MALFUNCTION OCCURS
POWER LEVERS TO GROUND IDLE. BRAKES AS NECESSARY. REVERSE THRUST AS REQUIRED. USE NOSE WHEEL STEERING, BRAKES, AND/OR REVERSE THRUST TO MAINTAIN DIRECTIONAL CONTROL.

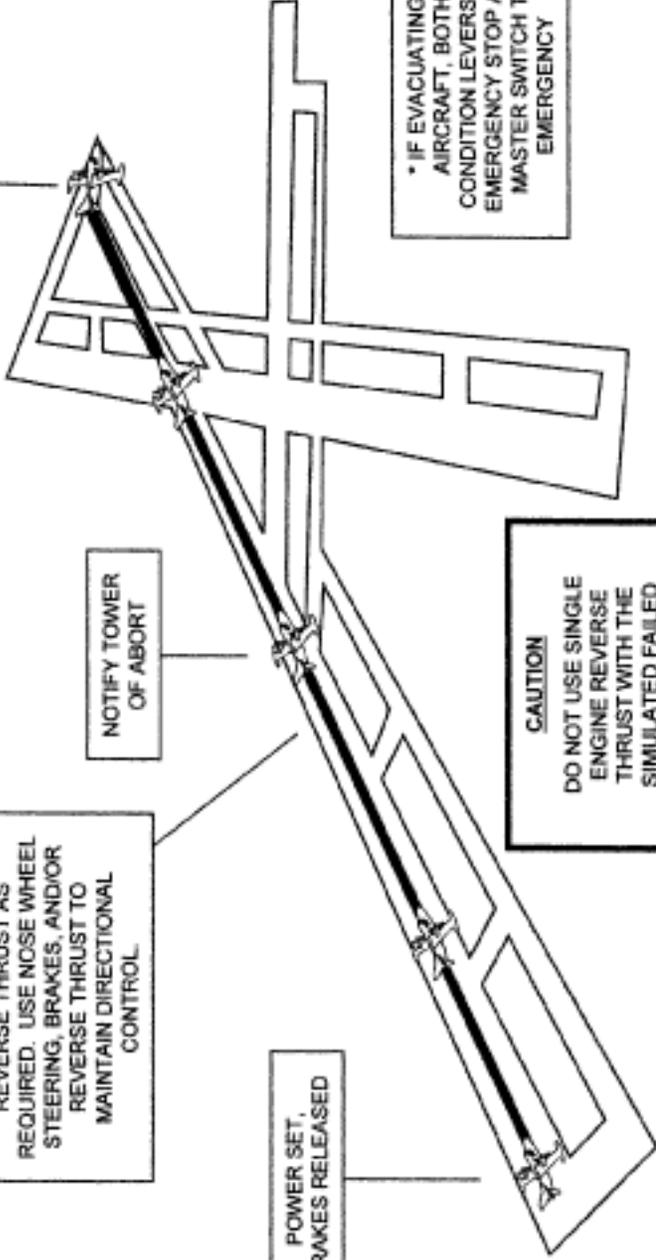
NOTIFY TOWER OF ABORT

CLEAR RUNWAY OR EVACUATE AIRCRAFT AS NECESSARY *

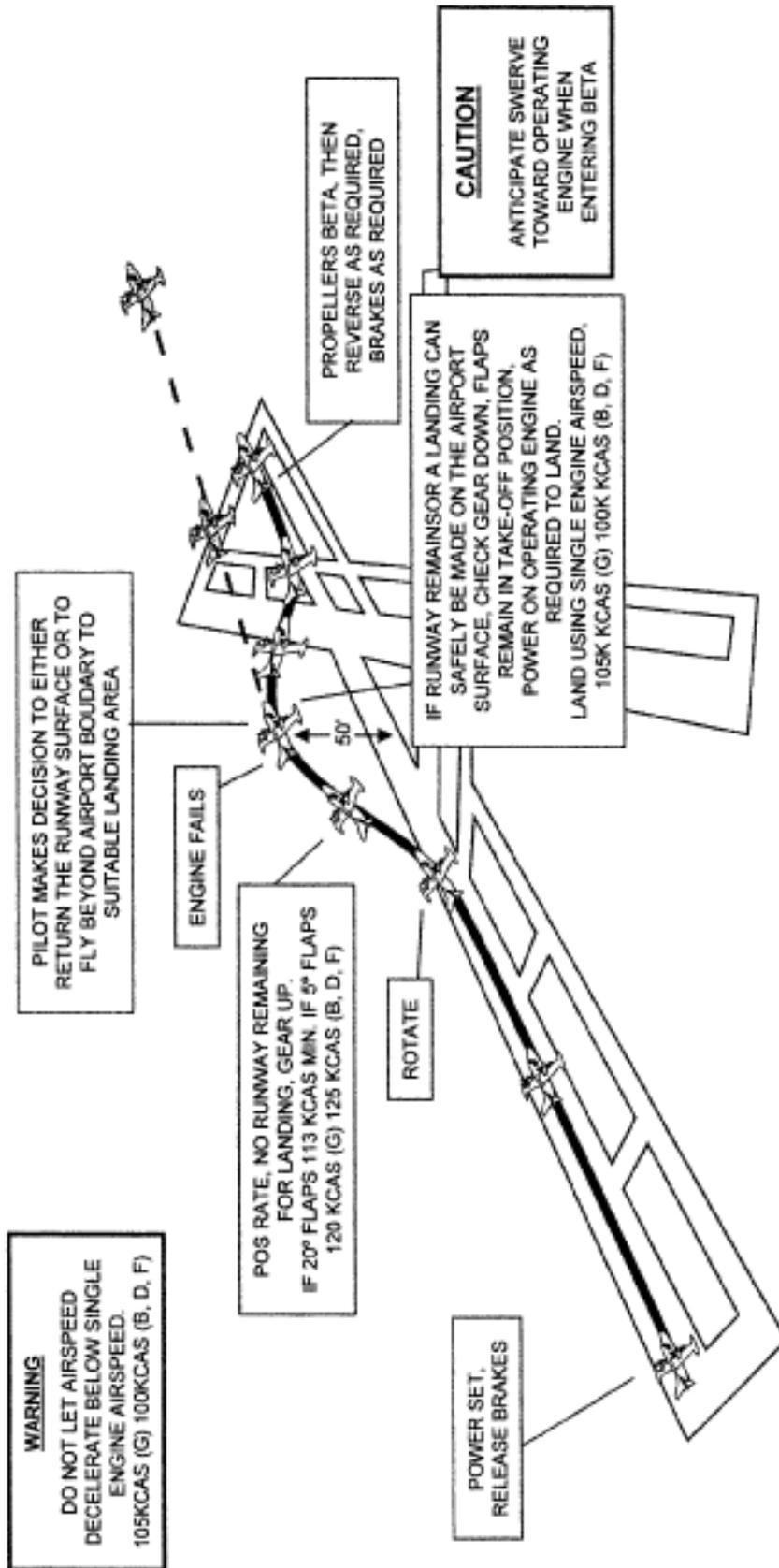
POWER SET. BRAKES RELEASED

CAUTION
DO NOT USE SINGLE ENGINE REVERSE THRUST WITH THE SIMULATED FAILED ENGINE POWER LEVER ABOVE FLIGHT IDLE.

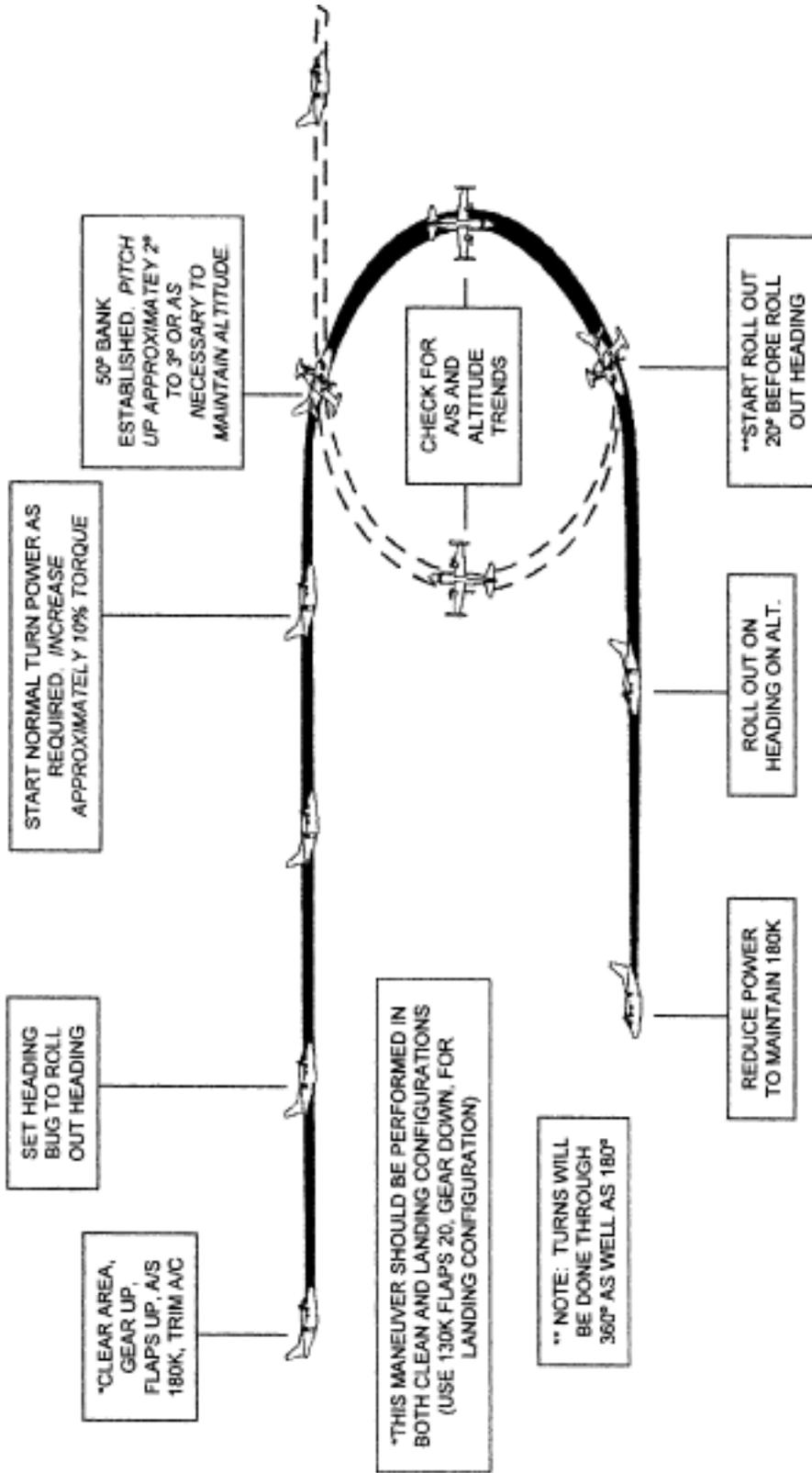
* IF EVACUATING AIRCRAFT, BOTH CONDITION LEVERS TO EMERGENCY STOP AND MASTER SWITCH TO EMERGENCY



MU-2B B, D (-10), F (-20), G (-30)
TAKE-OFF ENGINE FAILURE - UNABLE TO CLIMB
CLASSROOM DISCUSSION OR FTD USE ONLY



MU-2B B, D (-10), F (-20), G (-30)
STEEP TURNS



**MU-2B B, D (-10), F (-20), G (-30)
SLOW FLIGHT MANEUVERING
MINIMUM CONTROLLABLE AIRSPEED**

SLOW FLIGHT MANEUVERING IS CONDUCTED AS FOLLOWS:
CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.
START WITH CLEAN CONFIGURATION AND CHANGE AIRCRAFT CONFIGURATION FROM CLEAN TO FULL FLAP AND GEAR IN STAGES. USE A MAXIMUM OF 15° BANK AND PERFORM HEADING CHANGES OF 90° LEFT AND RIGHT. CONSTANT ALTITUDE IS REQUIRED THROUGHOUT.
MAINTAIN 115K IN ALL CONFIGURATIONS.
**APPROXIMATE POWER SETTINGS ARE:
CLEAN TORQUE (35%) OR PSI (23) PER ENGINE APPROX PITCH +12
5° FLAP TORQUE (32%) OR PSI (21) PER ENGINE APPROX PITCH +8
5° FLAP & GEAR TORQUE (44%) OR PSI (29) PER ENGINE APPROX PITCH +9
20° FLAP & GEAR TORQUE (42%) OR PSI (27) PER ENGINE APPROX PITCH +4
40° FLAP & GEAR TORQUE (54%) OR PSI (35) PER ENGINE APPROX PITCH 0
** NOTE: POWER SETTINGS WILL VARY WITH AIRCRAFT WEIGHT AND ALTITUDE.

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
B, B+, D, F, G

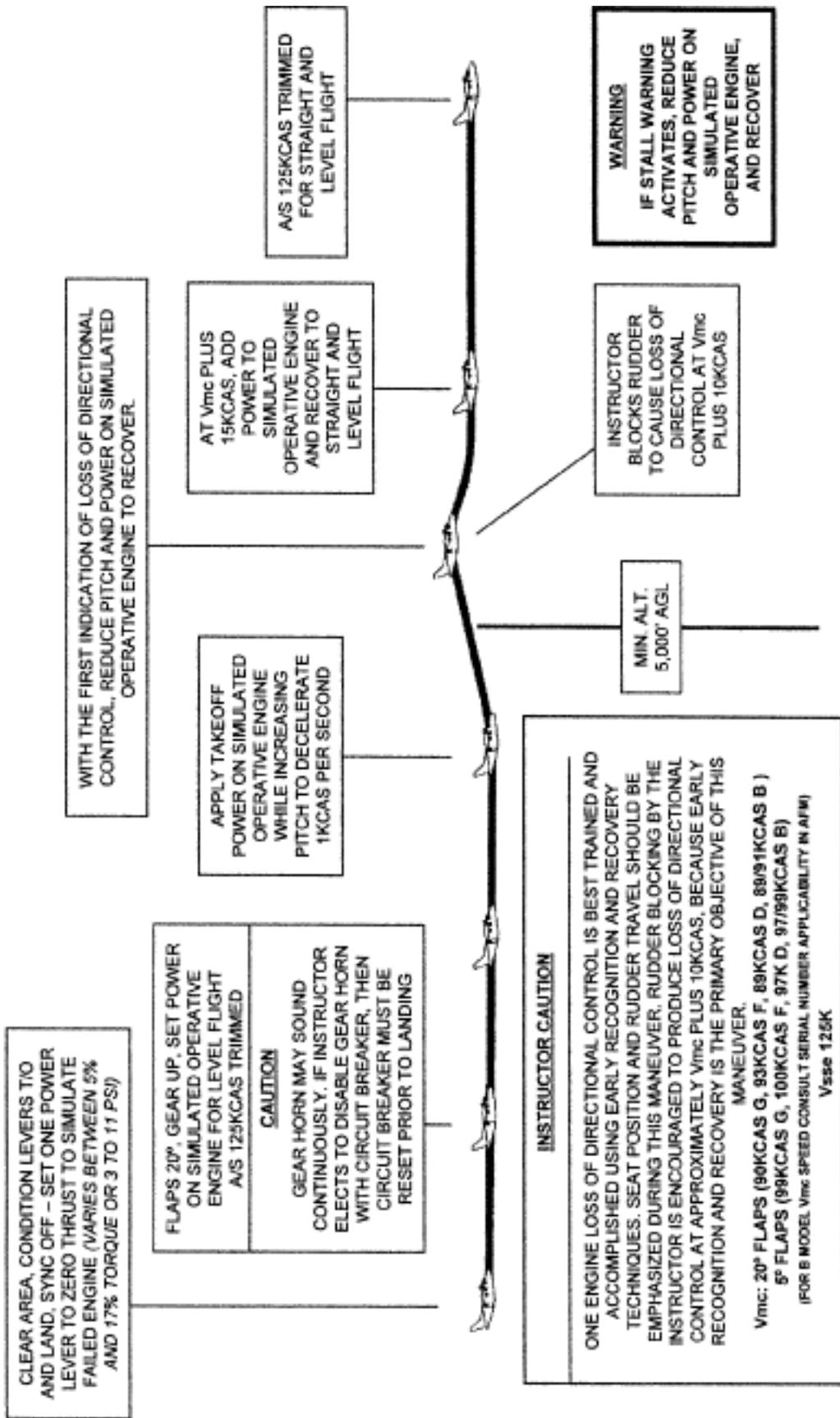
| ANGLE OF BANK FLAPS | B/B+ / D / F / G | B / B+ / D / F / G |
|------------------------|---------------------|--------------------|
| UP | 95/ 98 / 98/102/104 | 98/ 98/ 99/104/106 |
| 5° | 85/ 88/ 88/ 95/ 98 | 88/ 88/ 89/ 97/100 |
| 20° | 80/ 81/ 81/ 85/ 86 | 81/ 83/ 83/ 87/ 88 |
| 40° | 72/ 73/ 73/ 77/ 80 | 73/ 74/ 74/ 78/ 81 |

Vmc: 20° FLAPS (90KCAS G, 93KCAS F, 89KCAS D, 89/91KCAS B)
5° FLAPS (98KCAS G, 100KCAS F, 97KCAS D, 97/99KCAS B)
(FOR B MODEL, Vmc SPEED CONSULT SERIAL NUMBER APPLICABILITY IN AFM)

CAUTION
STALL WARNING MAY ACTIVATE
4 TO 9 KTS ABOVE STALL

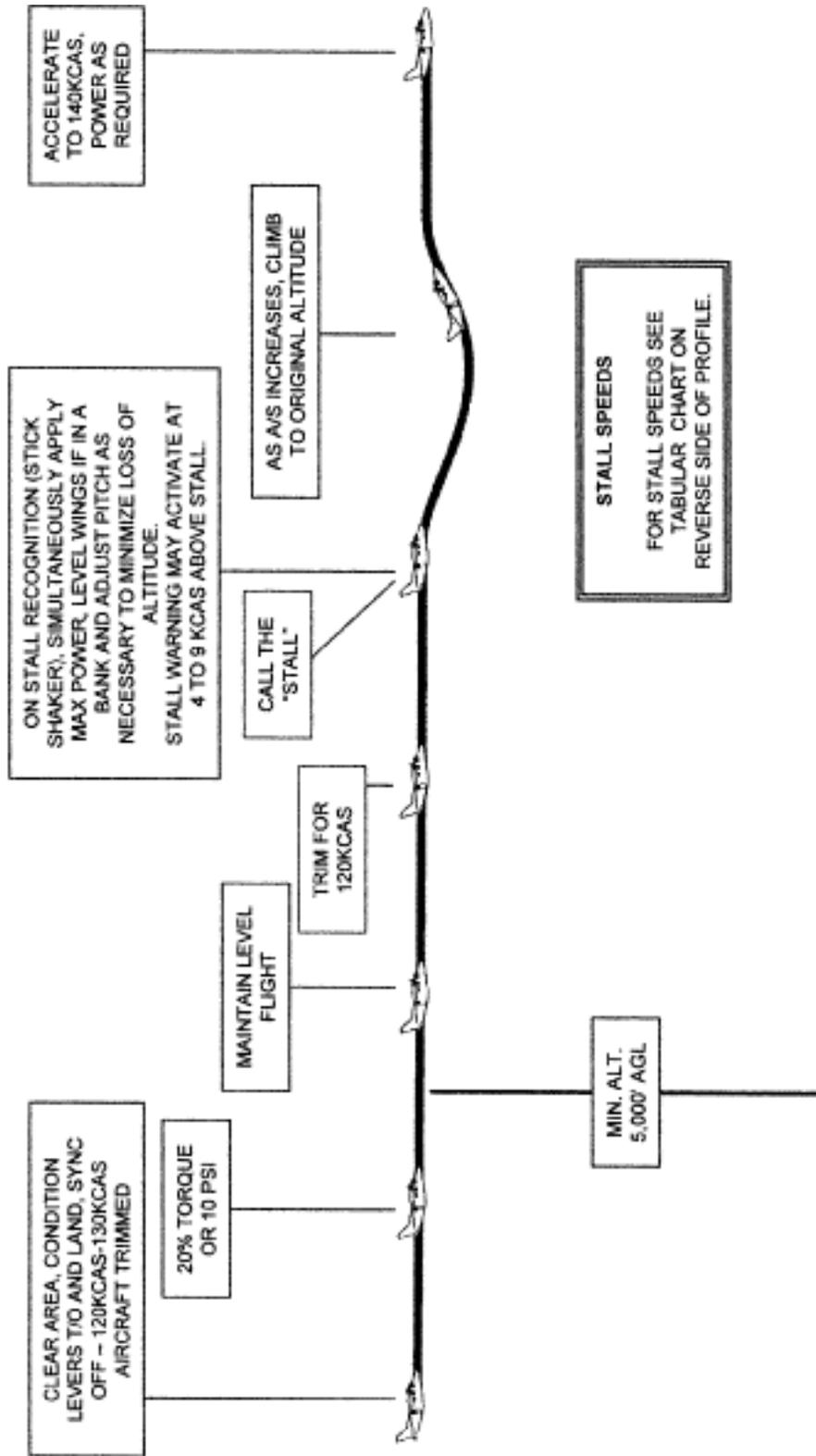
MINIMUM CONTROLLABLE AIRSPEED IS CONDUCTED AS FOLLOWS:
CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.
THE MANEUVER MAY BE DONE IN ANY COMBINATION OF GEAR OR FLAP CONFIGURATIONS. IF BANK IS TO BE USED, IT SHOULD BE DONE AT BANK OF NOT MORE THAN 10°. BEGIN THE MANEUVER BY CONFIGURING THE AIRCRAFT IN THE DESIRED GEAR AND FLAP CONFIGURATION. SLOW THE AIRCRAFT UNTIL THE STALL WARNING (STICK SHAKER) IS ACTIVATED AND ADD POWER TO MAINTAIN ALTITUDE AND A SPEED JUST ABOVE AERODYNAMIC STALL. DO NOT ALLOW THE AIRCRAFT TO REACH AERODYNAMIC STALL BUFFET.

**MU-2B B, D (-10), F (-20), G (-30)
ONE ENGINE INOPERATIVE MANEUVERING
LOSS OF DIRECTIONAL CONTROL**



C-7

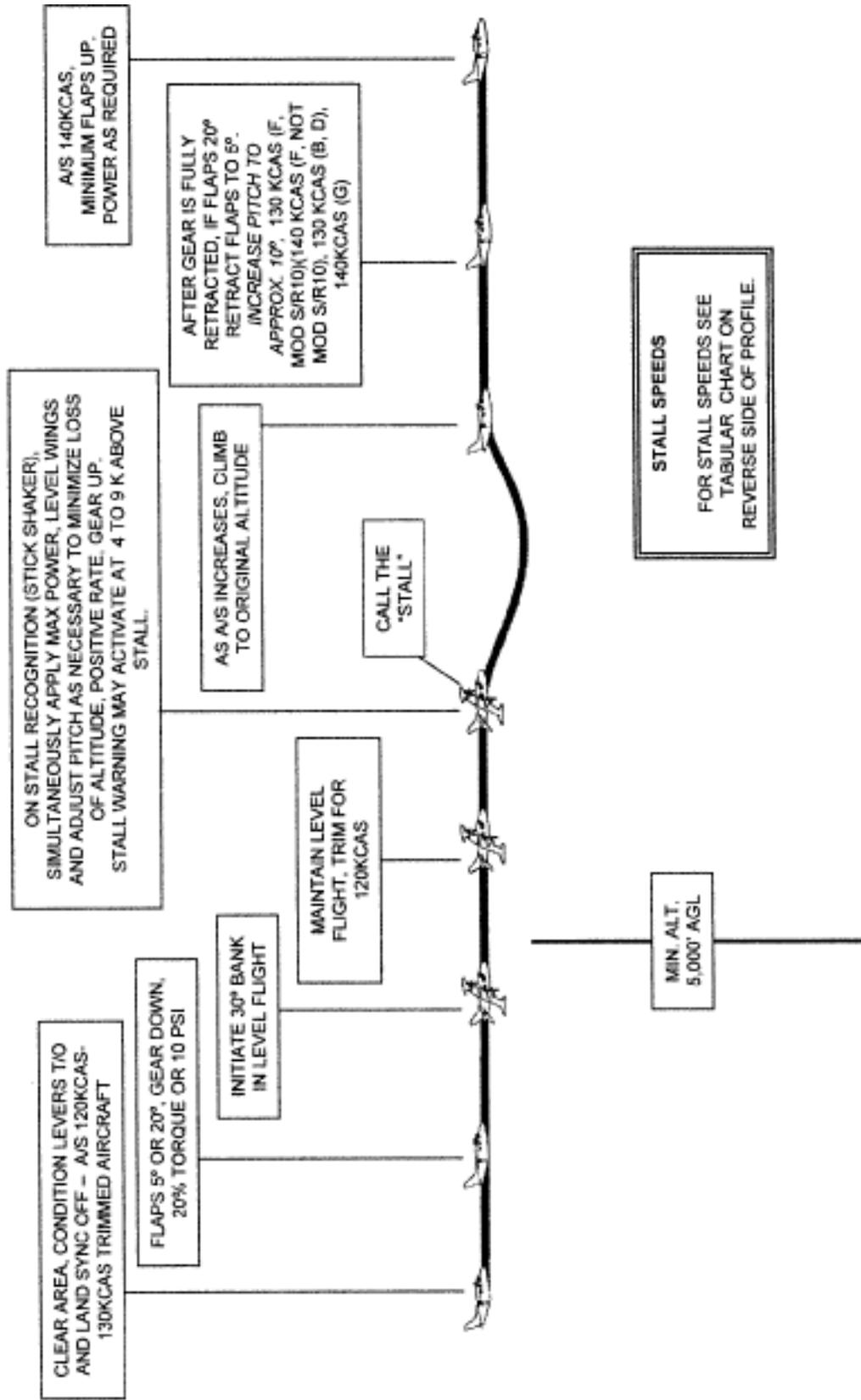
MU-2B B, D (-10), F (-20), G (-30)
APPROACH TO STALL CLEAN CONFIGURATION / WINGS LEVEL



| FLAPS SET GR.WT. | STALL SPEEDS | | | |
|---------------------|----------------|----------------|----------------|----------------|
| | 0 | 5 | 20 | 40 |
| | B/B+ D/F/G | B/B+ D/F/G | B/B+ D/F/G | B/B+ D/F/G |
| 7,000 | 85/ 85/ 85 | 76/ 76/ 80 | 70/ 70/ 72 | 63/ 63/ 64 |
| 7,500 | 88/ 88/ 85 | 78/ 78/ 83 | 73/ 73/ 74 | 66/ 63/ 67 |
| 8,000 | 90/ 90/ 91/ 90 | 81/ 81/ 86/ 84 | 75/ 75/ 77/ 74 | 68/ 68/ 69/ 69 |
| 8,500 | 93/ 93/ 94/ 93 | 83/ 83/ 88/ 87 | 78/ 78/ 79/ 77 | 70/ 70/ 71/ 71 |
| 8,930 | 95/ | 85/ | 79/ | 72/ |
| 9,000 | / 95/ 97/ 95 | / 86/ 91/ 90 | / 80/ 81/ 79 | / 72/ 73/ 73 |
| 9,350 | / 97/ | / 87/ | / 81/ | / 73/ |
| 9,500 | / 98/ 98 | 93/ 92 | / 83/ 81 | / 75/ 75 |
| 9,920 | /101/ | 95/ | / 85/ | / 76/ |
| 10,000 | /101 | / 94 | / 83 | / 77 |
| 10,500 | /103 | / 97 | / 85 | / 79 |
| 10,800 | /105 | / 98 | / 87 | / 81 |

C-8a

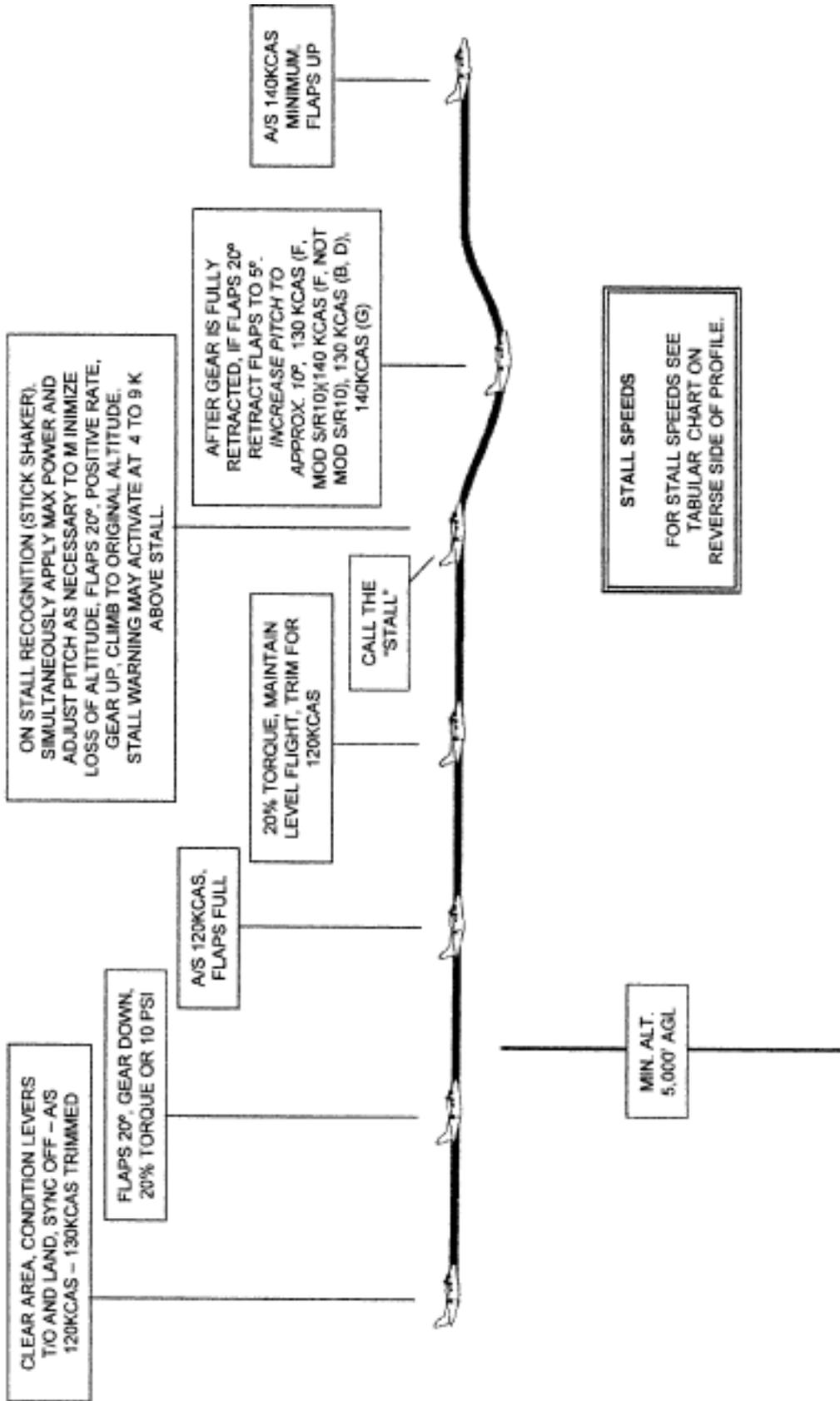
**MU-2B B, D (-10), F (-20), G (-30)
APPROACH TO STALL
TAKEOFF CONFIGURATION 15-30° BANK**



| | | STALL SPEEDS (APPROXIMATE) AT MAXIMUM GROSS TAKEOFF WEIGHT B, B+, D, F, G | | | | | | | | | |
|---------------|----------------------------|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| BANK ANGLE | 10 | 20 | 30 | 40 | 50 | 60 | | | | | |
| FLAPS | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> | <u>B/B+</u> , <u>D/F/G</u> |
| UP | 95/ 99/102/106 | 99/ 101/105/108 | 103/105/109/112 | 109/111/116/120 | 120/122/126/130 | 136/138/143/148 | | | | | |
| 5° | 87/ 88/ 96/ 99 | 89/ 90/ 98/101 | 92/ 94/102/105 | 98/100/109/112 | 107/109/119/122 | 120/124/135/138 | | | | | |
| 20° | 80/ 82/ 86/ 87 | 82/ 84/ 86/ 89 | 86/ 87/ 92/ 93 | 91/ 93/ 97/ 99 | 99/101/107/108 | 113/114/120/122 | | | | | |
| 40° | 72/ 74/ 77/ 81 | 74/ 75/ 79/ 82 | 77/ 79/ 82/ 86 | 82/ 83/ 87/ 91 | 90/ 91/ 95/100 | 102/103/108/113 | | | | | |

C-9a

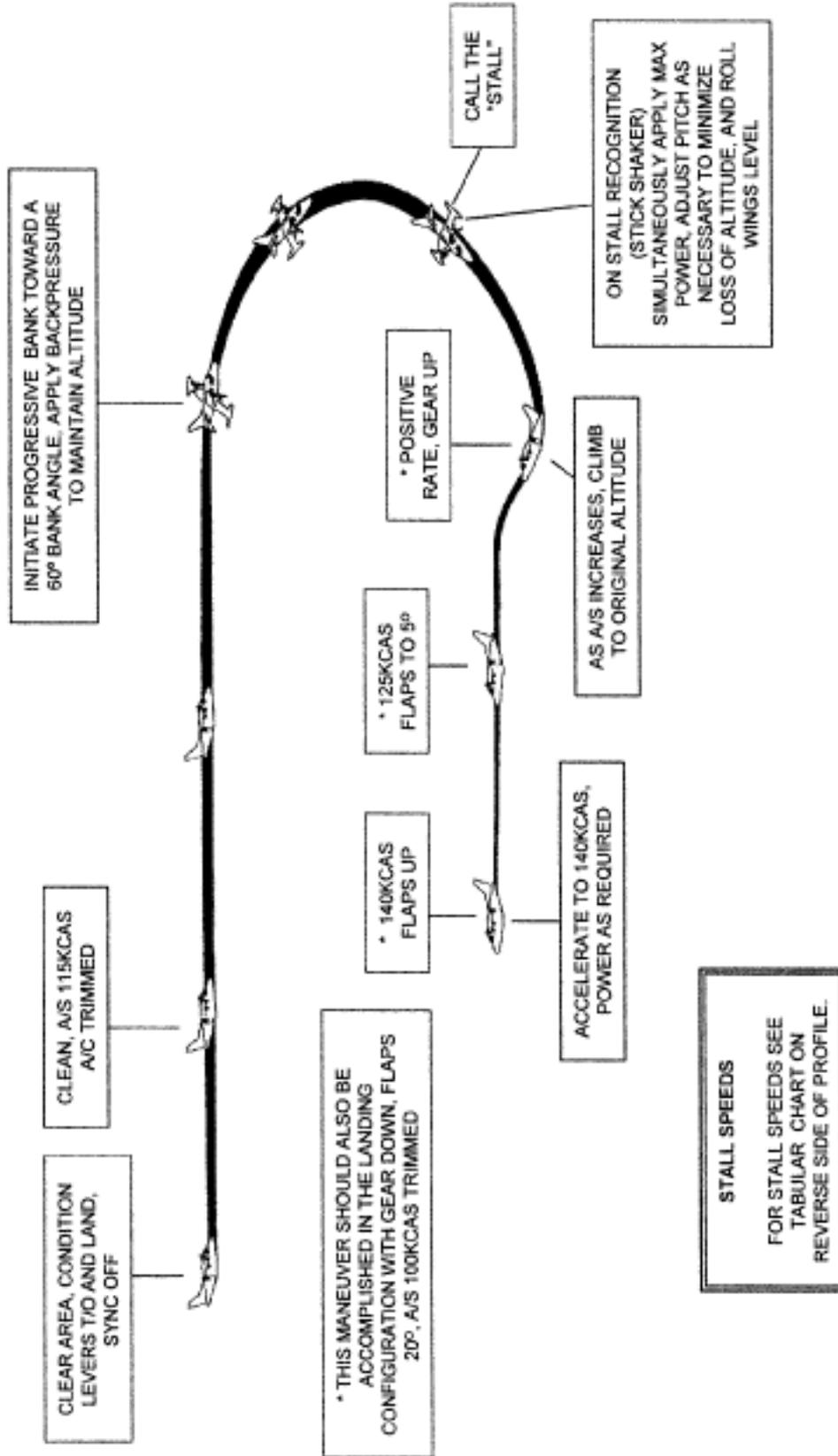
**MU-2B B, D (-10), F (-20), G (-30)
APPROACH TO STALL
GEAR DOWN – FULL FLAPS**



| FLAPS SET GR.WT. | STALL SPEEDS | | | |
|---------------------|----------------|----------------|----------------|----------------|
| | 0 | 5 | 20 | 40 |
| | B/B+ D/F/G | B/B+ D/F/G | B/B+ D/F/G | B/B+ D/F/G |
| 7,000 | 85/ 85/ 85 | 76/ 76/ 80 | 70/ 70/ 72 | 63/ 63/ 64 |
| 7,500 | 88/ 88/ 85/ | 78/ 78/ 83/ | 73/ 73/ 74/ | 66/ 63/ 67/ |
| 8,000 | 90/ 90/ 91/ 90 | 81/ 81/ 85/ 84 | 75/ 75/ 77/ 74 | 68/ 68/ 69/ 69 |
| 8,500 | 93/ 93/ 94/ 93 | 83/ 83/ 89/ 87 | 78/ 78/ 79/ 77 | 70/ 70/ 71/ 71 |
| 8,900 | 95/ | 85/ | 79/ | 72/ |
| 9,000 | / 95/ 97/ 95 | / 86/ 91/ 90 | / 80/ 81/ 79 | / 72/ 73/ 73 |
| 9,350 | / 97/ | / 87/ | / 81/ | / 73/ |
| 9,500 | / 98/ 98 | 93/ 92 | / 83/ 81 | / 75/ 75 |
| 9,920 | /101/ | 95/ | / 85/ | / 76/ |
| 10,000 | /101 | / 94 | / 83 | / 77 |
| 10,500 | /103 | / 97 | / 85 | / 79 |
| 10,800 | /105 | / 98 | / 87 | / 81 |

C-10a

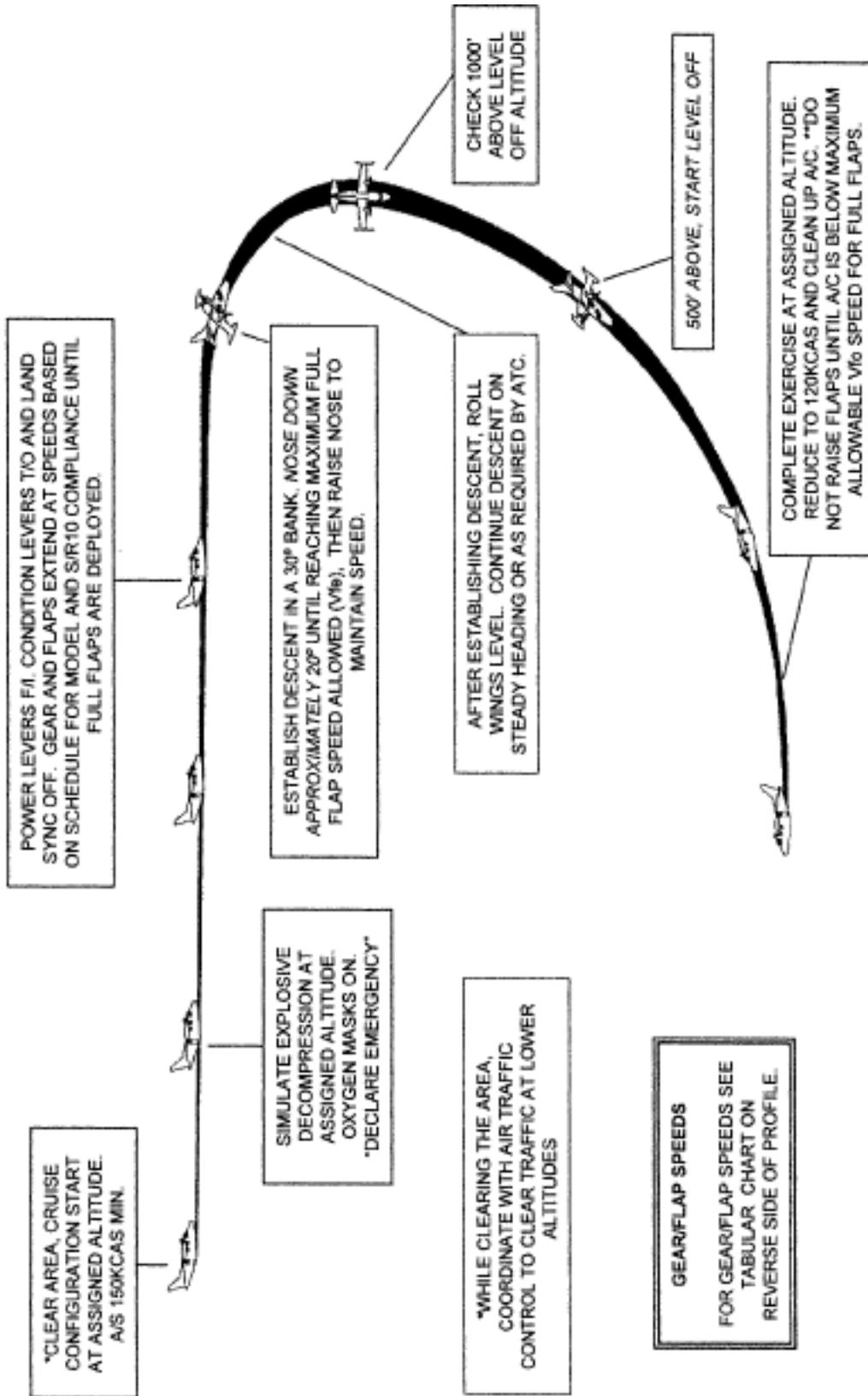
**MU-2B B, D (-10), F (-20), G (-30)
ACCELERATED STALLS**



| STALL SPEEDS (APPROXIMATE) AT MAXIMUM GROSS TAKEOFF WEIGHT B, B+, D, F, G | | | | | | |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| BANK ANGLE | 10 | 20 | 30 | 40 | 50 | 60 |
| FLAPS | <u>B/B+</u> , <u>D/F/G</u> |
| UP | 96/ 99/102/106 | 99/ 101/105/108 | 103/105/109/112 | 109/111/116/120 | 120/122/126/130 | 136/138/143/148 |
| 5° | 87/ 88/ 96/ 99 | 89/ 90/ 98/101 | 92/ 94/102/105 | 98/100/109/112 | 107/109/119/122 | 120/124/135/138 |
| 20° | 80/ 82/ 86/ 87 | 82/ 84/ 88/ 89 | 86/ 87/ 92/ 93 | 91/ 93/ 97/ 98 | 98/101/107/108 | 113/114/120/122 |
| 40° | 72/ 74/ 77/ 81 | 74/ 75/ 79/ 82 | 77/ 79/ 82/ 86 | 82/ 83/ 87/ 91 | 90/ 91/ 95/100 | 102/103/109/113 |

C-11a

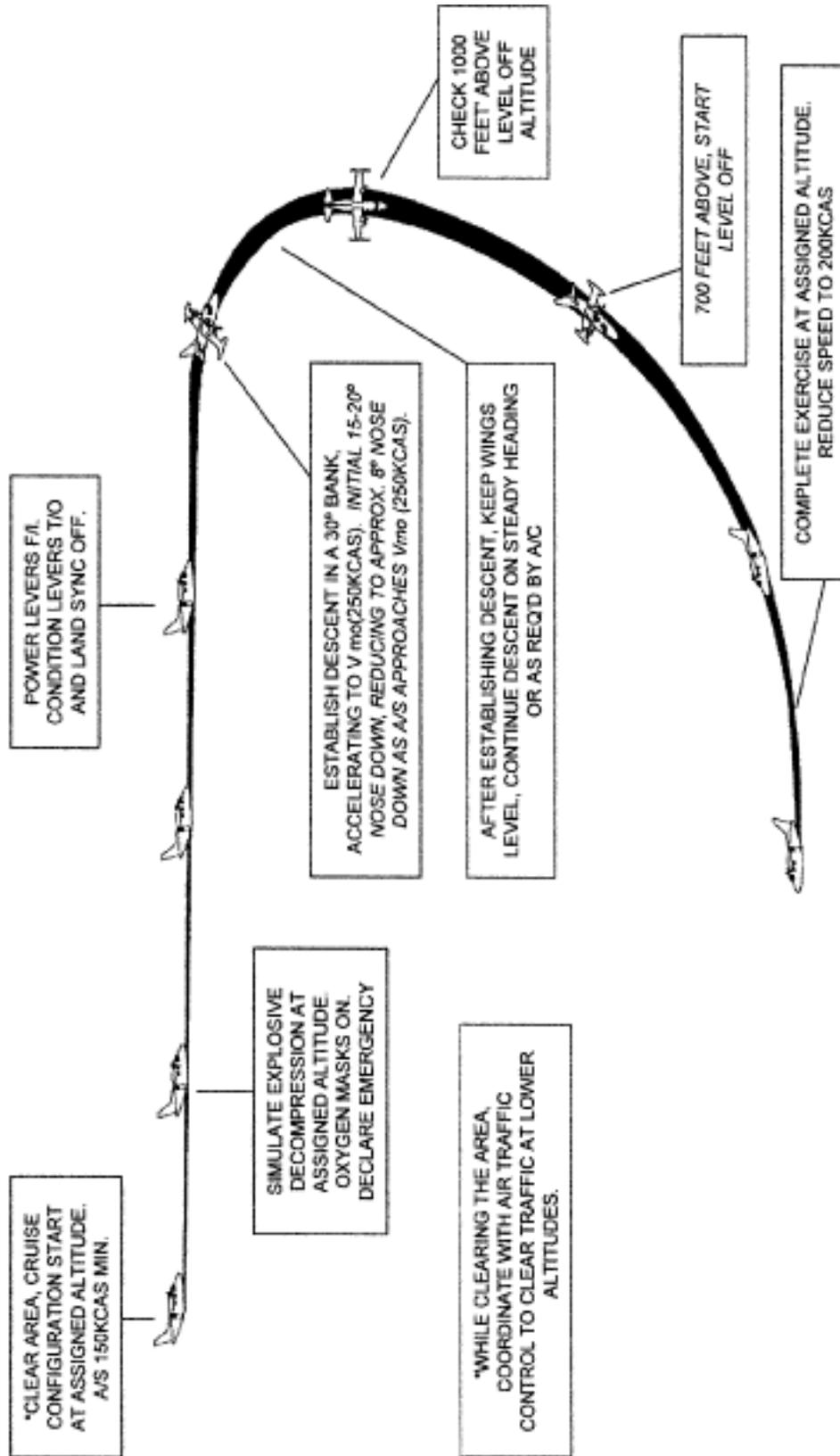
**MU-2B B, D (-10), F (-20), G (-30)
EMERGENCY DESCENT (LOW SPEED)**



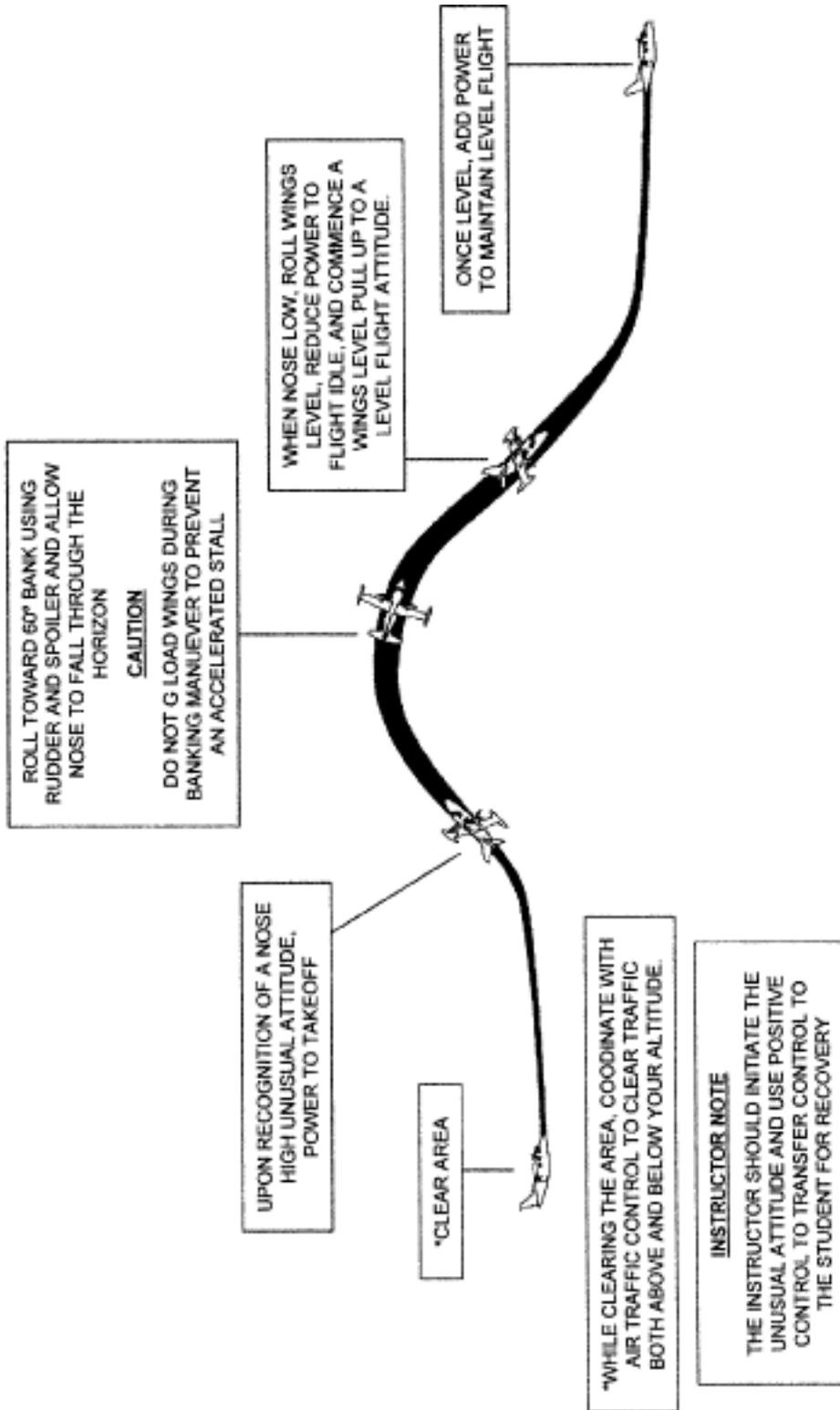
| <u>GEAR AND FLAP EXTEND SCHEDULE</u> | | | |
|---|-----------|------------|------------|
| (F+ AND G+ ARE MODIFIED BY S/R10) | | | |
| GEAR | | | |
| B, D, F, F+: | 160KCAS | | |
| G, G+: | 170KCAS | | |
| FLAPS | <u>5°</u> | <u>20°</u> | <u>40°</u> |
| G: NOT MODIFIED BY S/R10 | 146KCAS | 146KCAS | 120KCAS |
| G+: MODIFIED BY S/R10 AND | 175KCAS | 146KCAS | 120KCAS |
| F: NOT MODIFIED BY S/R10 | 140KCAS | 140KCAS | 120KCAS |
| F+: MODIFIED BY S/R10 AND | 175KCAS | 140KCAS | 120KCAS |
| B, D, F | 140KCAS | 140KCAS | 120KCAS |

C-12a

**MU-2B B, D (-10), F (-20), G (-30)
EMERGENCY DESCENT (HIGH SPEED)**

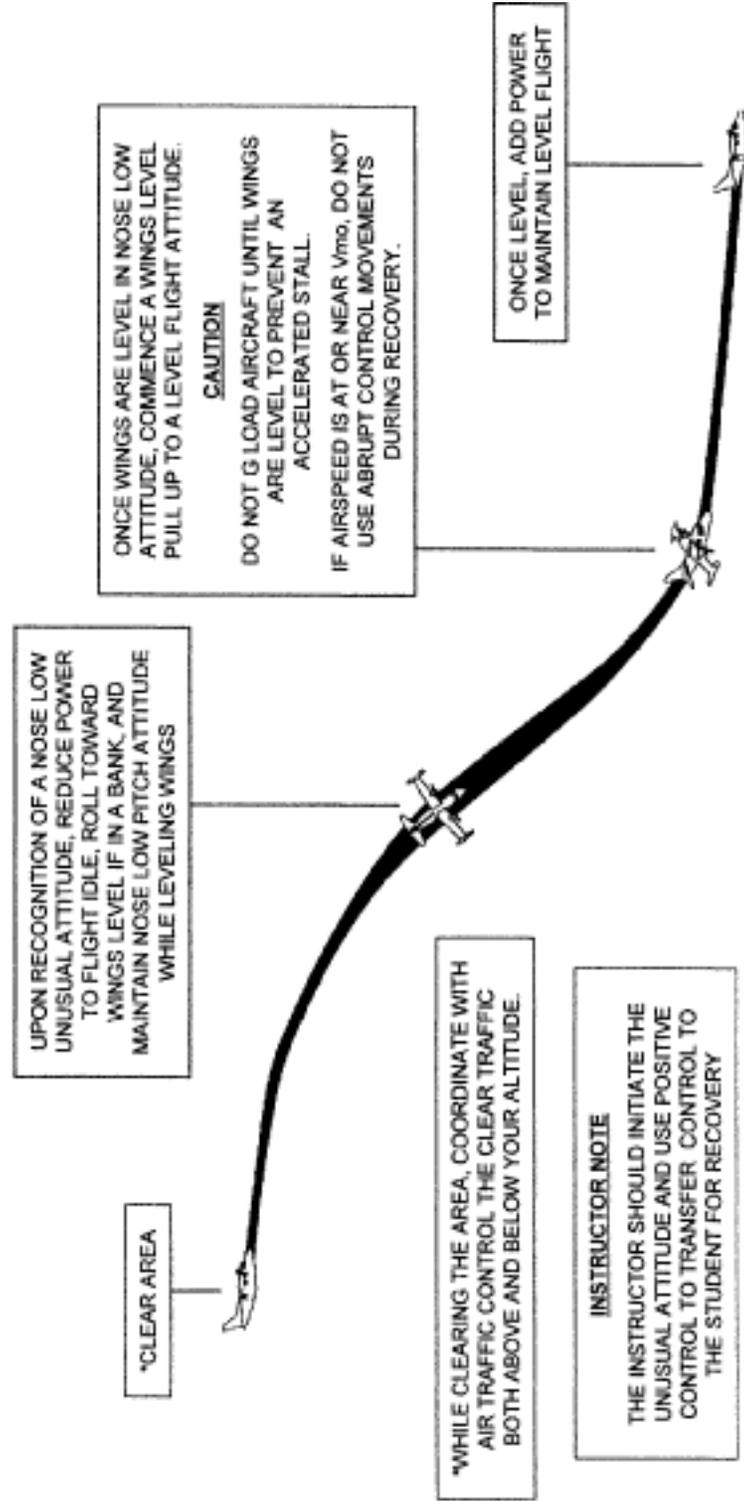


**MU-2B B, D (-10), F (-20), G (-30)
UNUSUAL ATTITUDE RECOVERY (NOSE HIGH)**

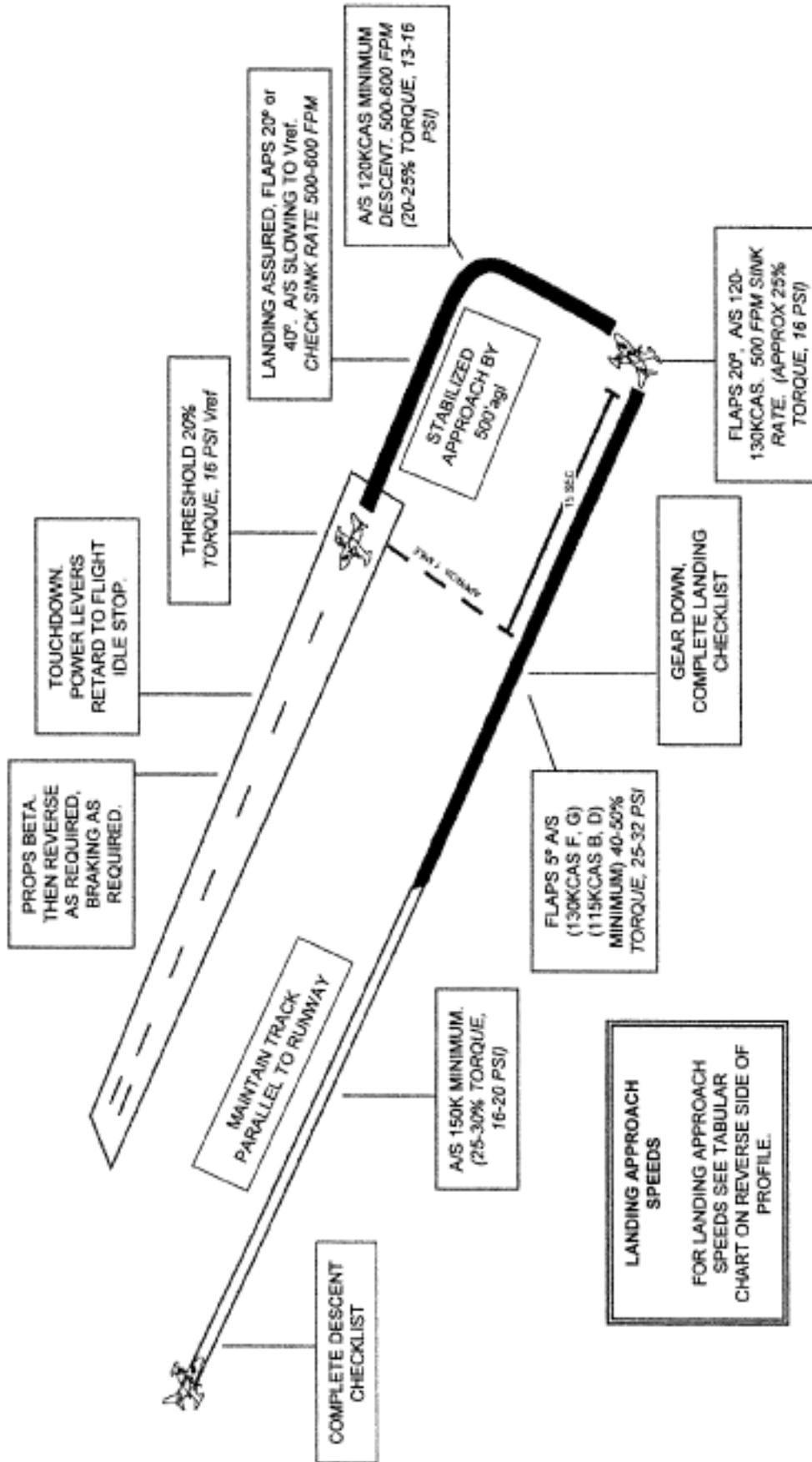


C-14

MU-2B B, D (-10), F (-20), G (-30)
UNUSUAL ATTITUDE RECOVERY (NOSE LOW)



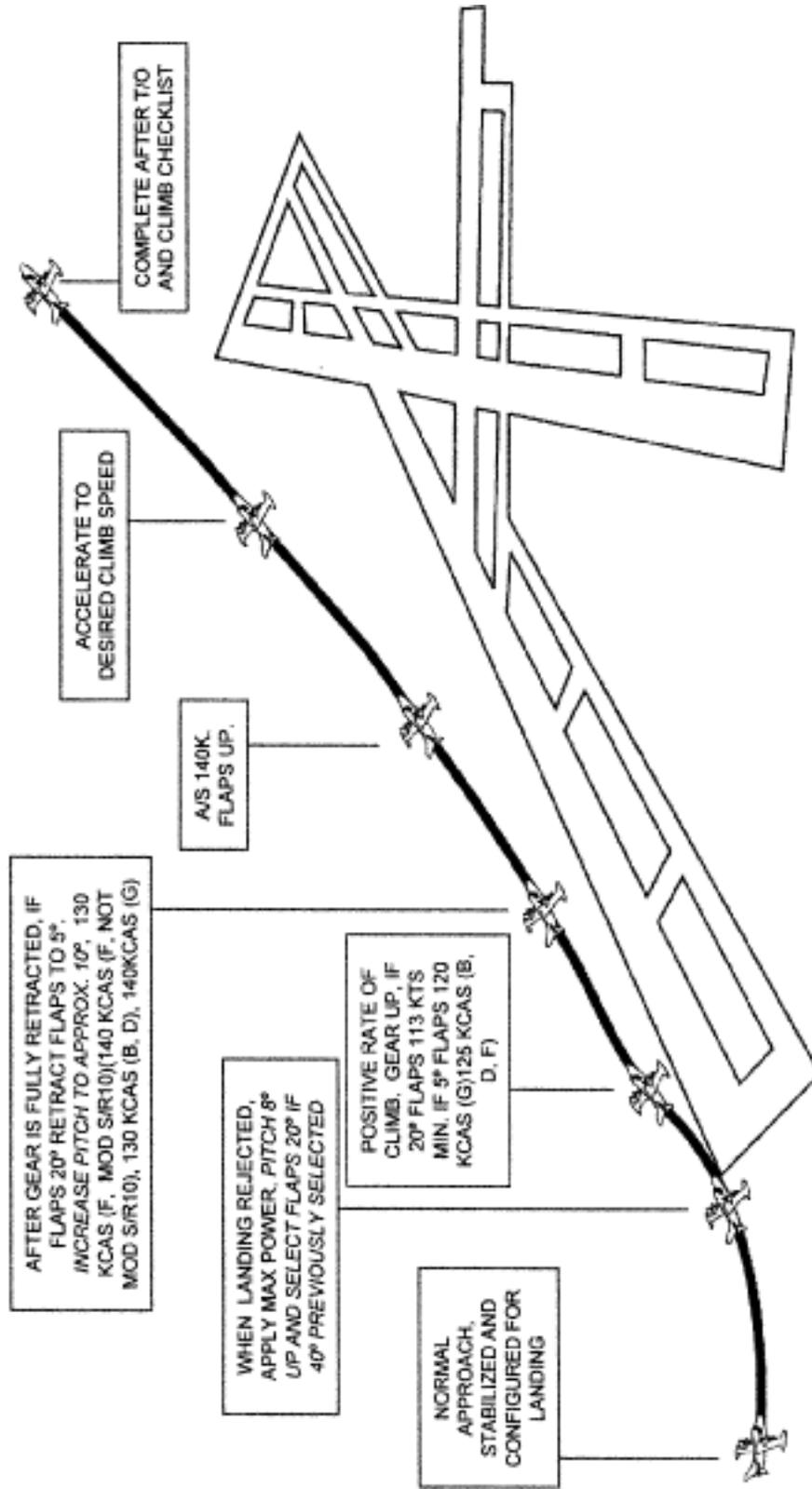
**MU-2B B, D (-10), F (-20), G (-30)
NORMAL LANDING (20° or 40° FLAPS)**



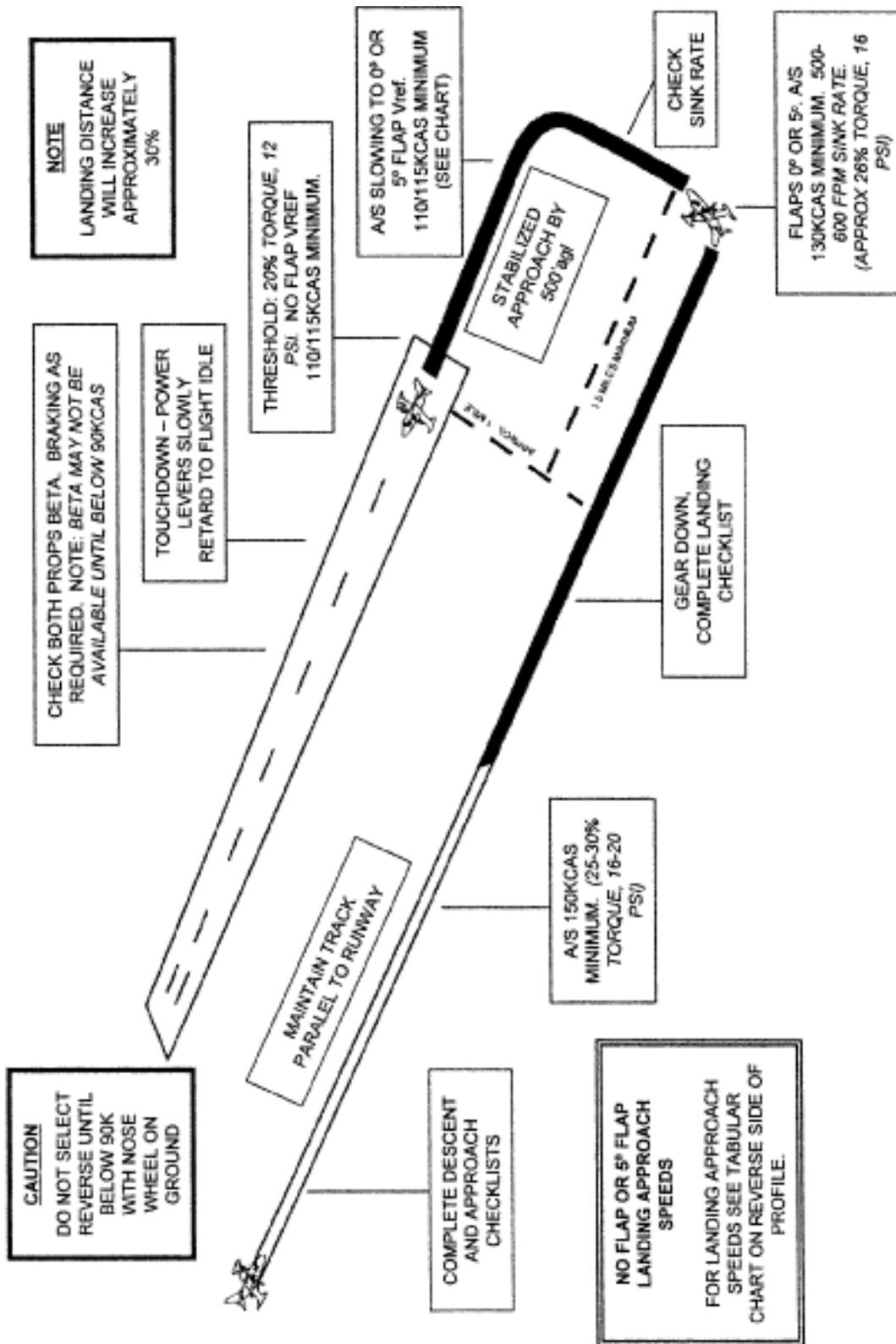
| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | | | | | | |
|--------|------------------------------|-----|-----|---------------------|-----|-----|---------------------|-----|-----|---------------------|-----|-----|-----|-----|-----|
| | B, B+, D, F, G | | | | | | FLAPS 40° (1.5 VS1) | | | | | | | | |
| | FLAPS 20° (1.3 VS1) | | | FLAPS 40° (1.5 VS1) | | | FLAPS 20° (1.3 VS1) | | | FLAPS 40° (1.5 VS1) | | | | | |
| | B | B+ | D | F | G | B | B+ | D | F | G | B | B+ | D | F | G |
| 7,000 | 92 | 92 | 93 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 99 | 100 |
| 7,500 | 95 | 95 | 96 | 97 | 97 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 103 | 103 |
| 8,000 | 98 | 98 | 100 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 106 | 106 |
| 8,500 | | 101 | 103 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 109 | 109 |
| 8,930 | | | 106 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 112 | 112 |
| 9,000 | | | 106 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 112 | 112 |
| 9,435 | | | 105 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 115 | 115 |
| 9,500 | | | 105 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 115 | 115 |
| 10,000 | | | 108 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 117 | 117 |
| 10,260 | | | 108 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 117 | 117 |

C-16a

**MU-2B B, D (-10), F (-20), G (-30)
GO AROUND - REJECTED LANDING**



**MU-2B B, D (-10), F (-20), G (-30)
NO FLAP OR 5° FLAP LANDING**



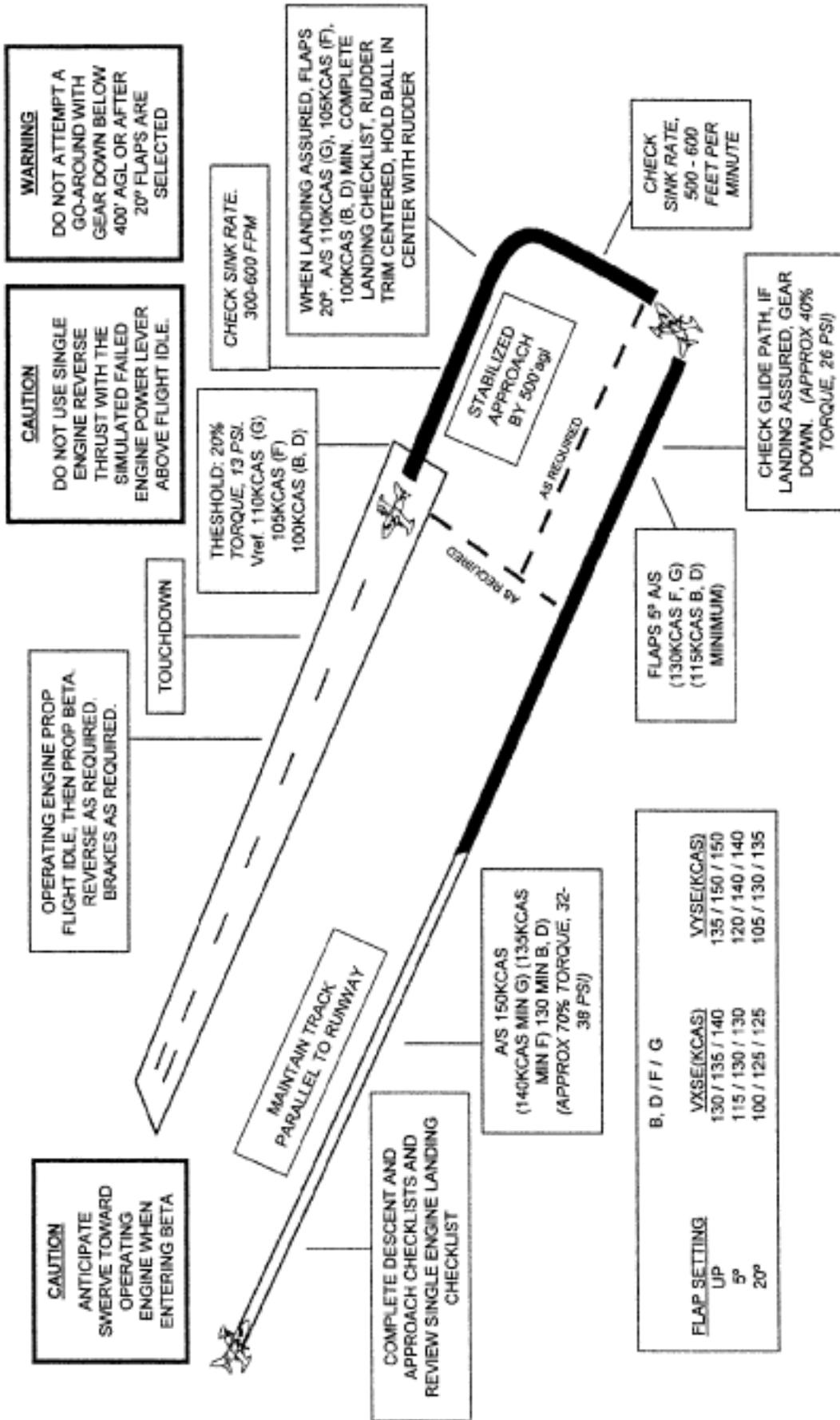
A-18

NO FLAP Vref 1.25 VS1
(BUT NOT BELOW 110KCAS (B, B+, D, F) 115KCAS (G))
USE FOR FLAP UP OR 5°
B, B+, D, F, G

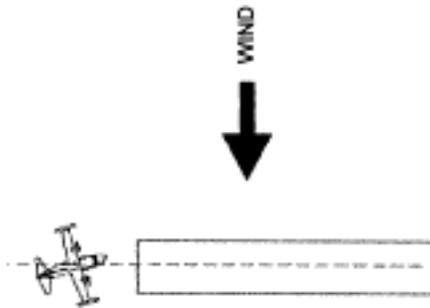
| WEIGHT | FLAPS UP | | | | FLAPS 5° | | | | | | |
|--------|----------|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|
| | B | B+ | D | E | F | G | B | B+ | D | E | G |
| 7,500 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 115 |
| 8,000 | 113 | 113 | 113 | 114 | 115 | 110 | 110 | 110 | 110 | 110 | 115 |
| 8,490 | 117 | | | | | 110 | | | | | |
| 8,500 | | 117 | 117 | 118 | 117 | | 110 | 110 | 110 | 110 | 115 |
| 8,930 | | 119 | 119 | | | | 110 | 110 | 110 | | |
| 9,000 | | | | 122 | 119 | | | | | 114 | 115 |
| 9,435 | | | | 124 | | | | | | 117 | |
| 9,500 | | | | | | | 123 | | | | 115 |
| 10,000 | | | | | | | 127 | | | | 118 |
| 10,260 | | | | | | | 128 | | | | 120 |

C-18a

**MU-2B B, D (-10), F (-20), G (-30)
ONE ENGINE INOPERATIVE LANDING**

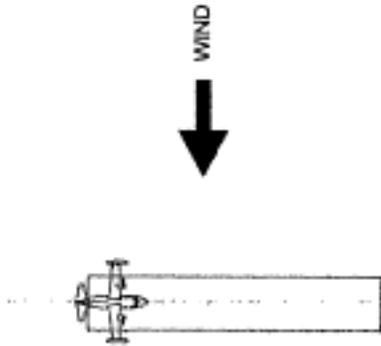
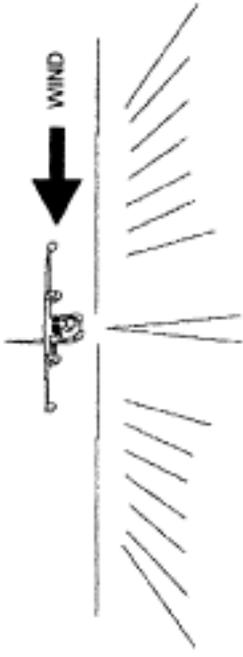


**MU-2B B, D (-10), F (-20), G (-30)
CROSSWIND LANDING**



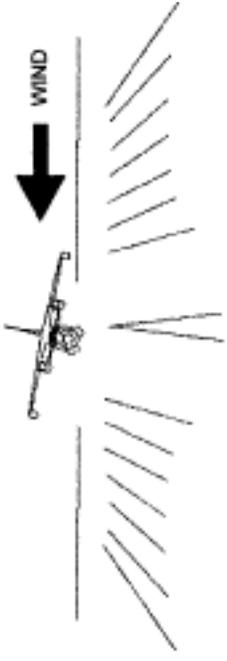
AIRCRAFT WILL BE FLOWN DOWN AN EXTENSION OF THE RUNWAY CENTER LINE WITH DRIFT CORRECTION ESTABLISHED SUFFICIENTLY IN ADVANCE TO PERMIT CENTER LINE TO BE FLOWN WITH ONLY MINOR COORDINATED CORRECTIONS

INCREASE V_{ref} FOR CROSSWIND LANDING BY ONE-HALF THE STEADY WIND SPEED PLUS ONE-HALF THE GUST SPEED NOT TO EXCEED V_{ref} PLUS 10 KCAS.

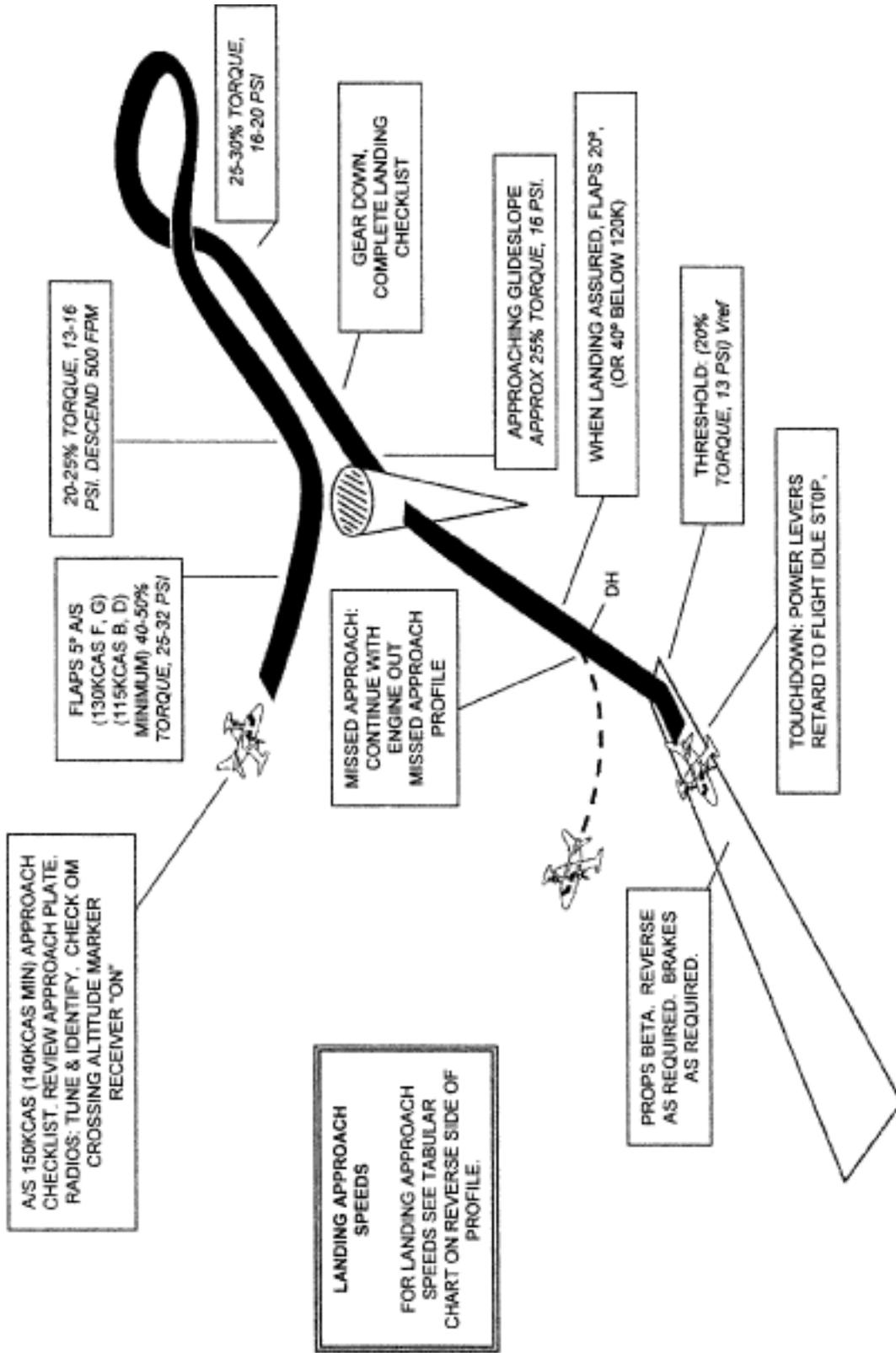


PRIOR TO TOUCHDOWN, THE UPWIND WING IS LOWERED AND SMOOTHLY MODULATED. OPPOSITE RUDDER IS APPLIED SO THAT AIRCRAFT PATH CONTINUES DOWN RUNWAY CENTERLINE. THE AIRCRAFT SHOULD NOT BE ALLOWED TO DEVELOP ANY TENDENCY TO DRIFT DOWNWIND.

** NOTE: RUDDERS CENTERED BEFORE NOSE WHEEL TOUCHDOWN. SPOILERS INTO WIND AS NECESSARY TO KEEP WINGS LEVEL



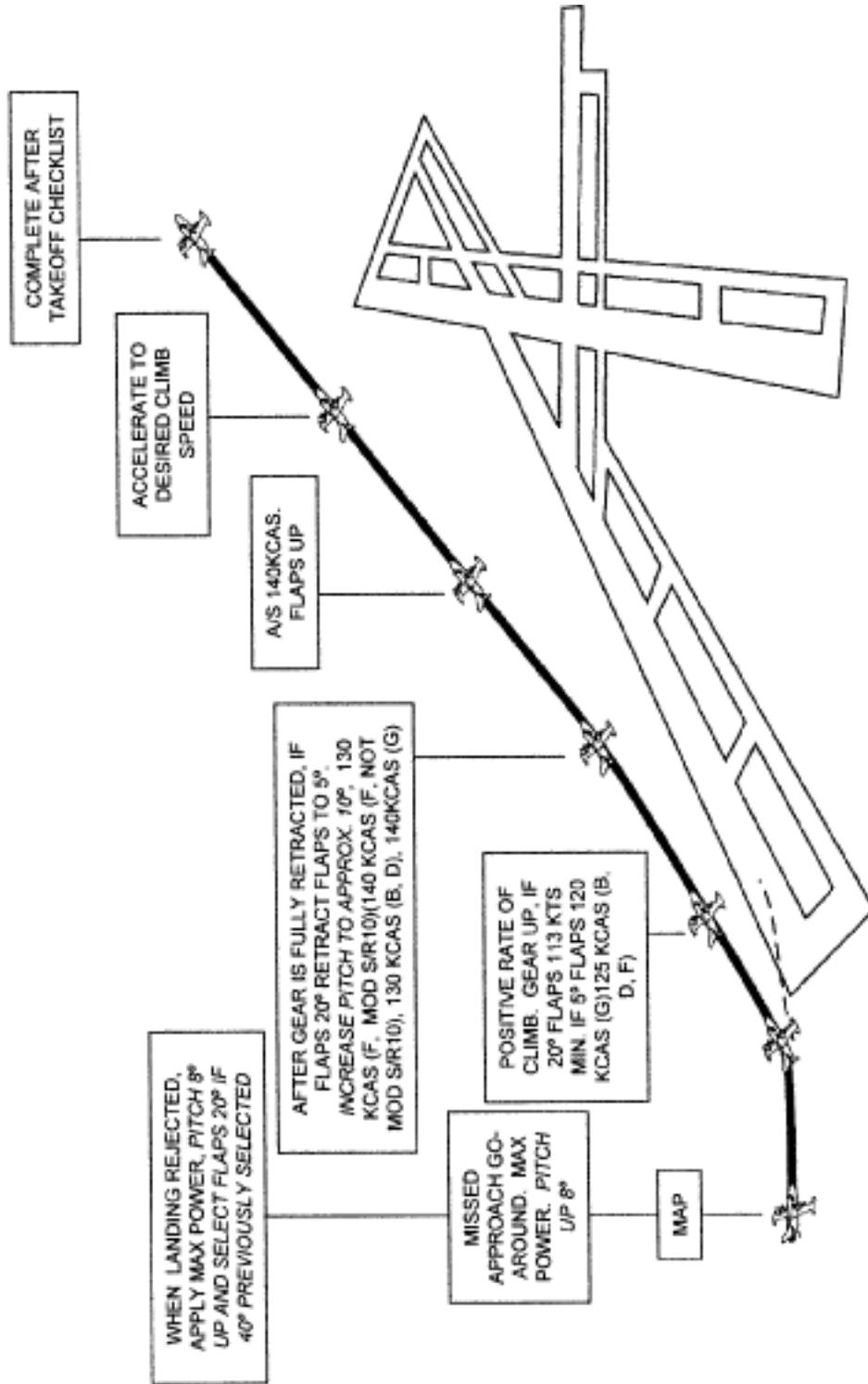
**MU-2B B, D (-10), F (-20), G (-30)
ILS AND MISSED APPROACH**



| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | |
|--------|------------------------------|-----|-----|-----|-----|---------------------|-----|-----|-----|-----|
| | FLAPS 20° (1.3 VSI) | | | | | FLAPS 40° (1.5 VSI) | | | | |
| | B | B+D | E | G | B | B+D | E | G | | |
| 7,000 | 92 | 92 | 93 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| 7,500 | 95 | 95 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| 8,000 | 98 | 98 | 100 | 97 | 101 | 101 | 103 | 103 | 103 | 103 |
| 8,500 | | 101 | 103 | 100 | | 104 | 104 | 106 | 106 | 106 |
| 8,490 | 101 | | | | | | | | | |
| 8,930 | | 103 | | | | 107 | | | | |
| 9,000 | | | 106 | 103 | | | 109 | 109 | 109 | 109 |
| 9,435 | | | 108 | | | | | 112 | | |
| 9,500 | | | | 105 | | | | | | 112 |
| 10,000 | | | | 108 | | | | | | 115 |
| 10,260 | | | | 109 | | | | | | 117 |

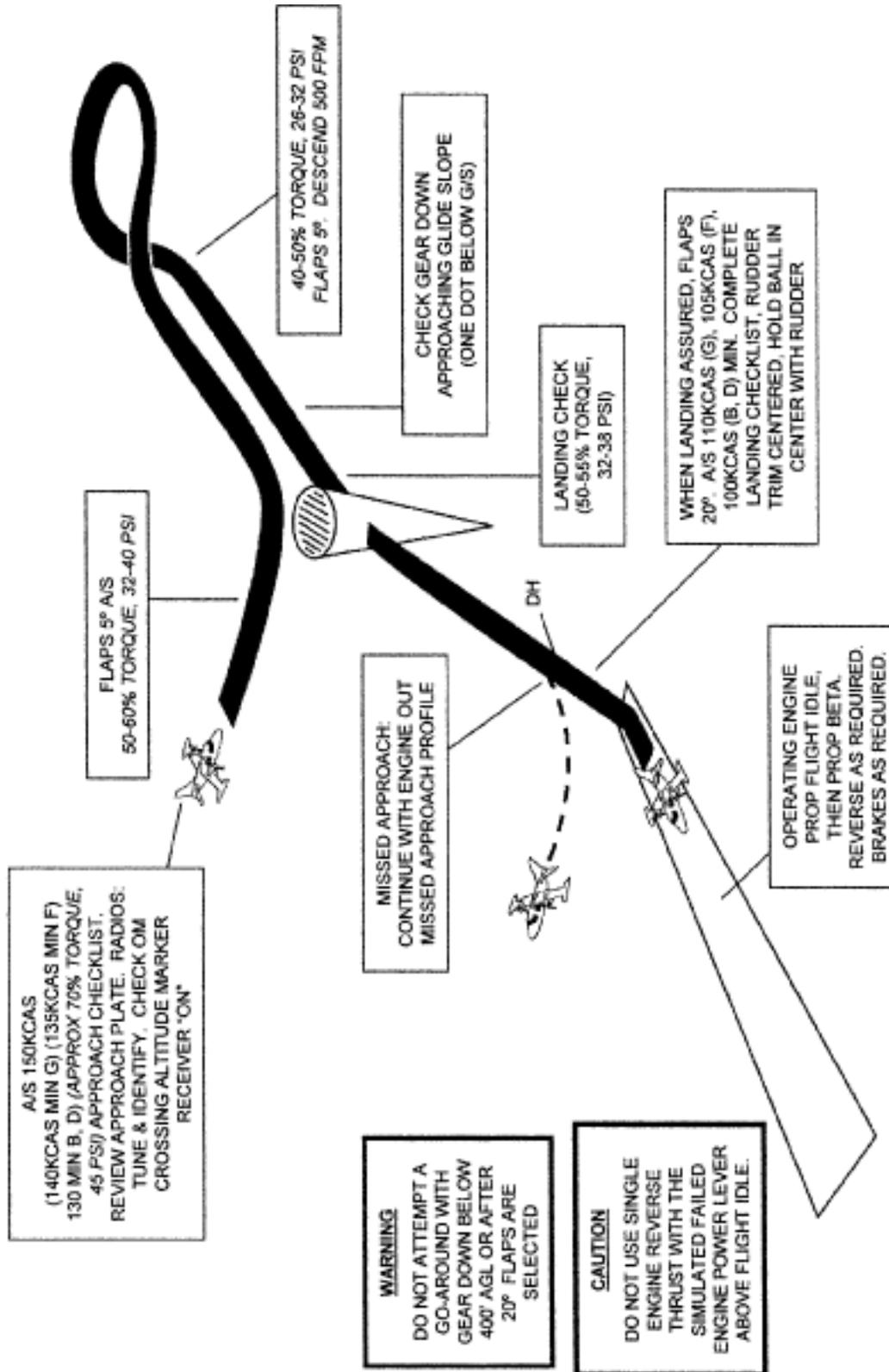
C-21a

**MU-2B B, D (-10), F (-20), G (-30)
TWO ENGINE MISSED APPROACH**

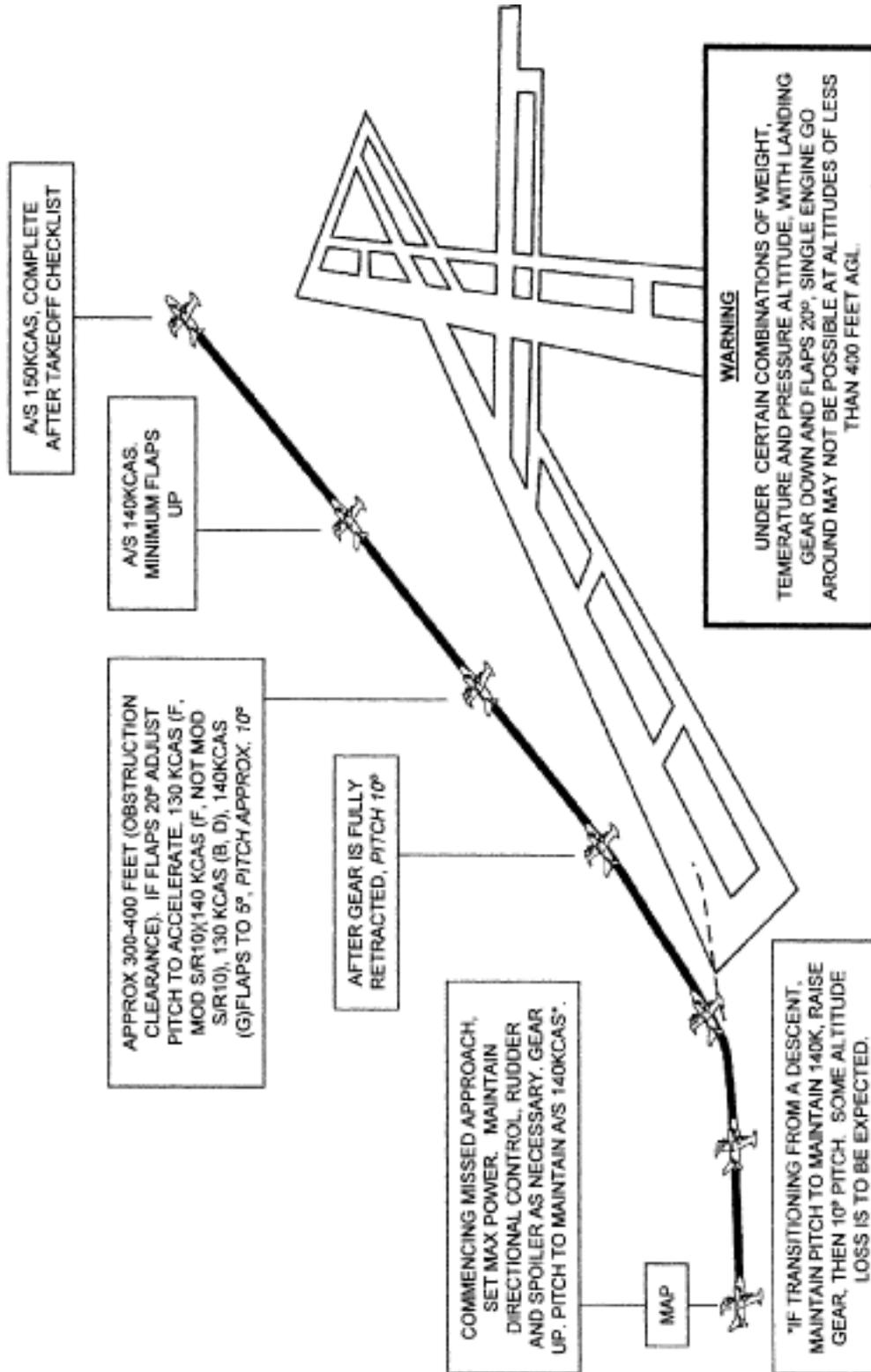


C-22

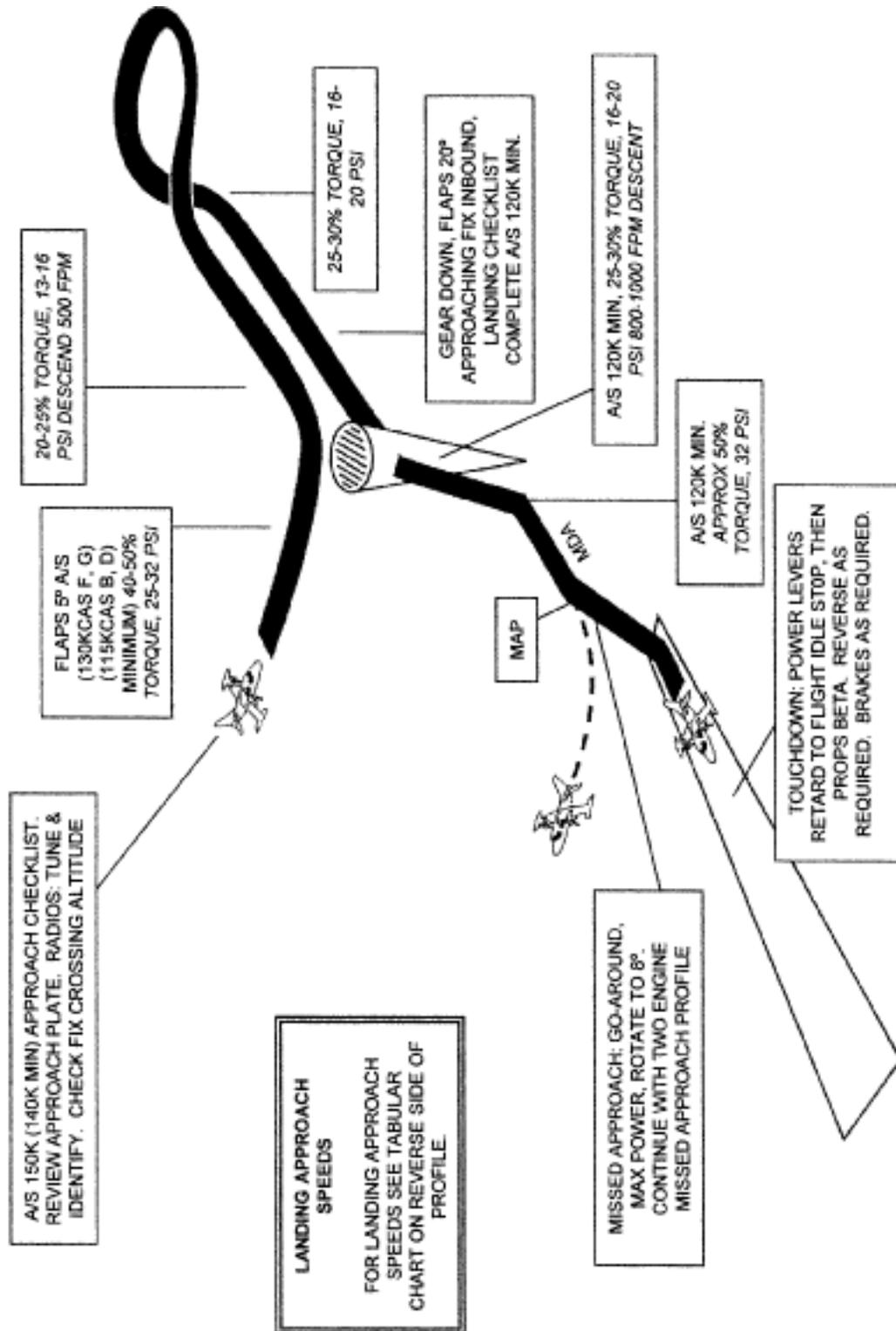
**MU-2B B, D (-10), F (-20), G (-30)
ONE ENGINE INOPERATIVE ILS AND MISSED
APPROACH**



**MU-2B B, D (-10), F (-20), G (-30)
ONE ENGINE INOPERATIVE MISSED APPROACH**



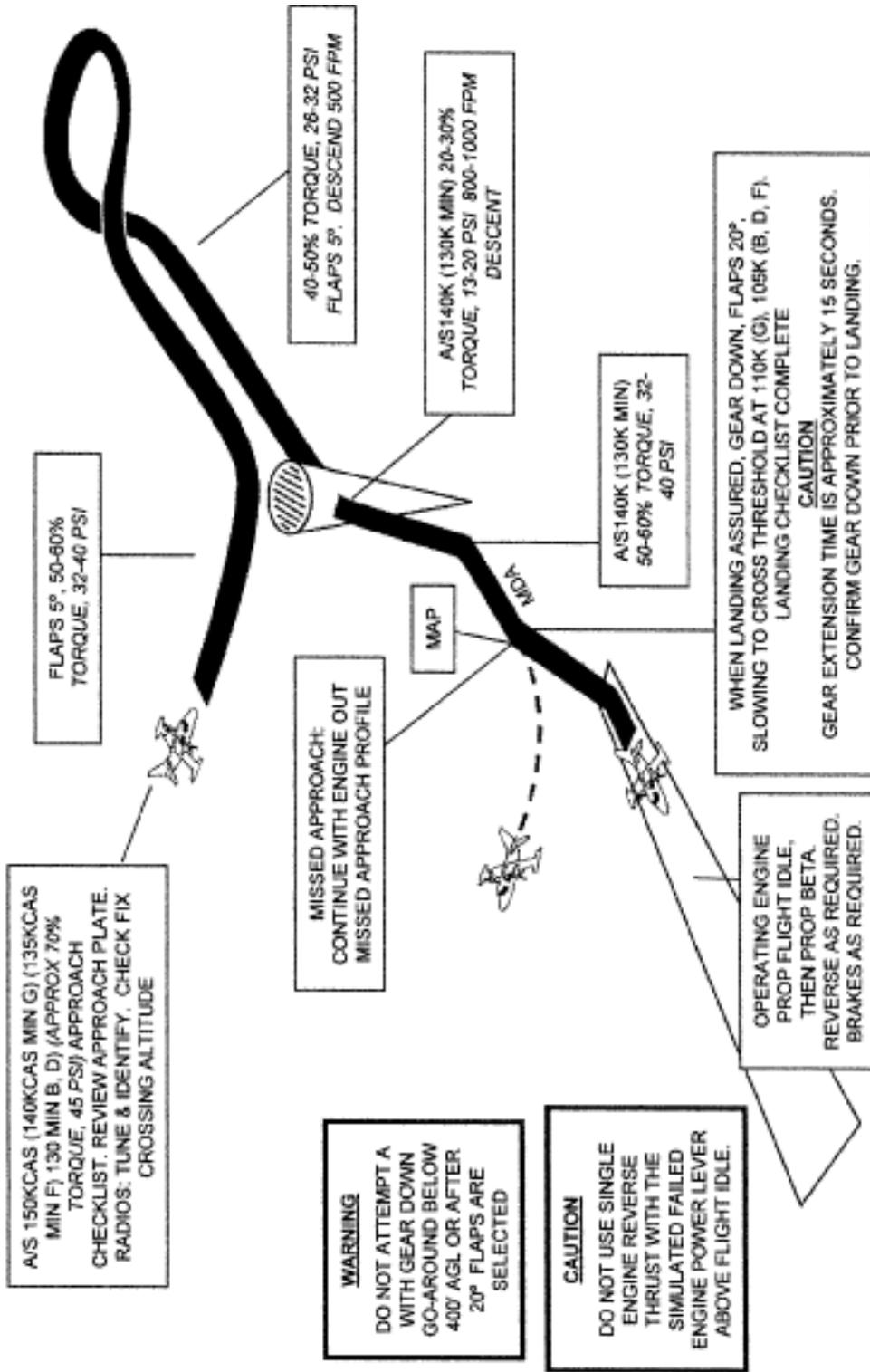
**MU-2B B, D (-10), F (-20), G (-30)
NON-PRECISION AND MISSED APPROACH**



| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | |
|--------|------------------------------|-------|-----|-----|-----|---------------------|-----|-----|-----|-----|
| | FLAPS 20° (1.3 VSI) | | | | | FLAPS 40° (1.5 VSI) | | | | |
| | B | B+, D | E | G | B | B+, D | E | G | | |
| 7,000 | 92 | 92 | 93 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| 7,500 | 95 | 95 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| 8,000 | 98 | 98 | 100 | 97 | 101 | 101 | 101 | 103 | 103 | 103 |
| 8,500 | | 101 | 103 | 100 | | 104 | 104 | 106 | 106 | 106 |
| 8,490 | 101 | | | | | | | | | |
| 8,930 | | 103 | | | | 107 | | | | |
| 9,000 | | | 106 | 103 | | | 109 | 108 | | |
| 9,435 | | | 108 | | | | 112 | | | |
| 9,500 | | | | 105 | | | | 112 | | |
| 10,000 | | | | 108 | | | | | 115 | |
| 10,250 | | | | 109 | | | | | | 117 |

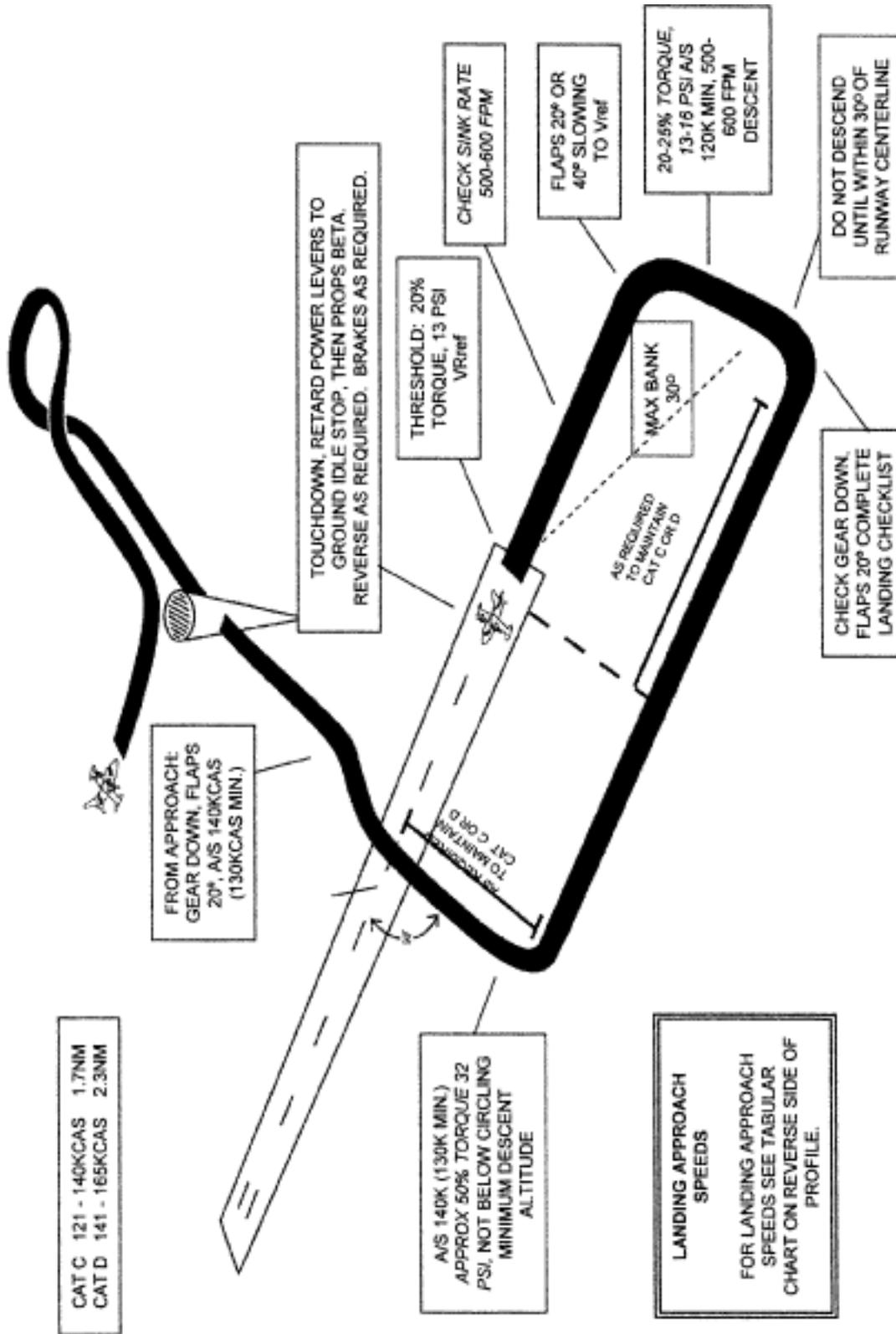
C-21a

MU-2B B, D (-10), F (-20), G (-30)
ONE ENGINE INOPERATIVE NON-PRECISION AND MISSED APPROACH



C-26

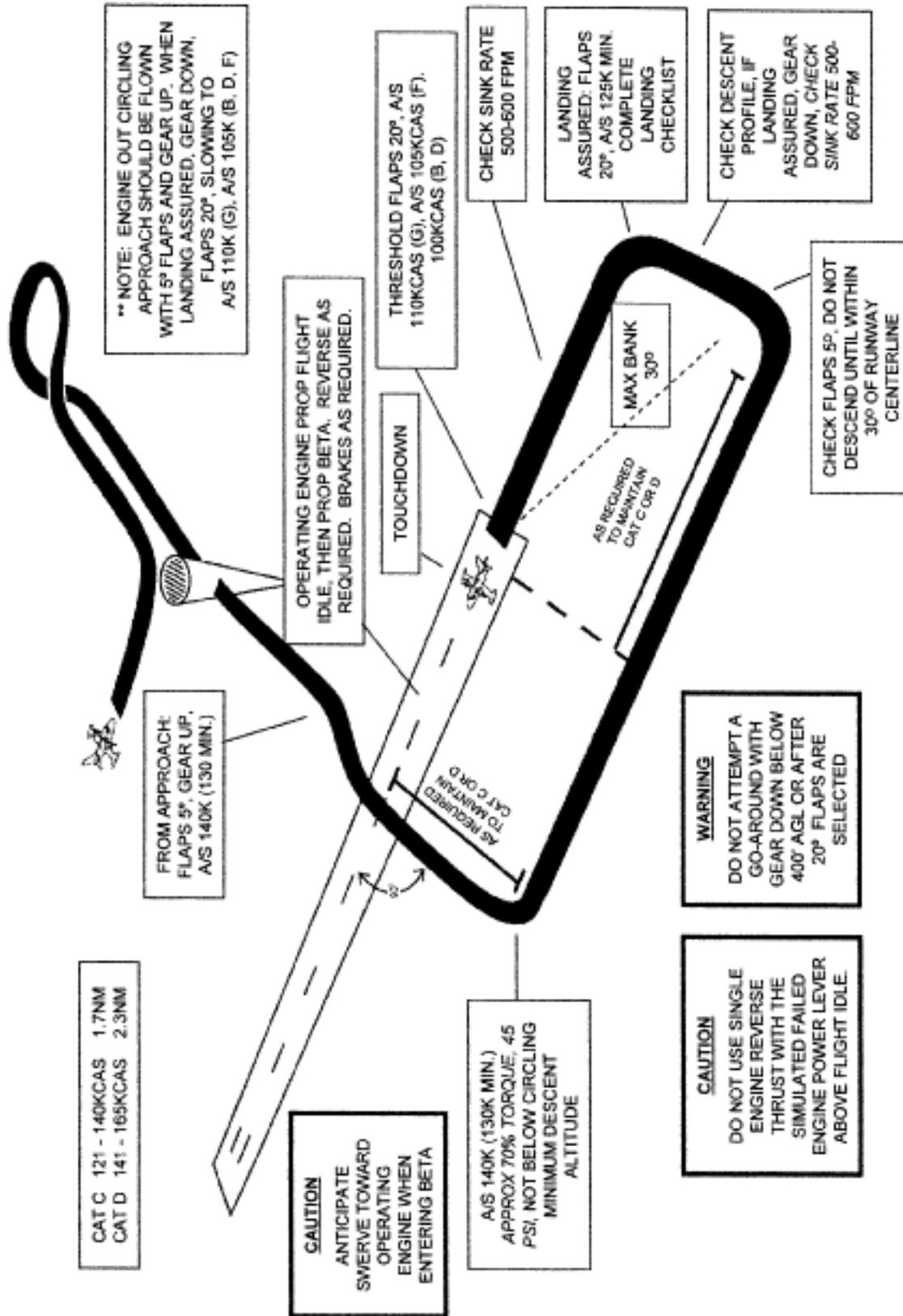
**MU-2B B, D (-10), F (-20), G (-30)
CIRCLING APPROACH AT WEATHER MINIMUMS**



| WEIGHT | LANDING APPROACH SPEEDS Vref | | | | | | | | | | | | | | |
|--------|------------------------------|-----|-----|---------------------|-----|-----|---------------------|-----|-----|---------------------|-----|-----|-----|-----|-----|
| | B, B+, D, F, G | | | | | | FLAPS 40° (1.5 VSI) | | | | | | | | |
| | FLAPS 20° (1.3 VSI) | | | FLAPS 40° (1.5 VSI) | | | FLAPS 20° (1.3 VSI) | | | FLAPS 40° (1.5 VSI) | | | | | |
| | B | B+ | D | E | Ω | B | B+ | D | E | Ω | B | B+ | D | E | Ω |
| 7,000 | 92 | 92 | 94 | 93 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 98 | 100 |
| 7,500 | 95 | 95 | 98 | 96 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 101 | 103 |
| 8,000 | 98 | 98 | 101 | 100 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 104 | 106 |
| 8,500 | | 101 | | 103 | 100 | | | 104 | | | | | | | |
| 8,490 | | | | | | | | | | | | | 107 | | |
| 8,930 | | | | 103 | | | | | | | | | | | |
| 9,000 | | | | 106 | 103 | | | | | | | | | 109 | 109 |
| 9,435 | | | | 108 | | | | | | | | | | 112 | |
| 9,500 | | | | | 105 | | | | | | | | | | 112 |
| 10,000 | | | | | 108 | | | | | | | | | | 115 |
| 10,260 | | | | | 109 | | | | | | | | | | 117 |

C-27a

MU-2B B, D (-10), F (-20), G (-30)
 ONE ENGINE INOPERATIVE CIRCLING APPROACH AT WEATHER MINIMUMS



(D) Each MU-2B profile in its respective section follows the outline below.

- (1) Normal Takeoff (5- and 20-degrees flaps).
- (2) Takeoff Engine Failure (5- and 20-degrees flaps).
- (3) Takeoff Engine Failure on Runway or Rejected Takeoff.
- (4) Takeoff Engine Failure after Liftoff - Unable to Climb (Classroom or FTD only).
- (5) Steep Turns.
- (6) Slow Flight Maneuvers.
- (7) One Engine Inoperative Maneuvering/Loss of Directional Control.
- (8) Approach to Stall (clean configuration/wings level).
- (9) Approach to Stall (takeoff configuration/15- to 30-degrees bank).
- (10) Approach to Stall (landing configuration/gear down/40-degrees flaps).
- (11) Accelerated Stall (no flaps).
- (12) Emergency Descent (low speed).
- (13) Emergency Descent (high speed).
- (14) Unusual Altitude Recovery (nose high).
- (15) Unusual Altitude Recovery (nose low).
- (16) Normal Landing (20- and 40-degrees flaps).
- (17) Go Around/Rejected Landing.
- (18) No Flap or 5-degrees flaps Landing.
- (19) One Engine Inoperative Landing (5- and 20-degrees flaps).
- (20) Crosswind Landing.
- (21) ILS and Missed Approach.
- (22) Two Engine Missed Approach.
- (23) One Engine Inoperative ILS and Missed Approach.
- (24) One Engine Inoperative Missed Approach.
- (25) Non-Precision and Missed Approach.
- (26) One Engine Inoperative Non-Precision and Missed Approach.
- (27) Circling Approach at Weather Minimums.
- (28) One Engine Inoperative Circling Approach at Weather Minimums.

Engine Performance

(A) The following should be considered in reference to power settings and airspeeds:

(1) Power settings shown in *italics* are provided as guidance only during training and are not referenced in the AFM. Power setting guidance is provided to show the approximate power setting that will produce the desired airspeed or flight condition. Actual power settings may be different from those stated and should be noted by the instructor and student for reference during other maneuvers. Power settings in the profiles are stated in torque or PSI and will vary with aircraft model, engine model, weight, and density altitude. Power settings are based on standard atmospheric conditions.

(2) Some pilots prefer to set power initially using fuel flow, because the fuel flow system is not field adjustable. Fuel flow

settings refer to engine operations only. If fuel flow is used to set power for takeoff, check torque and temperature after setting fuel flow and adjust torque or temperature, whichever is limiting, for maximum takeoff power prior to liftoff.

(3) Improperly adjusted torque or improperly calibrated temperatures are a safety of flight issue and must be checked and corrected prior to conducting flight training.

(4) The pilot should refer to the performance section of the airplane flight manual to determine actual speeds required for his/her particular model and specific weight for any given operation.

In Flight Maneuvering

(A) Maneuvers conducted at altitude such as stalls and steep turns must always be preceded by clearing turns and at least one crew member must continually clear the flying area during the maneuver. The instructor must emphasize the importance of clearing the area, even if the maneuvers are being done in an FTD or simulator. This will create the habit pattern in the pilot to clear the area before practicing maneuvers.

(B) During stalling maneuvers and upon recognition of the indication of a stall, the pilot must call the "stall" to the instructor and then proceed with the recovery. In addition, during training, the pilot must announce the completion of the stall recovery maneuver. Instructors must exercise caution when conducting stall maneuvers and be prepared to take the controls if the safe outcome of the maneuver is in doubt.

(C) During accelerated stall maneuvers, it is important that the instructor pay close attention to the position of the ball throughout the maneuver and recovery so as to maintain coordinated flight. Stall recognition and recovery is the completion criteria, and it is not necessary to continue the stall beyond the stick shaker to aerodynamic buffet.

(D) When demonstrating a loss of directional control with one engine inoperative, the engine failure must only be simulated. During the slowing of the aircraft to demonstrate loss of directional control, the instructor should use the rudder block method to allow the student to experience the loss of directional control associated with VMC, at a speed of approximately 10 knots above actual VMC.

Note:

To accurately simulate single engine operations, zero thrust must be established. The zero thrust torque setting will vary greatly from model to model. It is important to establish to zero thrust torque setting for your aircraft. This requires that the aircraft be flown on one engine to establish the zero thrust setting. This is accomplished by establishing single engine flight with one propeller feathered and noting the performance with the operating engine at maximum torque or temperature. It is suggested that two airspeeds be established for zero thrust power settings. They are 120 kts, flaps 20, gear up for takeoff and 140 knots, flaps 5, gear up for in-flight and approach maneuvering. Once performance has been established and recorded for each airspeed, restart the other engine and find the torque setting that duplicates the performance (climb or descent rate, airspeed)

as was recorded with that propeller feathered. This torque setting will be zero thrust for the simulated inoperative engine. The student/pilot should note that the performance experienced with one engine operating at flight idle, may produce greater performance than if the engine were stopped and the propeller feathered.

Pre-maneuver briefings for any maneuver that requires either an actual engine shutdown or a simulated engine failure must be undertaken when using an aircraft. In the case of an actual engine shutdown, a minimum altitude of 3,000 ft above ground level (agl) must be used and done in a position where a safe landing can be made at an airport in the event of difficulty.

Takeoff and Landing

(A) When using the profiles to establish the procedure for configuring the aircraft for takeoff or landing, it is important to understand that each task for the procedure, as noted on the procedure diagram, establishes the point at which each task should have been completed and not the exact point at which the task should be accomplished unless otherwise stated in the task box. Numbers which represent performance such as descent rates or other maneuvering information that is not contained in the aircraft flight manual are shown in *italics*.

(B) In all takeoff profiles the prompt for the gear to be retracted is “No Runway Remaining, Gear Up”. This should set the decision point for making a landback after an engine failure and should normally be reached at altitudes of less than 100 ft AGL. It is impractical to attempt a landback from above 100 ft AGL, because it can require distances up to 10,000 ft from the beginning of the takeoff run to bring the aircraft to a stop. But, even on very long runways, landback will not be necessary above 100 ft AGL and above Vyse for the flap configurations, if the single engine climb capability found in the POM charts, with the gear up, is positive (250 fpm or better) and obstacles clearance is not an issue.

(C) The manufacturers FAA-accepted checklists and checklist in Appendix C to this SFAR No. 108 describe a procedure for the discontinuance of flight following an engine failure after takeoff and the realization that the aircraft cannot climb. The corresponding flight profile in this training program is “Takeoff Engine Failure, Unable to Climb”. This maneuver must not be attempted in the aircraft, but must be the subject of a classroom discussion or be demonstrated in the FTD.

(D) The focus of all landing procedures, whether two engine or engine out, is on a stabilized approach from an altitude of 500 feet. This will not be possible for all approach procedure maneuvering, especially during non-precision or circle to land approaches. Approach procedures for these two approaches should be stabilized from the point at which the pilot leaves the Minimum Descent Altitude for the landing.

(E) When performing one engine inoperative approaches, landings or missed approaches, the instructor must be prepared to add power to the simulated failed engine at the first sign of deteriorating airspeed or other situation that indicates the student's inability to correctly perform the maneuver.

(F) While maneuvering in the pattern or during instrument approach procedures with one engine inoperative, a 30° bank angle must not be exceeded. This will become especially important when executing non-precision and circle to land approaches.

Emergency and Abnormal Procedures

(A) During training, either in the FTD or in the aircraft, the performance of emergency and abnormal procedures is critical to the completion of the training program. All emergency and abnormal procedures should be simulated when training in the MU-2B airplane.

(B) When presenting emergency scenarios to the student, the instructor must not introduce multiple emergencies concurrently.

Scenario Based Training (SBT)

SBT flight training creates an environment of realism. The SBT programs utilize a highly structured flight operation scenario to simulate the overall flight environment. The pilot is required to plan a routine, point-to-point flight and initiate the flight. During the conduct of the flight, “reality-based” abnormal or emergency events are introduced without warning. Because the pilot is constantly operating in the world of unknowns, this type of training also builds in the “startle factor”, and just as in the real-world, the consequences of the pilot's actions (decisions, judgment, airmanship, tactile skills, etc.) will continue to escalate and affect the outcome of the planned flight. Although flying skills are an integral part of this type of training, SBT enables the pilot to gain experience in dealing with unexpected events and more importantly further enhances the development of good judgment and decisionmaking.

[Doc. No. FAA-2006-24981, 73 FR 7051, Feb. 6, 2008, as amended by Amdt. 91-324, 76 FR 54107, Aug. 31, 2011]

Subpart A - General

Source:

Docket No. 18334, 54 FR 34292, Aug. 18, 1989, unless otherwise noted.

§ 91.1 Applicability.

(a) Except as provided in paragraphs (b), (c), (e), and (f) of this section and §§ 91.701 and 91.703, this part prescribes rules governing the operation of aircraft within the United States, including the waters within 3 nautical miles of the U.S. coast.

(b) Each person operating an aircraft in the airspace overlying the waters between 3 and 12 nautical miles from the coast of the United States must comply with §§ 91.1 through 91.21; §§ 91.101 through 91.143; §§ 91.151 through 91.159; §§ 91.167 through 91.193; § 91.203; § 91.205; §§ 91.209 through 91.217; § 91.221, § 91.225; §§ 91.303 through 91.319; §§ 91.323 through 91.327; § 91.605; § 91.609; §§ 91.703 through 91.715; and § 91.903.

(c) This part applies to each person on board an aircraft being operated under this part, unless otherwise specified.

(d) This part also establishes requirements for operators to take actions to support the continued airworthiness of each airplane.

(e) This part does not apply to any aircraft or vehicle governed by part 103 of this chapter, or subparts B, C, or D of part 101 of this chapter.

(f) Except as provided in §§ 107.13, 107.27, 107.47, 107.57, and 107.59 of this chapter, this part does not apply to any aircraft governed by part 107 of this chapter.

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-257, 64 FR 1079, Jan. 7, 1999; Amdt. 91-282, 69 FR 44880, July 27, 2004; Amdt. 91-297, 72 FR 63410, Nov. 8, 2007; Amdt. 91-314, 75 FR 30193, May 28, 2010; Docket FAA-2015-0150, Amdt. 91-343, 81 FR 42208, June 28, 2016]

§ 91.3 Responsibility and authority of the pilot in command.

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(b) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.

(c) Each pilot in command who deviates from a rule under paragraph (b) of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.

(Approved by the Office of Management and Budget under control number 2120-0005)

§ 91.5 Pilot in command of aircraft requiring more than one required pilot.

No person may operate an aircraft that is type certificated for more than one required pilot flight crewmember unless the pilot in command meets the requirements of § 61.58 of this chapter.

§ 91.7 Civil aircraft airworthiness.

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

§ 91.9 Civil aircraft flight manual, marking, and placard requirements.

(a) Except as provided in paragraph (d) of this section, no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight Manual, markings, and placards, or as

otherwise prescribed by the certificating authority of the country of registry.

(b) No person may operate a U.S.-registered civil aircraft -

(1) For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 of this chapter unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in § 121.141(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

(c) No person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with part 45 of this chapter.

(d) Any person taking off or landing a helicopter certificated under part 29 of this chapter at a heliport constructed over water may make such momentary flight as is necessary for takeoff or landing through the prohibited range of the limiting height-speed envelope established for the helicopter if that flight through the prohibited range takes place over water on which a safe ditching can be accomplished and if the helicopter is amphibious or is equipped with floats or other emergency flotation gear adequate to accomplish a safe emergency ditching on open water.

§ 91.11 Prohibition on interference with crewmembers.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.

§ 91.13 Careless or reckless operation.

(a) *Aircraft operations for the purpose of air navigation.* No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

(b) *Aircraft operations other than for the purpose of air navigation.* No person may operate an aircraft, other than for the purpose of air navigation, on any part of the surface of an airport used by aircraft for air commerce (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or reckless manner so as to endanger the life or property of another.

§ 91.15 Dropping objects.

No pilot in command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

§ 91.17 Alcohol or drugs.

(a) No person may act or attempt to act as a crewmember of a civil aircraft -

(1) Within 8 hours after the consumption of any alcoholic beverage;

(2) While under the influence of alcohol;

(3) While using any drug that affects the person's faculties in any way contrary to safety; or

(4) While having an alcohol concentration of 0.04 or greater in a blood or breath specimen. Alcohol concentration means grams of alcohol per deciliter of blood or grams of alcohol per 210 liters of breath.

(b) Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft.

(c) A crewmember shall do the following:

(1) On request of a law enforcement officer, submit to a test to indicate the alcohol concentration in the blood or breath, when -

(i) The law enforcement officer is authorized under State or local law to conduct the test or to have the test conducted; and

(ii) The law enforcement officer is requesting submission to the test to investigate a suspected violation of State or local law governing the same or substantially similar conduct prohibited by paragraph (a)(1), (a)(2), or (a)(4) of this section.

(2) Whenever the FAA has a reasonable basis to believe that a person may have violated paragraph (a)(1), (a)(2), or (a)(4) of this section, on request of the FAA, that person must furnish to the FAA the results, or authorize any clinic, hospital, or doctor, or other person to release to the FAA, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates an alcohol concentration in the blood or breath specimen.

(d) Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a)(3) of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates the presence of any drugs in the body.

(e) Any test information obtained by the Administrator under paragraph (c) or (d) of this section may be evaluated in determining a person's qualifications for any airman certificate or possible violations of this chapter and may be used as evidence in any legal proceeding under section 602, 609, or 901 of the Federal Aviation Act of 1958.

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-291, June 21, 2006]

§ 91.19 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft within the United States with knowledge that narcotic drugs, marihuana, and

depressant or stimulant drugs or substances as defined in Federal or State statutes are carried in the aircraft.

(b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances authorized by or under any Federal or State statute or by any Federal or State agency.

§ 91.21 Portable electronic devices.

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any of the following U.S.-registered civil aircraft:

(1) Aircraft operated by a holder of an air carrier operating certificate or an operating certificate; or

(2) Any other aircraft while it is operated under IFR.

(b) Paragraph (a) of this section does not apply to -

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers; or

(5) Any other portable electronic device that the operator of the aircraft has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) In the case of an aircraft operated by a holder of an air carrier operating certificate or an operating certificate, the determination required by paragraph (b)(5) of this section shall be made by that operator of the aircraft on which the particular device is to be used. In the case of other aircraft, the determination may be made by the pilot in command or other operator of the aircraft.

§ 91.23 Truth-in-leasing clause requirement in leases and conditional sales contracts.

(a) Except as provided in paragraph (b) of this section, the parties to a lease or contract of conditional sale involving a U.S.-registered large civil aircraft and entered into after January 2, 1973, shall execute a written lease or contract and include therein a written truth-in-leasing clause as a concluding paragraph in large print, immediately preceding the space for the signature of the parties, which contains the following with respect to each such aircraft:

(1) Identification of the Federal Aviation Regulations under which the aircraft has been maintained and inspected during the 12 months preceding the execution of the lease or contract of conditional sale, and certification by the parties thereto regarding the aircraft's status of compliance with applicable maintenance and inspection requirements in this part for the operation to be conducted under the lease or contract of conditional sale.

(2) The name and address (printed or typed) and the signature of the person responsible for operational control of the aircraft under the lease or contract of conditional sale, and certification that each person understands that

person's responsibilities for compliance with applicable Federal Aviation Regulations.

(3) A statement that an explanation of factors bearing on operational control and pertinent Federal Aviation Regulations can be obtained from the nearest FAA Flight Standards district office.

(b) The requirements of paragraph (a) of this section do not apply -

(1) To a lease or contract of conditional sale when -

(i) The party to whom the aircraft is furnished is a foreign air carrier or certificate holder under part 121, 125, 135, or 141 of this chapter, or

(ii) The party furnishing the aircraft is a foreign air carrier or a person operating under part 121, 125, and 141 of this chapter, or a person operating under part 135 of this chapter having authority to engage in on-demand operations with large aircraft.

(2) To a contract of conditional sale, when the aircraft involved has not been registered anywhere prior to the execution of the contract, except as a new aircraft under a dealer's aircraft registration certificate issued in accordance with § 47.61 of this chapter.

(c) No person may operate a large civil aircraft of U.S. registry that is subject to a lease or contract of conditional sale to which paragraph (a) of this section applies, unless -

(1) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, has mailed a copy of the lease or contract that complies with the requirements of paragraph (a) of this section, within 24 hours of its execution, to the Aircraft Registration Branch, Attn: Technical Section, P.O. Box 25724, Oklahoma City, OK 73125;

(2) A copy of the lease or contract that complies with the requirements of paragraph (a) of this section is carried in the aircraft. The copy of the lease or contract shall be made available for review upon request by the Administrator, and

(3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, has notified by telephone or in person the FAA Flight Standards district office nearest the airport where the flight will originate. Unless otherwise authorized by that office, the notification shall be given at least 48 hours before takeoff in the case of the first flight of that aircraft under that lease or contract and inform the FAA of -

(i) The location of the airport of departure;

(ii) The departure time; and

(iii) The registration number of the aircraft involved.

(d) The copy of the lease or contract furnished to the FAA under paragraph (c) of this section is commercial or financial information obtained from a person. It is, therefore, privileged and confidential and will not be made available by the FAA for public inspection or copying under 5 U.S.C. 552(b)(4) unless recorded with the FAA under part 49 of this chapter.

(e) For the purpose of this section, a lease means any agreement by a person to furnish an aircraft to another person

for compensation or hire, whether with or without flight crewmembers, other than an agreement for the sale of an aircraft and a contract of conditional sale under section 101 of the Federal Aviation Act of 1958. The person furnishing the aircraft is referred to as the lessor, and the person to whom it is furnished the lessee.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-212, 54 FR 39293, Sept. 25, 1989; Amdt. 91-253, 62 FR 13253, Mar. 19, 1997; Amdt. 91-267, 66 FR 21066, Apr. 27, 2001]

§ 91.25 Aviation Safety Reporting Program: Prohibition against use of reports for enforcement purposes.

The Administrator of the FAA will not use reports submitted to the National Aeronautics and Space Administration under the Aviation Safety Reporting Program (or information derived therefrom) in any enforcement action except information concerning accidents or criminal offenses which are wholly excluded from the Program.

§§ 91.27-91.99 [Reserved]

Subpart B - Flight Rules

Source:

Docket No. 18334, 54 FR 34294, Aug. 18, 1989, unless otherwise noted.

General

§ 91.101 Applicability.

This subpart prescribes flight rules governing the operation of aircraft within the United States and within 12 nautical miles from the coast of the United States.

§ 91.103 Preflight action.

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include -

(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing

distance data is required, the takeoff and landing distance data contained therein; and

(2) For civil aircraft other than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

§ 91.105 Flight crewmembers at stations.

(a) During takeoff and landing, and while en route, each required flight crewmember shall -

(1) Be at the crewmember station unless the absence is necessary to perform duties in connection with the operation of the aircraft or in connection with physiological needs; and

(2) Keep the safety belt fastened while at the crewmember station.

(b) Each required flight crewmember of a U.S.-registered civil aircraft shall, during takeoff and landing, keep his or her shoulder harness fastened while at his or her assigned duty station. This paragraph does not apply if -

(1) The seat at the crewmember's station is not equipped with a shoulder harness; or

(2) The crewmember would be unable to perform required duties with the shoulder harness fastened.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-231, 57 FR 42671, Sept. 15, 1992]

§ 91.107 Use of safety belts, shoulder harnesses, and child restraint systems.

(a) Unless otherwise authorized by the Administrator -

(1) No pilot may take off a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, shoulder harness.

(2) No pilot may cause to be moved on the surface, take off, or land a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) unless the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness.

(3) Except as provided in this paragraph, each person on board a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola or an airship type certificated before November 2, 1987) must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about him or her during movement on the surface, takeoff, and landing. For seaplane and float equipped rotorcraft operations during movement on the surface, the person pushing off the seaplane or rotorcraft from the dock and the person mooring the seaplane or rotorcraft at the dock are excepted from the preceding seating and safety belt

requirements. Notwithstanding the preceding requirements of this paragraph, a person may:

(i) Be held by an adult who is occupying an approved seat or berth, provided that the person being held has not reached his or her second birthday and does not occupy or use any restraining device;

(ii) Use the floor of the aircraft as a seat, provided that the person is on board for the purpose of engaging in sport parachuting; or

(iii) Notwithstanding any other requirement of this chapter, occupy an approved child restraint system furnished by the operator or one of the persons described in paragraph (a)(3)(iii)(A) of this section provided that:

(A) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to attend to the safety of the child during the flight;

(B) Except as provided in paragraph (a)(3)(iii)(B)(4) of this action, the approved child restraint system bears one or more labels as follows:

(1) Seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: "This child restraint system conforms to all applicable Federal motor vehicle safety standards";

(2) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels:

(i) "This child restraint system conforms to all applicable Federal motor vehicle safety standards"; and

(ii) "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT" in red lettering;

(3) Seats that do not qualify under paragraphs (a)(3)(iii)(B)(1) and (a)(3)(iii)(B)(2) of this section must bear a label or markings showing:

(i) That the seat was manufactured under the standards of the United Nations;

(ii) That the seat or child restraint device furnished by the operator was approved by the FAA through Type Certificate or Supplemental Type Certificate; or

(iv) That the seat or child restraint device furnished by the operator, or one of the persons described in paragraph (a)(3)(iii)(A) of this section, was approved by the FAA in accordance with § 21.8(d) of this chapter or Technical Standard Order C-100b or a later version. The child restraint device manufactured by AmSafe, Inc. (CARES, Part No. 4082) and approved by the FAA in accordance with § 21.305(d) (2010 ed.) of this chapter may continue to bear a label or markings showing FAA approval in accordance with § 21.305(d) (2010 ed.) of this chapter.

(4) Except as provided in § 91.107(a)(3)(iii)(B)(3)(iii) and § 91.107(a)(3)(iii)(B)(3)(iv), booster-type child restraint systems (as defined in Federal Motor Vehicle Safety Standard No. 213 (49 CFR 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft; and

(C) The operator complies with the following requirements:

(1) The restraint system must be properly secured to an approved forward-facing seat or berth;

(2) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system; and

(3) The restraint system must bear the appropriate label(s).

(b) Unless otherwise stated, this section does not apply to operations conducted under part 121, 125, or 135 of this chapter. Paragraph (a)(3) of this section does not apply to persons subject to § 91.105.

[Doc. No. 26142, 57 FR 42671, Sept. 15, 1992, as amended by Amdt. 91-250, 61 FR 28421, June 4, 1996; Amdt. 91-289, 70 FR 50906, Aug. 26, 2005; Amdt. 91-292, 71 FR 40009, July 14, 2006; Amdt. 91-317, 75 FR 48857, Aug. 12, 2010; Amdt. 91-332, 79 FR 28812, May 20, 2014]

§ 91.109 Flight instruction; Simulated instrument flight and certain flight tests.

(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. However, instrument flight instruction may be given in an airplane that is equipped with a single, functioning throwover control wheel that controls the elevator and ailerons, in place of fixed, dual controls, when -

(1) The instructor has determined that the flight can be conducted safely; and

(2) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(b) An airplane equipped with a single, functioning throwover control wheel that controls the elevator and ailerons, in place of fixed, dual controls may be used for flight instruction to conduct a flight review required by § 61.56 of this chapter, or to obtain recent flight experience or an instrument proficiency check required by § 61.57 when -

(1) The airplane is equipped with operable rudder pedals at both pilot stations;

(2) The pilot manipulating the controls is qualified to serve and serves as pilot in command during the entire flight;

(3) The instructor is current and qualified to serve as pilot in command of the airplane, meets the requirements of § 61.195(b), and has logged at least 25 hours of pilot-in-command flight time in the make and model of airplane; and

(4) The pilot in command and the instructor have determined the flight can be conducted safely.

(c) No person may operate a civil aircraft in simulated instrument flight unless -

(1) The other control seat is occupied by a safety pilot who possesses at least a private pilot certificate with category and class ratings appropriate to the aircraft being flown.

(2) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot; and

(3) Except in the case of lighter-than-air aircraft, that aircraft is equipped with fully functioning dual controls. However, simulated instrument flight may be conducted in a single-engine airplane, equipped with a single, functioning, throwover control wheel, in place of fixed, dual controls of the elevator and ailerons, when -

(i) The safety pilot has determined that the flight can be conducted safely; and

(ii) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(d) No person may operate a civil aircraft that is being used for a flight test for an airline transport pilot certificate or a class or type rating on that certificate, or for a part 121 proficiency flight test, unless the pilot seated at the controls, other than the pilot being checked, is fully qualified to act as pilot in command of the aircraft.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-324, 76 FR 54107, Aug. 31, 2011]

§ 91.111 Operating near other aircraft.

(a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.

(b) No person may operate an aircraft in formation flight except by arrangement with the pilot in command of each aircraft in the formation.

(c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

§ 91.113 Right-of-way rules: Except water operations.

(a) *Inapplicability.* This section does not apply to the operation of an aircraft on water.

(b) *General.* When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(c) *In distress.* An aircraft in distress has the right-of-way over all other air traffic.

(d) *Converging.* When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way. If the aircraft are of different categories -

(1) A balloon has the right-of-way over any other category of aircraft;

(2) A glider has the right-of-way over an airship, powered parachute, weight-shift-control aircraft, airplane, or rotorcraft.

(3) An airship has the right-of-way over a powered parachute, weight-shift-control aircraft, airplane, or rotorcraft.

However, an aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft.

(e) *Approaching head-on.* When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

(f) *Overtaking.* Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) *Landing.* Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-282, 69 FR 44880, July 27, 2004]

§ 91.115 Right-of-way rules: Water operations.

(a) *General.* Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right-of-way by any rule of this section.

(b) *Crossing.* When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right-of-way.

(c) *Approaching head-on.* When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.

(d) *Overtaking.* Each aircraft or vessel that is being overtaken has the right-of-way, and the one overtaking shall alter course to keep well clear.

(e) *Special circumstances.* When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.

§ 91.117 Aircraft speed.

(a) Unless otherwise authorized by the Administrator, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (288 m.p.h.).

(b) Unless otherwise authorized or required by ATC, no person may operate an aircraft at or below 2,500 feet above the surface within 4 nautical miles of the primary airport of a Class C or Class D airspace area at an indicated airspeed of more than 200 knots (230 mph.). This paragraph (b) does not apply to any operations within a Class B airspace area. Such operations shall comply with paragraph (a) of this section.

(c) No person may operate an aircraft in the airspace underlying a Class B airspace area designated for an airport or in a VFR corridor designated through such a Class B airspace area, at an indicated airspeed of more than 200 knots (230 mph).

(d) If the minimum safe airspeed for any particular operation is greater than the maximum speed prescribed in this section, the aircraft may be operated at that minimum speed.

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-219, 55 FR 34708, Aug. 24, 1990; Amdt. 91-227, 56 FR 65657, Dec. 17, 1991; Amdt. 91-233, 58 FR 43554, Aug. 17, 1993]

§ 91.119 Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) *Anywhere.* An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) *Over congested areas.* Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) *Over other than congested areas.* An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) *Helicopters, powered parachutes, and weight-shift-control aircraft.* If the operation is conducted without hazard to persons or property on the surface -

(1) A helicopter may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and

(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-311, 75 FR 5223, Feb. 1, 2010]

§ 91.121 Altimeter settings.

(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating -

(1) Below 18,000 feet MSL, to -

(i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;

(ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or

(iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure; or

(2) At or above 18,000 feet MSL, to 29.92# Hg.

(b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation as shown in the following table:

| Current altimeter setting | Lowest usable flight level |
|---------------------------|----------------------------|
| 29.92 (or higher) | 180 |
| 29.91 through 29.42 | 185 |
| 29.41 through 28.92 | 190 |
| 28.91 through 28.42 | 195 |
| 28.41 through 27.92 | 200 |
| 27.91 through 27.42 | 205 |
| 27.41 through 26.92 | 210 |

(c) To convert minimum altitude prescribed under §§ 91.119 and 91.177 to the minimum flight level, the pilot shall take the flight level equivalent of the minimum altitude in

feet and add the appropriate number of feet specified below, according to the current reported altimeter setting:

| Current altimeter setting | Adjustment factor |
|---------------------------|-------------------|
| 29.92 (or higher) | None |
| 29.91 through 29.42 | 500 |
| 29.41 through 28.92 | 1,000 |
| 28.91 through 28.42 | 1,500 |
| 28.41 through 27.92 | 2,000 |
| 27.91 through 27.42 | 2,500 |
| 27.41 through 26.92 | 3,000 |

§ 91.123 Compliance with ATC clearances and instructions.

(a) When an ATC clearance has been obtained, no pilot in command may deviate from that clearance unless an amended clearance is obtained, an emergency exists, or the deviation is in response to a traffic alert and collision avoidance system resolution advisory. However, except in Class A airspace, a pilot may cancel an IFR flight plan if the operation is being conducted in VFR weather conditions. When a pilot is uncertain of an ATC clearance, that pilot shall immediately request clarification from ATC.

(b) Except in an emergency, no person may operate an aircraft contrary to an ATC instruction in an area in which air traffic control is exercised.

(c) Each pilot in command who, in an emergency, or in response to a traffic alert and collision avoidance system resolution advisory, deviates from an ATC clearance or instruction shall notify ATC of that deviation as soon as possible.

(d) Each pilot in command who (though not deviating from a rule of this subpart) is given priority by ATC in an emergency, shall submit a detailed report of that emergency within 48 hours to the manager of that ATC facility, if requested by ATC.

(e) Unless otherwise authorized by ATC, no person operating an aircraft may operate that aircraft according to any clearance or instruction that has been issued to the pilot of another aircraft for radar air traffic control purposes.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18834, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65658, Dec. 17, 1991; Amdt. 91-244, 60 FR 50679, Sept. 29, 1995]

§ 91.125 ATC light signals.

ATC light signals have the meaning shown in the following table:

| Color and type of signal | Meaning with respect to aircraft on the surface | Meaning with respect to aircraft in flight |
|--------------------------|---|---|
| Steady green | Cleared for takeoff | Cleared to land. |
| Flashing green | Cleared to taxi | Return for landing (to be followed by steady green at proper time). |

| Color and type of signal | Meaning with respect to aircraft on the surface | Meaning with respect to aircraft in flight |
|---------------------------|---|---|
| Steady red | Stop | Give way to other aircraft and continue circling. |
| Flashing red | Taxi clear of runway in use | Airport unsafe - do not land. |
| Flashing white | Return to starting point on airport | Not applicable. |
| Alternating red and green | Exercise extreme caution | Exercise extreme caution. |

§ 91.126 Operating on or in the vicinity of an airport in Class G airspace.

(a) *General.* Unless otherwise authorized or required, each person operating an aircraft on or in the vicinity of an airport in a Class G airspace area must comply with the requirements of this section.

(b) *Direction of turns.* When approaching to land at an airport without an operating control tower in Class G airspace -

(1) Each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right; and

(2) Each pilot of a helicopter or a powered parachute must avoid the flow of fixed-wing aircraft.

(c) *Flap settings.* Except when necessary for training or certification, the pilot in command of a civil turbojet-powered aircraft must use, as a final flap setting, the minimum certificated landing flap setting set forth in the approved performance information in the Airplane Flight Manual for the applicable conditions. However, each pilot in command has the final authority and responsibility for the safe operation of the pilot's airplane, and may use a different flap setting for that airplane if the pilot determines that it is necessary in the interest of safety.

(d) *Communications with control towers.* Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with § 91.185.

[Doc. No. 24458, 56 FR 65658, Dec. 17, 1991, as amended by Amdt. 91-239, 59 FR 11693, Mar. 11, 1994; Amdt. 91-282, 69 FR 44880, July 27, 2004]

§ 91.127 Operating on or in the vicinity of an airport in Class E airspace.

(a) Unless otherwise required by part 93 of this chapter or unless otherwise authorized or required by the ATC facility having jurisdiction over the Class E airspace area, each person operating an aircraft on or in the vicinity of an airport in a Class E airspace area must comply with the requirements of § 91.126.

(b) *Departures.* Each pilot of an aircraft must comply with any traffic patterns established for that airport in part 93 of this chapter.

(c) *Communications with control towers.* Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with § 91.185.

[Doc. No. 24458, 56 FR 65658, Dec. 17, 1991, as amended by Amdt. 91-239, 59 FR 11693, Mar. 11, 1994]

§ 91.129 Operations in Class D airspace.

(a) *General.* Unless otherwise authorized or required by the ATC facility having jurisdiction over the Class D airspace area, each person operating an aircraft in Class D airspace must comply with the applicable provisions of this section. In addition, each person must comply with §§ 91.126 and 91.127. For the purpose of this section, the primary airport is the airport for which the Class D airspace area is designated. A satellite airport is any other airport within the Class D airspace area.

(b) *Deviations.* An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

(c) *Communications.* Each person operating an aircraft in Class D airspace must meet the following two-way radio communications requirements:

(1) *Arrival or through flight.* Each person must establish two-way radio communications with the ATC facility (including foreign ATC in the case of foreign airspace designated in the United States) providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace.

(2) *Departing flight.* Each person -

(i) From the primary airport or satellite airport with an operating control tower must establish and maintain two-way radio communications with the control tower, and thereafter as instructed by ATC while operating in the Class D airspace area; or

(ii) From a satellite airport without an operating control tower, must establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class D airspace area as soon as practicable after departing.

(d) *Communications failure.* Each person who operates an aircraft in a Class D airspace area must maintain two-way radio communications with the ATC facility having jurisdiction over that area.

(1) If the aircraft radio fails in flight under IFR, the pilot must comply with § 91.185 of the part.

(2) If the aircraft radio fails in flight under VFR, the pilot in command may operate that aircraft and land if -

(i) Weather conditions are at or above basic VFR weather minimums;

(ii) Visual contact with the tower is maintained; and

(iii) A clearance to land is received.

(e) *Minimum altitudes when operating to an airport in Class D airspace.* (1) Unless required by the applicable distance-from-cloud criteria, each pilot operating a large or turbine-powered airplane must enter the traffic pattern at an altitude of at least 1,500 feet above the elevation of the airport and maintain at least 1,500 feet until further descent is required for a safe landing.

(2) Each pilot operating a large or turbine-powered airplane approaching to land on a runway served by an instrument approach procedure with vertical guidance, if the airplane is so equipped, must:

(i) Operate that airplane at an altitude at or above the glide path between the published final approach fix and the decision altitude (DA), or decision height (DH), as applicable; or

(ii) If compliance with the applicable distance-from-cloud criteria requires glide path interception closer in, operate that airplane at or above the glide path, between the point of interception of glide path and the DA or the DH.

(3) Each pilot operating an airplane approaching to land on a runway served by a visual approach slope indicator must maintain an altitude at or above the glide path until a lower altitude is necessary for a safe landing.

(4) Paragraphs (e)(2) and (e)(3) of this section do not prohibit normal bracketing maneuvers above or below the glide path that are conducted for the purpose of remaining on the glide path.

(f) *Approaches.* Except when conducting a circling approach under part 97 of this chapter or unless otherwise required by ATC, each pilot must -

(1) Circle the airport to the left, if operating an airplane; or

(2) Avoid the flow of fixed-wing aircraft, if operating a helicopter.

(g) *Departures.* No person may operate an aircraft departing from an airport except in compliance with the following:

(1) Each pilot must comply with any departure procedures established for that airport by the FAA.

(2) Unless otherwise required by the prescribed departure procedure for that airport or the applicable distance from clouds criteria, each pilot of a turbine-powered airplane and each pilot of a large airplane must climb to an altitude of 1,500 feet above the surface as rapidly as practicable.

(h) *Noise abatement.* Where a formal runway use program has been established by the FAA, each pilot of a large or turbine-powered airplane assigned a noise abatement runway by ATC must use that runway. However, consistent with the final authority of the pilot in command concerning the safe operation of the aircraft as prescribed in § 91.3(a), ATC may assign a different runway if requested by the pilot in the interest of safety.

(i) *Takeoff, landing, taxi clearance.* No person may, at any airport with an operating control tower, operate an aircraft on a runway or taxiway, or take off or land an aircraft, unless an appropriate clearance is received from ATC.

[Doc. No. 24458, 56 FR 65658, Dec. 17, 1991, as amended by Amdt. 91-234, 58 FR 48793, Sept. 20, 1993; Amdt. 91-296, 72 FR 31678, June 7, 2007; 77 FR 28250, May 14, 2012]

§ 91.130 Operations in Class C airspace.

(a) *General.* Unless otherwise authorized by ATC, each aircraft operation in Class C airspace must be conducted in compliance with this section and § 91.129. For the purpose of this section, the primary airport is the airport for which the Class C airspace area is designated. A satellite airport is any other airport within the Class C airspace area.

(b) *Traffic patterns.* No person may take off or land an aircraft at a satellite airport within a Class C airspace area except in compliance with FAA arrival and departure traffic patterns.

(c) *Communications.* Each person operating an aircraft in Class C airspace must meet the following two-way radio communications requirements:

(1) *Arrival or through flight.* Each person must establish two-way radio communications with the ATC facility (including foreign ATC in the case of foreign airspace designated in the United States) providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace.

(2) *Departing flight.* Each person -

(i) From the primary airport or satellite airport with an operating control tower must establish and maintain two-way

radio communications with the control tower, and thereafter as instructed by ATC while operating in the Class C airspace area; or

(ii) From a satellite airport without an operating control tower, must establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class C airspace area as soon as practicable after departing.

(d) *Equipment requirements.* Unless otherwise authorized by the ATC having jurisdiction over the Class C airspace area, no person may operate an aircraft within a Class C airspace area designated for an airport unless that aircraft is equipped with the applicable equipment specified in § 91.215, and after January 1, 2020, § 91.225.

(e) *Deviations.* An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

[Doc. No. 24458, 56 FR 65659, Dec. 17, 1991, as amended by Amdt. 91-232, 58 FR 40736, July 30, 1993; Amdt. 91-239, 59 FR 11693, Mar. 11, 1994; Amdt. 91-314, 75 FR 30193, May 28, 2010]

§ 91.131 Operations in Class B airspace.

(a) *Operating rules.* No person may operate an aircraft within a Class B airspace area except in compliance with § 91.129 and the following rules:

(1) The operator must receive an ATC clearance from the ATC facility having jurisdiction for that area before operating an aircraft in that area.

(2) Unless otherwise authorized by ATC, each person operating a large turbine engine-powered airplane to or from a primary airport for which a Class B airspace area is designated must operate at or above the designated floors of the Class B airspace area while within the lateral limits of that area.

(3) Any person conducting pilot training operations at an airport within a Class B airspace area must comply with any procedures established by ATC for such operations in that area.

(b) *Pilot requirements.* (1) No person may take off or land a civil aircraft at an airport within a Class B airspace area or operate a civil aircraft within a Class B airspace area unless -

(i) The pilot in command holds at least a private pilot certificate;

(ii) The pilot in command holds a recreational pilot certificate and has met -

(A) The requirements of § 61.101(d) of this chapter; or

(B) The requirements for a student pilot seeking a recreational pilot certificate in § 61.94 of this chapter;

(iii) The pilot in command holds a sport pilot certificate and has met -

(A) The requirements of § 61.325 of this chapter; or

(B) The requirements for a student pilot seeking a recreational pilot certificate in § 61.94 of this chapter; or

(iv) The aircraft is operated by a student pilot who has met the requirements of § 61.94 or § 61.95 of this chapter, as applicable.

(2) Notwithstanding the provisions of paragraphs (b)(1)(ii), (b)(1)(iii) and (b)(1)(iv) of this section, no person may take off or land a civil aircraft at those airports listed in section 4 of appendix D to this part unless the pilot in command holds at least a private pilot certificate.

(c) *Communications and navigation equipment requirements.* Unless otherwise authorized by ATC, no person may operate an aircraft within a Class B airspace area unless that aircraft is equipped with -

(1) *For IFR operation.* An operable VOR or TACAN receiver or an operable and suitable RNAV system; and

(2) *For all operations.* An operable two-way radio capable of communications with ATC on appropriate frequencies for that Class B airspace area.

(d) *Other equipment requirements.* No person may operate an aircraft in a Class B airspace area unless the aircraft is equipped with -

(1) The applicable operating transponder and automatic altitude reporting equipment specified in § 91.215 (a), except as provided in § 91.215 (e), and

(2) After January 1, 2020, the applicable Automatic Dependent Surveillance-Broadcast Out equipment specified in § 91.225.

[Doc. No. 24458, 56 FR 65658, Dec. 17, 1991, as amended by Amdt. 91-282, 69 FR 44880, July 27, 2004; Amdt. 91-296, 72 FR 31678, June 7, 2007; Amdt. 91-314, 75 FR 30193, May 28, 2010]

§ 91.133 Restricted and prohibited areas.

(a) No person may operate an aircraft within a restricted area (designated in part 73) contrary to the restrictions imposed, or within a prohibited area, unless that person has the permission of the using or controlling agency, as appropriate.

(b) Each person conducting, within a restricted area, an aircraft operation (approved by the using agency) that creates the same hazards as the operations for which the restricted area was designated may deviate from the rules of this subpart that are not compatible with the operation of the aircraft.

§ 91.135 Operations in Class A airspace.

Except as provided in paragraph (d) of this section, each person operating an aircraft in Class A airspace must conduct that operation under instrument flight rules (IFR) and in compliance with the following:

(a) *Clearance.* Operations may be conducted only under an ATC clearance received prior to entering the airspace.

(b) *Communications.* Unless otherwise authorized by ATC, each aircraft operating in Class A airspace must be equipped with a two-way radio capable of communicating with ATC on a frequency assigned by ATC. Each pilot must maintain two-way radio communications with ATC while operating in Class A airspace.

(c) *Equipment requirements.* Unless otherwise authorized by ATC, no person may operate an aircraft within Class A airspace unless that aircraft is equipped with the applicable equipment specified in § 91.215, and after January 1, 2020, § 91.225.

(d) *ATC authorizations.* An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction of the airspace concerned. In the case of an inoperative transponder, ATC may immediately approve an operation within a Class A airspace area allowing flight to continue, if desired, to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made, or both. Requests for deviation from any provision of this section must be submitted in writing, at least 4 days before the proposed operation. ATC may authorize a deviation on a continuing basis or for an individual flight.

[Doc. No. 24458, 56 FR 65659, Dec. 17, 1991, as amended by Amdt. 91-314, 75 FR 30193, May 28, 2010]

§ 91.137 Temporary flight restrictions in the vicinity of disaster/hazard areas.

(a) The Administrator will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply and specifying the hazard or condition requiring their imposition, whenever he determines it is necessary in order to -

(1) Protect persons and property on the surface or in the air from a hazard associated with an incident on the surface;

(2) Provide a safe environment for the operation of disaster relief aircraft; or

(3) Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event which may generate a high degree of public interest.

The Notice to Airmen will specify the hazard or condition that requires the imposition of temporary flight restrictions.

(b) When a NOTAM has been issued under paragraph (a) (1) of this section, no person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

(c) When a NOTAM has been issued under paragraph (a) (2) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions are met:

(1) The aircraft is participating in hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

(2) The aircraft is carrying law enforcement officials.

(3) The aircraft is operating under the ATC approved IFR flight plan.

(4) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather, or

terrain; notification is given to the Flight Service Station (FSS) or ATC facility specified in the NOTAM to receive advisories concerning disaster relief aircraft operations; and the operation does not hamper or endanger relief activities and is not conducted for the purpose of observing the disaster.

(5) The aircraft is carrying properly accredited news representatives, and, prior to entering the area, a flight plan is filed with the appropriate FAA or ATC facility specified in the Notice to Airmen and the operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized by the official in charge of on scene emergency response activities.

(d) When a NOTAM has been issued under paragraph (a) (3) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions is met:

(1) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather or terrain, and the operation is not conducted for the purpose of observing the incident or event.

(2) The aircraft is operating under an ATC approved IFR flight plan.

(3) The aircraft is carrying incident or event personnel, or law enforcement officials.

(4) The aircraft is carrying properly accredited news representatives and, prior to entering that area, a flight plan is filed with the appropriate FSS or ATC facility specified in the NOTAM.

(e) Flight plans filed and notifications made with an FSS or ATC facility under this section shall include the following information:

(1) Aircraft identification, type and color.

(2) Radio communications frequencies to be used.

(3) Proposed times of entry of, and exit from, the designated area.

(4) Name of news media or organization and purpose of flight.

(5) Any other information requested by ATC.

§ 91.138 Temporary flight restrictions in national disaster areas in the State of Hawaii.

(a) When the Administrator has determined, pursuant to a request and justification provided by the Governor of the State of Hawaii, or the Governor's designee, that an inhabited area within a declared national disaster area in the State of Hawaii is in need of protection for humanitarian reasons, the Administrator will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply. The Administrator will designate the extent and duration of the temporary flight restrictions necessary to provide for the protection of persons and property on the surface.

(b) When a NOTAM has been issued in accordance with this section, no person may operate an aircraft within the

designated area unless at least one of the following conditions is met:

(1) That person has obtained authorization from the official in charge of associated emergency or disaster relief response activities, and is operating the aircraft under the conditions of that authorization.

(2) The aircraft is carrying law enforcement officials.

(3) The aircraft is carrying persons involved in an emergency or a legitimate scientific purpose.

(4) The aircraft is carrying properly accredited newsmen, and that prior to entering the area, a flight plan is filed with the appropriate FAA or ATC facility specified in the NOTAM and the operation is conducted in compliance with the conditions and restrictions established by the official in charge of on-scene emergency response activities.

(5) The aircraft is operating in accordance with an ATC clearance or instruction.

(c) A NOTAM issued under this section is effective for 90 days or until the national disaster area designation is terminated, whichever comes first, unless terminated by notice or extended by the Administrator at the request of the Governor of the State of Hawaii or the Governor's designee.

[Doc. No. 26476, 56 FR 23178, May 20, 1991, as amended by Amdt. 91-270, 66 FR 47377, Sept. 11, 2001]

§ 91.139 Emergency air traffic rules.

(a) This section prescribes a process for utilizing Notices to Airmen (NOTAMs) to advise of the issuance and operations under emergency air traffic rules and regulations and designates the official who is authorized to issue NOTAMs on behalf of the Administrator in certain matters under this section.

(b) Whenever the Administrator determines that an emergency condition exists, or will exist, relating to the FAA's ability to operate the air traffic control system and during which normal flight operations under this chapter cannot be conducted consistent with the required levels of safety and efficiency -

(1) The Administrator issues an immediately effective air traffic rule or regulation in response to that emergency condition; and

(2) The Administrator or the Associate Administrator for Air Traffic may utilize the NOTAM system to provide notification of the issuance of the rule or regulation. Those NOTAMs communicate information concerning the rules and regulations that govern flight operations, the use of navigation facilities, and designation of that airspace in which the rules and regulations apply.

(c) When a NOTAM has been issued under this section, no person may operate an aircraft, or other device governed by the regulation concerned, within the designated airspace except in accordance with the authorizations, terms, and conditions prescribed in the regulation covered by the NOTAM.

§ 91.141 Flight restrictions in the proximity of the Presidential and other parties.

No person may operate an aircraft over or in the vicinity of any area to be visited or traveled by the President, the Vice President, or other public figures contrary to the restrictions established by the Administrator and published in a Notice to Airmen (NOTAM).

§ 91.143 Flight limitation in the proximity of space flight operations.

When a Notice to Airmen (NOTAM) is issued in accordance with this section, no person may operate any aircraft of U.S. registry, or pilot any aircraft under the authority of an airman certificate issued by the Federal Aviation Administration, within areas designated in a NOTAM for space flight operation except when authorized by ATC.

[Doc. No. FAA-2004-19246, 69 FR 59753, Oct. 5, 2004]

§ 91.144 Temporary restriction on flight operations during abnormally high barometric pressure conditions.

(a) *Special flight restrictions.* When any information indicates that barometric pressure on the route of flight currently exceeds or will exceed 31 inches of mercury, no person may operate an aircraft or initiate a flight contrary to the requirements established by the Administrator and published in a Notice to Airmen issued under this section.

(b) *Waivers.* The Administrator is authorized to waive any restriction issued under paragraph (a) of this section to permit emergency supply, transport, or medical services to be delivered to isolated communities, where the operation can be conducted with an acceptable level of safety.

[Amdt. 91-240, 59 FR 17452, Apr. 12, 1994; 59 FR 37669, July 25, 1994]

§ 91.145 Management of aircraft operations in the vicinity of aerial demonstrations and major sporting events.

(a) The FAA will issue a Notice to Airmen (NOTAM) designating an area of airspace in which a temporary flight restriction applies when it determines that a temporary flight restriction is necessary to protect persons or property on the surface or in the air, to maintain air safety and efficiency, or to prevent the unsafe congestion of aircraft in the vicinity of an aerial demonstration or major sporting event. These demonstrations and events may include:

(1) United States Naval Flight Demonstration Team (Blue Angels);

(2) United States Air Force Air Demonstration Squadron (Thunderbirds);

(3) United States Army Parachute Team (Golden Knights);

(4) Summer/Winter Olympic Games;

(5) Annual Tournament of Roses Football Game;

(6) World Cup Soccer;

- (7) Major League Baseball All-Star Game;
- (8) World Series;
- (9) Kodak Albuquerque International Balloon Fiesta;
- (10) Sandia Classic Hang Gliding Competition;
- (11) Indianapolis 500 Mile Race;

(12) Any other aerial demonstration or sporting event the FAA determines to need a temporary flight restriction in accordance with paragraph (b) of this section.

(b) In deciding whether a temporary flight restriction is necessary for an aerial demonstration or major sporting event not listed in paragraph (a) of this section, the FAA considers the following factors:

- (1) Area where the event will be held.
- (2) Effect flight restrictions will have on known aircraft operations.
- (3) Any existing ATC airspace traffic management restrictions.
- (4) Estimated duration of the event.
- (5) Degree of public interest.
- (6) Number of spectators.
- (7) Provisions for spectator safety.
- (8) Number and types of participating aircraft.
- (9) Use of mixed high and low performance aircraft.
- (10) Impact on non-participating aircraft.
- (11) Weather minimums.
- (12) Emergency procedures that will be in effect.

(c) A NOTAM issued under this section will state the name of the aerial demonstration or sporting event and specify the effective dates and times, the geographic features or coordinates, and any other restrictions or procedures governing flight operations in the designated airspace.

(d) When a NOTAM has been issued in accordance with this section, no person may operate an aircraft or device, or engage in any activity within the designated airspace area, except in accordance with the authorizations, terms, and conditions of the temporary flight restriction published in the NOTAM, unless otherwise authorized by:

- (1) Air traffic control; or
 - (2) A Flight Standards Certificate of Waiver or Authorization issued for the demonstration or event.
- (e) For the purpose of this section:

(1) *Flight restricted airspace area for an aerial demonstration* - The amount of airspace needed to protect persons and property on the surface or in the air, to maintain air safety and efficiency, or to prevent the unsafe congestion of aircraft will vary depending on the aerial demonstration and the factors listed in paragraph (b) of this section. The restricted airspace area will normally be limited to a 5 nautical mile radius from the center of the demonstration and an altitude 17000 mean sea level (for high performance aircraft) or 13000 feet above the surface (for certain parachute operations), but will be no greater than the minimum airspace necessary for the management of aircraft operations in the vicinity of the specified area.

(2) *Flight restricted area for a major sporting event* - The amount of airspace needed to protect persons and property on the surface or in the air, to maintain air safety and efficiency, or to prevent the unsafe congestion of aircraft will vary depending on the size of the event and the factors listed in paragraph (b) of this section. The restricted airspace will normally be limited to a 3 nautical mile radius from the center of the event and 2500 feet above the surface but will not be greater than the minimum airspace necessary for the management of aircraft operations in the vicinity of the specified area.

(f) A NOTAM issued under this section will be issued at least 30 days in advance of an aerial demonstration or a major sporting event, unless the FAA finds good cause for a shorter period and explains this in the NOTAM.

(g) When warranted, the FAA Administrator may exclude the following flights from the provisions of this section:

- (1) Essential military.
- (2) Medical and rescue.
- (3) Presidential and Vice Presidential.
- (4) Visiting heads of state.
- (5) Law enforcement and security.
- (6) Public health and welfare.

[Doc. No. FAA-2000-8274, 66 FR 47378, Sept. 11, 2001]

§ 91.146 Passenger-carrying flights for the benefit of a charitable, nonprofit, or community event.

(a) *Definitions.* For purposes of this section, the following definitions apply:

Charitable event means an event that raises funds for the benefit of a charitable organization recognized by the Department of the Treasury whose donors may deduct contributions under section 170 of the Internal Revenue Code (26 U.S.C. Section 170).

Community event means an event that raises funds for the benefit of any local or community cause that is not a charitable event or non-profit event.

Non-profit event means an event that raises funds for the benefit of a non-profit organization recognized under State or Federal law, as long as one of the organization's purposes is the promotion of aviation safety.

(b) Passenger carrying flights for the benefit of a charitable, nonprofit, or community event identified in paragraph (c) of this section are not subject to the certification requirements of part 119 or the drug and alcohol testing requirements in part 120 of this chapter, provided the following conditions are satisfied and the limitations in paragraphs (c) and (d) are not exceeded:

(1) The flight is nonstop and begins and ends at the same airport and is conducted within a 25-statute mile radius of that airport;

(2) The flight is conducted from a public airport that is adequate for the airplane or helicopter used, or from another location the FAA approves for the operation;

(3) The airplane or helicopter has a maximum of 30 seats, excluding each crewmember seat, and a maximum payload capacity of 7,500 pounds;

(4) The flight is not an aerobatic or a formation flight;

(5) Each airplane or helicopter holds a standard airworthiness certificate, is airworthy, and is operated in compliance with the applicable requirements of subpart E of this part;

(6) Each flight is made during day VFR conditions;

(7) Reimbursement of the operator of the airplane or helicopter is limited to that portion of the passenger payment for the flight that does not exceed the pro rata cost of owning, operating, and maintaining the aircraft for that flight, which may include fuel, oil, airport expenditures, and rental fees;

(8) The beneficiary of the funds raised is not in the business of transportation by air;

(9) A private pilot acting as pilot in command has at least 500 hours of flight time;

(10) Each flight is conducted in accordance with the safety provisions of part 136, subpart A of this chapter; and

(11) Flights are not conducted over a national park, unit of a national park, or abutting tribal lands, unless the operator has secured a letter of agreement from the FAA, as specified under subpart B of part 136 of this chapter, and is operating in accordance with that agreement during the flights.

(c) (1) Passenger-carrying flights or series of flights are limited to a total of four charitable events or non-profit events per year, with no event lasting more than three consecutive days.

(2) Passenger-carrying flights or series of flights are limited to one community event per year, with no event lasting more than three consecutive days.

(d) Pilots and sponsors of events described in this section are limited to no more than 4 events per calendar year.

(e) At least seven days before the event, each sponsor of an event described in this section must furnish to the FAA Flight Standards District Office with jurisdiction over the geographical area where the event is scheduled:

(1) A signed letter detailing the name of the sponsor, the purpose of the event, the date and time of the event, the location of the event, all prior events under this section participated in by the sponsor in the current calendar year;

(2) A photocopy of each pilot in command's pilot certificate, medical certificate, and logbook entries that show the pilot is current in accordance with §§ 61.56 and 61.57 of this chapter and that any private pilot has at least 500 hours of flight time; and

(3) A signed statement from each pilot that lists all prior events under this section in which the pilot has participated during the current calendar year.

[Doc. No. FAA-1998-4521, 72 FR 6910, Feb. 13, 2007, as amended by Amdt. 91-308, 74 FR 32804, July 9, 2009]

§ 91.147 Passenger carrying flights for compensation or hire.

Each Operator conducting passenger-carrying flights for compensation or hire must meet the following requirements unless all flights are conducted under § 91.146.

(a) For the purposes of this section and for drug and alcohol testing, *Operator* means any person conducting nonstop passenger-carrying flights in an airplane or helicopter for compensation or hire in accordance with §§ 119.1(e)(2), 135.1(a)(5), or 121.1(d), of this chapter that begin and end at the same airport and are conducted within a 25-statute mile radius of that airport.

(b) An Operator must comply with the safety provisions of part 136, subpart A of this chapter, and apply for and receive a Letter of Authorization from the Flight Standards District Office nearest to its principal place of business.

(c) Each application for a Letter of Authorization must include the following information:

(1) Name of Operator, agent, and any d/b/a (doing-business-as) under which that Operator does business;

(2) Principal business address and mailing address;

(3) Principal place of business (if different from business address);

(4) Name of person responsible for management of the business;

(5) Name of person responsible for aircraft maintenance;

(6) Type of aircraft, registration number(s), and make/model/series; and

(7) An Antidrug and Alcohol Misuse Prevention Program registration.

(d) The Operator must register and implement its drug and alcohol testing programs in accordance with part 120 of this chapter.

(e) The Operator must comply with the provisions of the Letter of Authorization received.

[Doc. No. FAA-1998-4521, 72 FR 6911, Feb. 13, 2007, as amended by Amdt. 91-307, 74 FR 22652, May 14, 2009; Amdt. 91-320, 76 FR 8893, Feb. 16, 2011]

§§ 91.148-91.149 [Reserved]

Visual Flight Rules

§ 91.151 Fuel requirements for flight in VFR conditions.

(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed -

(1) During the day, to fly after that for at least 30 minutes;

or

(2) At night, to fly after that for at least 45 minutes.

(b) No person may begin a flight in a rotorcraft under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes.

§ 91.153 VFR flight plan: Information required.

(a) *Information required.* Unless otherwise authorized by ATC, each person filing a VFR flight plan shall include in it the following information:

- (1) The aircraft identification number and, if necessary, its radio call sign.
- (2) The type of the aircraft or, in the case of a formation flight, the type of each aircraft and the number of aircraft in the formation.
- (3) The full name and address of the pilot in command or, in the case of a formation flight, the formation commander.
- (4) The point and proposed time of departure.
- (5) The proposed route, cruising altitude (or flight level), and true airspeed at that altitude.

(6) The point of first intended landing and the estimated elapsed time until over that point.

(7) The amount of fuel on board (in hours).

(8) The number of persons in the aircraft, except where that information is otherwise readily available to the FAA.

(9) Any other information the pilot in command or ATC believes is necessary for ATC purposes.

(b) *Cancellation.* When a flight plan has been activated, the pilot in command, upon canceling or completing the flight under the flight plan, shall notify an FAA Flight Service Station or ATC facility.

§ 91.155 Basic VFR weather minimums.

(a) Except as provided in paragraph (b) of this section and § 91.157, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace in the following table:

| Airspace | Flight visibility | Distance from clouds |
|---|-------------------|----------------------------|
| Class A | Not Applicable | Not Applicable. |
| Class B | 3 statute miles | Clear of Clouds. |
| Class C | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| Class D | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| Class E: | | |
| Less than 10,000 feet MSL | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| At or above 10,000 feet MSL | 5 statute miles | 1,000 feet below. |
| | | 1,000 feet above. |
| | | 1 statute mile horizontal. |
| Class G: | | |
| 1,200 feet or less above the surface (regardless of MSL altitude) | | |
| For aircraft other than helicopters: | | |
| Day, except as provided in § 91.155(b) | 1 statute mile | Clear of clouds. |
| Night, except as provided in § 91.155(b) | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |

| Airspace | Flight visibility | Distance from clouds |
|--|-------------------|--|
| For helicopters: | | |
| Day | statute mile | Clear of clouds |
| Night, except as provided in § 91.155(b) | 1 statute mile | Clear of clouds. |
| More than 1,200 feet above the surface but less than 10,000 feet MSL | | |
| Day | 1 statute mile | 500 feet below. 1,000 feet above. 2,000 feet horizontal. |
| Night | 3 statute miles | 500 feet below. 1,000 feet above. 2,000 feet horizontal. |
| More than 1,200 feet above the surface and at or above 10,000 feet MSL | 5 statute miles | 1,000 feet below. 1,000 feet above. 1 statute mile horizontal. |

(b) *Class G Airspace.* Notwithstanding the provisions of paragraph (a) of this section, the following operations may be conducted in Class G airspace below 1,200 feet above the surface:

(1) *Helicopter.* A helicopter may be operated clear of clouds in an airport traffic pattern within mile of the runway or helipad of intended landing if the flight visibility is not less than statute mile.

(2) *Airplane, powered parachute, or weight-shift-control aircraft.* If the visibility is less than 3 statute miles but not less than 1 statute mile during night hours and you are operating in an airport traffic pattern within mile of the runway, you may operate an airplane, powered parachute, or weight-shift-control aircraft clear of clouds.

(c) Except as provided in § 91.157, no person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet.

(d) Except as provided in § 91.157 of this part, no person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport -

(1) Unless ground visibility at that airport is at least 3 statute miles; or

(2) If ground visibility is not reported at that airport, unless flight visibility during landing or takeoff, or while operating in the traffic pattern is at least 3 statute miles.

(e) For the purpose of this section, an aircraft operating at the base altitude of a Class E airspace area is considered to be within the airspace directly below that area.

[Doc. No. 24458, 56 FR 65660, Dec. 17, 1991, as amended by Amdt. 91-235, 58 FR 51968, Oct. 5, 1993; Amdt. 91-282, 69 FR 44880, July 27, 2004; Amdt. 91-330, 79 FR 9972, Feb. 21, 2014; Amdt. 91-330A, 79 FR 41125, July 15, 2014]

§ 91.157 Special VFR weather minimums.

(a) Except as provided in appendix D, section 3, of this part, special VFR operations may be conducted under the weather minimums and requirements of this section, instead of those contained in § 91.155, below 10,000 feet MSL within the airspace contained by the upward extension of the lateral boundaries of the controlled airspace designated to the surface for an airport.

(b) Special VFR operations may only be conducted -

(1) With an ATC clearance;

(2) Clear of clouds;

(3) Except for helicopters, when flight visibility is at least 1 statute mile; and

(4) Except for helicopters, between sunrise and sunset (or in Alaska, when the sun is 6 degrees or more below the horizon) unless -

(i) The person being granted the ATC clearance meets the applicable requirements for instrument flight under part 61 of this chapter; and

(ii) The aircraft is equipped as required in § 91.205(d).

(c) No person may take off or land an aircraft (other than a helicopter) under special VFR -

(1) Unless ground visibility is at least 1 statute mile; or

(2) If ground visibility is not reported, unless flight visibility is at least 1 statute mile. For the purposes of this

paragraph, the term flight visibility includes the visibility from the cockpit of an aircraft in takeoff position if:

- (i) The flight is conducted under this part 91; and
 - (ii) The airport at which the aircraft is located is a satellite airport that does not have weather reporting capabilities.
- (d) The determination of visibility by a pilot in accordance with paragraph (c)(2) of this section is not an official weather report or an official ground visibility report.

[Amdt. 91-235, 58 FR 51968, Oct. 5, 1993, as amended by Amdt. 91-247, 60 FR 66874, Dec. 27, 1995; Amdt. 91-262, 65 FR 16116, Mar. 24, 2000]

§ 91.159 VFR cruising altitude or flight level.

Except while holding in a holding pattern of 2 minutes or less, or while turning, each person operating an aircraft under VFR in level cruising flight more than 3,000 feet above the surface shall maintain the appropriate altitude or flight level prescribed below, unless otherwise authorized by ATC:

- (a) When operating below 18,000 feet MSL and -
 - (1) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude + 500 feet (such as 3,500, 5,500, or 7,500); or
 - (2) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude + 500 feet (such as 4,500, 6,500, or 8,500).

(b) When operating above 18,000 feet MSL, maintain the altitude or flight level assigned by ATC.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-276, 68 FR 61321, Oct. 27, 2003; 68 FR 70133, Dec. 17, 2003]

§ 91.161 Special awareness training required for pilots flying under visual flight rules within a 60-nautical mile radius of the Washington, DC VOR/DME.

(a) *Operations within a 60-nautical mile radius of the Washington, DC VOR/DME under visual flight rules (VFR).* Except as provided under paragraph (e) of this section, no person may serve as a pilot in command or as second in command of an aircraft while flying within a 60-nautical mile radius of the DCA VOR/DME, under VFR, unless that pilot has completed Special Awareness Training and holds a certificate of training completion.

(b) *Special Awareness Training.* The Special Awareness Training consists of information to educate pilots about the procedures for flying in the Washington, DC area and, more generally, in other types of special use airspace. This free training is available on the FAA's Web site. Upon completion of the training, each person will need to print out a copy of the certificate of training completion.

(c) *Inspection of certificate of training completion.* Each person who holds a certificate for completing the Special Awareness Training must present it for inspection upon request from:

- (1) An authorized representative of the FAA;

(2) An authorized representative of the National Transportation Safety Board;

- (3) Any Federal, State, or local law enforcement officer; or
- (4) An authorized representative of the Transportation Security Administration.

(d) *Emergency declared.* The failure to complete the Special Awareness Training course on flying in and around the Washington, DC Metropolitan Area is not a violation of this section if an emergency is declared by the pilot, as described under § 91.3(b), or there was a failure of two-way radio communications when operating under IFR as described under § 91.185.

(e) *Exceptions.* The requirements of this section do not apply if the flight is being performed in an aircraft of an air ambulance operator certificated to conduct part 135 operations under this chapter, the U.S. Armed Forces, or a law enforcement agency.

[Doc. No. FAA-2006-25250, 73 FR 46803, Aug. 12, 2008]

§§ 91.162-91.165 [Reserved]

Instrument Flight Rules

§ 91.167 Fuel requirements for flight in IFR conditions.

(a) No person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to -

- (1) Complete the flight to the first airport of intended landing;
- (2) Except as provided in paragraph (b) of this section, fly from that airport to the alternate airport; and
- (3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if:

- (1) Part 97 of this chapter prescribes a standard instrument approach procedure to, or a special instrument approach procedure has been issued by the Administrator to the operator for, the first airport of intended landing; and
- (2) Appropriate weather reports or weather forecasts, or a combination of them, indicate the following:

(i) *For aircraft other than helicopters.* For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

(ii) *For helicopters.* At the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling will be at least 1,000 feet above the airport elevation, or at least 400 feet above the lowest applicable approach minima, whichever is higher, and the visibility will be at least 2 statute miles.

[Doc. No. 98-4390, 65 FR 3546, Jan. 21, 2000]

§ 91.169 IFR flight plan: Information required.

(a) *Information required.* Unless otherwise authorized by ATC, each person filing an IFR flight plan must include in it the following information:

(1) Information required under § 91.153 (a) of this part;

(2) Except as provided in paragraph (b) of this section, an alternate airport.

(b) Paragraph (a)(2) of this section does not apply if :

(1) Part 97 of this chapter prescribes a standard instrument approach procedure to, or a special instrument approach procedure has been issued by the Administrator to the operator for, the first airport of intended landing; and

(2) Appropriate weather reports or weather forecasts, or a combination of them, indicate the following:

(i) *For aircraft other than helicopters.* For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

(ii) *For helicopters.* At the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling will be at least 1,000 feet above the airport elevation, or at least 400 feet above the lowest applicable approach minima, whichever is higher, and the visibility will be at least 2 statute miles.

(c) *IFR alternate airport weather minima.* Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless appropriate weather reports or weather forecasts, or a combination of them, indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following weather minima:

(1) If an instrument approach procedure has been published in part 97 of this chapter, or a special instrument approach procedure has been issued by the Administrator to the operator, for that airport, the following minima:

(i) *For aircraft other than helicopters:* The alternate airport minima specified in that procedure, or if none are specified the following standard approach minima:

(A) *For a precision approach procedure.* Ceiling 600 feet and visibility 2 statute miles.

(B) *For a nonprecision approach procedure.* Ceiling 800 feet and visibility 2 statute miles.

(ii) *For helicopters:* Ceiling 200 feet above the minimum for the approach to be flown, and visibility at least 1 statute mile but never less than the minimum visibility for the approach to be flown, and

(2) If no instrument approach procedure has been published in part 97 of this chapter and no special instrument approach procedure has been issued by the Administrator to the operator, for the alternate airport, the ceiling and visibility minima are those allowing descent from the MEA, approach, and landing under basic VFR.

(d) *Cancellation.* When a flight plan has been activated, the pilot in command, upon canceling or completing the flight

under the flight plan, shall notify an FAA Flight Service Station or ATC facility.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-259, 65 FR 3546, Jan. 21, 2000]

§ 91.171 VOR equipment check for IFR operations.

(a) No person may operate a civil aircraft under IFR using the VOR system of radio navigation unless the VOR equipment of that aircraft -

(1) Is maintained, checked, and inspected under an approved procedure; or

(2) Has been operationally checked within the preceding 30 days, and was found to be within the limits of the permissible indicated bearing error set forth in paragraph (b) or (c) of this section.

(b) Except as provided in paragraph (c) of this section, each person conducting a VOR check under paragraph (a)(2) of this section shall -

(1) Use, at the airport of intended departure, an FAA-operated or approved test signal or a test signal radiated by a certificated and appropriately rated radio repair station or, outside the United States, a test signal operated or approved by an appropriate authority to check the VOR equipment (the maximum permissible indicated bearing error is plus or minus 4 degrees); or

(2) Use, at the airport of intended departure, a point on the airport surface designated as a VOR system checkpoint by the Administrator, or, outside the United States, by an appropriate authority (the maximum permissible bearing error is plus or minus 4 degrees);

(3) If neither a test signal nor a designated checkpoint on the surface is available, use an airborne checkpoint designated by the Administrator or, outside the United States, by an appropriate authority (the maximum permissible bearing error is plus or minus 6 degrees); or

(4) If no check signal or point is available, while in flight -

(i) Select a VOR radial that lies along the centerline of an established VOR airway;

(ii) Select a prominent ground point along the selected radial preferably more than 20 nautical miles from the VOR ground facility and maneuver the aircraft directly over the point at a reasonably low altitude; and

(iii) Note the VOR bearing indicated by the receiver when over the ground point (the maximum permissible variation between the published radial and the indicated bearing is 6 degrees).

(c) If dual system VOR (units independent of each other except for the antenna) is installed in the aircraft, the person checking the equipment may check one system against the other in place of the check procedures specified in paragraph (b) of this section. Both systems shall be tuned to the same VOR ground facility and note the indicated bearings to that station. The maximum permissible variation between the two indicated bearings is 4 degrees.

(d) Each person making the VOR operational check, as specified in paragraph (b) or (c) of this section, shall enter the date, place, bearing error, and sign the aircraft log or other record. In addition, if a test signal radiated by a repair station, as specified in paragraph (b)(1) of this section, is used, an entry must be made in the aircraft log or other record by the repair station certificate holder or the certificate holder's representative certifying to the bearing transmitted by the repair station for the check and the date of transmission.

(Approved by the Office of Management and Budget under control number 2120-0005)

§ 91.173 ATC clearance and flight plan required.

No person may operate an aircraft in controlled airspace under IFR unless that person has -

- (a) Filed an IFR flight plan; and
- (b) Received an appropriate ATC clearance.

§ 91.175 Takeoff and landing under IFR.

Link to an amendment published at 81 FR 90172, Dec. 13, 2016.

(a) *Instrument approaches to civil airports.* Unless otherwise authorized by the FAA, when it is necessary to use an instrument approach to a civil airport, each person operating an aircraft must use a standard instrument approach procedure prescribed in part 97 of this chapter for that airport. This paragraph does not apply to United States military aircraft.

(b) *Authorized DA/DH or MDA.* For the purpose of this section, when the approach procedure being used provides for and requires the use of a DA/DH or MDA, the authorized DA/DH or MDA is the highest of the following:

- (1) The DA/DH or MDA prescribed by the approach procedure.
- (2) The DA/DH or MDA prescribed for the pilot in command.
- (3) The DA/DH or MDA appropriate for the aircraft equipment available and used during the approach.

(c) *Operation below DA/DH or MDA.* Except as provided in paragraph (1) of this section or § 91.176 of this chapter, where a DA/DH or MDA is applicable, no pilot may operate an aircraft, except a military aircraft of the United States, below the authorized MDA or continue an approach below the authorized DA/DH unless -

- (1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and for operations conducted under part 121 or part 135 unless that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;
- (2) The flight visibility is not less than the visibility prescribed in the standard instrument approach being used; and
- (3) Except for a Category II or Category III approach where any necessary visual reference requirements are specified by the Administrator, at least one of the following visual

references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

- (ii) The threshold.
- (iii) The threshold markings.
- (iv) The threshold lights.
- (v) The runway end identifier lights.
- (vi) The visual glideslope indicator.
- (vii) The touchdown zone or touchdown zone markings.
- (viii) The touchdown zone lights.
- (ix) The runway or runway markings.
- (x) The runway lights.

(d) *Landing.* No pilot operating an aircraft, except a military aircraft of the United States, may land that aircraft when -

- (1) For operations conducted under paragraph (1) of this section, the requirements of (1)(4) of this section are not met; or
- (2) For operations conducted under § 91.176 of this part, the requirements of paragraphs (a)(3)(iii) or (b)(3)(iii), as applicable, of that section are not met; or
- (3) For all other operations under this part and parts 121, 125, 129, and 135, the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

(e) *Missed approach procedures.* Each pilot operating an aircraft, except a military aircraft of the United States, shall immediately execute an appropriate missed approach procedure when either of the following conditions exist:

- (1) Whenever operating an aircraft pursuant to paragraph (c) or (1) of this section or § 91.176 of this chapter, and the requirements of that paragraph or section are not met at either of the following times:
 - (2) Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA, unless the inability to see an identifiable part of the airport results only from a normal bank of the aircraft during the circling approach.

(f) *Civil airport takeoff minimums.* This paragraph applies to persons operating an aircraft under part 121, 125, 129, or 135 of this chapter.

(1) Unless otherwise authorized by the FAA, no pilot may takeoff from a civil airport under IFR unless the weather conditions at time of takeoff are at or above the weather minimums for IFR takeoff prescribed for that airport under part 97 of this chapter.

(2) If takeoff weather minimums are not prescribed under part 97 of this chapter for a particular airport, the following weather minimums apply to takeoffs under IFR:

- (i) For aircraft, other than helicopters, having two engines or less - 1 statute mile visibility.

(ii) For aircraft having more than two engines - statute mile visibility.

(iii) For helicopters - statute mile visibility.

(3) Except as provided in paragraph (f)(4) of this section, no pilot may takeoff under IFR from a civil airport having published obstacle departure procedures (ODPs) under part 97 of this chapter for the takeoff runway to be used, unless the pilot uses such ODPs or an alternative procedure or route assigned by air traffic control.

(4) Notwithstanding the requirements of paragraph (f)(3) of this section, no pilot may takeoff from an airport under IFR unless:

(i) For part 121 and part 135 operators, the pilot uses a takeoff obstacle clearance or avoidance procedure that ensures compliance with the applicable airplane performance operating limitations requirements under part 121, subpart I or part 135, subpart I for takeoff at that airport; or

(ii) For part 129 operators, the pilot uses a takeoff obstacle clearance or avoidance procedure that ensures compliance

with the airplane performance operating limitations prescribed by the State of the operator for takeoff at that airport.

(g) *Military airports.* Unless otherwise prescribed by the Administrator, each person operating a civil aircraft under IFR into or out of a military airport shall comply with the instrument approach procedures and the takeoff and landing minimum prescribed by the military authority having jurisdiction of that airport.

(h) *Comparable values of RVR and ground visibility.*

(1) Except for Category II or Category III minimums, if RVR minimums for takeoff or landing are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum shall be converted to ground visibility in accordance with the table in paragraph (h)(2) of this section and shall be the visibility minimum for takeoff or landing on that runway.

(2)

| RVR (feet) | Visibility (statute miles) |
|------------|----------------------------|
| 1,600 | |
| 2,400 | |
| 3,200 | |
| 4,000 | |
| 4,500 | |
| 5,000 | 1 |
| 6,000 | 1 |

(i) *Operations on unpublished routes and use of radar in instrument approach procedures.* When radar is approved at certain locations for ATC purposes, it may be used not only for surveillance and precision radar approaches, as applicable, but also may be used in conjunction with instrument approach procedures predicated on other types of radio navigational aids. Radar vectors may be authorized to provide course guidance through the segments of an approach to the final course or fix. When operating on an unpublished route or while being radar vectored, the pilot, when an approach clearance is received, shall, in addition to complying with § 91.177, maintain the last altitude assigned to that pilot until the aircraft is established on a segment of a published route or instrument approach procedure unless a different altitude is assigned by ATC. After the aircraft is so established, published altitudes apply to descent within each succeeding route or approach segment unless a different altitude is assigned by ATC. Upon reaching the final approach course or fix, the pilot may

either complete the instrument approach in accordance with a procedure approved for the facility or continue a surveillance or precision radar approach to a landing.

(j) *Limitation on procedure turns.* In the case of a radar vector to a final approach course or fix, a timed approach from a holding fix, or an approach for which the procedure specifies “No PT,” no pilot may make a procedure turn unless cleared to do so by ATC.

(k) *ILS components.* The basic components of an ILS are the localizer, glide slope, and outer marker, and, when installed for use with Category II or Category III instrument approach procedures, an inner marker. The following means may be used to substitute for the outer marker: Compass locator; precision approach radar (PAR) or airport surveillance radar (ASR); DME, VOR, or nondirectional beacon fixes authorized in the standard instrument approach procedure; or a suitable RNAV system in conjunction with a fix identified in the standard instrument approach procedure. Applicability

of, and substitution for, the inner marker for a Category II or III approach is determined by the appropriate 14 CFR part 97 approach procedure, letter of authorization, or operations specifications issued to an operator.

(1) *Approach to straight-in landing operations below DH, or MDA using an enhanced flight vision system (EFVS).* For straight-in instrument approach procedures other than Category II or Category III, no pilot operating under this section or §§ 121.651, 125.381, and 135.225 of this chapter may operate an aircraft at any airport below the authorized MDA or continue an approach below the authorized DH and land unless -

(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and, for operations conducted under part 121 or part 135 of this chapter, the descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;

(2) The pilot determines that the enhanced flight visibility observed by use of a certified enhanced flight vision system is not less than the visibility prescribed in the standard instrument approach procedure being used;

(3) The following visual references for the intended runway are distinctly visible and identifiable to the pilot using the enhanced flight vision system:

(i) The approach light system (if installed); or

(ii) The following visual references in both paragraphs (1) (3)(ii)(A) and (B) of this section:

(A) The runway threshold, identified by at least one of the following:

(1) The beginning of the runway landing surface;

(2) The threshold lights; or

(3) The runway end identifier lights.

(B) The touchdown zone, identified by at least one of the following:

(1) The runway touchdown zone landing surface;

(2) The touchdown zone lights;

(3) The touchdown zone markings; or

(4) The runway lights.

(4) At 100 feet above the touchdown zone elevation of the runway of intended landing and below that altitude, the flight visibility must be sufficient for the following to be distinctly visible and identifiable to the pilot without reliance on the enhanced flight vision system to continue to a landing:

(i) The lights or markings of the threshold; or

(ii) The lights or markings of the touchdown zone;

(5) The pilot(s) is qualified to use an EFVS as follows -

(i) For parts 119 and 125 certificate holders, the applicable training, testing and qualification provisions of parts 121, 125, and 135 of this chapter;

(ii) For foreign persons, in accordance with the requirements of the civil aviation authority of the State of the operator; or

(iii) For persons conducting any other operation, in accordance with the applicable currency and proficiency requirements of part 61 of this chapter;

(6) For parts 119 and 125 certificate holders, and part 129 operations specifications holders, their operations specifications authorize use of EFVS; and

(7) The aircraft is equipped with, and the pilot uses, an enhanced flight vision system, the display of which is suitable for maneuvering the aircraft and has either an FAA type design approval or, for a foreign-registered aircraft, the EFVS complies with all of the EFVS requirements of this chapter.

(m) For purposes of this section, "enhanced flight vision system" (EFVS) is an installed airborne system comprised of the following features and characteristics:

(1) An electronic means to provide a display of the forward external scene topography (the natural or manmade features of a place or region especially in a way to show their relative positions and elevation) through the use of imaging sensors, such as a forward-looking infrared, millimeter wave radiometry, millimeter wave radar, and low-light level image intensifying;

(2) The EFVS sensor imagery and aircraft flight symbology (*i.e.*, at least airspeed, vertical speed, aircraft attitude, heading, altitude, command guidance as appropriate for the approach to be flown, path deviation indications, and flight path vector, and flight path angle reference cue) are presented on a head-up display, or an equivalent display, so that they are clearly visible to the pilot flying in his or her normal position and line of vision and looking forward along the flight path, to include:

(i) The displayed EFVS imagery, attitude symbology, flight path vector, and flight path angle reference cue, and other cues, which are referenced to this imagery and external scene topography, must be presented so that they are aligned with and scaled to the external view; and

(ii) The flight path angle reference cue must be displayed with the pitch scale, selectable by the pilot to the desired descent angle for the approach, and suitable for monitoring the vertical flight path of the aircraft on approaches without vertical guidance; and

(iii) The displayed imagery and aircraft flight symbology do not adversely obscure the pilot's outside view or field of view through the cockpit window;

(3) The EFVS includes the display element, sensors, computers and power supplies, indications, and controls. It may receive inputs from an airborne navigation system or flight guidance system; and

(4) The display characteristics and dynamics are suitable for manual control of the aircraft.

(n) Before March 13, 2018, a person conducting an EFVS operation to 100 feet above the touchdown zone elevation must comply with either the requirements of paragraphs (1) and (m) of this section or with the requirements of § 91.176(b) of this part. Beginning on March 13, 2018, a person conducting an EFVS operation to 100 feet above the touchdown zone

elevation must comply with the requirements of § 91.176(b) of this part. The requirements of paragraphs (l) and (m) of this section will expire on March 13, 2018.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-267, 66 FR 21066, Apr. 27, 2001; Amdt. 91-281, 69 FR 1640, Jan. 9, 2004; Amdt. 91-296, 72 FR 31678, June 7, 2007; Amdt. 91-306, 74 FR 20205, May 1, 2009; Docket FAA-2013-0485, Amdt. 91-345, 81 FR 90172, Dec. 13, 2016]

§ 91.176 Straight-in landing operations below DA/DH or MDA using an enhanced flight vision system (EFVS) under IFR.

(a) *EFVS operations to touchdown and rollout.* Unless otherwise authorized by the Administrator to use an MDA as a DA/DH with vertical navigation on an instrument approach procedure, or unless paragraph (d) of this section applies, no person may conduct an EFVS operation in an aircraft, except a military aircraft of the United States, at any airport below the authorized DA/DH to touchdown and rollout unless the minimums used for the particular approach procedure being flown include a DA or DH, and the following requirements are met:

(1) *Equipment.* (i) The aircraft must be equipped with an operable EFVS that meets the applicable airworthiness requirements. The EFVS must:

(A) Have an electronic means to provide a display of the forward external scene topography (the applicable natural or manmade features of a place or region especially in a way to show their relative positions and elevation) through the use of imaging sensors, including but not limited to forward-looking infrared, millimeter wave radiometry, millimeter wave radar, or low-light level image intensification.

(B) Present EFVS sensor imagery, aircraft flight information, and flight symbology on a head up display, or an equivalent display, so that the imagery, information and symbology are clearly visible to the pilot flying in his or her normal position with the line of vision looking forward along the flight path. Aircraft flight information and flight symbology must consist of at least airspeed, vertical speed, aircraft attitude, heading, altitude, height above ground level such as that provided by a radio altimeter or other device capable of providing equivalent performance, command guidance as appropriate for the approach to be flown, path deviation indications, flight path vector, and flight path angle reference cue. Additionally, for aircraft other than rotorcraft, the EFVS must display flare prompt or flare guidance.

(C) Present the displayed EFVS sensor imagery, attitude symbology, flight path vector, and flight path angle reference cue, and other cues, which are referenced to the EFVS sensor imagery and external scene topography, so that they are aligned with, and scaled to, the external view.

(D) Display the flight path angle reference cue with a pitch scale. The flight path angle reference cue must be selectable

by the pilot to the desired descent angle for the approach and be sufficient to monitor the vertical flight path of the aircraft.

(E) Display the EFVS sensor imagery, aircraft flight information, and flight symbology such that they do not adversely obscure the pilot's outside view or field of view through the cockpit window.

(F) Have display characteristics, dynamics, and cues that are suitable for manual control of the aircraft to touchdown in the touchdown zone of the runway of intended landing and during rollout.

(ii) When a minimum flightcrew of more than one pilot is required, the aircraft must be equipped with a display that provides the pilot monitoring with EFVS sensor imagery. Any symbology displayed may not adversely obscure the sensor imagery of the runway environment.

(2) *Operations.* (i) The pilot conducting the EFVS operation may not use circling minimums.

(ii) Each required pilot flightcrew member must have adequate knowledge of, and familiarity with, the aircraft, the EFVS, and the procedures to be used.

(iii) The aircraft must be equipped with, and the pilot flying must use, an operable EFVS that meets the equipment requirements of paragraph (a)(1) of this section.

(iv) When a minimum flightcrew of more than one pilot is required, the pilot monitoring must use the display specified in paragraph (a)(1)(ii) to monitor and assess the safe conduct of the approach, landing, and rollout.

(v) The aircraft must continuously be in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers.

(vi) The descent rate must allow touchdown to occur within the touchdown zone of the runway of intended landing.

(vii) Each required pilot flightcrew member must meet the following requirements -

(A) A person exercising the privileges of a pilot certificate issued under this chapter, any person serving as a required pilot flightcrew member of a U.S.-registered aircraft, or any person serving as a required pilot flightcrew member for a part 121, 125, or 135 operator, must be qualified in accordance with part 61 and, as applicable, the training, testing, and qualification provisions of subpart K of this part, part 121, 125, or 135 of this chapter that apply to the operation; or

(B) Each person acting as a required pilot flightcrew member for a foreign air carrier subject to part 129, or any person serving as a required pilot flightcrew member of a foreign registered aircraft, must be qualified in accordance with the training requirements of the civil aviation authority of the State of the operator for the EFVS operation to be conducted.

(viii) A person conducting operations under this part must conduct the operation in accordance with a letter of authorization for the use of EFVS unless the operation is conducted in an aircraft that has been issued an experimental certificate under § 21.191 of this chapter for the purpose of research and development or showing compliance with

regulations, or the operation is being conducted by a person otherwise authorized to conduct EFVS operations under paragraphs (a)(2)(ix) through (xii) of this section. A person applying to the FAA for a letter of authorization must submit an application in a form and manner prescribed by the Administrator.

(ix) A person conducting operations under subpart K of this part must conduct the operation in accordance with management specifications authorizing the use of EFVS.

(x) A person conducting operations under part 121, 129, or 135 of this chapter must conduct the operation in accordance with operations specifications authorizing the use of EFVS.

(xi) A person conducting operations under part 125 of this chapter must conduct the operation in accordance with operations specifications authorizing the use of EFVS or, for a holder of a part 125 letter of deviation authority, a letter of authorization for the use of EFVS.

(xii) A person conducting an EFVS operation during an authorized Category II or Category III operation must conduct the operation in accordance with operations specifications, management specifications, or a letter of authorization authorizing EFVS operations during authorized Category II or Category III operations.

(3) *Visibility and visual reference requirements.* No pilot operating under this section or §§ 121.651, 125.381, or 135.225 of this chapter may continue an approach below the authorized DA/DH and land unless:

(i) The pilot determines that the enhanced flight visibility observed by use of an EFVS is not less than the visibility prescribed in the instrument approach procedure being used.

(ii) From the authorized DA/DH to 100 feet above the touchdown zone elevation of the runway of intended landing, any approach light system or both the runway threshold and the touchdown zone are distinctly visible and identifiable to the pilot using an EFVS.

(A) The pilot must identify the runway threshold using at least one of the following visual references -

- (1) The beginning of the runway landing surface;
- (2) The threshold lights; or
- (3) The runway end identifier lights.

(B) The pilot must identify the touchdown zone using at least one of the following visual references -

- (1) The runway touchdown zone landing surface;
- (2) The touchdown zone lights;
- (3) The touchdown zone markings; or
- (4) The runway lights.

(iii) At 100 feet above the touchdown zone elevation of the runway of intended landing and below that altitude, the enhanced flight visibility using EFVS must be sufficient for one of the following visual references to be distinctly visible and identifiable to the pilot -

- (A) The runway threshold;
- (B) The lights or markings of the threshold;
- (C) The runway touchdown zone landing surface; or
- (D) The lights or markings of the touchdown zone.

(4) *Additional requirements.* The Administrator may prescribe additional equipment, operational, and visibility and visual reference requirements to account for specific equipment characteristics, operational procedures, or approach characteristics. These requirements will be specified in an operator's operations specifications, management specifications, or letter of authorization authorizing the use of EFVS.

(b) *EFVS operations to 100 feet above the touchdown zone elevation.* Except as specified in paragraph (d) of this section, no person may conduct an EFVS operation in an aircraft, except a military aircraft of the United States, at any airport below the authorized DA/DH or MDA to 100 feet above the touchdown zone elevation unless the following requirements are met:

(1) *Equipment.* (i) The aircraft must be equipped with an operable EFVS that meets the applicable airworthiness requirements.

(ii) The EFVS must meet the requirements of paragraph (a)(1)(i)(A) through (F) of this section, but need not present flare prompt, flare guidance, or height above ground level.

(2) *Operations.* (i) The pilot conducting the EFVS operation may not use circling minimums.

(ii) Each required pilot flightcrew member must have adequate knowledge of, and familiarity with, the aircraft, the EFVS, and the procedures to be used.

(iii) The aircraft must be equipped with, and the pilot flying must use, an operable EFVS that meets the equipment requirements of paragraph (b)(1) of this section.

(iv) The aircraft must continuously be in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers.

(v) For operations conducted under part 121 or part 135 of this chapter, the descent rate must allow touchdown to occur within the touchdown zone of the runway of intended landing.

(vi) Each required pilot flightcrew member must meet the following requirements -

(A) A person exercising the privileges of a pilot certificate issued under this chapter, any person serving as a required pilot flightcrew member of a U.S.-registered aircraft, or any person serving as a required pilot flightcrew member for a part 121, 125, or 135 operator, must be qualified in accordance with part 61 and, as applicable, the training, testing, and qualification provisions of subpart K of this part, part 121, 125, or 135 of this chapter that apply to the operation; or

(B) Each person acting as a required pilot flightcrew member for a foreign air carrier subject to part 129, or any person serving as a required pilot flightcrew member of a foreign registered aircraft, must be qualified in accordance with the training requirements of the civil aviation authority of the State of the operator for the EFVS operation to be conducted.

(vii) A person conducting operations under subpart K of this part must conduct the operation in accordance with management specifications authorizing the use of EFVS.

(viii) A person conducting operations under part 121, 129, or 135 of this chapter must conduct the operation in accordance with operations specifications authorizing the use of EFVS.

(ix) A person conducting operations under part 125 of this chapter must conduct the operation in accordance with operations specifications authorizing the use of EFVS or, for a holder of a part 125 letter of deviation authority, a letter of authorization for the use of EFVS.

(x) A person conducting an EFVS operation during an authorized Category II or Category III operation must conduct the operation in accordance with operations specifications, management specifications, or a letter of authorization authorizing EFVS operations during authorized Category II or Category III operations.

(3) *Visibility and Visual Reference Requirements.* No pilot operating under this section or § 121.651, § 125.381, or § 135.225 of this chapter may continue an approach below the authorized MDA or continue an approach below the authorized DA/DH and land unless:

(i) The pilot determines that the enhanced flight visibility observed by use of an EFVS is not less than the visibility prescribed in the instrument approach procedure being used.

(ii) From the authorized MDA or DA/DH to 100 feet above the touchdown zone elevation of the runway of intended landing, any approach light system or both the runway threshold and the touchdown zone are distinctly visible and identifiable to the pilot using an EFVS.

(A) The pilot must identify the runway threshold using at least one of the following visual references-

- (1) The beginning of the runway landing surface;
- (2) The threshold lights; or
- (3) The runway end identifier lights.

(B) The pilot must identify the touchdown zone using at least one of the following visual references -

- (1) The runway touchdown zone landing surface;
- (2) The touchdown zone lights;
- (3) The touchdown zone markings; or
- (4) The runway lights.

(iii) At 100 feet above the touchdown zone elevation of the runway of intended landing and below that altitude, the flight visibility must be sufficient for one of the following visual references to be distinctly visible and identifiable to the pilot without reliance on the EFVS -

- (A) The runway threshold;
- (B) The lights or markings of the threshold;
- (C) The runway touchdown zone landing surface; or
- (D) The lights or markings of the touchdown zone.

(4) *Compliance Date.* Beginning on March 13, 2018, a person conducting an EFVS operation to 100 feet above the touchdown zone elevation must comply with the requirements of paragraph (b) of this section.

(c) *Public aircraft certification and training requirements.* A public aircraft operator, other than the U.S. military, may conduct an EFVS operation under paragraph (a) or (b) of this section only if:

(1) The aircraft meets all of the civil certification and airworthiness requirements of paragraph (a)(1) or (b)(1) of this section, as applicable to the EFVS operation to be conducted; and

(2) The pilot flightcrew member, or any other person who manipulates the controls of an aircraft during an EFVS operation, meets the training, recent flight experience and refresher training requirements of § 61.66 of this chapter applicable to EFVS operations.

(d) *Exception for Experimental Aircraft.* The requirement to use an EFVS that meets the applicable airworthiness requirements specified in paragraphs (a)(1)(i), (a)(2)(iii), (b)(1)(i), and (b)(2)(iii) of this section does not apply to operations conducted in an aircraft issued an experimental certificate under § 21.191 of this chapter for the purpose of research and development or showing compliance with regulations, provided the Administrator has determined that the operations can be conducted safely in accordance with operating limitations issued for that purpose.

[Docket FAA-2013-0485, Amdt. 91-345, 81 FR 90172, Dec. 13, 2016; 82 FR 2193, Jan. 9, 2017]

§ 91.177 Minimum altitudes for IFR operations.

(a) *Operation of aircraft at minimum altitudes.* Except when necessary for takeoff or landing, or unless otherwise authorized by the FAA, no person may operate an aircraft under IFR below -

(1) The applicable minimum altitudes prescribed in parts 95 and 97 of this chapter. However, if both a MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, provided the applicable navigation signals are available. For aircraft using VOR for navigation, this applies only when the aircraft is within 22 nautical miles of that VOR (based on the reasonable estimate by the pilot operating the aircraft of that distance); or

(2) If no applicable minimum altitude is prescribed in parts 95 and 97 of this chapter, then -

(i) In the case of operations over an area designated as a mountainous area in part 95 of this chapter, an altitude of 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

(ii) In any other case, an altitude of 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown.

(b) *Climb.* Climb to a higher minimum IFR altitude shall begin immediately after passing the point beyond which that minimum altitude applies, except that when ground obstructions intervene, the point beyond which that higher minimum altitude applies shall be crossed at or above the applicable MCA.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-296, 72 FR 31678, June 7, 2007; Amdt. 91-315, 75 FR 30690, June 2, 2010]

§ 91.179 IFR cruising altitude or flight level.

Unless otherwise authorized by ATC, the following rules apply -

(a) *In controlled airspace.* Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned that aircraft by ATC. However, if the ATC clearance assigns “VFR conditions on-top,” that person shall maintain an altitude or flight level as prescribed by § 91.159.

(b) *In uncontrolled airspace.* Except while in a holding pattern of 2 minutes or less or while turning, each person operating an aircraft under IFR in level cruising flight in uncontrolled airspace shall maintain an appropriate altitude as follows:

(1) When operating below 18,000 feet MSL and -

(i) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude (such as 3,000, 5,000, or 7,000); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude (such as 2,000, 4,000, or 6,000).

(2) When operating at or above 18,000 feet MSL but below flight level 290, and -

(i) On a magnetic course of zero degrees through 179 degrees, any odd flight level (such as 190, 210, or 230); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even flight level (such as 180, 200, or 220).

(3) When operating at flight level 290 and above in non-RVSM airspace, and -

(i) On a magnetic course of zero degrees through 179 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 290 (such as flight level 290, 330, or 370); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 310 (such as flight level 310, 350, or 390).

(4) When operating at flight level 290 and above in airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace and -

(i) On a magnetic course of zero degrees through 179 degrees, any odd flight level, at 2,000-foot intervals beginning at and including flight level 290 (such as flight level 290, 310, 330, 350, 370, 390, 410); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even flight level, at 2000-foot intervals beginning at and including flight level 300 (such as 300, 320, 340, 360, 380, 400).

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-276, 68 FR 61321, Oct. 27, 2003; 68 FR 70133, Dec. 17, 2003; Amdt. 91-296, 72 FR 31679, June 7, 2007]

§ 91.180 Operations within airspace designated as Reduced Vertical Separation Minimum airspace.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft in airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace unless:

(1) The operator and the operator's aircraft comply with the minimum standards of appendix G of this part; and

(2) The operator is authorized by the Administrator or the country of registry to conduct such operations.

(b) The Administrator may authorize a deviation from the requirements of this section.

[Amdt. 91-276, 68 FR 70133, Dec. 17, 2003]

§ 91.181 Course to be flown.

Unless otherwise authorized by ATC, no person may operate an aircraft within controlled airspace under IFR except as follows:

(a) On an ATS route, along the centerline of that airway.

(b) On any other route, along the direct course between the navigational aids or fixes defining that route. However, this section does not prohibit maneuvering the aircraft to pass well clear of other air traffic or the maneuvering of the aircraft in VFR conditions to clear the intended flight path both before and during climb or descent.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-296, 72 FR 31679, June 7, 2007]

§ 91.183 IFR communications.

Unless otherwise authorized by ATC, the pilot in command of each aircraft operated under IFR in controlled airspace must ensure that a continuous watch is maintained on the appropriate frequency and must report the following as soon as possible -

(a) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;

(b) Any unforecast weather conditions encountered; and

(c) Any other information relating to the safety of flight.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-296, 72 FR 31679, June 7, 2007]

§ 91.185 IFR operations: Two-way radio communications failure.

(a) *General.* Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.

(b) *VFR conditions.* If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.

(c) *IFR conditions.* If the failure occurs in IFR conditions, or if paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) *Route.* (i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

(2) *Altitude.* At the highest of the following altitudes or flight levels for the route segment being flown:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in § 91.121(c)) for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

(3) *Leave clearance limit.* (i) When the clearance limit is a fix from which an approach begins, commence descent or descent and approach as close as possible to the expect-further-clearance time if one has been received, or if one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

(ii) If the clearance limit is not a fix from which an approach begins, leave the clearance limit at the expect-further-clearance time if one has been received, or if none has been received, upon arrival over the clearance limit, and proceed to a fix from which an approach begins and commence descent or descent and approach as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989; Amdt. 91-211, 54 FR 41211, Oct. 5, 1989]

§ 91.187 Operation under IFR in controlled airspace: Malfunction reports.

(a) The pilot in command of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight.

(b) In each report required by paragraph (a) of this section, the pilot in command shall include the -

(1) Aircraft identification;

(2) Equipment affected;

(3) Degree to which the capability of the pilot to operate under IFR in the ATC system is impaired; and

(4) Nature and extent of assistance desired from ATC.

§ 91.189 Category II and III operations: General operating rules.

(a) No person may operate a civil aircraft in a Category II or III operation unless -

(1) The flight crew of the aircraft consists of a pilot in command and a second in command who hold the appropriate authorizations and ratings prescribed in § 61.3 of this chapter;

(2) Each flight crewmember has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used; and

(3) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used.

(b) Unless otherwise authorized by the Administrator, no person may operate a civil aircraft in a Category II or Category III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.

(c) *Authorized DA/DH.* For the purpose of this section, when the approach procedure being used provides for and requires the use of a DA/DH, the authorized DA/DH is the highest of the following:

(1) The DA/DH prescribed by the approach procedure.

(2) The DA/DH prescribed for the pilot in command.

(3) The DA/DH for which the aircraft is equipped.

(d) Except as provided in § 91.176 of this part or unless otherwise authorized by the Administrator, no pilot operating an aircraft in a Category II or Category III approach that provides and requires the use of a DA/DH may continue the approach below the authorized decision height unless the following conditions are met:

(1) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.

(2) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.

(iv) The threshold lights.

(v) The touchdown zone or touchdown zone markings.

(vi) The touchdown zone lights.

(e) Except as provided in § 91.176 of this part or unless otherwise authorized by the Administrator, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever, prior to touchdown, the requirements of paragraph (d) of this section are not met.

(f) No person operating an aircraft using a Category III approach without decision height may land that aircraft except in accordance with the provisions of the letter of authorization issued by the Administrator.

(g) Paragraphs (a) through (f) of this section do not apply to operations conducted by certificate holders operating under part 121, 125, 129, or 135 of this chapter, or holders of management specifications issued in accordance with subpart K of this part. Holders of operations specifications or management specifications may operate a civil aircraft in a Category II or Category III operation only in accordance with their operations specifications or management specifications, as applicable.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54560, Sept. 17, 2003; Amdt. 91-296, 72 FR 31679, June 7, 2007; Docket FAA-2013-0485, Amdt. 91-345, 81 FR 90175, Dec. 13, 2016]

§ 91.191 Category II and Category III manual.

(a) Except as provided in paragraph (c) of this section, after August 4, 1997, no person may operate a U.S.-registered civil aircraft in a Category II or a Category III operation unless -

(1) There is available in the aircraft a current and approved Category II or Category III manual, as appropriate, for that aircraft;

(2) The operation is conducted in accordance with the procedures, instructions, and limitations in the appropriate manual; and

(3) The instruments and equipment listed in the manual that are required for a particular Category II or Category III operation have been inspected and maintained in accordance with the maintenance program contained in the manual.

(b) Each operator must keep a current copy of each approved manual at its principal base of operations and must make each manual available for inspection upon request by the Administrator.

(c) This section does not apply to operations conducted by a certificate holder operating under part 121 or part 135 of this chapter or a holder of management specifications issued in accordance with subpart K of this part.

[Doc. No. 26933, 61 FR 34560, July 2, 1996, as amended by Amdt. 91-280, 68 FR 54560, Sept. 17, 2003]

§ 91.193 Certificate of authorization for certain Category II operations.

The Administrator may issue a certificate of authorization authorizing deviations from the requirements of §§ 91.189, 91.191, and 91.205(f) for the operation of small aircraft identified as Category A aircraft in § 97.3 of this chapter in Category II operations if the Administrator finds that the proposed operation can be safely conducted under the terms of the certificate. Such authorization does not permit operation of the aircraft carrying persons or property for compensation or hire.

§§ 91.195-91.199 [Reserved]

Subpart C - Equipment, Instrument, and Certificate Requirements

Source:

Docket No. 18334, 54 FR 34304, Aug. 18, 1989, unless otherwise noted.

§ 91.201 [Reserved]

§ 91.203 Civil aircraft: Certifications required.

(a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate. Each U.S. airworthiness certificate used to comply with this subparagraph (except a special flight permit, a copy of the applicable operations specifications issued under § 21.197(c) of this chapter, appropriate sections of the air carrier manual required by parts 121 and 135 of this chapter containing that portion of the operations specifications issued under § 21.197(c), or an authorization under § 91.611) must have on it the registration number assigned to the aircraft under part 47 of this chapter. However, the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft. A revised airworthiness certificate having on it an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to an FAA Flight Standards district office.

(2) An effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c), a Certificate of Aircraft registration as provided in part 48, or a registration certification issued under the laws of a foreign country.

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

(c) No person may operate an aircraft with a fuel tank installed within the passenger compartment or a baggage compartment unless the installation was accomplished pursuant to part 43 of this chapter, and a copy of FAA Form 337 authorizing that installation is on board the aircraft.

(d) No person may operate a civil airplane (domestic or foreign) into or out of an airport in the United States unless it complies with the fuel venting and exhaust emissions requirements of part 34 of this chapter.

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-218, 55 FR 32861, Aug. 10, 1990; Amdt. 91-318, 75 FR 41983, July 20, 2010; Amdt. 91-338, 80 FR 78648, Dec. 16, 2015]

§ 91.205 Powered civil aircraft with standard category U.S. airworthiness certificates: Instrument and equipment requirements.

Link to an amendment published at 81 FR 96700, Dec. 30, 2016.

(a) *General.* Except as provided in paragraphs (c)(3) and (e) of this section, no person may operate a powered civil aircraft with a standard category U.S. airworthiness certificate in any operation described in paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs (or FAA-approved equivalents) for that type of operation, and those instruments and items of equipment are in operable condition.

(b) *Visual-flight rules (day).* For VFR flight during the day, the following instruments and equipment are required:

- (1) Airspeed indicator.
- (2) Altimeter.
- (3) Magnetic direction indicator.
- (4) Tachometer for each engine.
- (5) Oil pressure gauge for each engine using pressure system.
- (6) Temperature gauge for each liquid-cooled engine.
- (7) Oil temperature gauge for each air-cooled engine.
- (8) Manifold pressure gauge for each altitude engine.
- (9) Fuel gauge indicating the quantity of fuel in each tank.
- (10) Landing gear position indicator, if the aircraft has a retractable landing gear.

(11) For small civil airplanes certificated after March 11, 1996, in accordance with part 23 of this chapter, an approved aviation red or aviation white anticollision light system. In the event of failure of any light of the anticollision light system, operation of the aircraft may continue to a location where repairs or replacement can be made.

(12) If the aircraft is operated for hire over water and beyond power-off gliding distance from shore, approved flotation gear readily available to each occupant and, unless the aircraft is operating under part 121 of this subchapter, at least one pyrotechnic signaling device. As used in this section, "shore" means that area of the land adjacent to the water which is above the high water mark and excludes land areas which are intermittently under water.

(13) An approved safety belt with an approved metal-to-metal latching device for each occupant 2 years of age or older.

(14) For small civil airplanes manufactured after July 18, 1978, an approved shoulder harness for each front seat. The shoulder harness must be designed to protect the occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in § 23.561(b)(2) of this chapter. Each shoulder harness installed at a flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. For purposes of this paragraph -

(i) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data; and

(ii) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

(15) An emergency locator transmitter, if required by § 91.207.

(16) For normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of 9 or less, manufactured after December 12, 1986, a shoulder harness for -

(i) Each front seat that meets the requirements of § 23.785 (g) and (h) of this chapter in effect on December 12, 1985;

(ii) Each additional seat that meets the requirements of § 23.785(g) of this chapter in effect on December 12, 1985.

(17) For rotorcraft manufactured after September 16, 1992, a shoulder harness for each seat that meets the requirements of § 27.2 or § 29.2 of this chapter in effect on September 16, 1991.

(c) *Visual flight rules (night).* For VFR flight at night, the following instruments and equipment are required:

(1) Instruments and equipment specified in paragraph (b) of this section.

(2) Approved position lights.

(3) An approved aviation red or aviation white anticollision light system on all U.S.-registered civil aircraft. Anticollision light systems initially installed after August 11, 1971, on aircraft for which a type certificate was issued or applied for before August 11, 1971, must at least meet the anticollision light standards of part 23, 25, 27, or 29 of this chapter, as applicable, that were in effect on August 10, 1971, except that the color may be either aviation red or aviation white. In the event of failure of any light of the anticollision light system, operations with the aircraft may be continued to a stop where repairs or replacement can be made.

(4) If the aircraft is operated for hire, one electric landing light.

(5) An adequate source of electrical energy for all installed electrical and radio equipment.

(6) One spare set of fuses, or three spare fuses of each kind required, that are accessible to the pilot in flight.

(d) *Instrument flight rules.* For IFR flight, the following instruments and equipment are required:

(1) Instruments and equipment specified in paragraph (b) of this section, and, for night flight, instruments and equipment specified in paragraph (c) of this section.

(2) Two-way radio communication and navigation equipment suitable for the route to be flown.

(3) Gyroscopic rate-of-turn indicator, except on the following aircraft:

(i) Airplanes with a third attitude instrument system usable through flight attitudes of 360 degrees of pitch and roll and installed in accordance with the instrument requirements prescribed in § 121.305(j) of this chapter; and

(ii) Rotorcraft with a third attitude instrument system usable through flight attitudes of ±80 degrees of pitch and

±120 degrees of roll and installed in accordance with § 29.1303(g) of this chapter.

- (4) Slip-skid indicator.
- (5) Sensitive altimeter adjustable for barometric pressure.
- (6) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.
- (7) Generator or alternator of adequate capacity.
- (8) Gyroscopic pitch and bank indicator (artificial horizon).
- (9) Gyroscopic direction indicator (directional gyro or equivalent).

(e) *Flight at and above 24,000 feet MSL (FL 240)*. If VOR navigation equipment is required under paragraph (d) (2) of this section, no person may operate a U.S.-registered civil aircraft within the 50 states and the District of Columbia at or above FL 240 unless that aircraft is equipped with approved DME or a suitable RNAV system. When the DME or RNAV system required by this paragraph fails at and above FL 240, the pilot in command of the aircraft must notify ATC immediately, and then may continue operations at and above FL 240 to the next airport of intended landing where repairs or replacement of the equipment can be made.

(f) *Category II operations*. The requirements for Category II operations are the instruments and equipment specified in -

- (1) Paragraph (d) of this section; and
- (2) Appendix A to this part.

(g) *Category III operations*. The instruments and equipment required for Category III operations are specified in paragraph (d) of this section.

(h) *Night vision goggle operations*. For night vision goggle operations, the following instruments and equipment must be installed in the aircraft, functioning in a normal manner, and approved for use by the FAA:

- (1) Instruments and equipment specified in paragraph (b) of this section, instruments and equipment specified in paragraph (c) of this section;
- (2) Night vision goggles;
- (3) Interior and exterior aircraft lighting system required for night vision goggle operations;
- (4) Two-way radio communications system;
- (5) Gyroscopic pitch and bank indicator (artificial horizon);
- (6) Generator or alternator of adequate capacity for the required instruments and equipment; and
- (7) Radar altimeter.

(i) *Exclusions*. Paragraphs (f) and (g) of this section do not apply to operations conducted by a holder of a certificate issued under part 121 or part 135 of this chapter.

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-220, 55 FR 43310, Oct. 26, 1990; Amdt. 91-223, 56 FR 41052, Aug. 16, 1991; Amdt. 91-231, 57 FR 42672, Sept. 15, 1992; Amdt. 91-248, 61 FR 5171, Feb. 9, 1996; Amdt. 91-251, 61 FR 34560, July 2, 1996; Amdt. 91-285, 69 FR 77599, Dec. 27, 2004; Amdt. 91-296, 72 FR 31679, June 7, 2007; Amdt. 91-309, 74 FR 42563, Aug. 21, 2009]

§ 91.207 Emergency locator transmitters.

(a) Except as provided in paragraphs (e) and (f) of this section, no person may operate a U.S.-registered civil airplane unless -

(1) There is attached to the airplane an approved automatic type emergency locator transmitter that is in operable condition for the following operations, except that after June 21, 1995, an emergency locator transmitter that meets the requirements of TSO-C91 may not be used for new installations:

- (i) Those operations governed by the supplemental air carrier and commercial operator rules of parts 121 and 125;
- (ii) Charter flights governed by the domestic and flag air carrier rules of part 121 of this chapter; and
- (iii) Operations governed by part 135 of this chapter; or

(2) For operations other than those specified in paragraph (a)(1) of this section, there must be attached to the airplane an approved personal type or an approved automatic type emergency locator transmitter that is in operable condition, except that after June 21, 1995, an emergency locator transmitter that meets the requirements of TSO-C91 may not be used for new installations.

(b) Each emergency locator transmitter required by paragraph (a) of this section must be attached to the airplane in such a manner that the probability of damage to the transmitter in the event of crash impact is minimized. Fixed and deployable automatic type transmitters must be attached to the airplane as far aft as practicable.

(c) Batteries used in the emergency locator transmitters required by paragraphs (a) and (b) of this section must be replaced (or recharged, if the batteries are rechargeable) -

- (1) When the transmitter has been in use for more than 1 cumulative hour; or
- (2) When 50 percent of their useful life (or, for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval.

The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter and entered in the aircraft maintenance record. Paragraph (c)(2) of this section does not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

(d) Each emergency locator transmitter required by paragraph (a) of this section must be inspected within 12 calendar months after the last inspection for -

- (1) Proper installation;
- (2) Battery corrosion;
- (3) Operation of the controls and crash sensor; and
- (4) The presence of a sufficient signal radiated from its antenna.

(e) Notwithstanding paragraph (a) of this section, a person may -

(1) Ferry a newly acquired airplane from the place where possession of it was taken to a place where the emergency locator transmitter is to be installed; and

(2) Ferry an airplane with an inoperative emergency locator transmitter from a place where repairs or replacements cannot be made to a place where they can be made.

No person other than required crewmembers may be carried aboard an airplane being ferried under paragraph (e) of this section.

(f) Paragraph (a) of this section does not apply to -

(1) Before January 1, 2004, turbojet-powered aircraft;

(2) Aircraft while engaged in scheduled flights by scheduled air carriers;

(3) Aircraft while engaged in training operations conducted entirely within a 50-nautical mile radius of the airport from which such local flight operations began;

(4) Aircraft while engaged in flight operations incident to design and testing;

(5) New aircraft while engaged in flight operations incident to their manufacture, preparation, and delivery;

(6) Aircraft while engaged in flight operations incident to the aerial application of chemicals and other substances for agricultural purposes;

(7) Aircraft certificated by the Administrator for research and development purposes;

(8) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing, or market surveys;

(9) Aircraft equipped to carry not more than one person.

(10) An aircraft during any period for which the transmitter has been temporarily removed for inspection, repair, modification, or replacement, subject to the following:

(i) No person may operate the aircraft unless the aircraft records contain an entry which includes the date of initial removal, the make, model, serial number, and reason for removing the transmitter, and a placard located in view of the pilot to show "ELT not installed."

(ii) No person may operate the aircraft more than 90 days after the ELT is initially removed from the aircraft; and

(11) On and after January 1, 2004, aircraft with a maximum payload capacity of more than 18,000 pounds when used in air transportation.

[Doc. No. 18334, 54 FR 34304, Aug. 18, 1989, as amended by Amdt. 91-242, 59 FR 32057, June 21, 1994; 59 FR 34578, July 6, 1994; Amdt. 91-265, 65 FR 81319, Dec. 22, 2000; 66 FR 16316, Mar. 23, 2001]

§ 91.209 Aircraft lights.

No person may:

(a) During the period from sunset to sunrise (or, in Alaska, during the period a prominent unlighted object cannot be seen from a distance of 3 statute miles or the sun is more than 6 degrees below the horizon) -

(1) Operate an aircraft unless it has lighted position lights;

(2) Park or move an aircraft in, or in dangerous proximity to, a night flight operations area of an airport unless the aircraft -

(i) Is clearly illuminated;

(ii) Has lighted position lights; or

(iii) is in an area that is marked by obstruction lights;

(3) Anchor an aircraft unless the aircraft -

(i) Has lighted anchor lights; or

(ii) Is in an area where anchor lights are not required on vessels; or

(b) Operate an aircraft that is equipped with an anticollision light system, unless it has lighted anticollision lights. However, the anticollision lights need not be lighted when the pilot-in-command determines that, because of operating conditions, it would be in the interest of safety to turn the lights off.

[Doc. No. 27806, 61 FR 5171, Feb. 9, 1996]

§ 91.211 Supplemental oxygen.

(a) *General.* No person may operate a civil aircraft of U.S. registry -

(1) At cabin pressure altitudes above 12,500 feet (MSL) up to and including 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration;

(2) At cabin pressure altitudes above 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes; and

(3) At cabin pressure altitudes above 15,000 feet (MSL) unless each occupant of the aircraft is provided with supplemental oxygen.

(b) *Pressurized cabin aircraft.* (1) No person may operate a civil aircraft of U.S. registry with a pressurized cabin -

(i) At flight altitudes above flight level 250 unless at least a 10-minute supply of supplemental oxygen, in addition to any oxygen required to satisfy paragraph (a) of this section, is available for each occupant of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and

(ii) At flight altitudes above flight level 350 unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 14,000 feet (MSL), except that the one pilot need not wear and use an oxygen mask while at or below flight level 410 if there are two pilots at the controls and each pilot has a quick-donning type of oxygen mask that can be placed on the face with one hand from the ready position within 5 seconds, supplying oxygen and properly secured and sealed.

(2) Notwithstanding paragraph (b)(1)(ii) of this section, if for any reason at any time it is necessary for one pilot to leave the controls of the aircraft when operating at flight altitudes

above flight level 350, the remaining pilot at the controls shall put on and use an oxygen mask until the other pilot has returned to that crewmember's station.

§ 91.213 Inoperative instruments and equipment.

(a) Except as provided in paragraph (d) of this section, no person may take off an aircraft with inoperative instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that aircraft.

(2) The aircraft has within it a letter of authorization, issued by the FAA Flight Standards district office having jurisdiction over the area in which the operator is located, authorizing operation of the aircraft under the Minimum Equipment List. The letter of authorization may be obtained by written request of the airworthiness certificate holder. The Minimum Equipment List and the letter of authorization constitute a supplemental type certificate for the aircraft.

(3) The approved Minimum Equipment List must -

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section; and

(ii) Provide for the operation of the aircraft with the instruments and equipment in an inoperable condition.

(4) The aircraft records available to the pilot must include an entry describing the inoperable instruments and equipment.

(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the letter authorizing the use of the list.

(b) The following instruments and equipment may not be included in a Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) A person authorized to use an approved Minimum Equipment List issued for a specific aircraft under subpart K of this part, part 121, 125, or 135 of this chapter must use that Minimum Equipment List to comply with the requirements in this section.

(d) Except for operations conducted in accordance with paragraph (a) or (c) of this section, a person may takeoff an aircraft in operations conducted under this part with inoperative instruments and equipment without an approved Minimum Equipment List provided -

(1) The flight operation is conducted in a -

(i) Rotorcraft, non-turbine-powered airplane, glider, lighter-than-air aircraft, powered parachute, or weight-shift-control aircraft, for which a master minimum equipment list has not been developed; or

(ii) Small rotorcraft, nonturbine-powered small airplane, glider, or lighter-than-air aircraft for which a Master Minimum Equipment List has been developed; and

(2) The inoperative instruments and equipment are not -

(i) Part of the VFR-day type certification instruments and equipment prescribed in the applicable airworthiness regulations under which the aircraft was type certificated;

(ii) Indicated as required on the aircraft's equipment list, or on the Kinds of Operations Equipment List for the kind of flight operation being conducted;

(iii) Required by § 91.205 or any other rule of this part for the specific kind of flight operation being conducted; or

(iv) Required to be operational by an airworthiness directive; and

(3) The inoperative instruments and equipment are -

(i) Removed from the aircraft, the cockpit control placarded, and the maintenance recorded in accordance with § 43.9 of this chapter; or

(ii) Deactivated and placarded "Inoperative." If deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with part 43 of this chapter; and

(4) A determination is made by a pilot, who is certificated and appropriately rated under part 61 of this chapter, or by a person, who is certificated and appropriately rated to perform maintenance on the aircraft, that the inoperative instrument or equipment does not constitute a hazard to the aircraft.

An aircraft with inoperative instruments or equipment as provided in paragraph (d) of this section is considered to be in a properly altered condition acceptable to the Administrator.

(e) Notwithstanding any other provision of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued in accordance with §§ 21.197 and 21.199 of this chapter.

[Doc. No. 18334, 54 FR 34304, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54560, Sept. 17, 2003; Amdt. 91-282, 69 FR 44880, July 27, 2004]

§ 91.215 ATC transponder and altitude reporting equipment and use.

(a) *All airspace: U.S.-registered civil aircraft.* For operations not conducted under part 121 or 135 of this chapter, ATC transponder equipment installed must meet the performance and environmental requirements of any class of TSO-C74b (Mode A) or any class of TSO-C74c (Mode A with altitude reporting capability) as appropriate, or the appropriate class of TSO-C112 (Mode S).

(b) *All airspace.* Unless otherwise authorized or directed by ATC, no person may operate an aircraft in the airspace described in paragraphs (b)(1) through (b)(5) of this section, unless that aircraft is equipped with an operable coded radar beacon transponder having either Mode 3/A 4096 code capability, replying to Mode 3/A interrogations with the code specified by ATC, or a Mode S capability, replying to Mode 3/A interrogations with the code specified by ATC

and intermode and Mode S interrogations in accordance with the applicable provisions specified in TSO C-112, and that aircraft is equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. This requirement applies -

(1) *All aircraft.* In Class A, Class B, and Class C airspace areas;

(2) *All aircraft.* In all airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part from the surface upward to 10,000 feet MSL;

(3) Notwithstanding paragraph (b)(2) of this section, any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon or glider may conduct operations in the airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part provided such operations are conducted -

(i) Outside any Class A, Class B, or Class C airspace area; and

(ii) Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower; and

(4) All aircraft in all airspace above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet MSL; and

(5) All aircraft except any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon, or glider -

(i) In all airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface; and

(ii) In the airspace from the surface to 10,000 feet MSL within a 10-nautical-mile radius of any airport listed in appendix D, section 2 of this part, excluding the airspace below 1,200 feet outside of the lateral boundaries of the surface area of the airspace designated for that airport.

(c) *Transponder-on operation.* While in the airspace as specified in paragraph (b) of this section or in all controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with § 91.413 of this part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATC.

(d) *ATC authorized deviations.* Requests for ATC authorized deviations must be made to the ATC facility having jurisdiction over the concerned airspace within the time periods specified as follows:

(1) For operation of an aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability, the request may be made at any time.

(2) For operation of an aircraft with an inoperative transponder to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.

(3) For operation of an aircraft that is not equipped with a transponder, the request must be made at least one hour before the proposed operation.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34304, Aug. 18, 1989, as amended by Amdt. 91-221, 56 FR 469, Jan. 4, 1991; Amdt. 91-227, 56 FR 65660, Dec. 17, 1991; Amdt. 91-227, 7 FR 328, Jan. 3, 1992; Amdt. 91-229, 57 FR 34618, Aug. 5, 1992; Amdt. 91-267, 66 FR 21066, Apr. 27, 2001]

§ 91.217 Data correspondence between automatically reported pressure altitude data and the pilot's altitude reference.

(a) No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder -

(1) When deactivation of that equipment is directed by ATC;

(2) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury for altitudes from sea level to the maximum operating altitude of the aircraft; or

(3) Unless the altimeters and digitizers in that equipment meet the standards of TSO-C10b and TSO-C88, respectively.

(b) No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder or with ADS-B Out equipment unless the pressure altitude reported for ADS-B Out and Mode C/S is derived from the same source for aircraft equipped with both a transponder and ADS-B Out.

[Doc. No. 18334, 54 FR 34304, Aug. 18, 1989, as amended by Amdt. 91-314, 75 FR 30193, May 28, 2010]

§ 91.219 Altitude alerting system or device: Turbojet-powered civil airplanes.

(a) Except as provided in paragraph (d) of this section, no person may operate a turbojet-powered U.S.-registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of paragraph (b) of this section.

(b) Each altitude alerting system or device required by paragraph (a) of this section must be able to -

(1) Alert the pilot -

(i) Upon approaching a preselected altitude in either ascent or descent, by a sequence of both aural and visual signals

in sufficient time to establish level flight at that preselected altitude; or

(ii) Upon approaching a preselected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that preselected altitude, and when deviating above and below that preselected altitude, by an aural signal;

(2) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed;

(3) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated;

(4) Be tested without special equipment to determine proper operation of the alerting signals; and

(5) Accept necessary barometric pressure settings if the system or device operates on barometric pressure. However, for operation below 3,000 feet AGL, the system or device need only provide one signal, either visual or aural, to comply with this paragraph. A radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine DA/DH or MDA, as appropriate.

(c) Each operator to which this section applies must establish and assign procedures for the use of the altitude alerting system or device and each flight crewmember must comply with those procedures assigned to him.

(d) Paragraph (a) of this section does not apply to any operation of an airplane that has an experimental certificate or to the operation of any airplane for the following purposes:

(1) Ferrying a newly acquired airplane from the place where possession of it was taken to a place where the altitude alerting system or device is to be installed.

(2) Continuing a flight as originally planned, if the altitude alerting system or device becomes inoperative after the airplane has taken off; however, the flight may not depart from a place where repair or replacement can be made.

(3) Ferrying an airplane with any inoperative altitude alerting system or device from a place where repairs or replacements cannot be made to a place where it can be made.

(4) Conducting an airworthiness flight test of the airplane.

(5) Ferrying an airplane to a place outside the United States for the purpose of registering it in a foreign country.

(6) Conducting a sales demonstration of the operation of the airplane.

(7) Training foreign flight crews in the operation of the airplane before ferrying it to a place outside the United States for the purpose of registering it in a foreign country.

[Doc. No. 18334, 54 FR 34304, Aug. 18, 1989, as amended by Amdt. 91-296, 72 FR 31679, June 7, 2007]

§ 91.221 Traffic alert and collision avoidance system equipment and use.

(a) *All airspace: U.S.-registered civil aircraft.* Any traffic alert and collision avoidance system installed in a U.S.-registered civil aircraft must be approved by the Administrator.

(b) *Traffic alert and collision avoidance system, operation required.* Each person operating an aircraft equipped with an operable traffic alert and collision avoidance system shall have that system on and operating.

§ 91.223 Terrain awareness and warning system.

(a) *Airplanes manufactured after March 29, 2002.* Except as provided in paragraph (d) of this section, no person may operate a turbine-powered U.S.-registered airplane configured with six or more passenger seats, excluding any pilot seat, unless that airplane is equipped with an approved terrain awareness and warning system that as a minimum meets the requirements for Class B equipment in Technical Standard Order (TSO)-C151.

(b) *Airplanes manufactured on or before March 29, 2002.* Except as provided in paragraph (d) of this section, no person may operate a turbine-powered U.S.-registered airplane configured with six or more passenger seats, excluding any pilot seat, after March 29, 2005, unless that airplane is equipped with an approved terrain awareness and warning system that as a minimum meets the requirements for Class B equipment in Technical Standard Order (TSO)-C151.

(Approved by the Office of Management and Budget under control number 2120-0631)

(c) *Airplane Flight Manual.* The Airplane Flight Manual shall contain appropriate procedures for -

(1) The use of the terrain awareness and warning system; and

(2) Proper flight crew reaction in response to the terrain awareness and warning system audio and visual warnings.

(d) *Exceptions.* Paragraphs (a) and (b) of this section do not apply to -

(1) Parachuting operations when conducted entirely within a 50 nautical mile radius of the airport from which such local flight operations began.

(2) Firefighting operations.

(3) Flight operations when incident to the aerial application of chemicals and other substances.

[Doc. No. 29312, 65 FR 16755, Mar. 29, 2000]

§ 91.225 Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment and use.

(a) After January 1, 2020, and unless otherwise authorized by ATC, no person may operate an aircraft in Class A airspace unless the aircraft has equipment installed that -

(1) Meets the performance requirements in TSO-C166b, Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Service-Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz); and

(2) Meets the requirements of § 91.227.

(b) After January 1, 2020, and unless otherwise authorized by ATC, no person may operate an aircraft below 18,000 feet

MSL and in airspace described in paragraph (d) of this section unless the aircraft has equipment installed that -

(1) Meets the performance requirements in -

(i) TSO-C166b; or

(ii) TSO-C154c, Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Equipment Operating on the Frequency of 978 MHz;

(2) Meets the requirements of § 91.227.

(c) Operators with equipment installed with an approved deviation under § 21.618 of this chapter also are in compliance with this section.

(d) After January 1, 2020, and unless otherwise authorized by ATC, no person may operate an aircraft in the following airspace unless the aircraft has equipment installed that meets the requirements in paragraph (b) of this section:

(1) Class B and Class C airspace areas;

(2) Except as provided for in paragraph (e) of this section, within 30 nautical miles of an airport listed in appendix D, section 1 to this part from the surface upward to 10,000 feet MSL;

(3) Above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet MSL;

(4) Except as provided in paragraph (e) of this section, Class E airspace within the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface; and

(5) Class E airspace at and above 3,000 feet MSL over the Gulf of Mexico from the coastline of the United States out to 12 nautical miles.

(e) The requirements of paragraph (b) of this section do not apply to any aircraft that was not originally certificated with an electrical system, or that has not subsequently been certified with such a system installed, including balloons and gliders. These aircraft may conduct operations without ADS-B Out in the airspace specified in paragraphs (d)(2) and (d)(4) of this section. Operations authorized by this section must be conducted -

(1) Outside any Class B or Class C airspace area; and

(2) Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport, or 10,000 feet MSL, whichever is lower.

(f) Each person operating an aircraft equipped with ADS-B Out must operate this equipment in the transmit mode at all times.

(g) Requests for ATC authorized deviations from the requirements of this section must be made to the ATC facility having jurisdiction over the concerned airspace within the time periods specified as follows:

(1) For operation of an aircraft with an inoperative ADS-B Out, to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.

(2) For operation of an aircraft that is not equipped with ADS-B Out, the request must be made at least 1 hour before the proposed operation.

(h) The standards required in this section are incorporated by reference with the approval of the Director of the Office of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved materials are available for inspection at the FAA's Office of Rulemaking (ARM-1), 800 Independence Avenue, SW., Washington, DC 20590 (telephone 202-267-9677), or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. This material is also available from the sources indicated in paragraphs (h)(1) and (h)(2) of this section.

(1) Copies of Technical Standard Order (TSO)-C166b, Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Service-Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz) (December 2, 2009) and TSO-C154c, Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Equipment Operating on the Frequency of 978 MHz (December 2, 2009) may be obtained from the U.S. Department of Transportation, Subsequent Distribution Office, DOT Warehouse M30, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785; telephone (301) 322-5377. Copies of TSO -C166B and TSO-C154c are also available on the FAA's Web site, at http://www.faa.gov/aircraft/air_cert/design_approvals/tso/. Select the link "Search Technical Standard Orders."

(2) Copies of Section 2, Equipment Performance Requirements and Test Procedures, of RTCA DO-260B, Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Services-Broadcast (TIS-B), December 2, 2009 (referenced in TSO-C166b) and Section 2, Equipment Performance Requirements and Test Procedures, of RTCA DO-282B, Minimum Operational Performance Standards for Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B), December 2, 2009 (referenced in TSO C-154c) may be obtained from RTCA, Inc., 1828 L Street, NW., Suite 805, Washington, DC 20036-5133, telephone 202-833-9339. Copies of RTCA DO-260B and RTCA DO-282B are also available on RTCA Inc.'s Web site, at <http://www.rtca.org/onlinecart/allproducts.cfm>.

[Doc. No. FAA-2007-29305, 75 FR 30193, May 28, 2010; Amdt. 91-314-A, 75 FR 37712, June 30, 2010; Amdt. 91-316, 75 FR 37712, June 30, 2010; Amdt. 91-336, 80 FR 6900, Feb. 9, 2015; Amdt. 91-336A, 80 FR 11537, Mar. 4, 2015]

§ 91.227 Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment performance requirements.

(a) *Definitions.* For the purposes of this section:

ADS-B Out is a function of an aircraft's onboard avionics that periodically broadcasts the aircraft's state vector (3-dimensional position and 3-dimensional velocity) and other required information as described in this section.

Navigation Accuracy Category for Position (NAC P) specifies the accuracy of a reported aircraft's position, as defined in TSO-C166b and TSO-C154c.

Navigation Accuracy Category for Velocity (NAC V) specifies the accuracy of a reported aircraft's velocity, as defined in TSO-C166b and TSO-C154c.

Navigation Integrity Category (NIC) specifies an integrity containment radius around an aircraft's reported position, as defined in TSO-C166b and TSO-C154c.

Position Source refers to the equipment installed onboard an aircraft used to process and provide aircraft position (for example, latitude, longitude, and velocity) information.

Source Integrity Level (SIL) indicates the probability of the reported horizontal position exceeding the containment radius defined by the NIC on a per sample or per hour basis, as defined in TSO-C166b and TSO-C154c.

System Design Assurance (SDA) indicates the probability of an aircraft malfunction causing false or misleading information to be transmitted, as defined in TSO-C166b and TSO-C154c.

Total latency is the total time between when the position is measured and when the position is transmitted by the aircraft.

Uncompensated latency is the time for which the aircraft does not compensate for latency.

(b) *1090 MHz ES and UAT Broadcast Links and Power Requirements -*

(1) Aircraft operating in Class A airspace must have equipment installed that meets the antenna and power output requirements of Class A1, A1S, A2, A3, B1S, or B1 equipment as defined in TSO-C166b, Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Service-Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz).

(2) Aircraft operating in airspace designated for ADS-B Out, but outside of Class A airspace, must have equipment installed that meets the antenna and output power requirements of either:

(i) Class A1, A1S, A2, A3, B1S, or B1 as defined in TSO-C166b; or

(ii) Class A1H, A1S, A2, A3, B1S, or B1 equipment as defined in TSO-C154c, Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Equipment Operating on the Frequency of 978 MHz.

(c) *ADS-B Out Performance Requirements for NAC P, NAC V, NIC, SDA, and SIL -*

(1) For aircraft broadcasting ADS-B Out as required under § 91.225 (a) and (b) -

(i) The aircraft's NAC_P must be less than 0.05 nautical miles;

(ii) The aircraft's NAC_V must be less than 10 meters per second;

(iii) The aircraft's NIC must be less than 0.2 nautical miles;

(iv) The aircraft's SDA must be 2; and

(v) The aircraft's SIL must be 3.

(2) Changes in NAC_P, NAC_V, SDA, and SIL must be broadcast within 10 seconds.

(3) Changes in NIC must be broadcast within 12 seconds.

(d) *Minimum Broadcast Message Element Set for ADS-B Out.* Each aircraft must broadcast the following information, as defined in TSO-C166b or TSO-C154c. The pilot must enter information for message elements listed in paragraphs (d)(7) through (d)(10) of this section during the appropriate phase of flight.

(1) The length and width of the aircraft;

(2) An indication of the aircraft's latitude and longitude;

(3) An indication of the aircraft's barometric pressure altitude;

(4) An indication of the aircraft's velocity;

(5) An indication if TCAS II or ACAS is installed and operating in a mode that can generate resolution advisory alerts;

(6) If an operable TCAS II or ACAS is installed, an indication if a resolution advisory is in effect;

(7) An indication of the Mode 3/A transponder code specified by ATC;

(8) An indication of the aircraft's call sign that is submitted on the flight plan, or the aircraft's registration number, except when the pilot has not filed a flight plan, has not requested ATC services, and is using a TSO-C154c self-assigned temporary 24-bit address;

(9) An indication if the flightcrew has identified an emergency, radio communication failure, or unlawful interference;

(10) An indication of the aircraft's "IDENT" to ATC;

(11) An indication of the aircraft assigned ICAO 24-bit address, except when the pilot has not filed a flight plan, has not requested ATC services, and is using a TSO-C154c self-assigned temporary 24-bit address;

(12) An indication of the aircraft's emitter category;

(13) An indication of whether an ADS-B In capability is installed;

(14) An indication of the aircraft's geometric altitude;

(15) An indication of the Navigation Accuracy Category for Position (NAC_P);

(16) An indication of the Navigation Accuracy Category for Velocity (NAC_V);

(17) An indication of the Navigation Integrity Category (NIC);

(18) An indication of the System Design Assurance (SDA); and

(19) An indication of the Source Integrity Level (SIL).

(e) *ADS-B Latency Requirements* -

(1) The aircraft must transmit its geometric position no later than 2.0 seconds from the time of measurement of the position to the time of transmission.

(2) Within the 2.0 total latency allocation, a maximum of 0.6 seconds can be uncompensated latency. The aircraft must compensate for any latency above 0.6 seconds up to the maximum 2.0 seconds total by extrapolating the geometric position to the time of message transmission.

(3) The aircraft must transmit its position and velocity at least once per second while airborne or while moving on the airport surface.

(4) The aircraft must transmit its position at least once every 5 seconds while stationary on the airport surface.

(f) *Equipment with an approved deviation.* Operators with equipment installed with an approved deviation under § 21.618 of this chapter also are in compliance with this section.

(g) *Incorporation by Reference.* The standards required in this section are incorporated by reference with the approval of the Director of the Office of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved materials are available for inspection at the FAA's Office of Rulemaking (ARM-1), 800 Independence Avenue, SW., Washington, DC 20590 (telephone 202-267-9677), or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. This material is also available from the sources indicated in paragraphs (g)(1) and (g)(2) of this section.

(1) Copies of Technical Standard Order (TSO)-C166b, Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Service-Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz) (December 2, 2009) and TSO-C154c, Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Equipment Operating on the Frequency of 978 MHz (December 2, 2009) may be obtained from the U.S. Department of Transportation, Subsequent Distribution Office, DOT Warehouse M30, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785; telephone (301) 322-5377. Copies of TSO -C166B and TSO-C154c are also available on the FAA's Web site, at http://www.faa.gov/aircraft/air_cert/design_approvals/tso/. Select the link "Search Technical Standard Orders."

(2) Copies of Section 2, Equipment Performance Requirements and Test Procedures, of RTCA DO-260B, Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Services-Broadcast (TIS-B), December 2, 2009 (referenced in TSO-

C166b) and Section 2, Equipment Performance Requirements and Test Procedures, of RTCA DO-282B, Minimum Operational Performance Standards for Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B), December 2, 2009 (referenced in TSO C-154c) may be obtained from RTCA, Inc., 1828 L Street, NW., Suite 805, Washington, DC 20036-5133, telephone 202-833-9339. Copies of RTCA DO-260B and RTCA DO-282B are also available on RTCA Inc.'s Web site, at <http://www.rtca.org/onlinecart/allproducts.cfm>.

[Doc. No. FAA-2007-29305, 75 FR 30194, May 28, 2010; Amdt. 91-314-A, 75 FR 37712, June 30, 2010; Amdt. 91-316, 75 FR 37712, June 30, 2010]

§§ 91.228-91.299 [Reserved]

Subpart D - Special Flight Operations

Source:

Docket No. 18334, 54 FR 34308, Aug. 18, 1989, unless otherwise noted.

§ 91.301 [Reserved]

§ 91.303 Aerobatic flight.

No person may operate an aircraft in aerobatic flight -

(a) Over any congested area of a city, town, or settlement;

(b) Over an open air assembly of persons;

(c) Within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport;

(d) Within 4 nautical miles of the center line of any Federal airway;

(e) Below an altitude of 1,500 feet above the surface; or

(f) When flight visibility is less than 3 statute miles.

For the purposes of this section, aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.

[Doc. No. 18834, 54 FR 34308, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991]

§ 91.305 Flight test areas.

No person may flight test an aircraft except over open water, or sparsely populated areas, having light air traffic.

§ 91.307 Parachutes and parachuting.

(a) No pilot of a civil aircraft may allow a parachute that is available for emergency use to be carried in that aircraft unless it is an approved type and has been packed by a certificated and appropriately rated parachute rigger -

(1) Within the preceding 180 days, if its canopy, shrouds, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or materials that are substantially

resistant to damage from mold, mildew, or other fungi and other rotting agents propagated in a moist environment; or

(2) Within the preceding 60 days, if any part of the parachute is composed of silk, pongee, or other natural fiber or materials not specified in paragraph (a)(1) of this section.

(b) Except in an emergency, no pilot in command may allow, and no person may conduct, a parachute operation from an aircraft within the United States except in accordance with part 105 of this chapter.

(c) Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds -

(1) A bank of 60 degrees relative to the horizon; or

(2) A nose-up or nose-down attitude of 30 degrees relative to the horizon.

(d) Paragraph (c) of this section does not apply to -

(1) Flight tests for pilot certification or rating; or

(2) Spins and other flight maneuvers required by the regulations for any certificate or rating when given by -

(i) A certificated flight instructor; or

(ii) An airline transport pilot instructing in accordance with § 61.67 of this chapter.

(e) For the purposes of this section, *approved parachute* means -

(1) A parachute manufactured under a type certificate or a technical standard order (C-23 series); or

(2) A personnel-carrying military parachute identified by an NAF, AAF, or AN drawing number, an AAF order number, or any other military designation or specification number.

[Doc. No. 18334, 54 FR 34308, Aug. 18, 1989, as amended by Amdt. 91-255, 62 FR 68137, Dec. 30, 1997; Amdt. 91-268, 66 FR 23553, May 9, 2001; Amdt. 91-305, 73 FR 69530, Nov. 19, 2008]

§ 91.309 Towing: Gliders and unpowered ultralight vehicles.

(a) No person may operate a civil aircraft towing a glider or unpowered ultralight vehicle unless -

(1) The pilot in command of the towing aircraft is qualified under § 61.69 of this chapter;

(2) The towing aircraft is equipped with a tow-hitch of a kind, and installed in a manner, that is approved by the Administrator;

(3) The towline used has breaking strength not less than 80 percent of the maximum certificated operating weight of the glider or unpowered ultralight vehicle and not more than twice this operating weight. However, the towline used may have a breaking strength more than twice the maximum certificated operating weight of the glider or unpowered ultralight vehicle if -

(i) A safety link is installed at the point of attachment of the towline to the glider or unpowered ultralight vehicle with a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider or unpowered

ultralight vehicle and not greater than twice this operating weight;

(ii) A safety link is installed at the point of attachment of the towline to the towing aircraft with a breaking strength greater, but not more than 25 percent greater, than that of the safety link at the towed glider or unpowered ultralight vehicle end of the towline and not greater than twice the maximum certificated operating weight of the glider or unpowered ultralight vehicle;

(4) Before conducting any towing operation within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport, or before making each towing flight within such controlled airspace if required by ATC, the pilot in command notifies the control tower. If a control tower does not exist or is not in operation, the pilot in command must notify the FAA flight service station serving that controlled airspace before conducting any towing operations in that airspace; and

(5) The pilots of the towing aircraft and the glider or unpowered ultralight vehicle have agreed upon a general course of action, including takeoff and release signals, airspeeds, and emergency procedures for each pilot.

(b) No pilot of a civil aircraft may intentionally release a towline, after release of a glider or unpowered ultralight vehicle, in a manner that endangers the life or property of another.

[Doc. No. 18834, 54 FR 34308, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991; Amdt. 91-282, 69 FR 44880, July 27, 2004]

§ 91.311 Towing: Other than under § 91.309.

No pilot of a civil aircraft may tow anything with that aircraft (other than under § 91.309) except in accordance with the terms of a certificate of waiver issued by the Administrator.

§ 91.313 Restricted category civil aircraft: Operating limitations.

Link to an amendment published at 81 FR 96700, Dec. 30, 2016.

(a) No person may operate a restricted category civil aircraft -

(1) For other than the special purpose for which it is certificated; or

(2) In an operation other than one necessary to accomplish the work activity directly associated with that special purpose.

(b) For the purpose of paragraph (a) of this section, operating a restricted category civil aircraft to provide flight crewmember training in a special purpose operation for which the aircraft is certificated is considered to be an operation for that special purpose.

(c) No person may operate a restricted category civil aircraft carrying persons or property for compensation or hire. For the purposes of this paragraph, a special purpose operation involving the carriage of persons or material necessary to accomplish that operation, such as crop dusting, seeding, spraying, and banner towing (including the carrying of

required persons or material to the location of that operation), and operation for the purpose of providing flight crewmember training in a special purpose operation, are not considered to be the carriage of persons or property for compensation or hire.

(d) No person may be carried on a restricted category civil aircraft unless that person -

- (1) Is a flight crewmember;
- (2) Is a flight crewmember trainee;

(3) Performs an essential function in connection with a special purpose operation for which the aircraft is certificated; or

(4) Is necessary to accomplish the work activity directly associated with that special purpose.

(e) Except when operating in accordance with the terms and conditions of a certificate of waiver or special operating limitations issued by the Administrator, no person may operate a restricted category civil aircraft within the United States -

- (1) Over a densely populated area;
- (2) In a congested airway; or

(3) Near a busy airport where passenger transport operations are conducted.

(f) This section does not apply to nonpassenger-carrying civil rotorcraft external-load operations conducted under part 133 of this chapter.

(g) No person may operate a small restricted-category civil airplane manufactured after July 18, 1978, unless an approved shoulder harness is installed for each front seat. The shoulder harness must be designed to protect each occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in § 23.561(b)(2) of this chapter. The shoulder harness installation at each flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operation. For purposes of this paragraph -

(1) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data; and

(2) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

§ 91.315 Limited category civil aircraft: Operating limitations.

No person may operate a limited category civil aircraft carrying persons or property for compensation or hire.

§ 91.317 Provisionally certificated civil aircraft: Operating limitations.

(a) No person may operate a provisionally certificated civil aircraft unless that person is eligible for a provisional airworthiness certificate under § 21.213 of this chapter.

(b) No person may operate a provisionally certificated civil aircraft outside the United States unless that person has specific authority to do so from the Administrator and each foreign country involved.

(c) Unless otherwise authorized by the Director, Flight Standards Service, no person may operate a provisionally certificated civil aircraft in air transportation.

(d) Unless otherwise authorized by the Administrator, no person may operate a provisionally certificated civil aircraft except -

(1) In direct conjunction with the type or supplemental type certification of that aircraft;

(2) For training flight crews, including simulated air carrier operations;

(3) Demonstration flight by the manufacturer for prospective purchasers;

(4) Market surveys by the manufacturer;

(5) Flight checking of instruments, accessories, and equipment that do not affect the basic airworthiness of the aircraft; or

(6) Service testing of the aircraft.

(e) Each person operating a provisionally certificated civil aircraft shall operate within the prescribed limitations displayed in the aircraft or set forth in the provisional aircraft flight manual or other appropriate document. However, when operating in direct conjunction with the type or supplemental type certification of the aircraft, that person shall operate under the experimental aircraft limitations of § 21.191 of this chapter and when flight testing, shall operate under the requirements of § 91.305 of this part.

(f) Each person operating a provisionally certificated civil aircraft shall establish approved procedures for -

(1) The use and guidance of flight and ground personnel in operating under this section; and

(2) Operating in and out of airports where takeoffs or approaches over populated areas are necessary. No person may operate that aircraft except in compliance with the approved procedures.

(g) Each person operating a provisionally certificated civil aircraft shall ensure that each flight crewmember is properly certificated and has adequate knowledge of, and familiarity with, the aircraft and procedures to be used by that crewmember.

(h) Each person operating a provisionally certificated civil aircraft shall maintain it as required by applicable regulations and as may be specially prescribed by the Administrator.

(i) Whenever the manufacturer, or the Administrator, determines that a change in design, construction, or operation is necessary to ensure safe operation, no person may operate a provisionally certificated civil aircraft until that change has been made and approved. Section 21.99 of this chapter applies to operations under this section.

(j) Each person operating a provisionally certificated civil aircraft -

(1) May carry in that aircraft only persons who have a proper interest in the operations allowed by this section or who are specifically authorized by both the manufacturer and the Administrator; and

(2) Shall advise each person carried that the aircraft is provisionally certificated.

(k) The Administrator may prescribe additional limitations or procedures that the Administrator considers necessary, including limitations on the number of persons who may be carried in the aircraft.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34308, Aug. 18, 1989, as amended by Amdt. 91-212, 54 FR 39293, Sept. 25, 1989]

§ 91.319 Aircraft having experimental certificates: Operating limitations.

(a) No person may operate an aircraft that has an experimental certificate -

(1) For other than the purpose for which the certificate was issued; or

(2) Carrying persons or property for compensation or hire.

(b) No person may operate an aircraft that has an experimental certificate outside of an area assigned by the Administrator until it is shown that -

(1) The aircraft is controllable throughout its normal range of speeds and throughout all the maneuvers to be executed; and

(2) The aircraft has no hazardous operating characteristics or design features.

(c) Unless otherwise authorized by the Administrator in special operating limitations, no person may operate an aircraft that has an experimental certificate over a densely populated area or in a congested airway. The Administrator may issue special operating limitations for particular aircraft to permit takeoffs and landings to be conducted over a densely populated area or in a congested airway, in accordance with terms and conditions specified in the authorization in the interest of safety in air commerce.

(d) Each person operating an aircraft that has an experimental certificate shall -

(1) Advise each person carried of the experimental nature of the aircraft;

(2) Operate under VFR, day only, unless otherwise specifically authorized by the Administrator; and

(3) Notify the control tower of the experimental nature of the aircraft when operating the aircraft into or out of airports with operating control towers.

(e) No person may operate an aircraft that is issued an experimental certificate under § 21.191(i) of this chapter for compensation or hire, except a person may operate an aircraft issued an experimental certificate under § 21.191(i)(1) for compensation or hire to -

(1) Tow a glider that is a light-sport aircraft or unpowered ultralight vehicle in accordance with § 91.309; or

(2) Conduct flight training in an aircraft which that person provides prior to January 31, 2010.

(f) No person may lease an aircraft that is issued an experimental certificate under § 21.191(i) of this chapter, except in accordance with paragraph (e)(1) of this section.

(g) No person may operate an aircraft issued an experimental certificate under § 21.191(i)(1) of this chapter to tow a glider that is a light-sport aircraft or unpowered ultralight vehicle for compensation or hire or to conduct flight training for compensation or hire in an aircraft which that persons provides unless within the preceding 100 hours of time in service the aircraft has -

(1) Been inspected by a certificated repairman (light-sport aircraft) with a maintenance rating, an appropriately rated mechanic, or an appropriately rated repair station in accordance with inspection procedures developed by the aircraft manufacturer or a person acceptable to the FAA; or

(2) Received an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

(h) The FAA may issue deviation authority providing relief from the provisions of paragraph (a) of this section for the purpose of conducting flight training. The FAA will issue this deviation authority as a letter of deviation authority.

(1) The FAA may cancel or amend a letter of deviation authority at any time.

(2) An applicant must submit a request for deviation authority to the FAA at least 60 days before the date of intended operations. A request for deviation authority must contain a complete description of the proposed operation and justification that establishes a level of safety equivalent to that provided under the regulations for the deviation requested.

(i) The Administrator may prescribe additional limitations that the Administrator considers necessary, including limitations on the persons that may be carried in the aircraft.

(j) No person may operate an aircraft that has an experimental certificate under § 61.113(i) of this chapter unless the aircraft is carrying not more than 6 occupants.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34308, Aug. 18, 1989, as amended by Amdt. 91-282, 69 FR 44881, July 27, 2004; Docket FAA-2016-9157, Amdt. 91-347, 82 FR 3167, Jan. 11, 2017]

§ 91.321 Carriage of candidates in elections.

(a) As an aircraft operator, you may receive payment for carrying a candidate, agent of a candidate, or person traveling on behalf of a candidate, running for Federal, State, or local election, without having to comply with the rules in parts 121, 125 or 135 of this chapter, under the following conditions:

(1) Your primary business is not as an air carrier or commercial operator;

(2) You carry the candidate, agent, or person traveling on behalf of a candidate, under the rules of part 91; and

(3) By Federal, state or local law, you are required to receive payment for carrying the candidate, agent, or person

traveling on behalf of a candidate. For federal elections, the payment may not exceed the amount required by the Federal Election Commission. For a state or local election, the payment may not exceed the amount required under the applicable state or local law.

(b) For the purposes of this section, for Federal elections, the terms *candidate* and *election* have the same meaning as set forth in the regulations of the Federal Election Commission. For State or local elections, the terms *candidate* and *election* have the same meaning as provided by the applicable State or local law and those terms relate to candidates for election to public office in State and local government elections.

[Doc. No. FAA-2005-20168, 70 FR 4982, Jan. 31, 2005]

§ 91.323 Increased maximum certificated weights for certain airplanes operated in Alaska.

Link to an amendment published at 81 FR 96700, Dec. 30, 2016.

(a) Notwithstanding any other provision of the Federal Aviation Regulations, the Administrator will approve, as provided in this section, an increase in the maximum certificated weight of an airplane type certificated under Aeronautics Bulletin No. 7-A of the U.S. Department of Commerce dated January 1, 1931, as amended, or under the normal category of part 4a of the former Civil Air Regulations (14 CFR part 4a, 1964 ed.) if that airplane is operated in the State of Alaska by -

(1) A certificate holder conducting operations under part 121 or part 135 of this chapter; or

(2) The U.S. Department of Interior in conducting its game and fish law enforcement activities or its management, fire detection, and fire suppression activities concerning public lands.

(b) The maximum certificated weight approved under this section may not exceed -

(1) 12,500 pounds;

(2) 115 percent of the maximum weight listed in the FAA aircraft specifications;

(3) The weight at which the airplane meets the positive maneuvering load factor requirement for the normal category specified in § 23.337 of this chapter; or

(4) The weight at which the airplane meets the climb performance requirements under which it was type certificated.

(c) In determining the maximum certificated weight, the Administrator considers the structural soundness of the airplane and the terrain to be traversed.

(d) The maximum certificated weight determined under this section is added to the airplane's operation limitations and is identified as the maximum weight authorized for operations within the State of Alaska.

[Doc. No. 18334, 54 FR 34308, Aug. 18, 1989; Amdt. 91-211, 54 FR 41211, Oct. 5, 1989, as amended by Amdt. 91-253, 62 FR 13253, Mar. 19, 1997]

§ 91.325 Primary category aircraft: Operating limitations.

(a) No person may operate a primary category aircraft carrying persons or property for compensation or hire.

(b) No person may operate a primary category aircraft that is maintained by the pilot-owner under an approved special inspection and maintenance program except -

(1) The pilot-owner; or

(2) A designee of the pilot-owner, provided that the pilot-owner does not receive compensation for the use of the aircraft.

[Doc. No. 23345, 57 FR 41370, Sept. 9, 1992]

§ 91.327 Aircraft having a special airworthiness certificate in the light-sport category: Operating limitations.

(a) No person may operate an aircraft that has a special airworthiness certificate in the light-sport category for compensation or hire except -

(1) To tow a glider or an unpowered ultralight vehicle in accordance with § 91.309 of this chapter; or

(2) To conduct flight training.

(b) No person may operate an aircraft that has a special airworthiness certificate in the light-sport category unless -

(1) The aircraft is maintained by a certificated repairman with a light-sport aircraft maintenance rating, an appropriately rated mechanic, or an appropriately rated repair station in accordance with the applicable provisions of part 43 of this chapter and maintenance and inspection procedures developed by the aircraft manufacturer or a person acceptable to the FAA;

(2) A condition inspection is performed once every 12 calendar months by a certificated repairman (light-sport aircraft) with a maintenance rating, an appropriately rated mechanic, or an appropriately rated repair station in accordance with inspection procedures developed by the aircraft manufacturer or a person acceptable to the FAA;

(3) The owner or operator complies with all applicable airworthiness directives;

(4) The owner or operator complies with each safety directive applicable to the aircraft that corrects an existing unsafe condition. In lieu of complying with a safety directive an owner or operator may -

(i) Correct the unsafe condition in a manner different from that specified in the safety directive provided the person issuing the directive concurs with the action; or

(ii) Obtain an FAA waiver from the provisions of the safety directive based on a conclusion that the safety directive was issued without adhering to the applicable consensus standard;

(5) Each alteration accomplished after the aircraft's date of manufacture meets the applicable and current consensus standard and has been authorized by either the manufacturer or a person acceptable to the FAA;

(6) Each major alteration to an aircraft product produced under a consensus standard is authorized, performed and

inspected in accordance with maintenance and inspection procedures developed by the manufacturer or a person acceptable to the FAA; and

(7) The owner or operator complies with the requirements for the recording of major repairs and major alterations performed on type-certificated products in accordance with § 43.9(d) of this chapter, and with the retention requirements in § 91.417.

(c) No person may operate an aircraft issued a special airworthiness certificate in the light-sport category to tow a glider or unpowered ultralight vehicle for compensation or hire or conduct flight training for compensation or hire in an aircraft which that persons provides unless within the preceding 100 hours of time in service the aircraft has -

(1) Been inspected by a certificated repairman with a light-sport aircraft maintenance rating, an appropriately rated mechanic, or an appropriately rated repair station in accordance with inspection procedures developed by the aircraft manufacturer or a person acceptable to the FAA and been approved for return to service in accordance with part 43 of this chapter; or

(2) Received an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

(d) Each person operating an aircraft issued a special airworthiness certificate in the light-sport category must operate the aircraft in accordance with the aircraft's operating instructions, including any provisions for necessary operating equipment specified in the aircraft's equipment list.

(e) Each person operating an aircraft issued a special airworthiness certificate in the light-sport category must advise each person carried of the special nature of the aircraft and that the aircraft does not meet the airworthiness requirements for an aircraft issued a standard airworthiness certificate.

(f) The FAA may prescribe additional limitations that it considers necessary.

[Doc. No. FAA-2001-11133, 69 FR 44881, July 27, 2004]

§§ 91.328-91.399 [Reserved]

Subpart E - Maintenance, Preventive Maintenance, and Alterations

Source:

Docket No. 18334, 54 FR 34311, Aug. 18, 1989, unless otherwise noted.

§ 91.401 Applicability.

(a) This subpart prescribes rules governing the maintenance, preventive maintenance, and alterations of U.S.-registered civil aircraft operating within or outside of the United States.

(b) Sections 91.405, 91.409, 91.411, 91.417, and 91.419 of this subpart do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in part 121, 129, or §§ 91.1411 or 135.411(a)(2) of this chapter.

(c) Sections 91.405 and 91.409 of this part do not apply to an airplane inspected in accordance with part 125 of this chapter.

[Doc. No. 18334, 54 FR 34311, Aug. 18, 1989, as amended by Amdt. 91-267, 66 FR 21066, Apr. 27, 2001; Amdt. 91-280, 68 FR 54560, Sept. 17, 2003]

§ 91.403 General.

(a) The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, including compliance with part 39 of this chapter.

(b) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including part 43 of this chapter.

(c) No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitations section unless the mandatory replacement times, inspection intervals, and related procedures specified in that section or alternative inspection intervals and related procedures set forth in an operations specification approved by the Administrator under part 121 or 135 of this chapter or in accordance with an inspection program approved under § 91.409(e) have been complied with.

(d) A person must not alter an aircraft based on a supplemental type certificate unless the owner or operator of the aircraft is the holder of the supplemental type certificate, or has written permission from the holder.

[Doc. No. 18334, 54 FR 34311, Aug. 18, 1989, as amended by Amdt. 91-267, 66 FR 21066, Apr. 27, 2001; Amdt. 91-293, 71 FR 56005, Sept. 26, 2006]

§ 91.405 Maintenance required.

Each owner or operator of an aircraft -

(a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter;

(b) Shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service;

(c) Shall have any inoperative instrument or item of equipment, permitted to be inoperative by § 91.213(d)(2) of this part, repaired, replaced, removed, or inspected at the next required inspection; and

(d) When listed discrepancies include inoperative instruments or equipment, shall ensure that a placard has been installed as required by § 43.11 of this chapter.

§ 91.407 Operation after maintenance, preventive maintenance, rebuilding, or alteration.

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless -

(1) It has been approved for return to service by a person authorized under § 43.7 of this chapter; and

(2) The maintenance record entry required by § 43.9 or § 43.11, as applicable, of this chapter has been made.

(b) No person may carry any person (other than crewmembers) in an aircraft that has been maintained, rebuilt, or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight until an appropriately rated pilot with at least a private pilot certificate flies the aircraft, makes an operational check of the maintenance performed or alteration made, and logs the flight in the aircraft records.

(c) The aircraft does not have to be flown as required by paragraph (b) of this section if, prior to flight, ground tests, inspection, or both show conclusively that the maintenance, preventive maintenance, rebuilding, or alteration has not appreciably changed the flight characteristics or substantially affected the flight operation of the aircraft.

(Approved by the Office of Management and Budget under control number 2120-0005)

§ 91.409 Inspections.

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had -

(1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by § 43.7 of this chapter; or

(2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an "annual" inspection in the required maintenance records.

(b) Except as provided in paragraph (c) of this section, no person may operate an aircraft carrying any person (other than a crewmember) for hire, and no person may give flight instruction for hire in an aircraft which that person provides, unless within the preceding 100 hours of time in service the aircraft has received an annual or 100-hour inspection and been approved for return to service in accordance with part 43 of this chapter or has received an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter. The 100-hour limitation may be exceeded by not more than 10 hours while en route to reach a place where the inspection can be done. The excess time used to reach a

place where the inspection can be done must be included in computing the next 100 hours of time in service.

(c) Paragraphs (a) and (b) of this section do not apply to -

(1) An aircraft that carries a special flight permit, a current experimental certificate, or a light-sport or provisional airworthiness certificate;

(2) An aircraft inspected in accordance with an approved aircraft inspection program under part 125 or 135 of this chapter and so identified by the registration number in the operations specifications of the certificate holder having the approved inspection program;

(3) An aircraft subject to the requirements of paragraph (d) or (e) of this section; or

(4) Turbine-powered rotorcraft when the operator elects to inspect that rotorcraft in accordance with paragraph (e) of this section.

(d) *Progressive inspection.* Each registered owner or operator of an aircraft desiring to use a progressive inspection program must submit a written request to the FAA Flight Standards district office having jurisdiction over the area in which the applicant is located, and shall provide -

(1) A certificated mechanic holding an inspection authorization, a certificated airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection;

(2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail -

(i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;

(ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while en route and for changing an inspection interval because of service experience;

(iii) Sample routine and detailed inspection forms and instructions for their use; and

(iv) Sample reports and records and instructions for their use;

(3) Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and

(4) Appropriate current technical information for the aircraft.

The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12 calendar months and be consistent with the manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The progressive inspection schedule must ensure that the aircraft, at all times, will be airworthy and will conform to all applicable FAA aircraft specifications, type certificate data sheets, airworthiness directives, and other approved

data. If the progressive inspection is discontinued, the owner or operator shall immediately notify the local FAA Flight Standards district office, in writing, of the discontinuance. After the discontinuance, the first annual inspection under § 91.409(a)(1) is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection. The 100-hour inspection under § 91.409(b) is due within 100 hours after that complete inspection. A complete inspection of the aircraft, for the purpose of determining when the annual and 100-hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection. A routine inspection of the aircraft and a detailed inspection of several components is not considered to be a complete inspection.

(e) *Large airplanes (to which part 125 is not applicable), turbojet multiengine airplanes, turbopropeller-powered multiengine airplanes, and turbine-powered rotorcraft.* No person may operate a large airplane, turbojet multiengine airplane, turbopropeller-powered multiengine airplane, or turbine-powered rotorcraft unless the replacement times for life-limited parts specified in the aircraft specifications, type data sheets, or other documents approved by the Administrator are complied with and the airplane or turbine-powered rotorcraft, including the airframe, engines, propellers, rotors, appliances, survival equipment, and emergency equipment, is inspected in accordance with an inspection program selected under the provisions of paragraph (f) of this section, except that, the owner or operator of a turbine-powered rotorcraft may elect to use the inspection provisions of § 91.409(a), (b), (c), or (d) in lieu of an inspection option of § 91.409(f).

(f) *Selection of inspection program under paragraph (e) of this section.* The registered owner or operator of each airplane or turbine-powered rotorcraft described in paragraph (e) of this section must select, identify in the aircraft maintenance records, and use one of the following programs for the inspection of the aircraft:

(1) A continuous airworthiness inspection program that is part of a continuous airworthiness maintenance program currently in use by a person holding an air carrier operating certificate or an operating certificate issued under part 121 or 135 of this chapter and operating that make and model aircraft under part 121 of this chapter or operating that make and model under part 135 of this chapter and maintaining it under § 135.411(a)(2) of this chapter.

(2) An approved aircraft inspection program approved under § 135.419 of this chapter and currently in use by a person holding an operating certificate issued under part 135 of this chapter.

(3) A current inspection program recommended by the manufacturer.

(4) Any other inspection program established by the registered owner or operator of that airplane or turbine-powered rotorcraft and approved by the Administrator under paragraph (g) of this section. However, the Administrator may

require revision of this inspection program in accordance with the provisions of § 91.415.

Each operator shall include in the selected program the name and address of the person responsible for scheduling the inspections required by the program and make a copy of that program available to the person performing inspections on the aircraft and, upon request, to the Administrator.

(g) *Inspection program approved under paragraph (e) of this section.* Each operator of an airplane or turbine-powered rotorcraft desiring to establish or change an approved inspection program under paragraph (f)(4) of this section must submit the program for approval to the local FAA Flight Standards district office having jurisdiction over the area in which the aircraft is based. The program must be in writing and include at least the following information:

(1) Instructions and procedures for the conduct of inspections for the particular make and model airplane or turbine-powered rotorcraft, including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the airframe, engines, propellers, rotors, and appliances, including survival and emergency equipment required to be inspected.

(2) A schedule for performing the inspections that must be performed under the program expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.

(h) *Changes from one inspection program to another.* When an operator changes from one inspection program under paragraph (f) of this section to another, the time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34311, Aug. 18, 1989; Amdt. 91-211, 54 FR 41211, Oct. 5, 1989; Amdt. 91-267, 66 FR 21066, Apr. 27, 2001; Amdt. 91-282, 69 FR 44882, July 27, 2004]

§ 91.410 [Reserved]

§ 91.411 Altimeter system and altitude reporting equipment tests and inspections.

(a) No person may operate an airplane, or helicopter, in controlled airspace under IFR unless -

(1) Within the preceding 24 calendar months, each static pressure system, each altimeter instrument, and each automatic pressure altitude reporting system has been tested and inspected and found to comply with appendices E and F of part 43 of this chapter;

(2) Except for the use of system drain and alternate static pressure valves, following any opening and closing of the static pressure system, that system has been tested and inspected and found to comply with paragraph (a), appendix E, of part 43 of this chapter; and

(3) Following installation or maintenance on the automatic pressure altitude reporting system of the ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), appendix E, of part 43 of this chapter.

(b) The tests required by paragraph (a) of this section must be conducted by -

(1) The manufacturer of the airplane, or helicopter, on which the tests and inspections are to be performed;

(2) A certificated repair station properly equipped to perform those functions and holding -

(i) An instrument rating, Class I;

(ii) A limited instrument rating appropriate to the make and model of appliance to be tested;

(iii) A limited rating appropriate to the test to be performed;

(iv) An airframe rating appropriate to the airplane, or helicopter, to be tested; or

(3) A certificated mechanic with an airframe rating (static pressure system tests and inspections only).

(c) Altimeter and altitude reporting equipment approved under Technical Standard Orders are considered to be tested and inspected as of the date of their manufacture.

(d) No person may operate an airplane, or helicopter, in controlled airspace under IFR at an altitude above the maximum altitude at which all altimeters and the automatic altitude reporting system of that airplane, or helicopter, have been tested.

[Doc. No. 18334, 54 FR 34308, Aug. 18, 1989, as amended by Amdt. 91-269, 66 FR 41116, Aug. 6, 2001; 72 FR 7739, Feb. 20, 2007]

§ 91.413 ATC transponder tests and inspections.

(a) No persons may use an ATC transponder that is specified in 91.215(a), 121.345(c), or § 135.143(c) of this chapter unless, within the preceding 24 calendar months, the ATC transponder has been tested and inspected and found to comply with appendix F of part 43 of this chapter; and

(b) Following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), appendix E, of part 43 of this chapter.

(c) The tests and inspections specified in this section must be conducted by -

(1) A certificated repair station properly equipped to perform those functions and holding -

(i) A radio rating, Class III;

(ii) A limited radio rating appropriate to the make and model transponder to be tested;

(iii) A limited rating appropriate to the test to be performed;

(2) A holder of a continuous airworthiness maintenance program as provided in part 121 or § 135.411(a)(2) of this chapter; or

(3) The manufacturer of the aircraft on which the transponder to be tested is installed, if the transponder was installed by that manufacturer.

[Doc. No. 18334, 54 FR 34311, Aug. 18, 1989, as amended by Amdt. 91-267, 66 FR 21066, Apr. 27, 2001; Amdt. 91-269, 66 FR 41116, Aug. 6, 2001]

§ 91.415 Changes to aircraft inspection programs.

(a) Whenever the Administrator finds that revisions to an approved aircraft inspection program under § 91.409(f)(4) or § 91.1109 are necessary for the continued adequacy of the program, the owner or operator must, after notification by the Administrator, make any changes in the program found to be necessary by the Administrator.

(b) The owner or operator may petition the Administrator to reconsider the notice to make any changes in a program in accordance with paragraph (a) of this section.

(c) The petition must be filed with the Director, Flight Standards Service within 30 days after the certificate holder or fractional ownership program manager receives the notice.

(d) Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

[Doc. No. 18334, 54 FR 34311, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54560, Sept. 17, 2003]

§ 91.417 Maintenance records.

(a) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include -

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

(c) The owner or operator shall make all maintenance records required to be kept by this section available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB). In addition, the owner or operator shall present Form 337 described in paragraph (d) of this section for inspection upon request of any law enforcement officer.

(d) When a fuel tank is installed within the passenger compartment or a baggage compartment pursuant to part 43 of this chapter, a copy of FAA Form 337 shall be kept on board the modified aircraft by the owner or operator.

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34311, Aug. 18, 1989, as amended by Amdt. 91-311, 75 FR 5223, Feb. 1, 2010; Amdt. 91-323, 76 FR 39260, July 6, 2011]

§ 91.419 Transfer of maintenance records.

Any owner or operator who sells a U.S.-registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Administrator:

(a) The records specified in § 91.417(a)(2).

(b) The records specified in § 91.417(a)(1) which are not included in the records covered by paragraph (a) of this section, except that the purchaser may permit the seller to keep physical custody of such records. However, custody of records by the seller does not relieve the purchaser of the responsibility under § 91.417(c) to make the records available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

§ 91.421 Rebuilt engine maintenance records.

(a) The owner or operator may use a new maintenance record, without previous operating history, for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.

(b) Each manufacturer or agency that grants zero time to an engine rebuilt by it shall enter in the new record -

- (1) A signed statement of the date the engine was rebuilt;
- (2) Each change made as required by airworthiness directives; and

(3) Each change made in compliance with manufacturer's service bulletins, if the entry is specifically requested in that bulletin.

(c) For the purposes of this section, a rebuilt engine is a used engine that has been completely disassembled, inspected, repaired as necessary, reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine with either new or used parts. However, all parts used in it must conform to the production drawing tolerances and limits for new parts or be of approved oversized or undersized dimensions for a new engine.

§§ 91.423-91.499 [Reserved]

Subpart F - Large and Turbine-Powered Multiengine Airplanes and Fractional Ownership Program Aircraft

Source:

Docket No. 18334, 54 FR 34314, Aug. 18, 1989, unless otherwise noted.

§ 91.501 Applicability.

(a) This subpart prescribes operating rules, in addition to those prescribed in other subparts of this part, governing the operation of large airplanes of U.S. registry, turbojet-powered multiengine civil airplanes of U.S. registry, and fractional ownership program aircraft of U.S. registry that are operating under subpart K of this part in operations not involving common carriage. The operating rules in this subpart do not apply to those aircraft when they are required to be operated under parts 121, 125, 129, 135, and 137 of this chapter. (Section 91.409 prescribes an inspection program for large and for turbine-powered (turbojet and turboprop) multiengine airplanes and turbine-powered rotorcraft of U.S. registry when they are operated under this part or part 129 or 137.)

(b) Operations that may be conducted under the rules in this subpart instead of those in parts 121, 129, 135, and 137 of this chapter when common carriage is not involved, include -

- (1) Ferry or training flights;
- (2) Aerial work operations such as aerial photography or survey, or pipeline patrol, but not including fire fighting operations;

(3) Flights for the demonstration of an airplane to prospective customers when no charge is made except for those specified in paragraph (d) of this section;

(4) Flights conducted by the operator of an airplane for his personal transportation, or the transportation of his guests when no charge, assessment, or fee is made for the transportation;

(5) Carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of the company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company (other than transportation by air) and no charge, assessment or fee is made for the carriage in excess of the cost of owning, operating, and maintaining the airplane, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company;

(6) The carriage of company officials, employees, and guests of the company on an airplane operated under a time sharing, interchange, or joint ownership agreement as defined in paragraph (c) of this section;

(7) The carriage of property (other than mail) on an airplane operated by a person in the furtherance of a business or employment (other than transportation by air) when the carriage is within the scope of, and incidental to, that business or employment and no charge, assessment, or fee is made for the carriage other than those specified in paragraph (d) of this section;

(8) The carriage on an airplane of an athletic team, sports group, choral group, or similar group having a common purpose or objective when there is no charge, assessment, or fee of any kind made by any person for that carriage; and

(9) The carriage of persons on an airplane operated by a person in the furtherance of a business other than transportation by air for the purpose of selling them land, goods, or property, including franchises or distributorships, when the carriage is within the scope of, and incidental to, that business and no charge, assessment, or fee is made for that carriage.

(10) Any operation identified in paragraphs (b)(1) through (b)(9) of this section when conducted -

(i) By a fractional ownership program manager, or

(ii) By a fractional owner in a fractional ownership program aircraft operated under subpart K of this part, except that a flight under a joint ownership arrangement under paragraph (b)(6) of this section may not be conducted. For a flight under an interchange agreement under paragraph (b)(6) of this section, the exchange of equal time for the operation must be properly accounted for as part of the total hours associated with the fractional owner's share of ownership.

(c) As used in this section -

(1) A *time sharing agreement* means an arrangement whereby a person leases his airplane with flight crew to another person, and no charge is made for the flights conducted under

that arrangement other than those specified in paragraph (d) of this section;

(2) An *interchange agreement* means an arrangement whereby a person leases his airplane to another person in exchange for equal time, when needed, on the other person's airplane, and no charge, assessment, or fee is made, except that a charge may be made not to exceed the difference between the cost of owning, operating, and maintaining the two airplanes;

(3) A *joint ownership agreement* means an arrangement whereby one of the registered joint owners of an airplane employs and furnishes the flight crew for that airplane and each of the registered joint owners pays a share of the charge specified in the agreement.

(d) The following may be charged, as expenses of a specific flight, for transportation as authorized by paragraphs (b) (3) and (7) and (c)(1) of this section:

(1) Fuel, oil, lubricants, and other additives.

(2) Travel expenses of the crew, including food, lodging, and ground transportation.

(3) Hangar and tie-down costs away from the aircraft's base of operation.

(4) Insurance obtained for the specific flight.

(5) Landing fees, airport taxes, and similar assessments.

(6) Customs, foreign permit, and similar fees directly related to the flight.

(7) In flight food and beverages.

(8) Passenger ground transportation.

(9) Flight planning and weather contract services.

(10) An additional charge equal to 100 percent of the expenses listed in paragraph (d)(1) of this section.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54560, Sept. 17, 2003]

§ 91.503 Flying equipment and operating information.

(a) The pilot in command of an airplane shall ensure that the following flying equipment and aeronautical charts and data, in current and appropriate form, are accessible for each flight at the pilot station of the airplane:

(1) A flashlight having at least two size "D" cells, or the equivalent, that is in good working order.

(2) A cockpit checklist containing the procedures required by paragraph (b) of this section.

(3) Pertinent aeronautical charts.

(4) For IFR, VFR over-the-top, or night operations, each pertinent navigational en route, terminal area, and approach and letdown chart.

(5) In the case of multiengine airplanes, one-engine inoperative climb performance data.

(b) Each cockpit checklist must contain the following procedures and shall be used by the flight crewmembers when operating the airplane:

(1) Before starting engines.

(2) Before takeoff.

(3) Cruise.

- (4) Before landing.
- (5) After landing.
- (6) Stopping engines.
- (7) Emergencies.

(c) Each emergency cockpit checklist procedure required by paragraph (b)(7) of this section must contain the following procedures, as appropriate:

(1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.

(2) Emergency operation of instruments and controls.

(3) Engine inoperative procedures.

(4) Any other procedures necessary for safety.

(d) The equipment, charts, and data prescribed in this section shall be used by the pilot in command and other members of the flight crew, when pertinent.

§ 91.505 Familiarity with operating limitations and emergency equipment.

(a) Each pilot in command of an airplane shall, before beginning a flight, become familiar with the Airplane Flight Manual for that airplane, if one is required, and with any placards, listings, instrument markings, or any combination thereof, containing each operating limitation prescribed for that airplane by the Administrator, including those specified in § 91.9(b).

(b) Each required member of the crew shall, before beginning a flight, become familiar with the emergency equipment installed on the airplane to which that crewmember is assigned and with the procedures to be followed for the use of that equipment in an emergency situation.

§ 91.507 Equipment requirements: Over-the-top or night VFR operations.

No person may operate an airplane over-the-top or at night under VFR unless that airplane is equipped with the instruments and equipment required for IFR operations under § 91.205(d) and one electric landing light for night operations. Each required instrument and item of equipment must be in operable condition.

§ 91.509 Survival equipment for overwater operations.

(a) No person may take off an airplane for a flight over water more than 50 nautical miles from the nearest shore unless that airplane is equipped with a life preserver or an approved flotation means for each occupant of the airplane.

(b) Except as provided in paragraph (c) of this section, no person may take off an airplane for flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore, whichever is less, unless it has on board the following survival equipment:

(1) A life preserver, equipped with an approved survivor locator light, for each occupant of the airplane.

(2) Enough liferafts (each equipped with an approved survival locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane.

(3) At least one pyrotechnic signaling device for each liferaft.

(4) One self-buoyant, water-resistant, portable emergency radio signaling device that is capable of transmission on the appropriate emergency frequency or frequencies and not dependent upon the airplane power supply.

(5) A lifeline stored in accordance with § 25.1411(g) of this chapter.

(c) A fractional ownership program manager under subpart K of this part may apply for a deviation from paragraphs (b)(2) through (5) of this section for a particular over water operation or the Administrator may amend the management specifications to require the carriage of all or any specific items of the equipment listed in paragraphs (b)(2) through (5) of this section.

(d) The required life rafts, life preservers, and signaling devices must be installed in conspicuously marked locations and easily accessible in the event of a ditching without appreciable time for preparatory procedures.

(e) A survival kit, appropriately equipped for the route to be flown, must be attached to each required life raft.

(f) As used in this section, the term shore means that area of the land adjacent to the water that is above the high water mark and excludes land areas that are intermittently under water.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54561, Sept. 17, 2003]

§ 91.511 Communication and navigation equipment for overwater operations.

(a) Except as provided in paragraphs (c), (d), and (f) of this section, no person may take off an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has at least the following operable equipment:

(1) Radio communication equipment appropriate to the facilities to be used and able to transmit to, and receive from, at least one communication facility from any place along the route:

(i) Two transmitters.

(ii) Two microphones.

(iii) Two headsets or one headset and one speaker.

(iv) Two independent receivers.

(2) Appropriate electronic navigational equipment consisting of at least two independent electronic navigation units capable of providing the pilot with the information necessary to navigate the airplane within the airspace assigned by air traffic control. However, a receiver that can receive both communications and required navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver or unit.

(b) For the purposes of paragraphs (a)(1)(iv) and (a)(2) of this section, a receiver or electronic navigation unit is

independent if the function of any part of it does not depend on the functioning of any part of another receiver or electronic navigation unit.

(c) Notwithstanding the provisions of paragraph (a) of this section, a person may operate an airplane on which no passengers are carried from a place where repairs or replacement cannot be made to a place where they can be made, if not more than one of each of the dual items of radio communication and navigational equipment specified in paragraphs (a)(1) (i) through (iv) and (a)(2) of this section malfunctions or becomes inoperative.

(d) Notwithstanding the provisions of paragraph (a) of this section, when both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

(e) As used in this section, the term *shore* means that area of the land adjacent to the water which is above the high-water mark and excludes land areas which are intermittently under water.

(f) Notwithstanding the requirements in paragraph (a)(2) of this section, a person may operate in the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean west of a line which extends from 44°47#00# N / 67°00#00# W to 39°00#00# N / 67°00#00# W to 38°30#00# N / 60°00#00# W south along the 60°00#00# W longitude line to the point where the line intersects with the northern coast of South America, when:

(1) A single long-range navigation system is installed, operational, and appropriate for the route; and

(2) Flight conditions and the aircraft's capabilities are such that no more than a 30-minute gap in two-way radio very high frequency communications is expected to exist.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-249, 61 FR 7190, Feb. 26, 1996; Amdt. 91-296, 72 FR 31679, June 7, 2007]

§ 91.513 Emergency equipment.

(a) No person may operate an airplane unless it is equipped with the emergency equipment listed in this section.

(b) Each item of equipment -

(1) Must be inspected in accordance with § 91.409 to ensure its continued serviceability and immediate readiness for its intended purposes;

(2) Must be readily accessible to the crew;

(3) Must clearly indicate its method of operation; and

(4) When carried in a compartment or container, must have that compartment or container marked as to contents and date of last inspection.

(c) Hand fire extinguishers must be provided for use in crew, passenger, and cargo compartments in accordance with the following:

(1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used.

(2) At least one hand fire extinguisher must be provided and located on or near the flight deck in a place that is readily accessible to the flight crew.

(3) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each airplane accommodating more than six but less than 31 passengers, and at least two hand fire extinguishers must be conveniently located in the passenger compartment of each airplane accommodating more than 30 passengers.

(4) Hand fire extinguishers must be installed and secured in such a manner that they will not interfere with the safe operation of the airplane or adversely affect the safety of the crew and passengers. They must be readily accessible and, unless the locations of the fire extinguishers are obvious, their storage provisions must be properly identified.

(d) First aid kits for treatment of injuries likely to occur in flight or in minor accidents must be provided.

(e) Each airplane accommodating more than 19 passengers must be equipped with a crash axe.

(f) Each passenger-carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:

(1) One megaphone on each airplane with a seating capacity of more than 60 but less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Administrator may grant a deviation from the requirements of this subparagraph if the Administrator finds that a different location would be more useful for evacuation of persons during an emergency.

(2) On each airplane with a seating capacity of 100 or more passengers, one megaphone installed at the forward end and one installed at the most rearward location where it would be readily accessible to a normal flight attendant seat.

§ 91.515 Flight altitude rules.

(a) Notwithstanding § 91.119, and except as provided in paragraph (b) of this section, no person may operate an airplane under VFR at less than -

(1) One thousand feet above the surface, or 1,000 feet from any mountain, hill, or other obstruction to flight, for day operations; and

(2) The altitudes prescribed in § 91.177, for night operations.

(b) This section does not apply -

(1) During takeoff or landing;

(2) When a different altitude is authorized by a waiver to this section under subpart J of this part; or

(3) When a flight is conducted under the special VFR weather minimums of § 91.157 with an appropriate clearance from ATC.

§ 91.517 Passenger information.

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that are visible to passengers and flight attendants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be so constructed that the crew can turn them on and off. They must be turned on during airplane movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot in command.

(b) The pilot in command of an airplane that is not required, in accordance with applicable aircraft and equipment requirements of this chapter, to be equipped as provided in paragraph (a) of this section shall ensure that the passengers are notified orally each time that it is necessary to fasten their safety belts and when smoking is prohibited.

(c) If passenger information signs are installed, no passenger or crewmember may smoke while any “no smoking” sign is lighted nor may any passenger or crewmember smoke in any lavatory.

(d) Each passenger required by § 91.107(a)(3) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while any “fasten seat belt” sign is lighted.

(e) Each passenger shall comply with instructions given him or her by crewmembers regarding compliance with paragraphs (b), (c), and (d) of this section.

[Doc. No. 26142, 57 FR 42672, Sept. 15, 1992]

§ 91.519 Passenger briefing.

(a) Before each takeoff the pilot in command of an airplane carrying passengers shall ensure that all passengers have been orally briefed on -

(1) *Smoking.* Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement, as appropriate, that the Federal Aviation Regulations require passenger compliance with lighted passenger information signs and no smoking placards, prohibit smoking in lavatories, and require compliance with crewmember instructions with regard to these items;

(2) *Use of safety belts and shoulder harnesses.* Each passenger shall be briefed on when, where, and under what conditions it is necessary to have his or her safety belt and, if installed, his or her shoulder harness fastened about him or her. This briefing shall include a statement, as appropriate, that Federal Aviation Regulations require passenger compliance with the lighted passenger sign and/or crewmember instructions with regard to these items;

(3) Location and means for opening the passenger entry door and emergency exits;

(4) Location of survival equipment;

(5) Ditching procedures and the use of flotation equipment required under § 91.509 for a flight over water; and

(6) The normal and emergency use of oxygen equipment installed on the airplane.

(b) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a member of the crew, but need not be given when the pilot in command determines that the passengers are familiar with the contents of the briefing. It may be supplemented by printed cards for the use of each passenger containing -

(1) A diagram of, and methods of operating, the emergency exits; and

(2) Other instructions necessary for use of emergency equipment.

(c) Each card used under paragraph (b) must be carried in convenient locations on the airplane for the use of each passenger and must contain information that is pertinent only to the type and model airplane on which it is used.

(d) For operations under subpart K of this part, the passenger briefing requirements of § 91.1035 apply, instead of the requirements of paragraphs (a) through (c) of this section.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-231, 57 FR 42672, Sept. 15, 1992; Amdt. 91-280, 68 FR 54561, Sept. 17, 2003]

§ 91.521 Shoulder harness.

(a) No person may operate a transport category airplane that was type certificated after January 1, 1958, unless it is equipped at each seat at a flight deck station with a combined safety belt and shoulder harness that meets the applicable requirements specified in § 25.785 of this chapter, except that -

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used; and

(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

(b) No person may operate a transport category airplane unless it is equipped at each required flight attendant seat in the passenger compartment with a combined safety belt and shoulder harness that meets the applicable requirements specified in § 25.785 of this chapter, except that -

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used; and

(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

§ 91.523 Carry-on baggage.

No pilot in command of an airplane having a seating capacity of more than 19 passengers may permit a passenger to stow baggage aboard that airplane except -

(a) In a suitable baggage or cargo storage compartment, as provided in § 91.525; or

(b) Under a passenger seat in such a way that it will not slide forward under crash impacts severe enough to induce

the ultimate inertia forces specified in § 25.561(b)(3) of this chapter, or the requirements of the regulations under which the airplane was type certificated. Restraining devices must also limit sideward motion of under-seat baggage and be designed to withstand crash impacts severe enough to induce sideward forces specified in § 25.561(b)(3) of this chapter.

§ 91.525 Carriage of cargo.

(a) No pilot in command may permit cargo to be carried in any airplane unless -

(1) It is carried in an approved cargo rack, bin, or compartment installed in the airplane;

(2) It is secured by means approved by the Administrator; or

(3) It is carried in accordance with each of the following:

(i) It is properly secured by a safety belt or other tiedown having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.

(ii) It is packaged or covered to avoid possible injury to passengers.

(iii) It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components.

(iv) It is not located in a position that restricts the access to or use of any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment.

(v) It is not carried directly above seated passengers.

(b) When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

§ 91.527 Operating in icing conditions.

(a) No pilot may take off an airplane that has frost, ice, or snow adhering to any propeller, windshield, stabilizing or control surface; to a powerplant installation; or to an airspeed, altimeter, rate of climb, or flight attitude instrument system or wing, except that takeoffs may be made with frost under the wing in the area of the fuel tanks if authorized by the FAA.

(b) No pilot may fly under IFR into known or forecast light or moderate icing conditions, or under VFR into known light or moderate icing conditions, unless -

(1) The aircraft has functioning deicing or anti-icing equipment protecting each rotor blade, propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system;

(2) The airplane has ice protection provisions that meet section 34 of Special Federal Aviation Regulation No. 23; or

(3) The airplane meets transport category airplane type certification provisions, including the requirements for certification for flight in icing conditions.

(c) Except for an airplane that has ice protection provisions that meet the requirements in section 34 of Special Federal

Aviation Regulation No. 23, or those for transport category airplane type certification, no pilot may fly an airplane into known or forecast severe icing conditions.

(d) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing conditions that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraphs (b) and (c) of this section based on forecast conditions do not apply.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-310, 74 FR 62696, Dec. 1, 2009]

§ 91.529 Flight engineer requirements.

(a) No person may operate the following airplanes without a flight crewmember holding a current flight engineer certificate:

(1) An airplane for which a type certificate was issued before January 2, 1964, having a maximum certificated takeoff weight of more than 80,000 pounds.

(2) An airplane type certificated after January 1, 1964, for which a flight engineer is required by the type certification requirements.

(b) No person may serve as a required flight engineer on an airplane unless, within the preceding 6 calendar months, that person has had at least 50 hours of flight time as a flight engineer on that type airplane or has been checked by the Administrator on that type airplane and is found to be familiar and competent with all essential current information and operating procedures.

§ 91.531 Second in command requirements.

Link to an amendment published at 81 FR 96701, Dec. 30, 2016.

(a) Except as provided in paragraph (b) and (d) of this section, no person may operate the following airplanes without a pilot who is designated as second in command of that airplane:

(1) A large airplane, except that a person may operate an airplane certificated under SFAR 41 without a pilot who is designated as second in command if that airplane is certificated for operation with one pilot.

(2) A turbojet-powered multiengine airplane for which two pilots are required under the type certification requirements for that airplane.

(3) A commuter category airplane, except that a person may operate a commuter category airplane notwithstanding paragraph (a)(1) of this section, that has a passenger seating configuration, excluding pilot seats, of nine or less without a pilot who is designated as second in command if that airplane is type certificated for operations with one pilot.

(b) The Administrator may issue a letter of authorization for the operation of an airplane without compliance with the requirements of paragraph (a) of this section if that airplane is designed for and type certificated with only one pilot

station. The authorization contains any conditions that the Administrator finds necessary for safe operation.

(c) No person may designate a pilot to serve as second in command, nor may any pilot serve as second in command, of an airplane required under this section to have two pilots unless that pilot meets the qualifications for second in command prescribed in § 61.55 of this chapter.

(d) No person may operate an aircraft under subpart K of this part without a pilot who is designated as second in command of that aircraft in accordance with § 91.1049(d). The second in command must meet the experience requirements of § 91.1053.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54561, Sept. 17, 2003]

§ 91.533 Flight attendant requirements.

(a) No person may operate an airplane unless at least the following number of flight attendants are on board the airplane:

- (1) For airplanes having more than 19 but less than 51 passengers on board, one flight attendant.
- (2) For airplanes having more than 50 but less than 101 passengers on board, two flight attendants.
- (3) For airplanes having more than 100 passengers on board, two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passengers above 100.

(b) No person may serve as a flight attendant on an airplane when required by paragraph (a) of this section unless that person has demonstrated to the pilot in command familiarity with the necessary functions to be performed in an emergency or a situation requiring emergency evacuation and is capable of using the emergency equipment installed on that airplane.

§ 91.535 Stowage of food, beverage, and passenger service equipment during aircraft movement on the surface, takeoff, and landing.

(a) No operator may move an aircraft on the surface, take off, or land when any food, beverage, or tableware furnished by the operator is located at any passenger seat.

(b) No operator may move an aircraft on the surface, take off, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.

(c) No operator may permit an aircraft to move on the surface, take off, or land unless each passenger serving cart is secured in its stowed position.

(d) No operator may permit an aircraft to move on the surface, take off, or land unless each movie screen that extends into the aisle is stowed.

(e) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

[Doc. No. 26142, 57 FR 42672, Sept. 15, 1992]

§§ 91.536-91.599 [Reserved]

Subpart G - Additional Equipment and Operating Requirements for Large and Transport Category Aircraft

Source:

Docket No. 18334, 54 FR 34318, Aug. 18, 1989, unless otherwise noted.

§ 91.601 Applicability.

This subpart applies to operation of large and transport category U.S.-registered civil aircraft.

§ 91.603 Aural speed warning device.

No person may operate a transport category airplane in air commerce unless that airplane is equipped with an aural speed warning device that complies with § 25.1303(c)(1).

§ 91.605 Transport category civil airplane weight limitations.

(a) No person may take off any transport category airplane (other than a turbine-engine-powered airplane certificated after September 30, 1958) unless -

(1) The takeoff weight does not exceed the authorized maximum takeoff weight for the elevation of the airport of takeoff;

(2) The elevation of the airport of takeoff is within the altitude range for which maximum takeoff weights have been determined;

(3) Normal consumption of fuel and oil in flight to the airport of intended landing will leave a weight on arrival not in excess of the authorized maximum landing weight for the elevation of that airport; and

(4) The elevations of the airport of intended landing and of all specified alternate airports are within the altitude range for which the maximum landing weights have been determined.

(b) No person may operate a turbine-engine-powered transport category airplane certificated after September 30, 1958, contrary to the Airplane Flight Manual, or take off that airplane unless -

(1) The takeoff weight does not exceed the takeoff weight specified in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at the time of takeoff;

(2) Normal consumption of fuel and oil in flight to the airport of intended landing and to the alternate airports will leave a weight on arrival not in excess of the landing weight specified in the Airplane Flight Manual for the elevation of each of the airports involved and for the ambient temperatures expected at the time of landing;

(3) The takeoff weight does not exceed the weight shown in the Airplane Flight Manual to correspond with the minimum

distances required for takeoff, considering the elevation of the airport, the runway to be used, the effective runway gradient, the ambient temperature and wind component at the time of takeoff, and, if operating limitations exist for the minimum distances required for takeoff from wet runways, the runway surface condition (dry or wet). Wet runway distances associated with grooved or porous friction course runways, if provided in the Airplane Flight Manual, may be used only for runways that are grooved or treated with a porous friction course (PFC) overlay, and that the operator determines are designed, constructed, and maintained in a manner acceptable to the Administrator.

(4) Where the takeoff distance includes a clearway, the clearway distance is not greater than one-half of -

(i) The takeoff run, in the case of airplanes certificated after September 30, 1958, and before August 30, 1959; or

(ii) The runway length, in the case of airplanes certificated after August 29, 1959.

(c) No person may take off a turbine-engine-powered transport category airplane certificated after August 29, 1959, unless, in addition to the requirements of paragraph (b) of this section -

(1) The accelerate-stop distance is no greater than the length of the runway plus the length of the stopway (if present); and

(2) The takeoff distance is no greater than the length of the runway plus the length of the clearway (if present); and

(3) The takeoff run is no greater than the length of the runway.

[Doc. No. 18334, 54 FR 34318, Aug. 18, 1989, as amended by Amdt. 91-256, 63 FR 8321, Feb. 18, 1998]

§ 91.607 Emergency exits for airplanes carrying passengers for hire.

(a) Notwithstanding any other provision of this chapter, no person may operate a large airplane (type certificated under the Civil Air Regulations effective before April 9, 1957) in passenger-carrying operations for hire, with more than the number of occupants -

(1) Allowed under Civil Air Regulations § 4b.362 (a), (b), and (c) as in effect on December 20, 1951; or

(2) Approved under Special Civil Air Regulations SR-387, SR-389, SR-389A, or SR-389B, or under this section as in effect.

However, an airplane type listed in the following table may be operated with up to the listed number of occupants (including crewmembers) and the corresponding number of exits (including emergency exits and doors) approved for the emergency exit of passengers or with an occupant-exit configuration approved under paragraph (b) or (c) of this section.

| Airplane type | Maximum number of occupants including all crewmembers | Corresponding number of exits authorized for passenger use |
|---------------------|---|--|
| B-307 | 61 | 4 |
| B-377 | 96 | 9 |
| C-46 | 67 | 4 |
| CV-240 | 53 | 6 |
| CV-340 and CV-440 | 53 | 6 |
| DC-3 | 35 | 4 |
| DC-3 (Super) | 39 | 5 |
| DC-4 | 86 | 5 |
| DC-6 | 87 | 7 |
| DC-6B | 112 | 11 |
| L-18 | 17 | 3 |
| L-049, L-649, L-749 | 87 | 7 |
| L-1049 series | 96 | 9 |
| M-202 | 53 | 6 |
| M-404 | 53 | 7 |
| Viscount 700 series | 53 | 7 |

(b) Occupants in addition to those authorized under paragraph (a) of this section may be carried as follows:

(1) For each additional floor-level exit at least 24 inches wide by 48 inches high, with an unobstructed 20-inch-wide

access aisleway between the exit and the main passenger aisle, 12 additional occupants.

(2) For each additional window exit located over a wing that meets the requirements of the airworthiness standards under which the airplane was type certificated or that is large enough to inscribe an ellipse 19 × 26 inches, eight additional occupants.

(3) For each additional window exit that is not located over a wing but that otherwise complies with paragraph (b)(2) of this section, five additional occupants.

(4) For each airplane having a ratio (as computed from the table in paragraph (a) of this section) of maximum number of occupants to number of exits greater than 14:1, and for each airplane that does not have at least one full-size, door-type exit in the side of the fuselage in the rear part of the cabin, the first additional exit must be a floor-level exit that complies with paragraph (b)(1) of this section and must be located in the rear part of the cabin on the opposite side of the fuselage from the main entrance door. However, no person may operate an airplane under this section carrying more than 115 occupants unless there is such an exit on each side of the fuselage in the rear part of the cabin.

(c) No person may eliminate any approved exit except in accordance with the following:

(1) The previously authorized maximum number of occupants must be reduced by the same number of additional occupants authorized for that exit under this section.

(2) Exits must be eliminated in accordance with the following priority schedule: First, non-over-wing window exits; second, over-wing window exits; third, floor-level exits located in the forward part of the cabin; and fourth, floor-level exits located in the rear of the cabin.

(3) At least one exit must be retained on each side of the fuselage regardless of the number of occupants.

(4) No person may remove any exit that would result in a ratio of maximum number of occupants to approved exits greater than 14:1.

(d) This section does not relieve any person operating under part 121 of this chapter from complying with § 121.291.

§ 91.609 Flight data recorders and cockpit voice recorders.

(a) No holder of an air carrier operating certificate or an operating certificate may conduct any operation under this part with an aircraft listed in the holder's operations specifications or current list of aircraft used in air transportation unless that aircraft complies with any applicable flight recorder and cockpit voice recorder requirements of the part under which its certificate is issued except that the operator may -

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned, if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft; or

(4) Ferry a newly acquired aircraft from the place where possession of it is taken to a place where the flight recorder or cockpit voice recorder is to be installed.

(b) Notwithstanding paragraphs (c) and (e) of this section, an operator other than the holder of an air carrier or a commercial operator certificate may -

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft;

(4) Ferry a newly acquired aircraft from a place where possession of it was taken to a place where the flight recorder or cockpit voice recorder is to be installed; or

(5) Operate an aircraft:

(i) For not more than 15 days while the flight recorder and/or cockpit voice recorder is inoperative and/or removed for repair provided that the aircraft maintenance records contain an entry that indicates the date of failure, and a placard is located in view of the pilot to show that the flight recorder or cockpit voice recorder is inoperative.

(ii) For not more than an additional 15 days, provided that the requirements in paragraph (b)(5)(i) are met and that a certificated pilot, or a certificated person authorized to return an aircraft to service under § 43.7 of this chapter, certifies in the aircraft maintenance records that additional time is required to complete repairs or obtain a replacement unit.

(c)(1) No person may operate a U.S. civil registered, multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration, excluding any pilot seats of 10 or more that has been manufactured after October 11, 1991, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium, that are capable of recording the data specified in appendix E to this part, for an airplane, or appendix F to this part, for a rotorcraft, of this part within the range, accuracy, and recording interval specified, and that are capable of retaining no less than 8 hours of aircraft operation.

(2) All airplanes subject to paragraph (c)(1) of this section that are manufactured before April 7, 2010, by April 7, 2012,

must meet the requirements of § 23.1459(a)(7) or § 25.1459(a)(8) of this chapter, as applicable.

(3) All airplanes and rotorcraft subject to paragraph (c)(1) of this section that are manufactured on or after April 7, 2010, must meet the flight data recorder requirements of § 23.1459, § 25.1459, § 27.1459, or § 29.1459 of this chapter, as applicable, and retain at least the last 25 hours of recorded information using a recorder that meets the standards of TSO-C124a, or later revision.

(d) Whenever a flight recorder, required by this section, is installed, it must be operated continuously from the instant the airplane begins the takeoff roll or the rotorcraft begins lift-off until the airplane has completed the landing roll or the rotorcraft has landed at its destination.

(e) Unless otherwise authorized by the Administrator, after October 11, 1991, no person may operate a U.S. civil registered multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration of six passengers or more and for which two pilots are required by type certification or operating rule unless it is equipped with an approved cockpit voice recorder that:

(1) Is installed in compliance with § 23.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g); § 25.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g); § 27.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g); or § 29.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g) of this chapter, as applicable; and

(2) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(f) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that at any time during the operation of the recorder, information recorded more than 15 minutes earlier may be erased or otherwise obliterated.

(g) In the event of an accident or occurrence requiring immediate notification to the National Transportation Safety Board under part 830 of its regulations that results in the termination of the flight, any operator who has installed approved flight recorders and approved cockpit voice recorders shall keep the recorded information for at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with the investigation under part 830. The Administrator does not use the cockpit voice recorder record in any civil penalty or certificate action.

(h) All airplanes required by this section to have a cockpit voice recorder and a flight data recorder, that are manufactured before April 7, 2010, must by April 7, 2012, have a cockpit voice recorder that also -

(1) Meets the requirements of § 23.1457(d)(6) or § 25.1457(d)(6) of this chapter, as applicable; and

(2) If transport category, meets the requirements of § 25.1457(a)(3), (a)(4), and (a)(5) of this chapter.

(i) All airplanes or rotorcraft required by this section to have a cockpit voice recorder and flight data recorder, that are manufactured on or after April 7, 2010, must have a cockpit voice recorder installed that also -

(1) Is installed in accordance with the requirements of § 23.1457 (except for paragraphs (a)(6) and (d)(5)); § 25.1457 (except for paragraphs (a)(6) and (d)(5)); § 27.1457 (except for paragraphs (a)(6) and (d)(5)); or § 29.1457 (except for paragraphs (a)(6) and (d)(5)) of this chapter, as applicable; and

(2) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision.

(3) For all airplanes or rotorcraft manufactured on or after April 6, 2012, also meets the requirements of § 23.1457(a)(6) and (d)(5); § 25.1457(a)(6) and (d)(5); § 27.1457(a)(6) and (d)(5); or § 29.1457(a)(6) and (d)(5) of this chapter, as applicable.

(j) All airplanes or rotorcraft required by this section to have a cockpit voice recorder and a flight data recorder, that install datalink communication equipment on or after April 6, 2012, must record all datalink messages as required by the certification rule applicable to the aircraft.

(k) An aircraft operated under this part under deviation authority from part 125 of this chapter must comply with all of the applicable flight data recorder requirements of part 125 applicable to the aircraft, notwithstanding such deviation authority.

[Doc. No. 18334, 54 FR 34318, Aug. 18, 1989, as amended by Amdt. 91-226, 56 FR 51621, Oct. 11, 1991; Amdt. 91-228, 57 FR 19353, May 5, 1992; Amdt. 91-300, 73 FR 12564, Mar. 7, 2008; Amdt. 91-304, 73 FR 73178, Dec. 2, 2008; Amdt. 91-300, 74 FR 32800, July 9, 2009; Amdt. 91-313, 75 FR 17045, Apr. 5, 2010]

§ 91.611 Authorization for ferry flight with one engine inoperative.

(a) *General.* The holder of an air carrier operating certificate or an operating certificate issued under part 125 may conduct a ferry flight of a four-engine airplane or a turbine-engine-powered airplane equipped with three engines, with one engine inoperative, to a base for the purpose of repairing that engine subject to the following:

(1) The airplane model has been test flown and found satisfactory for safe flight in accordance with paragraph (b) or (c) of this section, as appropriate. However, each operator who before November 19, 1966, has shown that a model of airplane with an engine inoperative is satisfactory for safe flight by a test flight conducted in accordance with performance data contained in the applicable Airplane Flight Manual under paragraph (a)(2) of this section need not repeat the test flight for that model.

(2) The approved Airplane Flight Manual contains the following performance data and the flight is conducted in accordance with that data:

(i) Maximum weight.

(ii) Center of gravity limits.

(iii) Configuration of the inoperative propeller (if applicable).

(iv) Runway length for takeoff (including temperature accountability).

(v) Altitude range.

(vi) Certificate limitations.

(vii) Ranges of operational limits.

(viii) Performance information.

(ix) Operating procedures.

(3) The operator has FAA approved procedures for the safe operation of the airplane, including specific requirements for -

(i) Limiting the operating weight on any ferry flight to the minimum necessary for the flight plus the necessary reserve fuel load;

(ii) A limitation that takeoffs must be made from dry runways unless, based on a showing of actual operating takeoff techniques on wet runways with one engine inoperative, takeoffs with full controllability from wet runways have been approved for the specific model aircraft and included in the Airplane Flight Manual;

(iii) Operations from airports where the runways may require a takeoff or approach over populated areas; and

(iv) Inspection procedures for determining the operating condition of the operative engines.

(4) No person may take off an airplane under this section if -

(i) The initial climb is over thickly populated areas; or

(ii) Weather conditions at the takeoff or destination airport are less than those required for VFR flight.

(5) Persons other than required flight crewmembers shall not be carried during the flight.

(6) No person may use a flight crewmember for flight under this section unless that crewmember is thoroughly familiar with the operating procedures for one-engine inoperative ferry flight contained in the certificate holder's manual and the limitations and performance information in the Airplane Flight Manual.

(b) *Flight tests: reciprocating-engine-powered airplanes.* The airplane performance of a reciprocating-engine-powered airplane with one engine inoperative must be determined by flight test as follows:

(1) A speed not less than $1.3 V_{S1}$ must be chosen at which the airplane may be controlled satisfactorily in a climb with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator and with all other engines operating at the maximum power determined in paragraph (b)(3) of this section.

(2) The distance required to accelerate to the speed listed in paragraph (b)(1) of this section and to climb to 50 feet must be determined with -

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator; and

(iii) The other engines operating at not more than maximum power established under paragraph (b)(3) of this section.

(3) The takeoff, flight and landing procedures, such as the approximate trim settings, method of power application, maximum power, and speed must be established.

(4) The performance must be determined at a maximum weight not greater than the weight that allows a rate of climb of at least 400 feet per minute in the en route configuration set forth in § 25.67(d) of this chapter in effect on January 31, 1977, at an altitude of 5,000 feet.

(5) The performance must be determined using temperature accountability for the takeoff field length, computed in accordance with § 25.61 of this chapter in effect on January 31, 1977.

(c) *Flight tests: Turbine-engine-powered airplanes.* The airplane performance of a turbine-engine-powered airplane with one engine inoperative must be determined by flight tests, including at least three takeoff tests, in accordance with the following:

(1) Takeoff speeds V_R and V_2 , not less than the corresponding speeds under which the airplane was type certificated under § 25.107 of this chapter, must be chosen at which the airplane may be controlled satisfactorily with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator, if applicable) and with all other engines operating at not more than the power selected for type certification as set forth in § 25.101 of this chapter.

(2) The minimum takeoff field length must be the horizontal distance required to accelerate and climb to the 35-foot height at V_2 speed (including any additional speed increment obtained in the tests) multiplied by 115 percent and determined with -

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator (if applicable); and

(iii) The other engine operating at not more than the power selected for type certification as set forth in § 25.101 of this chapter.

(3) The takeoff, flight, and landing procedures such as the approximate trim setting, method of power application, maximum power, and speed must be established. The airplane must be satisfactorily controllable during the entire takeoff run when operated according to these procedures.

(4) The performance must be determined at a maximum weight not greater than the weight determined under § 25.121(c) of this chapter but with -

(i) The actual steady gradient of the final takeoff climb requirement not less than 1.2 percent at the end of the takeoff path with two critical engines inoperative; and

(ii) The climb speed not less than the two-engine inoperative trim speed for the actual steady gradient of the final takeoff climb prescribed by paragraph (c)(4)(i) of this section.

(5) The airplane must be satisfactorily controllable in a climb with two critical engines inoperative. Climb performance may be shown by calculations based on, and equal in accuracy to, the results of testing.

(6) The performance must be determined using temperature accountability for takeoff distance and final takeoff climb computed in accordance with § 25.101 of this chapter.

For the purpose of paragraphs (c)(4) and (5) of this section, *two critical engines* means two adjacent engines on one side of an airplane with four engines, and the center engine and one outboard engine on an airplane with three engines.

§ 91.613 Materials for compartment interiors.

(a) No person may operate an airplane that conforms to an amended or supplemental type certificate issued in accordance with SFAR No. 41 for a maximum certificated takeoff weight in excess of 12,500 pounds unless within 1 year after issuance of the initial airworthiness certificate under that SFAR the airplane meets the compartment interior requirements set forth in § 25.853 (a), (b), (b-1), (b-2), and (b-3) of this chapter in effect on September 26, 1978.

(b) Thermal/acoustic insulation materials. For transport category airplanes type certificated after January 1, 1958:

(1) For airplanes manufactured before September 2, 2005, when thermal/acoustic insulation is installed in the fuselage as replacements after September 2, 2005, the insulation must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003, if it is:

- (i) Of a blanket construction or
- (ii) Installed around air ducting.

(2) For airplanes manufactured after September 2, 2005, thermal/acoustic insulation materials installed in the fuselage must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003.

[Doc. No. 18334, 54 FR 34318, Aug. 18, 1989, as amended by Amdt. 91-279, 68 FR 45083, July 31, 2003; Amdt. 91-290, 70 FR 77752, Dec. 30, 2005]

§§ 91.615-91.699 [Reserved]

Subpart H - Foreign Aircraft Operations and Operations of U.S.-Registered Civil Aircraft Outside of the United States; and Rules Governing Persons on Board Such Aircraft

Source:

Docket No. 18334, 54 FR 34320, Aug. 18, 1989, unless otherwise noted.

§ 91.701 Applicability.

(a) This subpart applies to the operations of civil aircraft of U.S. registry outside of the United States and the operations of foreign civil aircraft within the United States.

(b) Section 91.702 of this subpart also applies to each person on board an aircraft operated as follows:

(1) A U.S. registered civil aircraft operated outside the United States;

(2) Any aircraft operated outside the United States -

(i) That has its next scheduled destination or last place of departure in the United States if the aircraft next lands in the United States; or

(ii) If the aircraft lands in the United States with the individual still on the aircraft regardless of whether it was a scheduled or otherwise planned landing site.

[Doc. No. FAA-1998-4954, 64 FR 1079, Jan. 7, 1999]

§ 91.702 Persons on board.

Section 91.11 of this part (Prohibitions on interference with crewmembers) applies to each person on board an aircraft.

[Doc. No. FAA-1998-4954, 64 FR 1079, Jan. 7, 1999]

§ 91.703 Operations of civil aircraft of U.S. registry outside of the United States.

(a) Each person operating a civil aircraft of U.S. registry outside of the United States shall -

(1) When over the high seas, comply with annex 2 (Rules of the Air) to the Convention on International Civil Aviation and with §§ 91.117(c), 91.127, 91.129, and 91.131;

(2) When within a foreign country, comply with the regulations relating to the flight and maneuver of aircraft there in force;

(3) Except for §§ 91.117(a), 91.307(b), 91.309, 91.323, and 91.711, comply with this part so far as it is not inconsistent with applicable regulations of the foreign country where the aircraft is operated or annex 2 of the Convention on International Civil Aviation; and

(4) When operating within airspace designated as Minimum Navigation Performance Specifications (MNPS) airspace, comply with § 91.705. When operating within airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace, comply with § 91.706.

(5) For aircraft subject to ICAO Annex 16, carry on board the aircraft documents that summarize the noise operating characteristics and certifications of the aircraft that demonstrate compliance with this part and part 36 of this chapter.

(b) Annex 2 to the Convention on International Civil Aviation, Ninth Edition - July 1990, with Amendments through Amendment 32 effective February 19, 1996, to which reference is made in this part, is incorporated into this part and made a part hereof as provided in 5 U.S.C. § 552 and pursuant to 1 CFR part 51. Annex 2 (including a complete historic file of changes thereto) is available for public inspection at the Rules Docket, AGC-200, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030,

or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. In addition, Annex 2 may be purchased from the International Civil Aviation Organization (Attention: Distribution Officer), P.O. Box 400, Succursale, Place de L'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2.

[Doc. No. 18834, 54 FR 34320, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991; Amdt. 91-254, 62 FR 17487, Apr. 9, 1997; 69 FR 18803, Apr. 9, 2004; Amdt. 91-299, 73 FR 10143, Feb. 26, 2008; Amdt. 91-312, 75 FR 9333, Mar. 2, 2010]

§ 91.705 Operations within airspace designated as Minimum Navigation Performance Specification Airspace.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft of U.S. registry in airspace designated as Minimum Navigation Performance Specifications airspace unless -

(1) The aircraft has approved navigation performance capability that complies with the requirements of appendix C of this part; and

(2) The operator is authorized by the Administrator to perform such operations.

(b) The Administrator may authorize a deviation from the requirements of this section in accordance with Section 3 of appendix C to this part.

[Doc. No. 28870, 62 FR 17487, Apr. 9, 1997]

§ 91.706 Operations within airspace designed as Reduced Vertical Separation Minimum Airspace.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft of U.S. registry in airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace unless:

(1) The operator and the operator's aircraft comply with the requirements of appendix G of this part; and

(2) The operator is authorized by the Administrator to conduct such operations.

(b) The Administrator may authorize a deviation from the requirements of this section in accordance with Section 5 of appendix G to this part.

[Doc. No. 28870, 62 FR 17487, Apr. 9, 1997]

§ 91.707 Flights between Mexico or Canada and the United States.

Unless otherwise authorized by ATC, no person may operate a civil aircraft between Mexico or Canada and the United States without filing an IFR or VFR flight plan, as appropriate.

§ 91.709 Operations to Cuba.

No person may operate a civil aircraft from the United States to Cuba unless -

(a) Departure is from an international airport of entry designated in § 6.13 of the Air Commerce Regulations of the Bureau of Customs (19 CFR 6.13); and

(b) In the case of departure from any of the 48 contiguous States or the District of Columbia, the pilot in command of the aircraft has filed -

(1) A DVFR or IFR flight plan as prescribed in § 99.11 or § 99.13 of this chapter; and

(2) A written statement, within 1 hour before departure, with the Office of Immigration and Naturalization Service at the airport of departure, containing -

(i) All information in the flight plan;

(ii) The name of each occupant of the aircraft;

(iii) The number of occupants of the aircraft; and

(iv) A description of the cargo, if any.

This section does not apply to the operation of aircraft by a scheduled air carrier over routes authorized in operations specifications issued by the Administrator.

(Approved by the Office of Management and Budget under control number 2120-0005)

§ 91.711 Special rules for foreign civil aircraft.

(a) *General.* In addition to the other applicable regulations of this part, each person operating a foreign civil aircraft within the United States shall comply with this section.

(b) *VFR.* No person may conduct VFR operations which require two-way radio communications under this part unless at least one crewmember of that aircraft is able to conduct two-way radio communications in the English language and is on duty during that operation.

(c) *IFR.* No person may operate a foreign civil aircraft under IFR unless -

(1) That aircraft is equipped with -

(i) Radio equipment allowing two-way radio communication with ATC when it is operated in controlled airspace; and

(ii) Navigation equipment suitable for the route to be flown.

(2) Each person piloting the aircraft -

(i) Holds a current United States instrument rating or is authorized by his foreign airman certificate to pilot under IFR; and

(ii) Is thoroughly familiar with the United States en route, holding, and letdown procedures; and

(3) At least one crewmember of that aircraft is able to conduct two-way radiotelephone communications in the English language and that crewmember is on duty while the aircraft is approaching, operating within, or leaving the United States.

(d) *Over water.* Each person operating a foreign civil aircraft over water off the shores of the United States shall give flight notification or file a flight plan in accordance with the Supplementary Procedures for the ICAO region concerned.

(e) *Flight at and above FL 240.* If VOR navigation equipment is required under paragraph (c)(1)(ii) of this section, no person may operate a foreign civil aircraft within the 50 States and the District of Columbia at or above FL 240, unless the aircraft is equipped with approved DME or a suitable RNAV system. When the DME or RNAV system required by this paragraph fails at and above FL 240, the pilot in command of the aircraft must notify ATC immediately and may then continue operations at and above FL 240 to the next airport of intended landing where repairs or replacement of the equipment can be made. A foreign civil aircraft may be operated within the 50 States and the District of Columbia at or above FL 240 without DME or an RNAV system when operated for the following purposes, and ATC is notified before each takeoff:

(1) Ferry flights to and from a place in the United States where repairs or alterations are to be made.

(2) Ferry flights to a new country of registry.

(3) Flight of a new aircraft of U.S. manufacture for the purpose of -

(i) Flight testing the aircraft;

(ii) Training foreign flight crews in the operation of the aircraft; or

(iii) Ferrying the aircraft for export delivery outside the United States.

(4) Ferry, demonstration, and test flight of an aircraft brought to the United States for the purpose of demonstration or testing the whole or any part thereof.

[Doc. No. 18834, 54 FR 34320, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991; Amdt. 91-296, 72 FR 31679, June 7, 2007]

§ 91.713 Operation of civil aircraft of Cuban registry.

No person may operate a civil aircraft of Cuban registry except in controlled airspace and in accordance with air traffic clearance or air traffic control instructions that may require use of specific airways or routes and landings at specific airports.

§ 91.715 Special flight authorizations for foreign civil aircraft.

(a) Foreign civil aircraft may be operated without airworthiness certificates required under § 91.203 if a special flight authorization for that operation is issued under this section. Application for a special flight authorization must be made to the Flight Standards Division Manager or Aircraft Certification Directorate Manager of the FAA region in which the applicant is located or to the region within which the U.S. point of entry is located. However, in the case of an aircraft to be operated in the U.S. for the purpose of demonstration at an airshow, the application may be made to the Flight Standards Division Manager or Aircraft Certification Directorate Manager of the FAA region in which the airshow is located.

(b) The Administrator may issue a special flight authorization for a foreign civil aircraft subject to any conditions and limitations that the Administrator considers necessary for safe operation in the U.S. airspace.

(c) No person may operate a foreign civil aircraft under a special flight authorization unless that operation also complies with part 375 of the Special Regulations of the Department of Transportation (14 CFR part 375).

(Approved by the Office of Management and Budget under control number 2120-0005)

[Doc. No. 18334, 54 FR 34320, Aug. 18, 1989, as amended by Amdt. 91-212, 54 FR 39293, Sept. 25, 1989]

§§ 91.717-91.799 [Reserved]

Subpart I - Operating Noise Limits

Source:

Docket No. 18334, 54 FR 34321, Aug. 18, 1989, unless otherwise noted.

§ 91.801 Applicability: Relation to part 36.

(a) This subpart prescribes operating noise limits and related requirements that apply, as follows, to the operation of civil aircraft in the United States.

(1) Sections 91.803, 91.805, 91.807, 91.809, and 91.811 apply to civil subsonic jet (turbojet) airplanes with maximum weights of more than 75,000 pounds and -

(i) If U.S. registered, that have standard airworthiness certificates; or

(ii) If foreign registered, that would be required by this chapter to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane were it registered in the United States. Those sections apply to operations to or from airports in the United States under this part and parts 121, 125, 129, and 135 of this chapter.

(2) Section 91.813 applies to U.S. operators of civil subsonic jet (turbojet) airplanes covered by this subpart. This section applies to operators operating to or from airports in the United States under this part and parts 121, 125, and 135, but not to those operating under part 129 of this chapter.

(3) Sections 91.803, 91.819, and 91.821 apply to U.S.-registered civil supersonic airplanes having standard airworthiness certificates and to foreign-registered civil supersonic airplanes that, if registered in the United States, would be required by this chapter to have U.S. standard airworthiness certificates in order to conduct the operations intended for the airplane. Those sections apply to operations under this part and under parts 121, 125, 129, and 135 of this chapter.

(b) Unless otherwise specified, as used in this subpart “part 36” refers to 14 CFR part 36, including the noise levels under appendix C of that part, notwithstanding the provisions of

that part excepting certain airplanes from the specified noise requirements. For purposes of this subpart, the various stages of noise levels, the terms used to describe airplanes with respect to those levels, and the terms “subsonic airplane” and “supersonic airplane” have the meanings specified under part 36 of this chapter. For purposes of this subpart, for subsonic airplanes operated in foreign air commerce in the United States, the Administrator may accept compliance with the noise requirements under annex 16 of the International Civil Aviation Organization when those requirements have been shown to be substantially compatible with, and achieve results equivalent to those achievable under, part 36 for that airplane. Determinations made under these provisions are subject to the limitations of § 36.5 of this chapter as if those noise levels were part 36 noise levels.

(c) Sections 91.851 through 91.877 of this subpart prescribe operating noise limits and related requirements that apply to any civil subsonic jet (turbojet) airplane (for which an airworthiness certificate other than an experimental certificate has been issued by the Administrator) with a maximum certificated takeoff weight of more than 75,000 pounds operating to or from an airport in the 48 contiguous United States and the District of Columbia under this part, parts 121, 125, 129, or 135 of this chapter on and after September 25, 1991.

(d) Section 91.877 prescribes reporting requirements that apply to any civil subsonic jet (turbojet) airplane with a maximum weight of more than 75,000 pounds operated by an air carrier or foreign air carrier between the contiguous United States and the State of Hawaii, between the State of Hawaii and any point outside of the 48 contiguous United States, or between the islands of Hawaii in turnaround service, under part 121 or 129 of this chapter on or after November 5, 1990.

(e) Sections 91.881 through 91.883 of this subpart prescribe operating noise limits and related requirements that apply to any civil subsonic jet airplane with a maximum takeoff weight of 75,000 pounds or less and for which an airworthiness certificate (other than an experimental certificate) has been issued, operating to or from an airport in the contiguous United States under this part, part 121, 125, 129, or 135 of this chapter on and after December 31, 2015.

[Doc. No. 18334, 54 FR 34321, Aug. 18, 1989; Amdt. 91-211, 54 FR 41211, Oct. 5, 1989, as amended by Amdt. 91-225, 56 FR 48658, Sept. 25, 1991; Amdt. 91-252, 61 FR 66185, Dec. 16, 1996; Amdt. 91-275, 67 FR 45237, July 8, 2002; Amdt. 91-276, 67 FR 46571, July 15, 2002; Amdt. 91-328, 78 FR 39583, July 2, 2013]

§ 91.803 Part 125 operators: Designation of applicable regulations.

For airplanes covered by this subpart and operated under part 125 of this chapter, the following regulations apply as specified:

(a) For each airplane operation to which requirements prescribed under this subpart applied before November 29, 1980, those requirements of this subpart continue to apply.

(b) For each subsonic airplane operation to which requirements prescribed under this subpart did not apply before November 29, 1980, because the airplane was not operated in the United States under this part or part 121, 129, or 135 of this chapter, the requirements prescribed under § 91.805 of this subpart apply.

(c) For each supersonic airplane operation to which requirements prescribed under this subpart did not apply before November 29, 1980, because the airplane was not operated in the United States under this part or part 121, 129, or 135 of this chapter, the requirements of §§ 91.819 and 91.821 of this subpart apply.

(d) For each airplane required to operate under part 125 for which a deviation under that part is approved to operate, in whole or in part, under this part or part 121, 129, or 135 of this chapter, notwithstanding the approval, the requirements prescribed under paragraphs (a), (b), and (c) of this section continue to apply.

[Doc. No. 18334, 54 FR 34321, Aug. 18, 1989, as amended by Amdt. 91-276, 67 FR 46571, July 15, 2002]

§ 91.805 Final compliance: Subsonic airplanes.

Except as provided in §§ 91.809 and 91.811, on and after January 1, 1985, no person may operate to or from an airport in the United States any subsonic airplane covered by this subpart unless that airplane has been shown to comply with Stage 2 or Stage 3 noise levels under part 36 of this chapter.

§§ 91.807-91.813 [Reserved]

§ 91.815 Agricultural and fire fighting airplanes: Noise operating limitations.

(a) This section applies to propeller-driven, small airplanes having standard airworthiness certificates that are designed for “agricultural aircraft operations” (as defined in § 137.3 of this chapter, as effective on January 1, 1966) or for dispensing fire fighting materials.

(b) If the Airplane Flight Manual, or other approved manual material information, markings, or placards for the airplane indicate that the airplane has not been shown to comply with the noise limits under part 36 of this chapter, no person may operate that airplane, except -

(1) To the extent necessary to accomplish the work activity directly associated with the purpose for which it is designed;

(2) To provide flight crewmember training in the special purpose operation for which the airplane is designed; and

(3) To conduct “nondispensing aerial work operations” in accordance with the requirements under § 137.29(c) of this chapter.

§ 91.817 Civil aircraft sonic boom.

(a) No person may operate a civil aircraft in the United States at a true flight Mach number greater than 1 except in compliance with conditions and limitations in an authorization to exceed Mach 1 issued to the operator under appendix B of this part.

(b) In addition, no person may operate a civil aircraft for which the maximum operating limit speed M_{MO} exceeds a Mach number of 1, to or from an airport in the United States, unless -

(1) Information available to the flight crew includes flight limitations that ensure that flights entering or leaving the United States will not cause a sonic boom to reach the surface within the United States; and

(2) The operator complies with the flight limitations prescribed in paragraph (b)(1) of this section or complies with conditions and limitations in an authorization to exceed Mach 1 issued under appendix B of this part.

(Approved by the Office of Management and Budget under control number 2120-0005)

§ 91.819 Civil supersonic airplanes that do not comply with part 36.

(a) *Applicability.* This section applies to civil supersonic airplanes that have not been shown to comply with the Stage 2 noise limits of part 36 in effect on October 13, 1977, using applicable trade-off provisions, and that are operated in the United States, after July 31, 1978.

(b) *Airport use.* Except in an emergency, the following apply to each person who operates a civil supersonic airplane to or from an airport in the United States:

(1) Regardless of whether a type design change approval is applied for under part 21 of this chapter, no person may land or take off an airplane covered by this section for which the type design is changed, after July 31, 1978, in a manner constituting an “acoustical change” under § 21.93 unless the acoustical change requirements of part 36 are complied with.

(2) No flight may be scheduled, or otherwise planned, for takeoff or landing after 10 p.m. and before 7 a.m. local time.

§ 91.821 Civil supersonic airplanes: Noise limits.

Except for Concorde airplanes having flight time before January 1, 1980, no person may operate in the United States, a civil supersonic airplane that does not comply with Stage 2 noise limits of part 36 in effect on October 13, 1977, using applicable trade-off provisions.

§§ 91.823-91.849 [Reserved]**§ 91.851 Definitions.**

For the purposes of §§ 91.851 through 91.877 of this subpart:

Chapter 4 noise level means a noise level at or below the maximum noise level prescribed in Chapter 4, Paragraph 4.4, Maximum Noise Levels, of the International Civil Aviation Organization (ICAO) Annex 16, Volume I, Amendment 7, effective March 21, 2002. The Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51 approved the incorporation by reference of this document, which can be obtained from the International Civil Aviation Organization (ICAO), Document Sales Unit, 999 University Street, Montreal, Quebec H3C 5H7, Canada. Also, you may obtain documents on the Internet at <http://www.ICAO.int/eshop/index.cfm>. Copies may be reviewed at the U.S. Department of Transportation, Docket Operations, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Contiguous United States means the area encompassed by the 48 contiguous United States and the District of Columbia.

Fleet means those civil subsonic jet (turbojet) airplanes with a maximum certificated weight of more than 75,000 pounds that are listed on an operator's operations specifications as eligible for operation in the contiguous United States.

Import means a change in ownership of an airplane from a non-U.S. person to a U.S. person when the airplane is brought into the United States for operation.

Operations specifications means an enumeration of airplanes by type, model, series, and serial number operated by the operator or foreign air carrier on a given day, regardless of how or whether such airplanes are formally listed or designated by the operator.

Owner means any person that has indicia of ownership sufficient to register the airplane in the United States pursuant to part 47 of this chapter.

New entrant means an air carrier or foreign air carrier that, on or before November 5, 1990, did not conduct operations under part 121 or 129 of this chapter using an airplane covered by this subpart to or from any airport in the contiguous United States, but that initiates such operation after that date.

Stage 2 noise levels mean the requirements for Stage 2 noise levels as defined in part 36 of this chapter in effect on November 5, 1990.

Stage 3 noise levels mean the requirements for Stage 3 noise levels as defined in part 36 of this chapter in effect on November 5, 1990.

Stage 4 noise level means a noise level at or below the Stage 4 noise limit prescribed in part 36 of this chapter.

Stage 2 airplane means a civil subsonic jet (turbojet) airplane with a maximum certificated weight of 75,000 pounds or more that complies with Stage 2 noise levels as defined in part 36 of this chapter.

Stage 3 airplane means a civil subsonic jet (turbojet) airplane with a maximum certificated weight of 75,000 pounds or more that complies with Stage 3 noise levels as defined in part 36 of this chapter.

Stage 4 airplane means an airplane that has been shown not to exceed the Stage 4 noise limit prescribed in part 36 of this chapter. A Stage 4 airplane complies with all of the noise operating rules of this part.

[Doc. No. 26433, 56 FR 48658, Sept. 25, 1991, as amended by Amdt. 91-252, 61 FR 66185, Dec. 16, 1996; Amdt. 91-275, 67 FR 45237, July 8, 2002; Amdt. 91-288, 70 FR 38749, July 5, 2005; 72 FR 68475, Dec. 5, 2007]

§ 91.853 Final compliance: Civil subsonic airplanes.

Except as provided in § 91.873, after December 31, 1999, no person shall operate to or from any airport in the contiguous United States any airplane subject to § 91.801(c) of this subpart, unless that airplane has been shown to comply with Stage 3 or Stage 4 noise levels.

[Doc. No. FAA-2003-16526, 70 FR 38749, July 5, 2005]

§ 91.855 Entry and nonaddition rule.

No person may operate any airplane subject to § 91.801(c) of this subpart to or from an airport in the contiguous United States unless one or more of the following apply:

(a) The airplane complies with Stage 3 or Stage 4 noise levels.

(b) The airplane complies with Stage 2 noise levels and was owned by a U.S. person on and since November 5, 1990. Stage 2 airplanes that meet these criteria and are leased to foreign airlines are also subject to the return provisions of paragraph (e) of this section.

(c) The airplane complies with Stage 2 noise levels, is owned by a non-U.S. person, and is the subject of a binding lease to a U.S. person effective before and on September 25, 1991. Any such airplane may be operated for the term of the lease in effect on that date, and any extensions thereof provided for in that lease.

(d) The airplane complies with Stage 2 noise levels and is operated by a foreign air carrier.

(e) The airplane complies with Stage 2 noise levels and is operated by a foreign operator other than for the purpose of foreign air commerce.

(f) The airplane complies with Stage 2 noise levels and -

(1) On November 5, 1990, was owned by:

(i) A corporation, trust, or partnership organized under the laws of the United States or any State (including individual States, territories, possessions, and the District of Columbia);

(ii) An individual who is a citizen of the United States; or

(iii) An entity owned or controlled by a corporation, trust, partnership, or individual described in paragraph (f)(1) (i) or (ii) of this section; and

(2) Enters into the United States not later than 6 months after the expiration of a lease agreement (including any

extensions thereof) between an owner described in paragraph (f)(1) of this section and a foreign airline.

(g) The airplane complies with Stage 2 noise levels and was purchased by the importer under a written contract executed before November 5, 1990.

(h) Any Stage 2 airplane described in this section is eligible for operation in the contiguous United States only as provided under § 91.865 or 91.867.

[Doc. No. 26433, 56 FR 48658, Sept. 25, 1991; 56 FR 51167, Oct. 10, 1991, as amended by Amdt. 91-288, 70 FR 38750, July 5, 2005]

§ 91.857 Stage 2 operations outside of the 48 contiguous United States.

An operator of a Stage 2 airplane that is operating only between points outside the contiguous United States on or after November 5, 1990, must include in its operations specifications a statement that such airplane may not be used to provide air transportation to or from any airport in the contiguous United States.

[Doc. No. FAA-2002-12771, 67 FR 46571, July 15, 2002]

§ 91.858 Special flight authorizations for non-revenue Stage 2 operations.

(a) After December 31, 1999, any operator of a Stage 2 airplane over 75,000 pounds may operate that airplane in nonrevenue service in the contiguous United States only for the following purposes:

(1) Sell, lease, or scrap the airplane;

(2) Obtain modifications to meet Stage 3 noise levels;

(3) Obtain scheduled heavy maintenance or significant modifications;

(4) Deliver the airplane to a lessee or return it to a lessor;

(5) Park or store the airplane; and

(6) Prepare the airplane for any of the purposes listed in paragraph (a)(1) thru (a)(5) of this section.

(b) An operator of a Stage 2 airplane that needs to operate in the contiguous United States for any of the purposes listed above may apply to FAA's Office of Environment and Energy for a special flight authorization. The applicant must file in advance. Applications are due 30 days in advance of the planned flight and must provide the information necessary for the FAA to determine that the planned flight is within the limits prescribed in the law.

[Doc. No. FAA-2002-12771, 67 FR 46571, July 15, 2002]

§ 91.859 Modification to meet Stage 3 or Stage 4 noise levels.

For an airplane subject to § 91.801(c) of this subpart and otherwise prohibited from operation to or from an airport in the contiguous United States by § 91.855, any person may apply for a special flight authorization for that airplane to operate in the contiguous United States for the purpose of obtaining modifications to meet Stage 3 or Stage 4 noise levels.

[Doc. No. FAA-2003-16526, 70 FR 38750, July 5, 2005]

§ 91.861 Base level.

(a) *U.S. Operators.* The base level of a U.S. operator is equal to the number of owned or leased Stage 2 airplanes subject to § 91.801(c) of this subpart that were listed on that operator's operations specifications for operations to or from airports in the contiguous United States on any one day selected by the operator during the period January 1, 1990, through July 1, 1991, plus or minus adjustments made pursuant to paragraphs (a) (1) and (2).

(1) The base level of a U.S. operator shall be increased by a number equal to the total of the following -

(i) The number of Stage 2 airplanes returned to service in the United States pursuant to § 91.855(f);

(ii) The number of Stage 2 airplanes purchased pursuant to § 91.855(g); and

(iii) Any U.S. operator base level acquired with a Stage 2 airplane transferred from another person under § 91.863.

(2) The base level of a U.S. operator shall be decreased by the amount of U.S. operator base level transferred with the corresponding number of Stage 2 airplanes to another person under § 91.863.

(b) *Foreign air carriers.* The base level of a foreign air carrier is equal to the number of owned or leased Stage 2 airplanes that were listed on that carrier's U.S. operations specifications on any one day during the period January 1, 1990, through July 1, 1991, plus or minus any adjustments to the base levels made pursuant to paragraphs (b) (1) and (2).

(1) The base level of a foreign air carrier shall be increased by the amount of foreign air carrier base level acquired with a Stage 2 airplane from another person under § 91.863.

(2) The base level of a foreign air carrier shall be decreased by the amount of foreign air carrier base level transferred with a Stage 2 airplane to another person under § 91.863.

(c) New entrants do not have a base level.

[Doc. No. 26433, 56 FR 48659, Sept. 25, 1991; 56 FR 51167, Oct. 10, 1991]

§ 91.863 Transfers of Stage 2 airplanes with base level.

(a) Stage 2 airplanes may be transferred with or without the corresponding amount of base level. Base level may not be transferred without the corresponding number of Stage 2 airplanes.

(b) No portion of a U.S. operator's base level established under § 91.861(a) may be used for operations by a foreign air carrier. No portion of a foreign air carrier's base level established under § 91.861(b) may be used for operations by a U.S. operator.

(c) Whenever a transfer of Stage 2 airplanes with base level occurs, the transferring and acquiring parties shall, within 10 days, jointly submit written notification of the transfer to the FAA, Office of Environment and Energy. Such notification shall state:

(1) The names of the transferring and acquiring parties;

(2) The name, address, and telephone number of the individual responsible for submitting the notification on behalf of the transferring and acquiring parties;

(3) The total number of Stage 2 airplanes transferred, listed by airplane type, model, series, and serial number;

(4) The corresponding amount of base level transferred and whether it is U.S. operator or foreign air carrier base level; and

(5) The effective date of the transaction.

(d) If, taken as a whole, a transaction or series of transactions made pursuant to this section does not produce an increase or decrease in the number of Stage 2 airplanes for either the acquiring or transferring operator, such transaction or series of transactions may not be used to establish compliance with the requirements of § 91.865.

[Doc. No. 26433, 56 FR 48659, Sept. 25, 1991]

§ 91.865 Phased compliance for operators with base level.

Except as provided in paragraph (a) of this section, each operator that operates an airplane under part 91, 121, 125, 129, or 135 of this chapter, regardless of the national registry of the airplane, shall comply with paragraph (b) or (d) of this section at each interim compliance date with regard to its subsonic airplane fleet covered by § 91.801(c) of this subpart.

(a) This section does not apply to new entrants covered by § 91.867 or to foreign operators not engaged in foreign air commerce.

(b) Each operator that chooses to comply with this paragraph pursuant to any interim compliance requirement shall reduce the number of Stage 2 airplanes it operates that are eligible for operation in the contiguous United States to a maximum of:

(1) After December 31, 1994, 75 percent of the base level held by the operator;

(2) After December 31, 1996, 50 percent of the base level held by the operator;

(3) After December 31, 1998, 25 percent of the base level held by the operator.

(c) Except as provided under § 91.871, the number of Stage 2 airplanes that must be reduced at each compliance date contained in paragraph (b) of this section shall be determined by reference to the amount of base level held by the operator on that compliance date, as calculated under § 91.861.

(d) Each operator that chooses to comply with this paragraph pursuant to any interim compliance requirement shall operate a fleet that consists of:

(1) After December 31, 1994, not less than 55 percent Stage 3 airplanes;

(2) After December 31, 1996, not less than 65 percent Stage 3 airplanes;

(3) After December 31, 1998, not less than 75 percent Stage 3 airplanes.

(e) Calculations resulting in fractions may be rounded to permit the continued operation of the next whole number of Stage 2 airplanes.

[Doc. No. 26433, 56 FR 48659, Sept. 25, 1991]

§ 91.867 Phased compliance for new entrants.

(a) New entrant U.S. air carriers.

(1) A new entrant initiating operations under part 121 of this chapter on or before December 31, 1994, may initiate service without regard to the percentage of its fleet composed of Stage 3 airplanes.

(2) After December 31, 1994, at least 25 percent of the fleet of a new entrant must comply with Stage 3 noise levels.

(3) After December 31, 1996, at least 50 percent of the fleet of a new entrant must comply with Stage 3 noise levels.

(4) After December 31, 1998, at least 75 percent of the fleet of a new entrant must comply with Stage 3 noise levels.

(b) New entrant foreign air carriers.

(1) A new entrant foreign air carrier initiating part 129 operations on or before December 31, 1994, may initiate service without regard to the percentage of its fleet composed of Stage 3 airplanes.

(2) After December 31, 1994, at least 25 percent of the fleet on U.S. operations specifications of a new entrant foreign air carrier must comply with Stage 3 noise levels.

(3) After December 31, 1996, at least 50 percent of the fleet on U.S. operations specifications of a new entrant foreign air carrier must comply with Stage 3 noise levels.

(4) After December 31, 1998, at least 75 percent of the fleet on U.S. operations specifications of a new entrant foreign air carrier must comply with Stage 3 noise levels.

(c) Calculations resulting in fractions may be rounded to permit the continued operation of the next whole number of Stage 2 airplanes.

[Doc. No. 26433, 56 FR 48659, Sept. 25, 1991, as amended by Amdt. 91-252, 61 FR 66185, Dec. 16, 1996]

§ 91.869 Carry-forward compliance.

(a) Any operator that exceeds the requirements of paragraph (b) of § 91.865 of this part on or before December 31, 1994, or on or before December 31, 1996, may claim a credit that may be applied at a subsequent interim compliance date.

(b) Any operator that eliminates or modifies more Stage 2 airplanes pursuant to § 91.865(b) than required as of December 31, 1994, or December 31, 1996, may count the number of additional Stage 2 airplanes reduced as a credit toward -

(1) The number of Stage 2 airplanes it would otherwise be required to reduce following a subsequent interim compliance date specified in § 91.865(b); or

(2) The number of Stage 3 airplanes it would otherwise be required to operate in its fleet following a subsequent interim compliance date to meet the percentage requirements specified in § 91.865(d).

[Doc. No. 26433, 56 FR 48659, Sept. 25, 1991; 56 FR 65783, Dec. 18, 1991]

§ 91.871 Waivers from interim compliance requirements.

(a) Any U.S. operator or foreign air carrier subject to the requirements of § 91.865 or 91.867 of this subpart may request a waiver from any individual compliance requirement.

(b) Applications must be filed with the Secretary of Transportation at least 120 days prior to the compliance date from which the waiver is requested.

(c) Applicants must show that a grant of waiver would be in the public interest, and must include in its application its plans and activities for modifying its fleet, including evidence of good faith efforts to comply with the requirements of § 91.865 or § 91.867. The application should contain all information the applicant considers relevant, including, as appropriate, the following:

(1) The applicant's balance sheet and cash flow positions;

(2) The composition of the applicant's current fleet; and

(3) The applicant's delivery position with respect to new airplanes or noise-abatement equipment.

(d) Waivers will be granted only upon a showing by the applicant that compliance with the requirements of § 91.865 or 91.867 at a particular interim compliance date is financially onerous, physically impossible, or technologically infeasible, or that it would have an adverse effect on competition or on service to small communities.

(e) The conditions of any waiver granted under this section shall be determined by the circumstances presented in the application, but in no case may the term extend beyond the next interim compliance date.

(f) A summary of any request for a waiver under this section will be published in the Federal Register, and public comment will be invited. Unless the Secretary finds that circumstances require otherwise, the public comment period will be at least 14 days.

[Doc. No. 26433, 56 FR 48660, Sept. 25, 1991]

§ 91.873 Waivers from final compliance.

(a) A U.S. air carrier or a foreign air carrier may apply for a waiver from the prohibition contained in § 91.853 of this part for its remaining Stage 2 airplanes, provided that, by July 1, 1999, at least 85 percent of the airplanes used by the carrier to provide service to or from an airport in the contiguous United States will comply with the Stage 3 noise levels.

(b) An application for the waiver described in paragraph (a) of this section must be filed with the Secretary of Transportation no later than January 1, 1999, or, in the case of a foreign air carrier, no later than April 20, 2000. Such application must include a plan with firm orders for replacing or modifying all airplanes to comply with Stage 3 noise levels at the earliest practicable time.

(c) To be eligible to apply for the waiver under this section, a new entrant U.S. air carrier must initiate service no later than

January 1, 1999, and must comply fully with all provisions of this section.

(d) The Secretary may grant a waiver under this section if the Secretary finds that granting such waiver is in the public interest. In making such a finding, the Secretary shall include consideration of the effect of granting such waiver on competition in the air carrier industry and the effect on small community air service, and any other information submitted by the applicant that the Secretary considers relevant.

(e) The term of any waiver granted under this section shall be determined by the circumstances presented in the application, but in no case will the waiver permit the operation of any Stage 2 airplane covered by this subchapter in the contiguous United States after December 31, 2003.

(f) A summary of any request for a waiver under this section will be published in the Federal Register, and public comment will be invited. Unless the secretary finds that circumstances require otherwise, the public comment period will be at least 14 days.

[Doc. No. 26433, 56 FR 48660, Sept. 25, 1991; 56 FR 51167 Oct. 10, 1991; Amdt. 91-276, 67 FR 46571, July 15, 2002]

§ 91.875 Annual progress reports.

(a) Each operator subject to § 91.865 or § 91.867 of this chapter shall submit an annual report to the FAA, Office of Environment and Energy, on the progress it has made toward complying with the requirements of that section. Such reports shall be submitted no later than 45 days after the end of a calendar year. All progress reports must provide the information through the end of the calendar year, be certified by the operator as true and complete (under penalty of 18 U.S.C. 1001), and include the following information:

(1) The name and address of the operator;

(2) The name, title, and telephone number of the person designated by the operator to be responsible for ensuring the accuracy of the information in the report;

(3) The operator's progress during the reporting period toward compliance with the requirements of § 91.853, § 91.865 or § 91.867. For airplanes on U.S. operations specifications, each operator shall identify the airplanes by type, model, series, and serial number.

(i) Each Stage 2 airplane added or removed from operation or U.S. operations specifications (grouped separately by those airplanes acquired with and without base level);

(ii) Each Stage 2 airplane modified to Stage 3 noise levels (identifying the manufacturer and model of noise abatement retrofit equipment);

(iii) Each Stage 3 airplane on U.S. operations specifications as of the last day of the reporting period; and

(iv) For each Stage 2 airplane transferred or acquired, the name and address of the recipient or transferor; and, if base level was transferred, the person to or from whom base level was transferred or acquired pursuant to Section 91.863 along with the effective date of each base level transaction, and the type of base level transferred or acquired.

(b) Each operator subject to § 91.865 or § 91.867 of this chapter shall submit an initial progress report covering the period from January 1, 1990, through December 31, 1991, and provide:

(1) For each operator subject to § 91.865:

(i) The date used to establish its base level pursuant to § 91.861(a); and

(ii) A list of those Stage 2 airplanes (by type, model, series and serial number) in its base level, including adjustments made pursuant to § 91.861 after the date its base level was established.

(2) For each U.S. operator:

(i) A plan to meet the compliance schedules in § 91.865 or § 91.867 and the final compliance date of § 91.853, including the schedule for delivery of replacement Stage 3 airplanes or the installation of noise abatement retrofit equipment; and

(ii) A separate list (by type, model, series, and serial number) of those airplanes included in the operator's base level, pursuant to § 91.861(a)(1) (i) and (ii), under the categories "returned" or "purchased," along with the date each was added to its operations specifications.

(c) Each operator subject to § 91.865 or § 91.867 of this chapter shall submit subsequent annual progress reports covering the calendar year preceding the report and including any changes in the information provided in paragraphs (a) and (b) of this section; including the use of any carry-forward credits pursuant to § 91.869.

(d) An operator may request, in any report, that specific planning data be considered proprietary.

(e) If an operator's actions during any reporting period cause it to achieve compliance with § 91.853, the report should include a statement to that effect. Further progress reports are not required unless there is any change in the information reported pursuant to paragraph (a) of this section.

(f) For each U.S. operator subject to § 91.865, progress reports submitted for calendar years 1994, 1996, and 1998, shall also state how the operator achieved compliance with the requirements of that section, i.e. -

(1) By reducing the number of Stage 2 airplanes in its fleet to no more than the maximum permitted percentage of its base level under § 91.865(b), or

(2) By operating a fleet that consists of at least the minimum required percentage of Stage 3 airplanes under § 91.865(d).

(Approved by the Office of Management and Budget under control number 2120-0553)

[Doc. No. 26433, 56 FR 48660, Sept. 25, 1991; 56 FR 51168, Oct. 10, 1991, as amended by 57 FR 5977, Feb. 19, 1992]

§ 91.877 Annual reporting of Hawaiian operations.

(a) Each air carrier or foreign air carrier subject to § 91.865 or § 91.867 of this part that conducts operations between the contiguous United States and the State of Hawaii, between the

State of Hawaii and any point outside of the contiguous United States, or between the islands of Hawaii in turnaround service, on or since November 5, 1990, shall include in its annual report the information described in paragraph (c) of this section.

(b) Each air carrier or foreign air carrier not subject to § 91.865 or § 91.867 of this part that conducts operations between the contiguous U.S. and the State of Hawaii, between the State of Hawaii and any point outside of the contiguous United States, or between the islands of Hawaii in turnaround service, on or since November 5, 1990, shall submit an annual report to the FAA, Office of Environment and Energy, on its compliance with the Hawaiian operations provisions of 49 U.S.C. 47528. Such reports shall be submitted no later than 45 days after the end of a calendar year. All progress reports must provide the information through the end of the calendar year, be certified by the operator as true and complete (under penalty of 18 U.S.C. 1001), and include the following information -

(1) The name and address of the air carrier or foreign air carrier;

(2) The name, title, and telephone number of the person designated by the air carrier or foreign air carrier to be responsible for ensuring the accuracy of the information in the report; and

(3) The information specified in paragraph (c) of this section.

(c) The following information must be included in reports filed pursuant to this section -

(1) For operations conducted between the contiguous United States and the State of Hawaii -

(i) The number of Stage 2 airplanes used to conduct such operations as of November 5, 1990;

(ii) Any change to that number during the calendar year being reported, including the date of such change;

(2) For air carriers that conduct inter-island turnaround service in the State of Hawaii -

(i) The number of Stage 2 airplanes used to conduct such operations as of November 5, 1990;

(ii) Any change to that number during the calendar year being reported, including the date of such change;

(iii) For an air carrier that provided inter-island turnaround service within the state of Hawaii on November 5, 1990, the number reported under paragraph (c)(2)(i) of this section may include all Stage 2 airplanes with a maximum certificated takeoff weight of more than 75,000 pounds that were owned or leased by the air carrier on November 5, 1990, regardless of whether such airplanes were operated by that air carrier or foreign air carrier on that date.

(3) For operations conducted between the State of Hawaii and a point outside the contiguous United States -

(i) The number of Stage 2 airplanes used to conduct such operations as of November 5, 1990; and

(ii) Any change to that number during the calendar year being reported, including the date of such change.

(d) Reports or amended reports for years predating this regulation are required to be filed concurrently with the next annual report.

[Doc. No. 28213, 61 FR 66185, Dec. 16, 1996]

§§ 91.879-91.880 [Reserved]

§ 91.881 Final compliance: Civil subsonic jet airplanes weighing 75,000 pounds or less.

Except as provided in § 91.883, after December 31, 2015, a person may not operate to or from an airport in the contiguous United States a civil subsonic jet airplane subject to § 91.801(e) of this subpart unless that airplane has been shown to comply with Stage 3 noise levels.

[Doc. No. FAA-2013-0503, 78 FR 39583, July 2, 2013]

§ 91.883 Special flight authorizations for jet airplanes weighing 75,000 pounds or less.

(a) After December 31, 2015, an operator of a jet airplane weighing 75,000 pounds or less that does not comply with Stage 3 noise levels may, when granted a special flight authorization by the FAA, operate that airplane in the contiguous United States only for one of the following purposes:

(1) To sell, lease, or use the airplane outside the 48 contiguous States;

(2) To scrap the airplane;

(3) To obtain modifications to the airplane to meet Stage 3 noise levels;

(4) To perform scheduled heavy maintenance or significant modifications on the airplane at a maintenance facility located in the contiguous 48 States;

(5) To deliver the airplane to an operator leasing the airplane from the owner or return the airplane to the lessor;

(6) To prepare, park, or store the airplane in anticipation of any of the activities described in paragraphs (a)(1) through (a)(5) of this section;

(7) To provide transport of persons and goods in the relief of an emergency situation; or

(8) To divert the airplane to an alternative airport in the 48 contiguous States on account of weather, mechanical, fuel, air traffic control, or other safety reasons while conducting a flight in order to perform any of the activities described in paragraphs (a)(1) through (a)(7) of this section.

(b) An operator of an affected airplane may apply for a special flight authorization for one of the purposes listed in paragraph (a) of this section by filing an application with the FAA's Office of Environment and Energy. Except for emergency relief authorizations sought under paragraph (a)(7) of this section, applications must be filed at least 30 days in advance of the planned flight. All applications must provide the information necessary for the FAA to determine that the planned flight is within the limits prescribed in the law.

[Doc. No. FAA-2013-0503, 78 FR 39583, July 2, 2013]

§§ 91.884-91.899 [Reserved]

Subpart J - Waivers

§ 91.901 [Reserved]

§ 91.903 Policy and procedures.

(a) The Administrator may issue a certificate of waiver authorizing the operation of aircraft in deviation from any rule listed in this subpart if the Administrator finds that the proposed operation can be safely conducted under the terms of that certificate of waiver.

(b) An application for a certificate of waiver under this part is made on a form and in a manner prescribed by the Administrator and may be submitted to any FAA office.

(c) A certificate of waiver is effective as specified in that certificate of waiver.

[Doc. No. 18334, 54 FR 34325, Aug. 18, 1989]

§ 91.905 List of rules subject to waivers.

Sec.

91.107 Use of safety belts.
 91.111 Operating near other aircraft.
 91.113 Right-of-way rules: Except water operations.
 91.115 Right-of-way rules: Water operations.
 91.117 Aircraft speed.
 91.119 Minimum safe altitudes: General.
 91.121 Altimeter settings.
 91.123 Compliance with ATC clearances and instructions.
 91.125 ATC light signals.
 91.126 Operating on or in the vicinity of an airport in Class G airspace.
 91.127 Operating on or in the vicinity of an airport in Class E airspace.
 91.129 Operations in Class D airspace.
 91.130 Operations in Class C airspace.
 91.131 Operations in Class B airspace.
 91.133 Restricted and prohibited areas.
 91.135 Operations in Class A airspace.
 91.137 Temporary flight restrictions.
 91.141 Flight restrictions in the proximity of the Presidential and other parties.
 91.143 Flight limitation in the proximity of space flight operations.
 91.153 VFR flight plan: Information required.
 91.155 Basic VFR weather minimums
 91.157 Special VFR weather minimums.
 91.159 VFR cruising altitude or flight level.
 91.169 IFR flight plan: Information required.
 91.173 ATC clearance and flight plan required.
 91.175 Takeoff and landing under IFR.
 91.176 Operations below DA/DH or MDA using an enhanced flight vision system (EFVS) under IFR.
 91.177 Minimum altitudes for IFR operations.
 91.179 IFR cruising altitude or flight level.
 91.181 Course to be flown.
 91.183 IFR radio communications.
 91.185 IFR operations: Two-way radio communications failure.

91.187 Operation under IFR in controlled airspace: Malfunction reports.
 91.209 Aircraft lights.
 91.303 Aerobatic flights.
 91.305 Flight test areas.
 91.311 Towing: Other than under § 91.309.
 91.313(e) Restricted category civil aircraft: Operating limitations.
 91.515 Flight altitude rules.
 91.705 Operations within the North Atlantic Minimum Navigation Performance Specifications Airspace.
 91.707 Flights between Mexico or Canada and the United States.
 91.713 Operation of civil aircraft of Cuban registry.

[Doc. No. 18334, 54 FR 34325, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991; Docket FAA-2013-0485, Amdt. 91-345, 81 FR 90175, Dec. 13, 2016]

§§ 91.907-91.999 [Reserved]

Subpart K - Fractional Ownership Operations**Source:**

Docket No. FAA-2001-10047, 68 FR 54561, Sept. 17, 2003, unless otherwise noted.

§ 91.1001 Applicability.

(a) This subpart prescribes rules, in addition to those prescribed in other subparts of this part, that apply to fractional owners and fractional ownership program managers governing -

(1) The provision of program management services in a fractional ownership program;

(2) The operation of a fractional ownership program aircraft in a fractional ownership program; and

(3) The operation of a program aircraft included in a fractional ownership program managed by an affiliate of the manager of the program to which the owner belongs.

(b) As used in this part -

(1) *Affiliate of a program manager* means a manager that, directly, or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, another program manager. The holding of at least forty percent (40 percent) of the equity and forty percent (40 percent) of the voting power of an entity will be presumed to constitute control for purposes of determining an affiliation under this subpart.

(2) A *dry-lease aircraft exchange* means an arrangement, documented by the written program agreements, under which the program aircraft are available, on an as needed basis without crew, to each fractional owner.

(3) A *fractional owner or owner* means an individual or entity that possesses a minimum fractional ownership interest in a program aircraft and that has entered into the applicable program agreements; provided, however, that in the case of the flight operations described in paragraph (b)(6)(ii) of this section, and solely for purposes of requirements pertaining

to those flight operations, the fractional owner operating the aircraft will be deemed to be a fractional owner in the program managed by the affiliate.

(4) A *fractional ownership interest* means the ownership of an interest or holding of a multi-year leasehold interest and/or a multi-year leasehold interest that is convertible into an ownership interest in a program aircraft.

(5) A *fractional ownership program or program* means any system of aircraft ownership and exchange that consists of all of the following elements:

(i) The provision for fractional ownership program management services by a single fractional ownership program manager on behalf of the fractional owners.

(ii) Two or more airworthy aircraft.

(iii) One or more fractional owners per program aircraft, with at least one program aircraft having more than one owner.

(iv) Possession of at least a minimum fractional ownership interest in one or more program aircraft by each fractional owner.

(v) A dry-lease aircraft exchange arrangement among all of the fractional owners.

(vi) Multi-year program agreements covering the fractional ownership, fractional ownership program management services, and dry-lease aircraft exchange aspects of the program.

(6) A *fractional ownership program aircraft or program aircraft* means:

(i) An aircraft in which a fractional owner has a minimal fractional ownership interest and that has been included in the dry-lease aircraft exchange pursuant to the program agreements, or

(ii) In the case of a fractional owner from one program operating an aircraft in a different fractional ownership program managed by an affiliate of the operating owner's program manager, the aircraft being operated by the fractional owner, so long as the aircraft is:

(A) Included in the fractional ownership program managed by the affiliate of the operating owner's program manager, and

(B) Included in the operating owner's program's dry-lease aircraft exchange pursuant to the program agreements of the operating owner's program.

(iii) An aircraft owned in whole or in part by the program manager that has been included in the dry-lease aircraft exchange and is used to supplement program operations.

(7) A *Fractional Ownership Program Flight or Program Flight* means a flight under this subpart when one or more passengers or property designated by a fractional owner are on board the aircraft.

(8) *Fractional ownership program management services or program management services* mean administrative and aviation support services furnished in accordance with the applicable requirements of this subpart or provided by the program manager on behalf of the fractional owners, including, but not limited to, the -

(i) Establishment and implementation of program safety guidelines;

(ii) Employment, furnishing, or contracting of pilots and other crewmembers;

(iii) Training and qualification of pilots and other crewmembers and personnel;

(iv) Scheduling and coordination of the program aircraft and crews;

(v) Maintenance of program aircraft;

(vi) Satisfaction of recordkeeping requirements;

(vii) Development and use of a program operations manual and procedures; and

(viii) Application for and maintenance of management specifications and other authorizations and approvals.

(9) A *fractional ownership program manager or program manager* means the entity that offers fractional ownership program management services to fractional owners, and is designated in the multi-year program agreements referenced in paragraph (b)(1)(v) of this section to fulfill the requirements of this chapter applicable to the manager of the program containing the aircraft being flown. When a fractional owner is operating an aircraft in a fractional ownership program managed by an affiliate of the owner's program manager, the references in this subpart to the flight-related responsibilities of the program manager apply, with respect to that particular flight, to the affiliate of the owner's program manager rather than to the owner's program manager.

(10) A *minimum fractional ownership interest* means -

(i) A fractional ownership interest equal to, or greater than, one-sixteenth ($\frac{1}{16}$) of at least one subsonic, fixed-wing or powered-lift program aircraft; or

(ii) A fractional ownership interest equal to, or greater than, one-thirty-second ($\frac{1}{32}$) of at least one rotorcraft program aircraft.

(c) The rules in this subpart that refer to a fractional owner or a fractional ownership program manager also apply to any person who engages in an operation governed by this subpart without the management specifications required by this subpart.

§ 91.1002 Compliance date.

No person that conducted flights before November 17, 2003 under a program that meets the definition of fractional ownership program in § 91.1001 may conduct such flights after February 17, 2005 unless it has obtained management specifications under this subpart.

[Doc. No. FAA-2001-10047, 68 FR 54561, Sept. 17, 2003; 69 FR 74413, Dec. 14, 2004]

§ 91.1003 Management contract between owner and program manager.

Each owner must have a contract with the program manager that -

(a) Requires the program manager to ensure that the program conforms to all applicable requirements of this chapter.

(b) Provides the owner the right to inspect and to audit, or have a designee of the owner inspect and audit, the records of the program manager pertaining to the operational safety of the program and those records required to show compliance with the management specifications and all applicable regulations. These records include, but are not limited to, the management specifications, authorizations, approvals, manuals, log books, and maintenance records maintained by the program manager.

(c) Designates the program manager as the owner's agent to receive service of notices pertaining to the program that the FAA seeks to provide to owners and authorizes the FAA to send such notices to the program manager in its capacity as the agent of the owner for such service.

(d) Acknowledges the FAA's right to contact the owner directly if the Administrator determines that direct contact is necessary.

§ 91.1005 Prohibitions and limitations.

(a) Except as provided in § 91.321 or § 91.501, no owner may carry persons or property for compensation or hire on a program flight.

(b) During the term of the multi-year program agreements under which a fractional owner has obtained a minimum fractional ownership interest in a program aircraft, the flight hours used during that term by the owner on program aircraft must not exceed the total hours associated with the fractional owner's share of ownership.

(c) No person may sell or lease an aircraft interest in a fractional ownership program that is smaller than that prescribed in the definition of "minimum fractional ownership interest" in § 91.1001(b)(10) unless flights associated with that interest are operated under part 121 or 135 of this chapter and are conducted by an air carrier or commercial operator certificated under part 119 of this chapter.

§ 91.1007 Flights conducted under part 121 or part 135 of this chapter.

(a) Except as provided in § 91.501(b), when a nonprogram aircraft is used to substitute for a program flight, the flight must be operated in compliance with part 121 or part 135 of this chapter, as applicable.

(b) A program manager who holds a certificate under part 119 of this chapter may conduct a flight for the use of a fractional owner under part 121 or part 135 of this chapter if the aircraft is listed on that certificate holder's operations specifications for part 121 or part 135, as applicable.

(c) The fractional owner must be informed when a flight is being conducted as a program flight or is being conducted under part 121 or part 135 of this chapter.

Operational Control

§ 91.1009 Clarification of operational control.

(a) An owner is in operational control of a program flight when the owner -

(1) Has the rights and is subject to the limitations set forth in §§ 91.1003 through 91.1013;

(2) Has directed that a program aircraft carry passengers or property designated by that owner; and

(3) The aircraft is carrying those passengers or property.

(b) An owner is not in operational control of a flight in the following circumstances:

(1) A program aircraft is used for a flight for administrative purposes such as demonstration, positioning, ferrying, maintenance, or crew training, and no passengers or property designated by such owner are being carried; or

(2) The aircraft being used for the flight is being operated under part 121 or 135 of this chapter.

§ 91.1011 Operational control responsibilities and delegation.

(a) Each owner in operational control of a program flight is ultimately responsible for safe operations and for complying with all applicable requirements of this chapter, including those related to airworthiness and operations in connection with the flight. Each owner may delegate some or all of the performance of the tasks associated with carrying out this responsibility to the program manager, and may rely on the program manager for aviation expertise and program management services. When the owner delegates performance of tasks to the program manager or relies on the program manager's expertise, the owner and the program manager are jointly and individually responsible for compliance.

(b) The management specifications, authorizations, and approvals required by this subpart are issued to, and in the sole name of, the program manager on behalf of the fractional owners collectively. The management specifications, authorizations, and approvals will not be affected by any change in ownership of a program aircraft, as long as the aircraft remains a program aircraft in the identified program.

§ 91.1013 Operational control briefing and acknowledgment.

(a) Upon the signing of an initial program management services contract, or a renewal or extension of a program management services contract, the program manager must brief the fractional owner on the owner's operational control responsibilities, and the owner must review and sign an acknowledgment of these operational control responsibilities. The acknowledgment must be included with the program management services contract. The acknowledgment must define when a fractional owner is in operational control and

the owner's responsibilities and liabilities under the program. These include:

- (1) Responsibility for compliance with the management specifications and all applicable regulations.
- (2) Enforcement actions for any noncompliance.
- (3) Liability risk in the event of a flight-related occurrence that causes personal injury or property damage.
- (b) The fractional owner's signature on the acknowledgment will serve as the owner's affirmation that the owner has read, understands, and accepts the operational control responsibilities described in the acknowledgment.
- (c) Each program manager must ensure that the fractional owner or owner's representatives have access to the acknowledgments for such owner's program aircraft. Each program manager must ensure that the FAA has access to the acknowledgments for all program aircraft.

Program Management

§ 91.1014 Issuing or denying management specifications.

(a) A person applying to the Administrator for management specifications under this subpart must submit an application -

- (1) In a form and manner prescribed by the Administrator; and
- (2) Containing any information the Administrator requires the applicant to submit.

(b) Management specifications will be issued to the program manager on behalf of the fractional owners if, after investigation, the Administrator finds that the applicant:

- (1) Meets the applicable requirements of this subpart; and
- (2) Is properly and adequately equipped in accordance with the requirements of this chapter and is able to conduct safe operations under appropriate provisions of part 91 of this chapter and management specifications issued under this subpart.

(c) An application for management specifications will be denied if the Administrator finds that the applicant is not properly or adequately equipped or is not able to conduct safe operations under this part.

§ 91.1015 Management specifications.

(a) Each person conducting operations under this subpart or furnishing fractional ownership program management services to fractional owners must do so in accordance with management specifications issued by the Administrator to the fractional ownership program manager under this subpart. Management specifications must include:

- (1) The current list of all fractional owners and types of aircraft, registration markings and serial numbers;
- (2) The authorizations, limitations, and certain procedures under which these operations are to be conducted,
- (3) Certain other procedures under which each class and size of aircraft is to be operated;

(4) Authorization for an inspection program approved under § 91.1109, including the type of aircraft, the registration markings and serial numbers of each aircraft to be operated under the program. No person may conduct any program flight using any aircraft not listed.

(5) Time limitations, or standards for determining time limitations, for overhauls, inspections, and checks for airframes, engines, propellers, rotors, appliances, and emergency equipment of aircraft.

(6) The specific location of the program manager's principal base of operations and, if different, the address that will serve as the primary point of contact for correspondence between the FAA and the program manager and the name and mailing address of the program manager's agent for service;

(7) Other business names the program manager may use;

(8) Authorization for the method of controlling weight and balance of aircraft;

(9) Any authorized deviation and exemption granted from any requirement of this chapter; and

(10) Any other information the Administrator determines is necessary.

(b) The program manager may keep the current list of all fractional owners required by paragraph (a)(1) of this section at its principal base of operation or other location approved by the Administrator and referenced in its management specifications. Each program manager shall make this list of owners available for inspection by the Administrator.

(c) Management specifications issued under this subpart are effective unless -

(1) The management specifications are amended as provided in § 91.1017; or

(2) The Administrator suspends or revokes the management specifications.

(d) At least 30 days before it proposes to establish or change the location of its principal base of operations, its main operations base, or its main maintenance base, a program manager must provide written notification to the Flight Standards District Office that issued the program manager's management specifications.

(e) Each program manager must maintain a complete and separate set of its management specifications at its principal base of operations, or at a place approved by the Administrator, and must make its management specifications available for inspection by the Administrator and the fractional owner(s) to whom the program manager furnishes its services for review and audit.

(f) Each program manager must insert pertinent excerpts of its management specifications, or references thereto, in its program manual and must -

(1) Clearly identify each such excerpt as a part of its management specifications; and

(2) State that compliance with each management specifications requirement is mandatory.

(g) Each program manager must keep each of its employees and other persons who perform duties material to its

operations informed of the provisions of its management specifications that apply to that employee's or person's duties and responsibilities.

§ 91.1017 Amending program manager's management specifications.

(a) The Administrator may amend any management specifications issued under this subpart if -

(1) The Administrator determines that safety and the public interest require the amendment of any management specifications; or

(2) The program manager applies for the amendment of any management specifications, and the Administrator determines that safety and the public interest allows the amendment.

(b) Except as provided in paragraph (e) of this section, when the Administrator initiates an amendment of a program manager's management specifications, the following procedure applies:

(1) The Flight Standards District Office that issued the program manager's management specifications will notify the program manager in writing of the proposed amendment.

(2) The Flight Standards District Office that issued the program manager's management specifications will set a reasonable period (but not less than 7 days) within which the program manager may submit written information, views, and arguments on the amendment.

(3) After considering all material presented, the Flight Standards District Office that issued the program manager's management specifications will notify the program manager of -

- (i) The adoption of the proposed amendment,
- (ii) The partial adoption of the proposed amendment, or
- (iii) The withdrawal of the proposed amendment.

(4) If the Flight Standards District Office that issued the program manager's management specifications issues an amendment of the management specifications, it becomes effective not less than 30 days after the program manager receives notice of it unless -

(i) The Flight Standards District Office that issued the program manager's management specifications finds under paragraph (e) of this section that there is an emergency requiring immediate action with respect to safety; or

(ii) The program manager petitions for reconsideration of the amendment under paragraph (d) of this section.

(c) When the program manager applies for an amendment to its management specifications, the following procedure applies:

(1) The program manager must file an application to amend its management specifications -

(i) At least 90 days before the date proposed by the applicant for the amendment to become effective, unless a shorter time is approved, in cases such as mergers, acquisitions of operational assets that require an additional showing of safety (for example, proving tests or validation tests), and

resumption of operations following a suspension of operations as a result of bankruptcy actions.

(ii) At least 15 days before the date proposed by the applicant for the amendment to become effective in all other cases.

(2) The application must be submitted to the Flight Standards District Office that issued the program manager's management specifications in a form and manner prescribed by the Administrator.

(3) After considering all material presented, the Flight Standards District Office that issued the program manager's management specifications will notify the program manager of -

- (i) The adoption of the applied for amendment;
- (ii) The partial adoption of the applied for amendment; or
- (iii) The denial of the applied for amendment. The program manager may petition for reconsideration of a denial under paragraph (d) of this section.

(4) If the Flight Standards District Office that issued the program manager's management specifications approves the amendment, following coordination with the program manager regarding its implementation, the amendment is effective on the date the Administrator approves it.

(d) When a program manager seeks reconsideration of a decision of the Flight Standards District Office that issued the program manager's management specifications concerning the amendment of management specifications, the following procedure applies:

(1) The program manager must petition for reconsideration of that decision within 30 days of the date that the program manager receives a notice of denial of the amendment of its management specifications, or of the date it receives notice of an FAA-initiated amendment of its management specifications, whichever circumstance applies.

(2) The program manager must address its petition to the Director, Flight Standards Service.

(3) A petition for reconsideration, if filed within the 30-day period, suspends the effectiveness of any amendment issued by the Flight Standards District Office that issued the program manager's management specifications unless that District Office has found, under paragraph (e) of this section, that an emergency exists requiring immediate action with respect to safety.

(4) If a petition for reconsideration is not filed within 30 days, the procedures of paragraph (c) of this section apply.

(e) If the Flight Standards District Office that issued the program manager's management specifications finds that an emergency exists requiring immediate action with respect to safety that makes the procedures set out in this section impracticable or contrary to the public interest -

(1) The Flight Standards District Office amends the management specifications and makes the amendment effective on the day the program manager receives notice of it; and

(2) In the notice to the program manager, the Flight Standards District Office will articulate the reasons for its finding that an emergency exists requiring immediate action with respect to safety or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment.

§ 91.1019 Conducting tests and inspections.

(a) At any time or place, the Administrator may conduct an inspection or test, other than an en route inspection, to determine whether a program manager under this subpart is complying with title 49 of the United States Code, applicable regulations, and the program manager's management specifications.

(b) The program manager must -

(1) Make available to the Administrator at the program manager's principal base of operations, or at a place approved by the Administrator, the program manager's management specifications; and

(2) Allow the Administrator to make any test or inspection, other than an en route inspection, to determine compliance respecting any matter stated in paragraph (a) of this section.

(c) Each employee of, or person used by, the program manager who is responsible for maintaining the program manager's records required by or necessary to demonstrate compliance with this subpart must make those records available to the Administrator.

(d) The Administrator may determine a program manager's continued eligibility to hold its management specifications on any grounds listed in paragraph (a) of this section, or any other appropriate grounds.

(e) Failure by any program manager to make available to the Administrator upon request, the management specifications, or any required record, document, or report is grounds for suspension of all or any part of the program manager's management specifications.

§ 91.1021 Internal safety reporting and incident/accident response.

(a) Each program manager must establish an internal anonymous safety reporting procedure that fosters an environment of safety without any potential for retribution for filing the report.

(b) Each program manager must establish procedures to respond to an aviation incident/accident.

§ 91.1023 Program operating manual requirements.

(a) Each program manager must prepare and keep current a program operating manual setting forth procedures and policies acceptable to the Administrator. The program manager's management, flight, ground, and maintenance personnel must use this manual to conduct operations under this subpart. However, the Administrator may authorize a deviation from this paragraph if the Administrator finds that, because of the limited size of the operation, part of the manual

is not necessary for guidance of management, flight, ground, or maintenance personnel.

(b) Each program manager must maintain at least one copy of the manual at its principal base of operations.

(c) No manual may be contrary to any applicable U.S. regulations, foreign regulations applicable to the program flights in foreign countries, or the program manager's management specifications.

(d) The program manager must make a copy of the manual, or appropriate portions of the manual (and changes and additions), available to its maintenance and ground operations personnel and must furnish the manual to -

(1) Its crewmembers; and

(2) Representatives of the Administrator assigned to the program manager.

(e) Each employee of the program manager to whom a manual or appropriate portions of it are furnished under paragraph (d)(1) of this section must keep it up-to-date with the changes and additions furnished to them.

(f) Except as provided in paragraph (h) of this section, the appropriate parts of the manual must be carried on each aircraft when away from the principal operations base. The appropriate parts must be available for use by ground or flight personnel.

(g) For the purpose of complying with paragraph (d) of this section, a program manager may furnish the persons listed therein with all or part of its manual in printed form or other form, acceptable to the Administrator, that is retrievable in the English language. If the program manager furnishes all or part of the manual in other than printed form, it must ensure there is a compatible reading device available to those persons that provides a legible image of the maintenance information and instructions, or a system that is able to retrieve the maintenance information and instructions in the English language.

(h) If a program manager conducts aircraft inspections or maintenance at specified facilities where the approved aircraft inspection program is available, the program manager is not required to ensure that the approved aircraft inspection program is carried aboard the aircraft en route to those facilities.

(i) Program managers that are also certificated to operate under part 121 or 135 of this chapter may be authorized to use the operating manual required by those parts to meet the manual requirements of subpart K, provided:

(1) The policies and procedures are consistent for both operations, or

(2) When policies and procedures are different, the applicable policies and procedures are identified and used.

§ 91.1025 Program operating manual contents.

Each program operating manual must have the date of the last revision on each revised page. Unless otherwise authorized by the Administrator, the manual must include the following:

(a) Procedures for ensuring compliance with aircraft weight and balance limitations;

(b) Copies of the program manager's management specifications or appropriate extracted information, including area of operations authorized, category and class of aircraft authorized, crew complements, and types of operations authorized;

(c) Procedures for complying with accident notification requirements;

(d) Procedures for ensuring that the pilot in command knows that required airworthiness inspections have been made and that the aircraft has been approved for return to service in compliance with applicable maintenance requirements;

(e) Procedures for reporting and recording mechanical irregularities that come to the attention of the pilot in command before, during, and after completion of a flight;

(f) Procedures to be followed by the pilot in command for determining that mechanical irregularities or defects reported for previous flights have been corrected or that correction of certain mechanical irregularities or defects have been deferred;

(g) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the aircraft at a place where previous arrangements have not been made by the program manager or owner, when the pilot is authorized to so act for the operator;

(h) Procedures under § 91.213 for the release of, and continuation of flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route;

(i) Procedures for refueling aircraft, eliminating fuel contamination, protecting from fire (including electrostatic protection), and supervising and protecting passengers during refueling;

(j) Procedures to be followed by the pilot in command in the briefing under § 91.1035.

(k) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned each category of required crewmembers in connection with an emergency and emergency evacuation duties;

(l) The approved aircraft inspection program, when applicable;

(m) Procedures for the evacuation of persons who may need the assistance of another person to move expeditiously to an exit if an emergency occurs;

(n) Procedures for performance planning that take into account take off, landing and en route conditions;

(o) An approved Destination Airport Analysis, when required by § 91.1037(c), that includes the following elements, supported by aircraft performance data supplied by the aircraft manufacturer for the appropriate runway conditions -

(1) Pilot qualifications and experience;

(2) Aircraft performance data to include normal, abnormal and emergency procedures as supplied by the aircraft manufacturer;

(3) Airport facilities and topography;

(4) Runway conditions (including contamination);

(5) Airport or area weather reporting;

(6) Appropriate additional runway safety margins, if required;

(7) Airplane inoperative equipment;

(8) Environmental conditions; and

(9) Other criteria that affect aircraft performance.

(p) A suitable system (which may include a coded or electronic system) that provides for preservation and retrieval of maintenance recordkeeping information required by § 91.1113 in a manner acceptable to the Administrator that provides -

(1) A description (or reference to date acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the program manager; and

(3) The name or other positive identification of the individual approving the work.

(q) Flight locating and scheduling procedures; and

(r) Other procedures and policy instructions regarding program operations that are issued by the program manager or required by the Administrator.

§ 91.1027 Recordkeeping.

(a) Each program manager must keep at its principal base of operations or at other places approved by the Administrator, and must make available for inspection by the Administrator all of the following:

(1) The program manager's management specifications.

(2) A current list of the aircraft used or available for use in operations under this subpart, the operations for which each is equipped (for example, MNPS, RNP5/10, RVSM.).

(3) An individual record of each pilot used in operations under this subpart, including the following information:

(i) The full name of the pilot.

(ii) The pilot certificate (by type and number) and ratings that the pilot holds.

(iii) The pilot's aeronautical experience in sufficient detail to determine the pilot's qualifications to pilot aircraft in operations under this subpart.

(iv) The pilot's current duties and the date of the pilot's assignment to those duties.

(v) The effective date and class of the medical certificate that the pilot holds.

(vi) The date and result of each of the initial and recurrent competency tests and proficiency checks required by this subpart and the type of aircraft flown during that test or check.

(vii) The pilot's flight time in sufficient detail to determine compliance with the flight time limitations of this subpart.

(viii) The pilot's check pilot authorization, if any.

(ix) Any action taken concerning the pilot's release from employment for physical or professional disqualification; and

(x) The date of the satisfactory completion of initial, transition, upgrade, and differences training and each recurrent training phase required by this subpart.

(4) An individual record for each flight attendant used in operations under this subpart, including the following information:

(i) The full name of the flight attendant, and

(ii) The date and result of training required by § 91.1063, as applicable.

(5) A current list of all fractional owners and associated aircraft. This list or a reference to its location must be included in the management specifications and should be of sufficient detail to determine the minimum fractional ownership interest of each aircraft.

(b) Each program manager must keep each record required by paragraph (a)(2) of this section for at least 6 months, and must keep each record required by paragraphs (a)(3) and (a)(4) of this section for at least 12 months. When an employee is no longer employed or affiliated with the program manager or fractional owner, each record required by paragraphs (a)(3) and (a)(4) of this section must be retained for at least 12 months.

(c) Each program manager is responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest must be prepared before each takeoff and must include -

(1) The number of passengers;

(2) The total weight of the loaded aircraft;

(3) The maximum allowable takeoff weight for that flight;

(4) The center of gravity limits;

(5) The center of gravity of the loaded aircraft, except that the actual center of gravity need not be computed if the aircraft is loaded according to a loading schedule or other approved method that ensures that the center of gravity of the loaded aircraft is within approved limits. In those cases, an entry must be made on the manifest indicating that the center of gravity is within limits according to a loading schedule or other approved method;

(6) The registration number of the aircraft or flight number;

(7) The origin and destination; and

(8) Identification of crewmembers and their crew position assignments.

(d) The pilot in command of the aircraft for which a load manifest must be prepared must carry a copy of the completed load manifest in the aircraft to its destination. The program manager must keep copies of completed load manifest for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

(e) Each program manager is responsible for providing a written document that states the name of the entity having operational control on that flight and the part of this chapter under which the flight is operated. The pilot in command of the aircraft must carry a copy of the document in the aircraft to its destination. The program manager must keep a copy of the document for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

(f) Records may be kept either in paper or other form acceptable to the Administrator.

(g) Program managers that are also certificated to operate under part 121 or 135 of this chapter may satisfy the recordkeeping requirements of this section and of § 91.1113 with records maintained to fulfill equivalent obligations under part 121 or 135 of this chapter.

§ 91.1029 Flight scheduling and locating requirements.

(a) Each program manager must establish and use an adequate system to schedule and release program aircraft.

(b) Except as provided in paragraph (d) of this section, each program manager must have adequate procedures established for locating each flight, for which a flight plan is not filed, that -

(1) Provide the program manager with at least the information required to be included in a VFR flight plan;

(2) Provide for timely notification of an FAA facility or search and rescue facility, if an aircraft is overdue or missing; and

(3) Provide the program manager with the location, date, and estimated time for reestablishing radio or telephone communications, if the flight will operate in an area where communications cannot be maintained.

(c) Flight locating information must be retained at the program manager's principal base of operations, or at other places designated by the program manager in the flight locating procedures, until the completion of the flight.

(d) The flight locating requirements of paragraph (b) of this section do not apply to a flight for which an FAA flight plan has been filed and the flight plan is canceled within 25 nautical miles of the destination airport.

§ 91.1031 Pilot in command or second in command: Designation required.

(a) Each program manager must designate a -

(1) Pilot in command for each program flight; and

(2) Second in command for each program flight requiring two pilots.

(b) The pilot in command, as designated by the program manager, must remain the pilot in command at all times during that flight.

§ 91.1033 Operating information required.

(a) Each program manager must, for all program operations, provide the following materials, in current and appropriate form, accessible to the pilot at the pilot station, and the pilot must use them -

(1) A cockpit checklist;

(2) For multiengine aircraft or for aircraft with retractable landing gear, an emergency cockpit checklist containing the procedures required by paragraph (c) of this section, as appropriate;

(3) At least one set of pertinent aeronautical charts; and

(4) For IFR operations, at least one set of pertinent navigational en route, terminal area, and instrument approach procedure charts.

(b) Each cockpit checklist required by paragraph (a)(1) of this section must contain the following procedures:

- (1) Before starting engines;
- (2) Before takeoff;
- (3) Cruise;
- (4) Before landing;
- (5) After landing; and
- (6) Stopping engines.

(c) Each emergency cockpit checklist required by paragraph (a)(2) of this section must contain the following procedures, as appropriate:

- (1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.
- (2) Emergency operation of instruments and controls.
- (3) Engine inoperative procedures.
- (4) Any other emergency procedures necessary for safety.

§ 91.1035 Passenger awareness.

(a) Prior to each takeoff, the pilot in command of an aircraft carrying passengers on a program flight must ensure that all passengers have been orally briefed on -

(1) *Smoking*: Each passenger must be briefed on when, where, and under what conditions smoking is prohibited. This briefing must include a statement, as appropriate, that the regulations require passenger compliance with lighted passenger information signs and no smoking placards, prohibit smoking in lavatories, and require compliance with crewmember instructions with regard to these items;

(2) *Use of safety belts, shoulder harnesses, and child restraint systems*: Each passenger must be briefed on when, where and under what conditions it is necessary to have his or her safety belt and, if installed, his or her shoulder harness fastened about him or her, and if a child is being transported, the appropriate use of child restraint systems, if available. This briefing must include a statement, as appropriate, that the regulations require passenger compliance with the lighted passenger information sign and/or crewmember instructions with regard to these items;

(3) The placement of seat backs in an upright position before takeoff and landing;

(4) Location and means for opening the passenger entry door and emergency exits;

(5) Location of survival equipment;

(6) Ditching procedures and the use of flotation equipment required under § 91.509 for a flight over water;

(7) The normal and emergency use of oxygen installed in the aircraft; and

(8) Location and operation of fire extinguishers.

(b) Prior to each takeoff, the pilot in command of an aircraft carrying passengers on a program flight must ensure that each person who may need the assistance of another person to move expeditiously to an exit if an emergency occurs and

that person's attendant, if any, has received a briefing as to the procedures to be followed if an evacuation occurs. This paragraph does not apply to a person who has been given a briefing before a previous leg of that flight in the same aircraft.

(c) Prior to each takeoff, the pilot in command must advise the passengers of the name of the entity in operational control of the flight.

(d) The oral briefings required by paragraphs (a), (b), and (c) of this section must be given by the pilot in command or another crewmember.

(e) The oral briefing required by paragraph (a) of this section may be delivered by means of an approved recording playback device that is audible to each passenger under normal noise levels.

(f) The oral briefing required by paragraph (a) of this section must be supplemented by printed cards that must be carried in the aircraft in locations convenient for the use of each passenger. The cards must -

(1) Be appropriate for the aircraft on which they are to be used;

(2) Contain a diagram of, and method of operating, the emergency exits; and

(3) Contain other instructions necessary for the use of emergency equipment on board the aircraft.

§ 91.1037 Large transport category airplanes:

Turbine engine powered; Limitations; Destination and alternate airports.

(a) No program manager or any other person may permit a turbine engine powered large transport category airplane on a program flight to take off that airplane at a weight that (allowing for normal consumption of fuel and oil in flight to the destination or alternate airport) the weight of the airplane on arrival would exceed the landing weight in the Airplane Flight Manual for the elevation of the destination or alternate airport and the ambient temperature expected at the time of landing.

(b) Except as provided in paragraph (c) of this section, no program manager or any other person may permit a turbine engine powered large transport category airplane on a program flight to take off that airplane unless its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions expected there at the time of landing), would allow a full stop landing at the intended destination airport within 60 percent of the effective length of each runway described below from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport, the following is assumed:

(1) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.

(2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction and

the ground handling characteristics of that airplane, and considering other conditions such as landing aids and terrain.

(c) A program manager or other person flying a turbine engine powered large transport category airplane on a program flight may permit that airplane to take off at a weight in excess of that allowed by paragraph (b) of this section if all of the following conditions exist:

(1) The operation is conducted in accordance with an approved Destination Airport Analysis in that person's program operating manual that contains the elements listed in § 91.1025(o).

(2) The airplane's weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions expected there at the time of landing), would allow a full stop landing at the intended destination airport within 80 percent of the effective length of each runway described below from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport, the following is assumed:

(i) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.

(ii) The airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of that airplane, and considering other conditions such as landing aids and terrain.

(3) The operation is authorized by management specifications.

(d) No program manager or other person may select an airport as an alternate airport for a turbine engine powered large transport category airplane unless (based on the assumptions in paragraph (b) of this section) that airplane, at the weight expected at the time of arrival, can be brought to a full stop landing within 80 percent of the effective length of the runway from a point 50 feet above the intersection of the obstruction clearance plane and the runway.

(e) Unless, based on a showing of actual operating landing techniques on wet runways, a shorter landing distance (but never less than that required by paragraph (b) or (c) of this section) has been approved for a specific type and model airplane and included in the Airplane Flight Manual, no person may take off a turbojet airplane when the appropriate weather reports or forecasts, or any combination of them, indicate that the runways at the destination or alternate airport may be wet or slippery at the estimated time of arrival unless the effective runway length at the destination airport is at least 115 percent of the runway length required under paragraph (b) or (c) of this section.

§ 91.1039 IFR takeoff, approach and landing minimums.

Link to an amendment published at 81 FR 90175, Dec. 13, 2016.

(a) No pilot on a program aircraft operating a program flight may begin an instrument approach procedure to an airport unless -

(1) Either that airport or the alternate airport has a weather reporting facility operated by the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the Administrator; and

(2) The latest weather report issued by the weather reporting facility includes a current local altimeter setting for the destination airport. If no local altimeter setting is available at the destination airport, the pilot must obtain the current local altimeter setting from a source provided by the facility designated on the approach chart for the destination airport.

(b) For flight planning purposes, if the destination airport does not have a weather reporting facility described in paragraph (a)(1) of this section, the pilot must designate as an alternate an airport that has a weather reporting facility meeting that criteria.

(c) The MDA or Decision Altitude and visibility landing minimums prescribed in part 97 of this chapter or in the program manager's management specifications are increased by 100 feet and mile respectively, but not to exceed the ceiling and visibility minimums for that airport when used as an alternate airport, for each pilot in command of a turbine-powered aircraft who has not served at least 100 hours as pilot in command in that type of aircraft.

(d) No person may take off an aircraft under IFR from an airport where weather conditions are at or above takeoff minimums but are below authorized IFR landing minimums unless there is an alternate airport within one hour's flying time (at normal cruising speed, in still air) of the airport of departure.

(e) Except as provided in §§ 91.175(l) or 91.176 of this chapter, each pilot making an IFR takeoff or approach and landing at an airport must comply with applicable instrument approach procedures and takeoff and landing weather minimums prescribed by the authority having jurisdiction over the airport. In addition, no pilot may take off at that airport when the visibility is less than 600 feet, unless otherwise authorized in the program manager's management specifications for EFVS operations.

[Docket No. FAA-2001-10047, 68 FR 54561, Sept. 17, 2003, as amended by Docket FAA-2013-0485, Amdt. 91-345, 81 FR 90175, Dec. 13, 2016]

§ 91.1041 Aircraft proving and validation tests.

(a) No program manager may permit the operation of an aircraft, other than a turbojet aircraft, for which two pilots are required by the type certification requirements of this chapter for operations under VFR, if it has not previously proved such an aircraft in operations under this part in at least 25 hours of proving tests acceptable to the Administrator including -

(1) Five hours of night time, if night flights are to be authorized;

(2) Five instrument approach procedures under simulated or actual conditions, if IFR flights are to be authorized; and

(3) Entry into a representative number of en route airports as determined by the Administrator.

(b) No program manager may permit the operation of a turbojet airplane if it has not previously proved a turbojet airplane in operations under this part in at least 25 hours of proving tests acceptable to the Administrator including -

(1) Five hours of night time, if night flights are to be authorized;

(2) Five instrument approach procedures under simulated or actual conditions, if IFR flights are to be authorized; and

(3) Entry into a representative number of en route airports as determined by the Administrator.

(c) No program manager may carry passengers in an aircraft during proving tests, except those needed to make the tests and those designated by the Administrator to observe the tests. However, pilot flight training may be conducted during the proving tests.

(d) Validation testing is required to determine that a program manager is capable of conducting operations safely and in compliance with applicable regulatory standards. Validation tests are required for the following authorizations:

(1) The addition of an aircraft for which two pilots are required for operations under VFR or a turbojet airplane, if that aircraft or an aircraft of the same make or similar design has not been previously proved or validated in operations under this part.

(2) Operations outside U.S. airspace.

(3) Class II navigation authorizations.

(4) Special performance or operational authorizations.

(e) Validation tests must be accomplished by test methods acceptable to the Administrator. Actual flights may not be required when an applicant can demonstrate competence and compliance with appropriate regulations without conducting a flight.

(f) Proving tests and validation tests may be conducted simultaneously when appropriate.

(g) The Administrator may authorize deviations from this section if the Administrator finds that special circumstances make full compliance with this section unnecessary.

§ 91.1043 [Reserved]

§ 91.1045 Additional equipment requirements.

No person may operate a program aircraft on a program flight unless the aircraft is equipped with the following -

(a) Airplanes having a passenger-seat configuration of more than 30 seats or a payload capacity of more than 7,500 pounds:

(1) A cockpit voice recorder as required by § 121.359 of this chapter as applicable to the aircraft specified in that section.

(2) A flight recorder as required by § 121.343 or § 121.344 of this chapter as applicable to the aircraft specified in that section.

(3) A terrain awareness and warning system as required by § 121.354 of this chapter as applicable to the aircraft specified in that section.

(4) A traffic alert and collision avoidance system as required by § 121.356 of this chapter as applicable to the aircraft specified in that section.

(5) Airborne weather radar as required by § 121.357 of this chapter, as applicable to the aircraft specified in that section.

(b) Airplanes having a passenger-seat configuration of 30 seats or fewer, excluding each crewmember, and a payload capacity of 7,500 pounds or less, and any rotorcraft (as applicable):

(1) A cockpit voice recorder as required by § 135.151 of this chapter as applicable to the aircraft specified in that section.

(2) A flight recorder as required by § 135.152 of this chapter as applicable to the aircraft specified in that section.

(3) A terrain awareness and warning system as required by § 135.154 of this chapter as applicable to the aircraft specified in that section.

(4) A traffic alert and collision avoidance system as required by § 135.180 of this chapter as applicable to the aircraft specified in that section.

(5) As applicable to the aircraft specified in that section, either:

(i) Airborne thunderstorm detection equipment as required by § 135.173 of this chapter; or

(ii) Airborne weather radar as required by § 135.175 of this chapter.

§ 91.1047 Drug and alcohol misuse education program.

(a) Each program manager must provide each direct employee performing flight crewmember, flight attendant, flight instructor, or aircraft maintenance duties with drug and alcohol misuse education.

(b) No program manager may use any contract employee to perform flight crewmember, flight attendant, flight instructor, or aircraft maintenance duties for the program manager unless that contract employee has been provided with drug and alcohol misuse education.

(c) Program managers must disclose to their owners and prospective owners the existence of a company drug and alcohol misuse testing program. If the program manager has implemented a company testing program, the program manager's disclosure must include the following:

(1) Information on the substances that they test for, for example, alcohol and a list of the drugs;

(2) The categories of employees tested, the types of tests, for example, pre-employment, random, reasonable cause/suspicion, post accident, return to duty and follow-up; and

(3) The degree to which the program manager's company testing program is comparable to the federally mandated drug and alcohol testing program required under part 120 of this chapter regarding the information in paragraphs (c)(1) and (c)(2) of this section.

(d) If a program aircraft is operated on a program flight into an airport at which no maintenance personnel are available that are subject to the requirements of paragraphs (a) or (b) of this section and emergency maintenance is required, the program manager may use persons not meeting the requirements of paragraphs (a) or (b) of this section to provide such emergency maintenance under both of the following conditions:

(1) The program manager must notify the Drug Abatement Program Division, AAM-800, 800 Independence Avenue, SW., Washington, DC 20591 in writing within 10 days after being provided emergency maintenance in accordance with this paragraph. The program manager must retain copies of all such written notifications for two years.

(2) The aircraft must be reinspected by maintenance personnel who meet the requirements of paragraph (a) or (b) of this section when the aircraft is next at an airport where such maintenance personnel are available.

(e) For purposes of this section, emergency maintenance means maintenance that -

(1) Is not scheduled, and

(2) Is made necessary by an aircraft condition not discovered prior to the departure for that location.

(f) Notwithstanding paragraphs (a) and (b) of this section, drug and alcohol misuse education conducted under an FAA-approved drug and alcohol misuse prevention program may be used to satisfy these requirements.

[Doc. No. FAA-2001-10047, 68 FR 54561, Sept. 17, 2003, as amended by Amdt. 91-307, 74 FR 22653, May 14, 2009]

§ 91.1049 Personnel.

(a) Each program manager and each fractional owner must use in program operations on program aircraft flight crews meeting § 91.1053 criteria and qualified under the appropriate regulations. The program manager must provide oversight of those crews.

(b) Each program manager must employ (either directly or by contract) an adequate number of pilots per program aircraft. Flight crew staffing must be determined based on the following factors, at a minimum:

(1) Number of program aircraft.

(2) Program manager flight, duty, and rest time considerations, and in all cases within the limits set forth in §§ 91.1057 through 91.1061.

(3) Vacations.

(4) Operational efficiencies.

(5) Training.

(6) Single pilot operations, if authorized by deviation under paragraph (d) of this section.

(c) Each program manager must publish pilot and flight attendant duty schedules sufficiently in advance to follow the

flight, duty, and rest time limits in §§ 91.1057 through 91.1061 in program operations.

(d) Unless otherwise authorized by the Administrator, when any program aircraft is flown in program operations with passengers onboard, the crew must consist of at least two qualified pilots employed or contracted by the program manager or the fractional owner.

(e) The program manager must ensure that trained and qualified scheduling or flight release personnel are on duty to schedule and release program aircraft during all hours that such aircraft are available for program operations.

§ 91.1050 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no fractional owner or fractional ownership program manager may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the fractional owner or fractional ownership program manager in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

(1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and

(2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the fractional owner or fractional ownership program manager.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a fractional owner or fractional ownership program manager in a matter before the agency if the individual makes any written or oral communication on behalf of the fractional owner or fractional ownership program manager to the agency (or any of its officers or employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a fractional owner or fractional ownership program manager from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the fractional owner or fractional ownership program manager in any matter before the Federal Aviation Administration if the individual was employed by the fractional owner or fractional ownership program manager before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52235, Aug. 22, 2011]

§ 91.1051 Pilot safety background check.

Within 90 days of an individual beginning service as a pilot, the program manager must request the following information:

(a) FAA records pertaining to -

(1) Current pilot certificates and associated type ratings.

(2) Current medical certificates.

(3) Summaries of legal enforcement actions resulting in a finding by the Administrator of a violation.

(b) Records from all previous employers during the five years preceding the date of the employment application where the applicant worked as a pilot. If any of these firms are in bankruptcy, the records must be requested from the trustees in bankruptcy for those employees. If the previous employer is no longer in business, a documented good faith effort must be made to obtain the records. Records from previous employers must include, as applicable -

(1) Crew member records.

(2) Drug testing - collection, testing, and rehabilitation records pertaining to the individual.

(3) Alcohol misuse prevention program records pertaining to the individual.

(4) The applicant's individual record that includes certifications, ratings, aeronautical experience, effective date and class of the medical certificate.

§ 91.1053 Crewmember experience.

(a) No program manager or owner may use any person, nor may any person serve, as a pilot in command or second in command of a program aircraft, or as a flight attendant on a program aircraft, in program operations under this subpart unless that person has met the applicable requirements of part 61 of this chapter and has the following experience and ratings:

(1) Total flight time for all pilots:

(i) Pilot in command - A minimum of 1,500 hours.

(ii) Second in command - A minimum of 500 hours.

(2) For multi-engine turbine-powered fixed-wing and powered-lift aircraft, the following FAA certification and ratings requirements:

(i) Pilot in command - Airline transport pilot and applicable type ratings.

(ii) Second in command - Commercial pilot and instrument ratings.

(iii) Flight attendant (if required or used) - Appropriately trained personnel.

(3) For all other aircraft, the following FAA certification and rating requirements:

(i) Pilot in command - Commercial pilot and instrument ratings.

(ii) Second in command - Commercial pilot and instrument ratings.

(iii) Flight attendant (if required or used) - Appropriately trained personnel.

(b) The Administrator may authorize deviations from paragraph (a)(1) of this section if the Flight Standards District Office that issued the program manager's management specifications finds that the crewmember has comparable experience, and can effectively perform the functions associated with the position in accordance with the requirements of this chapter. Grants of deviation under this paragraph may be granted after consideration of the size and scope of the operation, the qualifications of the intended

personnel and the circumstances set forth in § 91.1055(b)(1) through (3). The Administrator may, at any time, terminate any grant of deviation authority issued under this paragraph.

§ 91.1055 Pilot operating limitations and pairing requirement.

(a) If the second in command of a fixed-wing program aircraft has fewer than 100 hours of flight time as second in command flying in the aircraft make and model and, if a type rating is required, in the type aircraft being flown, and the pilot in command is not an appropriately qualified check pilot, the pilot in command shall make all takeoffs and landings in any of the following situations:

(1) Landings at the destination airport when a Destination Airport Analysis is required by § 91.1037(c); and

(2) In any of the following conditions:

(i) The prevailing visibility for the airport is at or below mile.

(ii) The runway visual range for the runway to be used is at or below 4,000 feet.

(iii) The runway to be used has water, snow, slush, ice or similar contamination that may adversely affect aircraft performance.

(iv) The braking action on the runway to be used is reported to be less than "good."

(v) The crosswind component for the runway to be used is in excess of 15 knots.

(vi) Windshear is reported in the vicinity of the airport.

(vii) Any other condition in which the pilot in command determines it to be prudent to exercise the pilot in command's authority.

(b) No program manager may release a program flight under this subpart unless, for that aircraft make or model and, if a type rating is required, for that type aircraft, either the pilot in command or the second in command has at least 75 hours of flight time, either as pilot in command or second in command. The Administrator may, upon application by the program manager, authorize deviations from the requirements of this paragraph by an appropriate amendment to the management specifications in any of the following circumstances:

(1) A newly authorized program manager does not employ any pilots who meet the minimum requirements of this paragraph.

(2) An existing program manager adds to its fleet a new category and class aircraft not used before in its operation.

(3) An existing program manager establishes a new base to which it assigns pilots who will be required to become qualified on the aircraft operated from that base.

(c) No person may be assigned in the capacity of pilot in command in a program operation to more than two aircraft types that require a separate type rating.

§ 91.1057 Flight, duty and rest time requirements: All crewmembers.

(a) For purposes of this subpart -

Augmented flight crew means at least three pilots.

Calendar day means the period of elapsed time, using Coordinated Universal Time or local time that begins at midnight and ends 24 hours later at the next midnight.

Duty period means the period of elapsed time between reporting for an assignment involving flight time and release from that assignment by the program manager. All time between these two points is part of the duty period, even if flight time is interrupted by nonflight-related duties. The time is calculated using either Coordinated Universal Time or local time to reflect the total elapsed time.

Extension of flight time means an increase in the flight time because of circumstances beyond the control of the program manager or flight crewmember (such as adverse weather) that are not known at the time of departure and that prevent the flightcrew from reaching the destination within the planned flight time.

Flight attendant means an individual, other than a flight crewmember, who is assigned by the program manager, in accordance with the required minimum crew complement under the program manager's management specifications or in addition to that minimum complement, to duty in an aircraft during flight time and whose duties include but are not necessarily limited to cabin-safety-related responsibilities.

Multi-time zone flight means an easterly or westerly flight or multiple flights in one direction in the same duty period that results in a time zone difference of 5 or more hours and is conducted in a geographic area that is south of 60 degrees north latitude and north of 60 degrees south latitude.

Reserve status means that status in which a flight crewmember, by arrangement with the program manager: Holds himself or herself fit to fly to the extent that this is within the control of the flight crewmember; remains within a reasonable response time of the aircraft as agreed between the flight crewmember and the program manager; and maintains a ready means whereby the flight crewmember may be contacted by the program manager. Reserve status is not part of any duty period or rest period.

Rest period means a period of time required pursuant to this subpart that is free of all responsibility for work or duty prior to the commencement of, or following completion of, a duty period, and during which the flight crewmember or flight attendant cannot be required to receive contact from the program manager. A rest period does not include any time during which the program manager imposes on a flight crewmember or flight attendant any duty or restraint, including any actual work or present responsibility for work should the occasion arise.

Standby means that portion of a duty period during which a flight crewmember is subject to the control of the program manager and holds himself or herself in a condition of readiness to undertake a flight. Standby is not part of any rest period.

(b) A program manager may assign a crewmember and a crewmember may accept an assignment for flight time

only when the applicable requirements of this section and §§ 91.1059-91.1062 are met.

(c) No program manager may assign any crewmember to any duty during any required rest period.

(d) Time spent in transportation, not local in character, that a program manager requires of a crewmember and provides to transport the crewmember to an airport at which he or she is to serve on a flight as a crewmember, or from an airport at which he or she was relieved from duty to return to his or her home station, is not considered part of a rest period.

(e) A flight crewmember may continue a flight assignment if the flight to which he or she is assigned would normally terminate within the flight time limitations, but because of circumstances beyond the control of the program manager or flight crewmember (such as adverse weather conditions), is not at the time of departure expected to reach its destination within the planned flight time. The extension of flight time under this paragraph may not exceed the maximum time limits set forth in § 91.1059.

(f) Each flight assignment must provide for at least 10 consecutive hours of rest during the 24-hour period that precedes the completion time of the assignment.

(g) The program manager must provide each crewmember at least 13 rest periods of at least 24 consecutive hours each in each calendar quarter.

(h) A flight crewmember may decline a flight assignment if, in the flight crewmember's determination, to do so would not be consistent with the standard of safe operation required under this subpart, this part, and applicable provisions of this title.

(i) Any rest period required by this subpart may occur concurrently with any other rest period.

(j) If authorized by the Administrator, a program manager may use the applicable unscheduled flight time limitations, duty period limitations, and rest requirements of part 121 or part 135 of this chapter instead of the flight time limitations, duty period limitations, and rest requirements of this subpart.

§ 91.1059 Flight time limitations and rest requirements: One or two pilot crews.

(a) No program manager may assign any flight crewmember, and no flight crewmember may accept an assignment, for flight time as a member of a one- or two-pilot crew if that crewmember's total flight time in all commercial flying will exceed -

- (1) 500 hours in any calendar quarter;
- (2) 800 hours in any two consecutive calendar quarters;
- (3) 1,400 hours in any calendar year.

(b) Except as provided in paragraph (c) of this section, during any 24 consecutive hours the total flight time of the assigned flight, when added to any commercial flying by that flight crewmember, may not exceed -

- (1) 8 hours for a flight crew consisting of one pilot; or
- (2) 10 hours for a flight crew consisting of two pilots qualified under this subpart for the operation being conducted.

(c) No program manager may assign any flight crewmember, and no flight crewmember may accept an

assignment, if that crewmember's flight time or duty period will exceed, or rest time will be less than -

| | Normal duty | Extension of flight time |
|--|----------------|------------------------------------|
| (1) Minimum Rest Immediately Before Duty | 10 Hours | 10 Hours. |
| (2) Duty Period | Up to 14 Hours | Up to 14 Hours. |
| (3) Flight Time For 1 Pilot | Up to 8 Hours | Exceeding 8 Hours up to 9 Hours. |
| (4) Flight Time For 2 Pilots | Up to 10 Hours | Exceeding 10 Hours up to 12 Hours. |
| (5) Minimum After Duty Rest | 10 Hours | 12 Hours. |
| (6) Minimum After Duty Rest Period for Multi-Time Zone Flights | 14 Hours | 18 Hours. |

§ 91.1061 Augmented flight crews.

(a) No program manager may assign any flight crewmember, and no flight crewmember may accept an assignment, for flight time as a member of an augmented crew if that crewmember's total flight time in all commercial flying will exceed -

- (1) 500 hours in any calendar quarter;
- (2) 800 hours in any two consecutive calendar quarters;
- (3) 1,400 hours in any calendar year.

(b) No program manager may assign any pilot to an augmented crew, unless the program manager ensures:

- (1) Adequate sleeping facilities are installed on the aircraft for the pilots.
- (2) No more than 8 hours of flight deck duty is accrued in any 24 consecutive hours.
- (3) For a three-pilot crew, the crew must consist of at least the following:

(i) A pilot in command (PIC) who meets the applicable flight crewmember requirements of this subpart and § 61.57 of this chapter.

(ii) A PIC qualified pilot who meets the applicable flight crewmember requirements of this subpart and § 61.57(c) and (d) of this chapter.

(iii) A second in command (SIC) who meets the SIC qualifications of this subpart. For flight under IFR, that person must also meet the recent instrument experience requirements of part 61 of this chapter.

(4) For a four-pilot crew, at least three pilots who meet the conditions of paragraph (b)(3) of this section, plus a fourth pilot who meets the SIC qualifications of this subpart. For flight under IFR, that person must also meet the recent instrument experience requirements of part 61 of this chapter.

(c) No program manager may assign any flight crewmember, and no flight crewmember may accept an assignment, if that crewmember's flight time or duty period will exceed, or rest time will be less than -

| | 3-Pilot crew | 4-Pilot crew |
|--|----------------|----------------|
| (1) Minimum Rest Immediately Before Duty | 10 Hours | 10 Hours |
| (2) Duty Period | Up to 16 Hours | Up to 18 Hours |
| (3) Flight Time | Up to 12 Hours | Up to 16 Hours |
| (4) Minimum After Duty Rest | 12 Hours | 18 Hours |
| (5) Minimum After Duty Rest Period for Multi-Time Zone Flights | 18 hours | 24 hours |

§ 91.1062 Duty periods and rest requirements: Flight attendants.

(a) Except as provided in paragraph (b) of this section, a program manager may assign a duty period to a flight attendant only when the assignment meets the applicable duty period limitations and rest requirements of this paragraph.

(1) Except as provided in paragraphs (a)(4), (a)(5), and (a)(6) of this section, no program manager may assign a flight attendant to a scheduled duty period of more than 14 hours.

(2) Except as provided in paragraph (a)(3) of this section, a flight attendant scheduled to a duty period of 14 hours or less as

provided under paragraph (a)(1) of this section must be given a scheduled rest period of at least 9 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(3) The rest period required under paragraph (a)(2) of this section may be scheduled or reduced to 8 consecutive hours if the flight attendant is provided a subsequent rest period of at least 10 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion

of the scheduled duty period and the commencement of the subsequent duty period.

(4) A program manager may assign a flight attendant to a scheduled duty period of more than 14 hours, but no more than 16 hours, if the program manager has assigned to the flight or flights in that duty period at least one flight attendant in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the program manager's management specifications.

(5) A program manager may assign a flight attendant to a scheduled duty period of more than 16 hours, but no more than 18 hours, if the program manager has assigned to the flight or flights in that duty period at least two flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the program manager's management specifications.

(6) A program manager may assign a flight attendant to a scheduled duty period of more than 18 hours, but no more than 20 hours, if the scheduled duty period includes one or more flights that land or take off outside the 48 contiguous states and the District of Columbia, and if the program manager has assigned to the flight or flights in that duty period at least three flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the program manager's management specifications.

(7) Except as provided in paragraph (a)(8) of this section, a flight attendant scheduled to a duty period of more than 14 hours but no more than 20 hours, as provided in paragraphs (a)(4), (a)(5), and (a)(6) of this section, must be given a scheduled rest period of at least 12 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(8) The rest period required under paragraph (a)(7) of this section may be scheduled or reduced to 10 consecutive hours if the flight attendant is provided a subsequent rest period of at least 14 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(9) Notwithstanding paragraphs (a)(4), (a)(5), and (a)(6) of this section, if a program manager elects to reduce the rest period to 10 hours as authorized by paragraph (a)(8) of this section, the program manager may not schedule a flight attendant for a duty period of more than 14 hours during the 24-hour period commencing after the beginning of the reduced rest period.

(b) Notwithstanding paragraph (a) of this section, a program manager may apply the flight crewmember flight time and duty limitations and rest requirements of this part to flight attendants for all operations conducted under this part provided that the program manager establishes written procedures that -

(1) Apply to all flight attendants used in the program manager's operation;

(2) Include the flight crewmember rest and duty requirements of §§ 91.1057, 91.1059, and 91.1061, as appropriate to the operation being conducted, except that rest facilities on board the aircraft are not required;

(3) Include provisions to add one flight attendant to the minimum flight attendant complement for each flight crewmember who is in excess of the minimum number required in the aircraft type certificate data sheet and who is assigned to the aircraft under the provisions of § 91.1061; and

(4) Are approved by the Administrator and described or referenced in the program manager's management specifications.

§ 91.1063 Testing and training: Applicability and terms used.

(a) Sections 91.1065 through 91.1107:

(1) Prescribe the tests and checks required for pilots and flight attendant crewmembers and for the approval of check pilots in operations under this subpart;

(2) Prescribe the requirements for establishing and maintaining an approved training program for crewmembers, check pilots and instructors, and other operations personnel employed or used by the program manager in program operations;

(3) Prescribe the requirements for the qualification, approval and use of aircraft simulators and flight training devices in the conduct of an approved training program; and

(4) Permits training center personnel authorized under part 142 of this chapter who meet the requirements of § 91.1075 to conduct training, testing and checking under contract or other arrangements to those persons subject to the requirements of this subpart.

(b) If authorized by the Administrator, a program manager may comply with the applicable training and testing sections of subparts N and O of part 121 of this chapter instead of §§ 91.1065 through 91.1107, except for the operating experience requirements of § 121.434 of this chapter.

(c) If authorized by the Administrator, a program manager may comply with the applicable training and testing sections of subparts G and H of part 135 of this chapter instead of §§ 91.1065 through 91.1107, except for the operating experience requirements of § 135.244 of this chapter.

(d) For the purposes of this subpart, the following terms and definitions apply:

(1) *Initial training.* The training required for crewmembers who have not qualified and served in the same capacity on an aircraft.

(2) *Transition training.* The training required for crewmembers who have qualified and served in the same capacity on another aircraft.

(3) *Upgrade training.* The training required for crewmembers who have qualified and served as second in command on a particular aircraft type, before they serve as pilot in command on that aircraft.

(4) *Differences training.* The training required for crewmembers who have qualified and served on a particular type aircraft, when the Administrator finds differences training is necessary before a crewmember serves in the same capacity on a particular variation of that aircraft.

(5) *Recurrent training.* The training required for crewmembers to remain adequately trained and currently proficient for each aircraft crewmember position, and type of operation in which the crewmember serves.

(6) *In flight.* The maneuvers, procedures, or functions that will be conducted in the aircraft.

(7) *Training center.* An organization governed by the applicable requirements of part 142 of this chapter that conducts training, testing, and checking under contract or other arrangement to program managers subject to the requirements of this subpart.

(8) *Requalification training.* The training required for crewmembers previously trained and qualified, but who have become unqualified because of not having met within the required period any of the following:

(i) Recurrent crewmember training requirements of § 91.1107.

(ii) Instrument proficiency check requirements of § 91.1069.

(iii) Testing requirements of § 91.1065.

(iv) Recurrent flight attendant testing requirements of § 91.1067.

§ 91.1065 Initial and recurrent pilot testing requirements.

(a) No program manager or owner may use a pilot, nor may any person serve as a pilot, unless, since the beginning of the 12th month before that service, that pilot has passed either a written or oral test (or a combination), given by the Administrator or an authorized check pilot, on that pilot's knowledge in the following areas -

(1) The appropriate provisions of parts 61 and 91 of this chapter and the management specifications and the operating manual of the program manager;

(2) For each type of aircraft to be flown by the pilot, the aircraft powerplant, major components and systems, major appliances, performance and operating limitations, standard and emergency operating procedures, and the contents of the accepted operating manual or equivalent, as applicable;

(3) For each type of aircraft to be flown by the pilot, the method of determining compliance with weight and balance limitations for takeoff, landing and en route operations;

(4) Navigation and use of air navigation aids appropriate to the operation or pilot authorization, including, when applicable, instrument approach facilities and procedures;

(5) Air traffic control procedures, including IFR procedures when applicable;

(6) Meteorology in general, including the principles of frontal systems, icing, fog, thunderstorms, and windshear, and,

if appropriate for the operation of the program manager, high altitude weather;

(7) Procedures for -

(i) Recognizing and avoiding severe weather situations;

(ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft aircraft pilots are not required to be tested on escaping from low-altitude windshear); and

(iii) Operating in or near thunderstorms (including best penetration altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions; and

(8) New equipment, procedures, or techniques, as appropriate.

(b) No program manager or owner may use a pilot, nor may any person serve as a pilot, in any aircraft unless, since the beginning of the 12th month before that service, that pilot has passed a competency check given by the Administrator or an authorized check pilot in that class of aircraft, if single-engine aircraft other than turbojet, or that type of aircraft, if rotorcraft, multiengine aircraft, or turbojet airplane, to determine the pilot's competence in practical skills and techniques in that aircraft or class of aircraft. The extent of the competency check will be determined by the Administrator or authorized check pilot conducting the competency check. The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class and type of aircraft involved. For the purposes of this paragraph, type, as to an airplane, means any one of a group of airplanes determined by the Administrator to have a similar means of propulsion, the same manufacturer, and no significantly different handling or flight characteristics. For the purposes of this paragraph, type, as to a rotorcraft, means a basic make and model.

(c) The instrument proficiency check required by § 91.1069 may be substituted for the competency check required by this section for the type of aircraft used in the check.

(d) For the purpose of this subpart, competent performance of a procedure or maneuver by a person to be used as a pilot requires that the pilot be the obvious master of the aircraft, with the successful outcome of the maneuver never in doubt.

(e) The Administrator or authorized check pilot certifies the competency of each pilot who passes the knowledge or flight check in the program manager's pilot records.

(f) All or portions of a required competency check may be given in an aircraft simulator or other appropriate training device, if approved by the Administrator.

(g) If the program manager is authorized to conduct EFVS operations, the competency check in paragraph (b) of this section must include tasks appropriate to the EFVS operations the certificate holder is authorized to conduct.

[Docket No. FAA-2001-10047, 68 FR 54561, Sept. 17, 2003, as amended by Docket FAA-2013-0485, Amdt. 91-345, 81 FR 90175, Dec. 13, 2016]

§ 91.1067 Initial and recurrent flight attendant crewmember testing requirements.

No program manager or owner may use a flight attendant crewmember, nor may any person serve as a flight attendant crewmember unless, since the beginning of the 12th month before that service, the program manager has determined by appropriate initial and recurrent testing that the person is knowledgeable and competent in the following areas as appropriate to assigned duties and responsibilities -

- (a) Authority of the pilot in command;
- (b) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety;
- (c) Crewmember assignments, functions, and responsibilities during ditching and evacuation of persons who may need the assistance of another person to move expeditiously to an exit in an emergency;
- (d) Briefing of passengers;
- (e) Location and operation of portable fire extinguishers and other items of emergency equipment;
- (f) Proper use of cabin equipment and controls;
- (g) Location and operation of passenger oxygen equipment;
- (h) Location and operation of all normal and emergency exits, including evacuation slides and escape ropes; and
- (i) Seating of persons who may need assistance of another person to move rapidly to an exit in an emergency as prescribed by the program manager's operations manual.

§ 91.1069 Flight crew: Instrument proficiency check requirements.

(a) No program manager or owner may use a pilot, nor may any person serve, as a pilot in command of an aircraft under IFR unless, since the beginning of the 6th month before that service, that pilot has passed an instrument proficiency check under this section administered by the Administrator or an authorized check pilot.

(b) No program manager or owner may use a pilot, nor may any person serve, as a second command pilot of an aircraft under IFR unless, since the beginning of the 12th month before that service, that pilot has passed an instrument proficiency check under this section administered by the Administrator or an authorized check pilot.

(c) No pilot may use any type of precision instrument approach procedure under IFR unless, since the beginning of the 6th month before that use, the pilot satisfactorily demonstrated that type of approach procedure. No pilot may use any type of nonprecision approach procedure under IFR unless, since the beginning of the 6th month before that use, the pilot has satisfactorily demonstrated either that type of approach procedure or any other two different types of nonprecision approach procedures. The instrument approach procedure or procedures must include at least one straight-in approach, one circling approach, and one missed approach.

Each type of approach procedure demonstrated must be conducted to published minimums for that procedure.

(d) The instrument proficiency checks required by paragraphs (a) and (b) of this section consists of either an oral or written equipment test (or a combination) and a flight check under simulated or actual IFR conditions. The equipment test includes questions on emergency procedures, engine operation, fuel and lubrication systems, power settings, stall speeds, best engine-out speed, propeller and supercharger operations, and hydraulic, mechanical, and electrical systems, as appropriate. The flight check includes navigation by instruments, recovery from simulated emergencies, and standard instrument approaches involving navigational facilities which that pilot is to be authorized to use.

(e) Each pilot taking the instrument proficiency check must show that standard of competence required by § 91.1065(d).

(1) The instrument proficiency check must -

(i) For a pilot in command of an aircraft requiring that the PIC hold an airline transport pilot certificate, include the procedures and maneuvers for an airline transport pilot certificate in the particular type of aircraft, if appropriate; and

(ii) For a pilot in command of a rotorcraft or a second in command of any aircraft requiring that the SIC hold a commercial pilot certificate include the procedures and maneuvers for a commercial pilot certificate with an instrument rating and, if required, for the appropriate type rating.

(2) The instrument proficiency check must be given by an authorized check pilot or by the Administrator.

(f) If the pilot is assigned to pilot only one type of aircraft, that pilot must take the instrument proficiency check required by paragraph (a) of this section in that type of aircraft.

(g) If the pilot in command is assigned to pilot more than one type of aircraft, that pilot must take the instrument proficiency check required by paragraph (a) of this section in each type of aircraft to which that pilot is assigned, in rotation, but not more than one flight check during each period described in paragraph (a) of this section.

(h) If the pilot in command is assigned to pilot both single-engine and multiengine aircraft, that pilot must initially take the instrument proficiency check required by paragraph (a) of this section in a multiengine aircraft, and each succeeding check alternately in single-engine and multiengine aircraft, but not more than one flight check during each period described in paragraph (a) of this section.

(i) All or portions of a required flight check may be given in an aircraft simulator or other appropriate training device, if approved by the Administrator.

§ 91.1071 Crewmember: Tests and checks, grace provisions, training to accepted standards.

(a) If a crewmember who is required to take a test or a flight check under this subpart, completes the test or flight check in the month before or after the month in which it is required, that

crewmember is considered to have completed the test or check in the month in which it is required.

(b) If a pilot being checked under this subpart fails any of the required maneuvers, the person giving the check may give additional training to the pilot during the course of the check. In addition to repeating the maneuvers failed, the person giving the check may require the pilot being checked to repeat any other maneuvers that are necessary to determine the pilot's proficiency. If the pilot being checked is unable to demonstrate satisfactory performance to the person conducting the check, the program manager may not use the pilot, nor may the pilot serve, as a flight crewmember in operations under this subpart until the pilot has satisfactorily completed the check. If a pilot who demonstrates unsatisfactory performance is employed as a pilot for a certificate holder operating under part 121, 125, or 135 of this chapter, he or she must notify that certificate holder of the unsatisfactory performance.

§ 91.1073 Training program: General.

(a) Each program manager must have a training program and must:

(1) Establish, obtain the appropriate initial and final approval of, and provide a training program that meets this subpart and that ensures that each crewmember, including each flight attendant if the program manager uses a flight attendant crewmember, flight instructor, check pilot, and each person assigned duties for the carriage and handling of hazardous materials (as defined in 49 CFR 171.8) is adequately trained to perform these assigned duties.

(2) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart.

(3) Provide and keep current for each aircraft type used and, if applicable, the particular variations within the aircraft type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this subpart.

(4) Provide enough flight instructors, check pilots, and simulator instructors to conduct required flight training and flight checks, and simulator training courses allowed under this subpart.

(b) Whenever a crewmember who is required to take recurrent training under this subpart completes the training in the month before, or the month after, the month in which that training is required, the crewmember is considered to have completed it in the month in which it was required.

(c) Each instructor, supervisor, or check pilot who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this subpart must certify as to the proficiency and knowledge of the crewmember, flight instructor, or check pilot concerned upon completion of that training or check. That certification must be made a part of the crewmember's record. When the certification required by this paragraph is made by an entry in a computerized recordkeeping system, the certifying

instructor, supervisor, or check pilot, must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check pilot is not required for computerized entries.

(d) Training subjects that apply to more than one aircraft or crewmember position and that have been satisfactorily completed during previous training while employed by the program manager for another aircraft or another crewmember position, need not be repeated during subsequent training other than recurrent training.

(e) Aircraft simulators and other training devices may be used in the program manager's training program if approved by the Administrator.

(f) Each program manager is responsible for establishing safe and efficient crew management practices for all phases of flight in program operations including crew resource management training for all crewmembers used in program operations.

(g) If an aircraft simulator has been approved by the Administrator for use in the program manager's training program, the program manager must ensure that each pilot annually completes at least one flight training session in an approved simulator for at least one program aircraft. The training session may be the flight training portion of any of the pilot training or check requirements of this subpart, including the initial, transition, upgrade, requalification, differences, or recurrent training, or the accomplishment of a competency check or instrument proficiency check. If there is no approved simulator for that aircraft type in operation, then all flight training and checking must be accomplished in the aircraft.

§ 91.1075 Training program: Special rules.

Other than the program manager, only the following are eligible under this subpart to conduct training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this subpart.

(a) Another program manager operating under this subpart:

(b) A training center certificated under part 142 of this chapter to conduct training, testing, and checking required by this subpart if the training center -

(1) Holds applicable training specifications issued under part 142 of this chapter;

(2) Has facilities, training equipment, and courseware meeting the applicable requirements of part 142 of this chapter;

(3) Has approved curriculums, curriculum segments, and portions of curriculum segments applicable for use in training courses required by this subpart; and

(4) Has sufficient instructors and check pilots qualified under the applicable requirements of §§ 91.1089 through 91.1095 to conduct training, testing, and checking to persons subject to the requirements of this subpart.

(c) A part 119 certificate holder operating under part 121 or part 135 of this chapter.

(d) As authorized by the Administrator, a training center that is not certificated under part 142 of this chapter.

§ 91.1077 Training program and revision: Initial and final approval.

(a) To obtain initial and final approval of a training program, or a revision to an approved training program, each program manager must submit to the Administrator -

(1) An outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revision; and

(2) Additional relevant information that may be requested by the Administrator.

(b) If the proposed training program or revision complies with this subpart, the Administrator grants initial approval in writing after which the program manager may conduct the training under that program. The Administrator then evaluates the effectiveness of the training program and advises the program manager of deficiencies, if any, that must be corrected.

(c) The Administrator grants final approval of the proposed training program or revision if the program manager shows that the training conducted under the initial approval in paragraph (b) of this section ensures that each person who successfully completes the training is adequately trained to perform that person's assigned duties.

(d) Whenever the Administrator finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, the program manager must, after notification by the Administrator, make any changes in the program that are found necessary by the Administrator. Within 30 days after the program manager receives the notice, it may file a petition to reconsider the notice with the Administrator. The filing of a petition to reconsider stays the notice pending a decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety, the Administrator may, upon a statement of the reasons, require a change effective without stay.

§ 91.1079 Training program: Curriculum.

(a) Each program manager must prepare and keep current a written training program curriculum for each type of aircraft for each crewmember required for that type aircraft. The curriculum must include ground and flight training required by this subpart.

(b) Each training program curriculum must include the following:

(1) A list of principal ground training subjects, including emergency training subjects, that are provided.

(2) A list of all the training devices, mock-ups, systems trainers, procedures trainers, or other training aids that the program manager will use.

(3) Detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers,

procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the inflight portions of flight training and flight checks.

§ 91.1081 Crewmember training requirements.

(a) Each program manager must include in its training program the following initial and transition ground training as appropriate to the particular assignment of the crewmember:

(1) Basic indoctrination ground training for newly hired crewmembers including instruction in at least the -

(i) Duties and responsibilities of crewmembers as applicable;

(ii) Appropriate provisions of this chapter;

(iii) Contents of the program manager's management specifications (not required for flight attendants); and

(iv) Appropriate portions of the program manager's operating manual.

(2) The initial and transition ground training in §§ 91.1101 and 91.1105, as applicable.

(3) Emergency training in § 91.1083.

(b) Each training program must provide the initial and transition flight training in § 91.1103, as applicable.

(c) Each training program must provide recurrent ground and flight training as provided in § 91.1107.

(d) Upgrade training in §§ 91.1101 and 91.1103 for a particular type aircraft may be included in the training program for crewmembers who have qualified and served as second in command on that aircraft.

(e) In addition to initial, transition, upgrade and recurrent training, each training program must provide ground and flight training, instruction, and practice necessary to ensure that each crewmember -

(1) Remains adequately trained and currently proficient for each aircraft, crewmember position, and type of operation in which the crewmember serves; and

(2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to aircraft.

§ 91.1083 Crewmember emergency training.

(a) Each training program must provide emergency training under this section for each aircraft type, model, and configuration, each crewmember, and each kind of operation conducted, as appropriate for each crewmember and the program manager.

(b) Emergency training must provide the following:

(1) Instruction in emergency assignments and procedures, including coordination among crewmembers.

(2) Individual instruction in the location, function, and operation of emergency equipment including -

(i) Equipment used in ditching and evacuation;

(ii) First aid equipment and its proper use; and

(iii) Portable fire extinguishers, with emphasis on the type of extinguisher to be used on different classes of fires.

(3) Instruction in the handling of emergency situations including -

- (i) Rapid decompression;
 - (ii) Fire in flight or on the surface and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas;
 - (iii) Ditching and evacuation;
 - (iv) Illness, injury, or other abnormal situations involving passengers or crewmembers; and
 - (v) Hijacking and other unusual situations.
- (4) Review and discussion of previous aircraft accidents and incidents involving actual emergency situations.

(c) Each crewmember must perform at least the following emergency drills, using the proper emergency equipment and procedures, unless the Administrator finds that, for a particular drill, the crewmember can be adequately trained by demonstration:

- (1) Ditching, if applicable.
 - (2) Emergency evacuation.
 - (3) Fire extinguishing and smoke control.
 - (4) Operation and use of emergency exits, including deployment and use of evacuation slides, if applicable.
 - (5) Use of crew and passenger oxygen.
 - (6) Removal of life rafts from the aircraft, inflation of the life rafts, use of lifelines, and boarding of passengers and crew, if applicable.
 - (7) Donning and inflation of life vests and the use of other individual flotation devices, if applicable.
- (d) Crewmembers who serve in operations above 25,000 feet must receive instruction in the following:
- (1) Respiration.
 - (2) Hypoxia.
 - (3) Duration of consciousness without supplemental oxygen at altitude.
 - (4) Gas expansion.
 - (5) Gas bubble formation.
 - (6) Physical phenomena and incidents of decompression.

§ 91.1085 Hazardous materials recognition training.

No program manager may use any person to perform, and no person may perform, any assigned duties and responsibilities for the handling or carriage of hazardous materials (as defined in 49 CFR 171.8), unless that person has received training in the recognition of hazardous materials.

§ 91.1087 Approval of aircraft simulators and other training devices.

(a) Training courses using aircraft simulators and other training devices may be included in the program manager's training program if approved by the Administrator.

(b) Each aircraft simulator and other training device that is used in a training course or in checks required under this subpart must meet the following requirements:

- (1) It must be specifically approved for -
 - (i) The program manager; and

(ii) The particular maneuver, procedure, or crewmember function involved.

(2) It must maintain the performance, functional, and other characteristics that are required for approval.

(3) Additionally, for aircraft simulators, it must be -

(i) Approved for the type aircraft and, if applicable, the particular variation within type for which the training or check is being conducted; and

(ii) Modified to conform with any modification to the aircraft being simulated that changes the performance, functional, or other characteristics required for approval.

(c) A particular aircraft simulator or other training device may be used by more than one program manager.

(d) In granting initial and final approval of training programs or revisions to them, the Administrator considers the training devices, methods, and procedures listed in the program manager's curriculum under § 91.1079.

§ 91.1089 Qualifications: Check pilots (aircraft) and check pilots (simulator).

(a) For the purposes of this section and § 91.1093:

(1) A check pilot (aircraft) is a person who is qualified to conduct flight checks in an aircraft, in a flight simulator, or in a flight training device for a particular type aircraft.

(2) A check pilot (simulator) is a person who is qualified to conduct flight checks, but only in a flight simulator, in a flight training device, or both, for a particular type aircraft.

(3) Check pilots (aircraft) and check pilots (simulator) are those check pilots who perform the functions described in § 91.1073(a)(4) and (c).

(b) No program manager may use a person, nor may any person serve as a check pilot (aircraft) in a training program established under this subpart unless, with respect to the aircraft type involved, that person -

(1) Holds the pilot certificates and ratings required to serve as a pilot in command in operations under this subpart;

(2) Has satisfactorily completed the training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this subpart;

(3) Has satisfactorily completed the proficiency or competency checks that are required to serve as a pilot in command in operations under this subpart;

(4) Has satisfactorily completed the applicable training requirements of § 91.1093;

(5) Holds at least a Class III medical certificate unless serving as a required crewmember, in which case holds a Class I or Class II medical certificate as appropriate; and

(6) Has been approved by the Administrator for the check pilot duties involved.

(c) No program manager may use a person, nor may any person serve as a check pilot (simulator) in a training program established under this subpart unless, with respect to the aircraft type involved, that person meets the provisions of paragraph (b) of this section, or -

(1) Holds the applicable pilot certificates and ratings, except medical certificate, required to serve as a pilot in command in operations under this subpart;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this subpart;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command in operations under this subpart;

(4) Has satisfactorily completed the applicable training requirements of § 91.1093; and

(5) Has been approved by the Administrator for the check pilot (simulator) duties involved.

(d) Completion of the requirements in paragraphs (b)(2), (3), and (4) or (c)(2), (3), and (4) of this section, as applicable, must be entered in the individual's training record maintained by the program manager.

(e) A check pilot who does not hold an appropriate medical certificate may function as a check pilot (simulator), but may not serve as a flightcrew member in operations under this subpart.

(f) A check pilot (simulator) must accomplish the following -

(1) Fly at least two flight segments as a required crewmember for the type, class, or category aircraft involved within the 12-month period preceding the performance of any check pilot duty in a flight simulator; or

(2) Before performing any check pilot duty in a flight simulator, satisfactorily complete an approved line-observation program within the period prescribed by that program.

(g) The flight segments or line-observation program required in paragraph (f) of this section are considered to be completed in the month required if completed in the month before or the month after the month in which they are due.

§ 91.1091 Qualifications: Flight instructors (aircraft) and flight instructors (simulator).

(a) For the purposes of this section and § 91.1095:

(1) A flight instructor (aircraft) is a person who is qualified to instruct in an aircraft, in a flight simulator, or in a flight training device for a particular type, class, or category aircraft.

(2) A flight instructor (simulator) is a person who is qualified to instruct in a flight simulator, in a flight training device, or in both, for a particular type, class, or category aircraft.

(3) Flight instructors (aircraft) and flight instructors (simulator) are those instructors who perform the functions described in § 91.1073(a)(4) and (c).

(b) No program manager may use a person, nor may any person serve as a flight instructor (aircraft) in a training program established under this subpart unless, with respect to the type, class, or category aircraft involved, that person -

(1) Holds the pilot certificates and ratings required to serve as a pilot in command in operations under this subpart or part 121 or 135 of this chapter;

(2) Has satisfactorily completed the training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this subpart;

(3) Has satisfactorily completed the proficiency or competency checks that are required to serve as a pilot in command in operations under this subpart;

(4) Has satisfactorily completed the applicable training requirements of § 91.1095; and

(5) Holds at least a Class III medical certificate.

(c) No program manager may use a person, nor may any person serve as a flight instructor (simulator) in a training program established under this subpart, unless, with respect to the type, class, or category aircraft involved, that person meets the provisions of paragraph (b) of this section, or -

(1) Holds the pilot certificates and ratings, except medical certificate, required to serve as a pilot in command in operations under this subpart or part 121 or 135 of this chapter;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this subpart;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command in operations under this subpart; and

(4) Has satisfactorily completed the applicable training requirements of § 91.1095.

(d) Completion of the requirements in paragraphs (b)(2), (3), and (4) or (c)(2), (3), and (4) of this section, as applicable, must be entered in the individual's training record maintained by the program manager.

(e) A pilot who does not hold a medical certificate may function as a flight instructor in an aircraft if functioning as a non-required crewmember, but may not serve as a flightcrew member in operations under this subpart.

(f) A flight instructor (simulator) must accomplish the following -

(1) Fly at least two flight segments as a required crewmember for the type, class, or category aircraft involved within the 12-month period preceding the performance of any flight instructor duty in a flight simulator; or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program preceding the performance of any flight instructor duty in a flight simulator.

(g) The flight segments or line-observation program required in paragraph (f) of this section are considered completed in the month required if completed in the month before, or in the month after, the month in which they are due.

[Doc. No. FAA-2001-10047, 68 FR 54561, Sept. 17, 2003, as amended by Amdt. 91-322, 76 FR 31823, June 2, 2011]

§ 91.1093 Initial and transition training and checking: Check pilots (aircraft), check pilots (simulator).

(a) No program manager may use a person nor may any person serve as a check pilot unless -

(1) That person has satisfactorily completed initial or transition check pilot training; and

(2) Within the preceding 24 months, that person satisfactorily conducts a proficiency or competency check under the observation of an FAA inspector or an aircrew designated examiner employed by the program manager. The observation check may be accomplished in part or in full in an aircraft, in a flight simulator, or in a flight training device.

(b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the month before or the month after the month in which it is due.

(c) The initial ground training for check pilots must include the following:

(1) Check pilot duties, functions, and responsibilities.

(2) The applicable provisions of the Code of Federal Regulations and the program manager's policies and procedures.

(3) The applicable methods, procedures, and techniques for conducting the required checks.

(4) Proper evaluation of student performance including the detection of -

(i) Improper and insufficient training; and

(ii) Personal characteristics of an applicant that could adversely affect safety.

(5) The corrective action in the case of unsatisfactory checks.

(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.

(d) The transition ground training for a check pilot must include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the check pilot is in transition.

(e) The initial and transition flight training for a check pilot (aircraft) must include the following -

(1) The safety measures for emergency situations that are likely to develop during a check;

(2) The potential results of improper, untimely, or nonexecution of safety measures during a check;

(3) Training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence to conduct the pilot flight checks required by this subpart; and

(4) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during checking.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(g) The initial and transition flight training for a check pilot (simulator) must include the following:

(1) Training and practice in conducting flight checks in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight checks required by this subpart. This training and practice must be accomplished in a flight simulator or in a flight training device.

(2) Training in the operation of flight simulators, flight training devices, or both, to ensure competence to conduct the flight checks required by this subpart.

§ 91.1095 Initial and transition training and checking: Flight instructors (aircraft), flight instructors (simulator).

(a) No program manager may use a person nor may any person serve as a flight instructor unless -

(1) That person has satisfactorily completed initial or transition flight instructor training; and

(2) Within the preceding 24 months, that person satisfactorily conducts instruction under the observation of an FAA inspector, a program manager check pilot, or an aircrew designated examiner employed by the program manager. The observation check may be accomplished in part or in full in an aircraft, in a flight simulator, or in a flight training device.

(b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the month before, or the month after, the month in which it is due.

(c) The initial ground training for flight instructors must include the following:

(1) Flight instructor duties, functions, and responsibilities.

(2) The applicable Code of Federal Regulations and the program manager's policies and procedures.

(3) The applicable methods, procedures, and techniques for conducting flight instruction.

(4) Proper evaluation of student performance including the detection of -

(i) Improper and insufficient training; and

(ii) Personal characteristics of an applicant that could adversely affect safety.

(5) The corrective action in the case of unsatisfactory training progress.

(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.

(7) Except for holders of a flight instructor certificate -

(i) The fundamental principles of the teaching-learning process;

(ii) Teaching methods and procedures; and

(iii) The instructor-student relationship.

(d) The transition ground training for flight instructors must include the approved methods, procedures, and

limitations for performing the required normal, abnormal, and emergency procedures applicable to the type, class, or category aircraft to which the flight instructor is in transition.

(e) The initial and transition flight training for flight instructors (aircraft) must include the following -

(1) The safety measures for emergency situations that are likely to develop during instruction;

(2) The potential results of improper or untimely safety measures during instruction;

(3) Training and practice from the left and right pilot seats in the required normal, abnormal, and emergency maneuvers to ensure competence to conduct the flight instruction required by this subpart; and

(4) The safety measures to be taken from either the left or right pilot seat for emergency situations that are likely to develop during instruction.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(g) The initial and transition flight training for a flight instructor (simulator) must include the following:

(1) Training and practice in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight instruction required by this subpart. These maneuvers and procedures must be accomplished in full or in part in a flight simulator or in a flight training device.

(2) Training in the operation of flight simulators, flight training devices, or both, to ensure competence to conduct the flight instruction required by this subpart.

§ 91.1097 Pilot and flight attendant crewmember training programs.

(a) Each program manager must establish and maintain an approved pilot training program, and each program manager who uses a flight attendant crewmember must establish and maintain an approved flight attendant training program, that is appropriate to the operations to which each pilot and flight attendant is to be assigned, and will ensure that they are adequately trained to meet the applicable knowledge and practical testing requirements of §§ 91.1065 through 91.1071.

(b) Each program manager required to have a training program by paragraph (a) of this section must include in that program ground and flight training curriculums for -

- (1) Initial training;
- (2) Transition training;
- (3) Upgrade training;
- (4) Differences training;
- (5) Recurrent training; and
- (6) Requalification training.

(c) Each program manager must provide current and appropriate study materials for use by each required pilot and flight attendant.

(d) The program manager must furnish copies of the pilot and flight attendant crewmember training program, and all changes and additions, to the assigned representative

of the Administrator. If the program manager uses training facilities of other persons, a copy of those training programs or appropriate portions used for those facilities must also be furnished. Curricula that follow FAA published curricula may be cited by reference in the copy of the training program furnished to the representative of the Administrator and need not be furnished with the program.

§ 91.1099 Crewmember initial and recurrent training requirements.

No program manager may use a person, nor may any person serve, as a crewmember in operations under this subpart unless that crewmember has completed the appropriate initial or recurrent training phase of the training program appropriate to the type of operation in which the crewmember is to serve since the beginning of the 12th month before that service.

§ 91.1101 Pilots: Initial, transition, and upgrade ground training.

Initial, transition, and upgrade ground training for pilots must include instruction in at least the following, as applicable to their duties:

- (a) General subjects -
 - (1) The program manager's flight locating procedures;
 - (2) Principles and methods for determining weight and balance, and runway limitations for takeoff and landing;
 - (3) Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, windshear and, if appropriate, high altitude weather situations;
 - (4) Air traffic control systems, procedures, and phraseology;
 - (5) Navigation and the use of navigational aids, including instrument approach procedures;
 - (6) Normal and emergency communication procedures;
 - (7) Visual cues before and during descent below Decision Altitude or MDA; and
 - (8) Other instructions necessary to ensure the pilot's competence.
- (b) For each aircraft type -
 - (1) A general description;
 - (2) Performance characteristics;
 - (3) Engines and propellers;
 - (4) Major components;
 - (5) Major aircraft systems (that is, flight controls, electrical, and hydraulic), other systems, as appropriate, principles of normal, abnormal, and emergency operations, appropriate procedures and limitations;
 - (6) Knowledge and procedures for -
 - (i) Recognizing and avoiding severe weather situations;
 - (ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be trained in escaping from low-altitude windshear);

(iii) Operating in or near thunderstorms (including best penetration altitudes), turbulent air (including clear air turbulence), inflight icing, hail, and other potentially hazardous meteorological conditions; and

(iv) Operating airplanes during ground icing conditions, (that is, any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft), if the program manager expects to authorize takeoffs in ground icing conditions, including:

(A) The use of holdover times when using deicing/anti-icing fluids;

(B) Airplane deicing/anti-icing procedures, including inspection and check procedures and responsibilities;

(C) Communications;

(D) Airplane surface contamination (that is, adherence of frost, ice, or snow) and critical area identification, and knowledge of how contamination adversely affects airplane performance and flight characteristics;

(E) Types and characteristics of deicing/anti-icing fluids, if used by the program manager;

(F) Cold weather preflight inspection procedures;

(G) Techniques for recognizing contamination on the airplane;

(7) Operating limitations;

(8) Fuel consumption and cruise control;

(9) Flight planning;

(10) Each normal and emergency procedure; and

(11) The approved Aircraft Flight Manual or equivalent.

§ 91.1103 Pilots: Initial, transition, upgrade, requalification, and differences flight training.

(a) Initial, transition, upgrade, requalification, and differences training for pilots must include flight and practice in each of the maneuvers and procedures contained in each of the curriculums that are a part of the approved training program.

(b) The maneuvers and procedures required by paragraph (a) of this section must be performed in flight, except to the extent that certain maneuvers and procedures may be performed in an aircraft simulator, or an appropriate training device, as allowed by this subpart.

(c) If the program manager's approved training program includes a course of training using an aircraft simulator or other training device, each pilot must successfully complete -

(1) Training and practice in the simulator or training device in at least the maneuvers and procedures in this subpart that are capable of being performed in the aircraft simulator or training device; and

(2) A flight check in the aircraft or a check in the simulator or training device to the level of proficiency of a pilot in command or second in command, as applicable, in at least the maneuvers and procedures that are capable of being performed in an aircraft simulator or training device.

§ 91.1105 Flight attendants: Initial and transition ground training.

Initial and transition ground training for flight attendants must include instruction in at least the following -

(a) General subjects -

(1) The authority of the pilot in command; and

(2) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety.

(b) For each aircraft type -

(1) A general description of the aircraft emphasizing physical characteristics that may have a bearing on ditching, evacuation, and inflight emergency procedures and on other related duties;

(2) The use of both the public address system and the means of communicating with other flight crewmembers, including emergency means in the case of attempted hijacking or other unusual situations; and

(3) Proper use of electrical galley equipment and the controls for cabin heat and ventilation.

§ 91.1107 Recurrent training.

(a) Each program manager must ensure that each crewmember receives recurrent training and is adequately trained and currently proficient for the type aircraft and crewmember position involved.

(b) Recurrent ground training for crewmembers must include at least the following:

(1) A quiz or other review to determine the crewmember's knowledge of the aircraft and crewmember position involved.

(2) Instruction as necessary in the subjects required for initial ground training by this subpart, as appropriate, including low-altitude windshear training and training on operating during ground icing conditions, as prescribed in § 91.1097 and described in § 91.1101, and emergency training.

(c) Recurrent flight training for pilots must include, at least, flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by § 91.1065 within the preceding 12 months may be substituted for recurrent flight training.

§ 91.1109 Aircraft maintenance: Inspection program.

Each program manager must establish an aircraft inspection program for each make and model program aircraft and ensure each aircraft is inspected in accordance with that inspection program.

(a) The inspection program must be in writing and include at least the following information:

(1) Instructions and procedures for the conduct of inspections for the particular make and model aircraft, including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the

airframe, engines, propellers, rotors, and appliances, including survival and emergency equipment required to be inspected.

(2) A schedule for performing the inspections that must be accomplished under the inspection program expressed in terms of the time in service, calendar time, number of system operations, or any combination thereof.

(3) The name and address of the person responsible for scheduling the inspections required by the inspection program. A copy of the inspection program must be made available to the person performing inspections on the aircraft and, upon request, to the Administrator.

(b) Each person desiring to establish or change an approved inspection program under this section must submit the inspection program for approval to the Flight Standards District Office that issued the program manager's management specifications. The inspection program must be derived from one of the following programs:

(1) An inspection program currently recommended by the manufacturer of the aircraft, aircraft engines, propellers, appliances, and survival and emergency equipment;

(2) An inspection program that is part of a continuous airworthiness maintenance program currently in use by a person holding an air carrier or operating certificate issued under part 119 of this chapter and operating that make and model aircraft under part 121 or 135 of this chapter;

(3) An aircraft inspection program approved under § 135.419 of this chapter and currently in use under part 135 of this chapter by a person holding a certificate issued under part 119 of this chapter; or

(4) An airplane inspection program approved under § 125.247 of this chapter and currently in use under part 125 of this chapter.

(5) An inspection program that is part of the program manager's continuous airworthiness maintenance program under §§ 91.1411 through 91.1443.

(c) The Administrator may require revision of the inspection program approved under this section in accordance with the provisions of § 91.415.

§ 91.1111 Maintenance training.

The program manager must ensure that all employees who are responsible for maintenance related to program aircraft undergo appropriate initial and annual recurrent training and are competent to perform those duties.

§ 91.1113 Maintenance recordkeeping.

Each fractional ownership program manager must keep (using the system specified in the manual required in § 91.1025) the records specified in § 91.417(a) for the periods specified in § 91.417(b).

§ 91.1115 Inoperable instruments and equipment.

(a) No person may take off an aircraft with inoperable instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that aircraft.

(2) The program manager has been issued management specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew must have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Administrator in the program manager's management specifications. An approved Minimum Equipment List, as authorized by the management specifications, constitutes an approved change to the type design without requiring recertification.

(3) The approved Minimum Equipment List must:

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section.

(ii) Provide for the operation of the aircraft with certain instruments and equipment in an inoperable condition.

(4) Records identifying the inoperable instruments and equipment and the information required by (a)(3)(ii) of this section must be available to the pilot.

(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the management specifications authorizing use of the Minimum Equipment List.

(b) The following instruments and equipment may not be included in the Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and that are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) Notwithstanding paragraphs (b)(1) and (b)(3) of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit under §§ 21.197 and 21.199 of this chapter.

(d) A person authorized to use an approved Minimum Equipment List issued for a specific aircraft under part 121, 125, or 135 of this chapter must use that Minimum Equipment List to comply with this section.

§ 91.1411 Continuous airworthiness maintenance program use by fractional ownership program manager.

Fractional ownership program aircraft may be maintained under a continuous airworthiness maintenance program (CAMP) under §§ 91.1413 through 91.1443. Any program manager who elects to maintain the program aircraft using a continuous airworthiness maintenance program must comply with §§ 91.1413 through 91.1443.

§ 91.1413 CAMP: Responsibility for airworthiness.

(a) For aircraft maintained in accordance with a Continuous Airworthiness Maintenance Program, each program manager is primarily responsible for the following:

(1) Maintaining the airworthiness of the program aircraft, including airframes, aircraft engines, propellers, rotors, appliances, and parts.

(2) Maintaining its aircraft in accordance with the requirements of this chapter.

(3) Repairing defects that occur between regularly scheduled maintenance required under part 43 of this chapter.

(b) Each program manager who maintains program aircraft under a CAMP must -

(1) Employ a Director of Maintenance or equivalent position. The Director of Maintenance must be a certificated mechanic with airframe and powerplant ratings who has responsibility for the maintenance program on all program aircraft maintained under a continuous airworthiness maintenance program. This person cannot also act as Chief Inspector.

(2) Employ a Chief Inspector or equivalent position. The Chief Inspector must be a certificated mechanic with airframe and powerplant ratings who has overall responsibility for inspection aspects of the CAMP. This person cannot also act as Director of Maintenance.

(3) Have the personnel to perform the maintenance of program aircraft, including airframes, aircraft engines, propellers, rotors, appliances, emergency equipment and parts, under its manual and this chapter; or make arrangements with another person for the performance of maintenance. However, the program manager must ensure that any maintenance, preventive maintenance, or alteration that is performed by another person is performed under the program manager's operating manual and this chapter.

§ 91.1415 CAMP: Mechanical reliability reports.

(a) Each program manager who maintains program aircraft under a CAMP must report the occurrence or detection of each failure, malfunction, or defect in an aircraft concerning -

(1) Fires during flight and whether the related fire-warning system functioned properly;

(2) Fires during flight not protected by related fire-warning system;

(3) False fire-warning during flight;

(4) An exhaust system that causes damage during flight to the engine, adjacent structure, equipment, or components;

(5) An aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;

(6) Engine shutdown during flight because of flameout;

(7) Engine shutdown during flight when external damage to the engine or aircraft structure occurs;

(8) Engine shutdown during flight because of foreign object ingestion or icing;

(9) Shutdown of more than one engine during flight;

(10) A propeller feathering system or ability of the system to control overspeed during flight;

(11) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage during flight;

(12) An unwanted landing gear extension or retraction or opening or closing of landing gear doors during flight;

(13) Brake system components that result in loss of brake actuating force when the aircraft is in motion on the ground;

(14) Aircraft structure that requires major repair;

(15) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the FAA; and

(16) Aircraft components or systems that result in taking emergency actions during flight (except action to shut down an engine).

(b) For the purpose of this section, *during flight* means the period from the moment the aircraft leaves the surface of the earth on takeoff until it touches down on landing.

(c) In addition to the reports required by paragraph (a) of this section, each program manager must report any other failure, malfunction, or defect in an aircraft that occurs or is detected at any time if, in the manager's opinion, the failure, malfunction, or defect has endangered or may endanger the safe operation of the aircraft.

(d) Each program manager must send each report required by this section, in writing, covering each 24-hour period beginning at 0900 hours local time of each day and ending at 0900 hours local time on the next day to the Flight Standards District Office that issued the program manager's management specifications. Each report of occurrences during a 24-hour period must be mailed or transmitted to that office within the next 72 hours. However, a report that is due on Saturday or Sunday may be mailed or transmitted on the following Monday and one that is due on a holiday may be mailed or transmitted on the next workday. For aircraft operated in areas where mail is not collected, reports may be mailed or transmitted within 72 hours after the aircraft returns to a point where the mail is collected.

(e) The program manager must transmit the reports required by this section on a form and in a manner prescribed by the Administrator, and must include as much of the following as is available:

(1) The type and identification number of the aircraft.

(2) The name of the program manager.

(3) The date.

(4) The nature of the failure, malfunction, or defect.

(5) Identification of the part and system involved, including available information pertaining to type designation of the major component and time since last overhaul, if known.

(6) Apparent cause of the failure, malfunction or defect (for example, wear, crack, design deficiency, or personnel error).

(7) Other pertinent information necessary for more complete identification, determination of seriousness, or corrective action.

(f) A program manager that is also the holder of a type certificate (including a supplemental type certificate), a Parts Manufacturer Approval, or a Technical Standard Order Authorization, or that is the licensee of a type certificate need not report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported by it under § 21.3 of this chapter or under the accident reporting provisions of part 830 of the regulations of the National Transportation Safety Board.

(g) No person may withhold a report required by this section even when not all information required by this section is available.

(h) When the program manager receives additional information, including information from the manufacturer or other agency, concerning a report required by this section, the program manager must expeditiously submit it as a supplement to the first report and reference the date and place of submission of the first report.

§ 91.1417 CAMP: Mechanical interruption summary report.

Each program manager who maintains program aircraft under a CAMP must mail or deliver, before the end of the 10th day of the following month, a summary report of the following occurrences in multiengine aircraft for the preceding month to the Flight Standards District Office that issued the management specifications:

(a) Each interruption to a flight, unscheduled change of aircraft en route, or unscheduled stop or diversion from a route, caused by known or suspected mechanical difficulties or malfunctions that are not required to be reported under § 91.1415.

(b) The number of propeller featherings in flight, listed by type of propeller and engine and aircraft on which it was installed. Propeller featherings for training, demonstration, or flight check purposes need not be reported.

§ 91.1423 CAMP: Maintenance organization.

(a) Each program manager who maintains program aircraft under a CAMP that has its personnel perform any of its maintenance (other than required inspections), preventive maintenance, or alterations, and each person with whom it arranges for the performance of that work, must have an organization adequate to perform the work.

(b) Each program manager who has personnel perform any inspections required by the program manager's manual under § 91.1427(b) (2) or (3), (in this subpart referred to as required inspections), and each person with whom the program manager arranges for the performance of that work, must have an organization adequate to perform that work.

(c) Each person performing required inspections in addition to other maintenance, preventive maintenance, or alterations, must organize the performance of those functions so as to separate the required inspection functions from the other maintenance, preventive maintenance, or alteration

functions. The separation must be below the level of administrative control at which overall responsibility for the required inspection functions and other maintenance, preventive maintenance, or alterations is exercised.

§ 91.1425 CAMP: Maintenance, preventive maintenance, and alteration programs.

Each program manager who maintains program aircraft under a CAMP must have an inspection program and a program covering other maintenance, preventive maintenance, or alterations that ensures that -

(a) Maintenance, preventive maintenance, or alterations performed by its personnel, or by other persons, are performed under the program manager's manual;

(b) Competent personnel and adequate facilities and equipment are provided for the proper performance of maintenance, preventive maintenance, or alterations; and

(c) Each aircraft released to service is airworthy and has been properly maintained for operation under this part.

§ 91.1427 CAMP: Manual requirements.

(a) Each program manager who maintains program aircraft under a CAMP must put in the operating manual the chart or description of the program manager's organization required by § 91.1423 and a list of persons with whom it has arranged for the performance of any of its required inspections, and other maintenance, preventive maintenance, or alterations, including a general description of that work.

(b) Each program manager must put in the operating manual the programs required by § 91.1425 that must be followed in performing maintenance, preventive maintenance, or alterations of that program manager's aircraft, including airframes, aircraft engines, propellers, rotors, appliances, emergency equipment, and parts, and must include at least the following:

(1) The method of performing routine and nonroutine maintenance (other than required inspections), preventive maintenance, or alterations.

(2) A designation of the items of maintenance and alteration that must be inspected (required inspections) including at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or if improper parts or materials are used.

(3) The method of performing required inspections and a designation by occupational title of personnel authorized to perform each required inspection.

(4) Procedures for the reinspection of work performed under previous required inspection findings (buy-back procedures).

(5) Procedures, standards, and limits necessary for required inspections and acceptance or rejection of the items required to be inspected and for periodic inspection and calibration of precision tools, measuring devices, and test equipment.

(6) Procedures to ensure that all required inspections are performed.

(7) Instructions to prevent any person who performs any item of work from performing any required inspection of that work.

(8) Instructions and procedures to prevent any decision of an inspector regarding any required inspection from being countermanded by persons other than supervisory personnel of the inspection unit, or a person at the level of administrative control that has overall responsibility for the management of both the required inspection functions and the other maintenance, preventive maintenance, or alterations functions.

(9) Procedures to ensure that maintenance (including required inspections), preventive maintenance, or alterations that are not completed because of work interruptions are properly completed before the aircraft is released to service.

(c) Each program manager must put in the manual a suitable system (which may include an electronic or coded system) that provides for the retention of the following information -

(1) A description (or reference to data acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the program manager; and

(3) The name or other positive identification of the individual approving the work.

(d) For the purposes of this part, the program manager must prepare that part of its manual containing maintenance information and instructions, in whole or in part, in a format acceptable to the Administrator, that is retrievable in the English language.

§ 91.1429 CAMP: Required inspection personnel.

(a) No person who maintains an aircraft under a CAMP may use any person to perform required inspections unless the person performing the inspection is appropriately certificated, properly trained, qualified, and authorized to do so.

(b) No person may allow any person to perform a required inspection unless, at the time the work was performed, the person performing that inspection is under the supervision and control of the chief inspector.

(c) No person may perform a required inspection if that person performed the item of work required to be inspected.

(d) Each program manager must maintain, or must ensure that each person with whom it arranges to perform required inspections maintains, a current listing of persons who have been trained, qualified, and authorized to conduct required inspections. The persons must be identified by name, occupational title, and the inspections that they are authorized to perform. The program manager (or person with whom it arranges to perform its required inspections) must give written information to each person so authorized, describing the extent of that person's responsibilities, authorities, and inspectional

limitations. The list must be made available for inspection by the Administrator upon request.

§ 91.1431 CAMP: Continuing analysis and surveillance.

(a) Each program manager who maintains program aircraft under a CAMP must establish and maintain a system for the continuing analysis and surveillance of the performance and effectiveness of its inspection program and the program covering other maintenance, preventive maintenance, and alterations and for the correction of any deficiency in those programs, regardless of whether those programs are carried out by employees of the program manager or by another person.

(b) Whenever the Administrator finds that the programs described in paragraph (a) of this section does not contain adequate procedures and standards to meet this part, the program manager must, after notification by the Administrator, make changes in those programs requested by the Administrator.

(c) A program manager may petition the Administrator to reconsider the notice to make a change in a program. The petition must be filed with the Director, Flight Standards Service, within 30 days after the program manager receives the notice. Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

§ 91.1433 CAMP: Maintenance and preventive maintenance training program.

Each program manager who maintains program aircraft under a CAMP or a person performing maintenance or preventive maintenance functions for it must have a training program to ensure that each person (including inspection personnel) who determines the adequacy of work done is fully informed about procedures and techniques and new equipment in use and is competent to perform that person's duties.

§ 91.1435 CAMP: Certificate requirements.

(a) Except for maintenance, preventive maintenance, alterations, and required inspections performed by repair stations located outside the United States certificated under the provisions of part 145 of this chapter, each person who is directly in charge of maintenance, preventive maintenance, or alterations for a CAMP, and each person performing required inspections for a CAMP must hold an appropriate airman certificate.

(b) For the purpose of this section, a person "directly in charge" is each person assigned to a position in which that person is responsible for the work of a shop or station that performs maintenance, preventive maintenance, alterations, or other functions affecting airworthiness. A person who is directly in charge need not physically observe and direct each worker constantly but must be available for consultation and

decision on matters requiring instruction or decision from higher authority than that of the person performing the work.

§ 91.1437 CAMP: Authority to perform and approve maintenance.

A program manager who maintains program aircraft under a CAMP may employ maintenance personnel, or make arrangements with other persons to perform maintenance and preventive maintenance as provided in its maintenance manual. Unless properly certificated, the program manager may not perform or approve maintenance for return to service.

§ 91.1439 CAMP: Maintenance recording requirements.

(a) Each program manager who maintains program aircraft under a CAMP must keep (using the system specified in the manual required in § 91.1427) the following records for the periods specified in paragraph (b) of this section:

(1) All the records necessary to show that all requirements for the issuance of an airworthiness release under § 91.1443 have been met.

(2) Records containing the following information:

(i) The total time in service of the airframe, engine, propeller, and rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of each item installed on the aircraft that are required to be overhauled on a specified time basis.

(iv) The identification of the current inspection status of the aircraft, including the time since the last inspections required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required.

(vi) A list of current major alterations and repairs to each airframe, engine, propeller, rotor, and appliance.

(b) Each program manager must retain the records required to be kept by this section for the following periods:

(1) Except for the records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance the records specified in paragraph (a)(1) of this section must be retained until the work is repeated or superseded by other work or for one year after the work is performed.

(2) The records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance must be retained until the work is superseded by work of equivalent scope and detail.

(3) The records specified in paragraph (a)(2) of this section must be retained as specified unless transferred with the aircraft at the time the aircraft is sold.

(c) The program manager must make all maintenance records required to be kept by this section available for

inspection by the Administrator or any representative of the National Transportation Safety Board.

§ 91.1441 CAMP: Transfer of maintenance records.

When a U.S.-registered fractional ownership program aircraft maintained under a CAMP is removed from the list of program aircraft in the management specifications, the program manager must transfer to the purchaser, at the time of the sale, the following records of that aircraft, in plain language form or in coded form that provides for the preservation and retrieval of information in a manner acceptable to the Administrator:

(a) The records specified in § 91.1439(a)(2).

(b) The records specified in § 91.1439(a)(1) that are not included in the records covered by paragraph (a) of this section, except that the purchaser may allow the program manager to keep physical custody of such records. However, custody of records by the program manager does not relieve the purchaser of its responsibility under § 91.1439(c) to make the records available for inspection by the Administrator or any representative of the National Transportation Safety Board.

§ 91.1443 CAMP: Airworthiness release or aircraft maintenance log entry.

(a) No program aircraft maintained under a CAMP may be operated after maintenance, preventive maintenance, or alterations are performed unless qualified, certificated personnel employed by the program manager prepare, or cause the person with whom the program manager arranges for the performance of the maintenance, preventive maintenance, or alterations, to prepare -

(1) An airworthiness release; or

(2) An appropriate entry in the aircraft maintenance log.

(b) The airworthiness release or log entry required by paragraph (a) of this section must -

(1) Be prepared in accordance with the procedure in the program manager's manual;

(2) Include a certification that -

(i) The work was performed in accordance with the requirements of the program manager's manual;

(ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed;

(iii) No known condition exists that would make the aircraft unairworthy;

(iv) So far as the work performed is concerned, the aircraft is in condition for safe operation; and

(3) Be signed by an authorized certificated mechanic.

(c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations performed by a repair station certificated under the provisions of part 145 of this chapter, the approval for return to service or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

(d) Instead of restating each of the conditions of the certification required by paragraph (b) of this section, the program manager may state in its manual that the signature of an authorized certificated mechanic or repairman constitutes that certification.

Subpart L - Continued Airworthiness and Safety Improvements

Source:

Amdt. 91-297, 72 FR 63410, Nov. 8, 2007, unless otherwise noted.

§ 91.1501 Purpose and definition.

(a) This subpart requires operators to support the continued airworthiness of each airplane. These requirements may include, but are not limited to, revising the inspection program, incorporating design changes, and incorporating revisions to Instructions for Continued Airworthiness.

(b) For purposes of this subpart, the “FAA Oversight Office” is the aircraft certification office or office of the Transport Airplane Directorate with oversight responsibility for the relevant type certificate or supplemental type certificate, as determined by the Administrator.

§ 91.1503 [Reserved]

§ 91.1505 Repairs assessment for pressurized fuselages.

(a) No person may operate an Airbus Model A300 (excluding the -600 series), British Aerospace Model BAC 1-11, Boeing Model, 707, 720, 727, 737 or 747, McDonnell Douglas Model DC-8, DC-9/MD-80 or DC-10, Fokker Model F28, or Lockheed Model L-1011 airplane beyond applicable flight cycle implementation time specified below, or May 25, 2001, whichever occurs later, unless repair assessment guidelines applicable to the fuselage pressure boundary (fuselage skin, door skin, and bulkhead webs) that have been approved by the FAA Aircraft Certification Office (ACO), or office of the Transport Airplane Directorate, having cognizance over the type certificate for the affected airplane are incorporated within its inspection program:

(1) For the Airbus Model A300 (excluding the -600 series), the flight cycle implementation time is:

(i) Model B2: 36,000 flights.

(ii) Model B4-100 (including Model B4-2C): 30,000 flights above the window line, and 36,000 flights below the window line.

(iii) Model B4-200: 25,500 flights above the window line, and 34,000 flights below the window line.

(2) For all models of the British Aerospace BAC 1-11, the flight cycle implementation time is 60,000 flights.

(3) For all models of the Boeing 707, the flight cycle implementation time is 15,000 flights.

(4) For all models of the Boeing 720, the flight cycle implementation time is 23,000 flights.

(5) For all models of the Boeing 727, the flight cycle implementation time is 45,000 flights.

(6) For all models of the Boeing 737, the flight cycle implementation time is 60,000 flights.

(7) For all models of the Boeing 747, the flight cycle implementation time is 15,000 flights.

(8) For all models of the McDonnell Douglas DC-8, the flight cycle implementation time is 30,000 flights.

(9) For all models of the McDonnell Douglas DC-9/MD-80, the flight cycle implementation time is 60,000 flights.

(10) For all models of the McDonnell Douglas DC-10, the flight cycle implementation time is 30,000 flights.

(11) For all models of the Lockheed L-1011, the flight cycle implementation time is 27,000 flights.

(12) For the Fokker F-28 Mark 1000, 2000, 3000, and 4000, the flight cycle implementation time is 60,000 flights.

(b) [Reserved]

[Doc. No. 29104, 65 FR 24125, Apr. 25, 2000; 65 FR 35703, June 5, 2000; 65 FR 50744, Aug. 21, 2000, as amended by Amdt. 91-266, 66 FR 23130, May 7, 2001; Amdt. 91-277, 67 FR 72834, Dec. 9, 2002; Amdt. 91-283, 69 FR 45941, July 30, 2004. Redesignated and amended by Amdt. 91-297, 72 FR 63410, Nov. 8, 2007]

§ 91.1507 Fuel tank system inspection program.

(a) Except as provided in paragraph (g) of this section, this section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity, have -

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7,500 pounds or more.

(b) For each airplane on which an auxiliary fuel tank is installed under a field approval, before June 16, 2008, the operator must submit to the FAA Oversight Office proposed maintenance instructions for the tank that meet the requirements of Special Federal Aviation Regulation No. 88 (SFAR 88) of this chapter.

(c) After December 16, 2008, no operator may operate an airplane identified in paragraph (a) of this section unless the inspection program for that airplane has been revised to include applicable inspections, procedures, and limitations for fuel tank systems.

(d) The proposed fuel tank system inspection program revisions specified in paragraph (c) of this section must be based on fuel tank system Instructions for Continued Airworthiness (ICA) that have been developed in accordance with the applicable provisions of SFAR 88 of this chapter or § 25.1529 and part 25, Appendix H, of this chapter, in effect on June 6, 2001 (including those developed for auxiliary fuel tanks, if any, installed under supplemental type certificates or

other design approval) and that have been approved by the FAA Oversight Office.

(e) After December 16, 2008, before returning an airplane to service after any alterations for which fuel tank ICA are developed under SFAR 88, or under § 25.1529 in effect on June 6, 2001, the operator must include in the inspection program for the airplane inspections and procedures for the fuel tank system based on those ICA.

(f) The fuel tank system inspection program changes identified in paragraphs (d) and (e) of this section and any later fuel tank system revisions must be submitted to the Flight Standards District Office (FSDO) responsible for review and approval.

(g) This section does not apply to the following airplane models:

- (1) Bombardier CL-44
- (2) Concorde
- (3) deHavilland D.H. 106 Comet 4C
- (4) VFW-Vereinigte Flugtechnische Werk VFW-614
- (5) Ilyushin Aviation IL 96T
- (6) Bristol Aircraft Britannia 305
- (7) Handley Page Herald Type 300
- (8) Avions Marcel Dassault - Breguet Aviation Mercure 100C
- (9) Airbus Caravelle
- (10) Lockheed L-300

Subpart M - Special Federal Aviation Regulations

§ 91.1603 Special Federal Aviation Regulation No. 112 - Prohibition Against Certain Flights in the Tripoli (HLLL) Flight Information Region (FIR).

(a) *Applicability.* This section applies to the following persons:

- (1) All U.S. air carriers and U.S. commercial operators;
- (2) All persons exercising the privileges of an airman certificate issued by the FAA, except when such persons are operating a U.S.-registered aircraft for a foreign air carrier; and
- (3) All operators of U.S.-registered civil aircraft, except operators of such aircraft that are foreign air carriers.

(b) *Flight prohibition.* Except as provided in paragraphs (c) and (d) of this section, no person described in paragraph (a) of this section may conduct flight operations in the Tripoli (HLLL) FIR.

(c) *Permitted operations.* This section does not prohibit persons described in paragraph (a) of this section from conducting flight operations in the Tripoli (HLLL) FIR under the following conditions:

- (1) Flight operations are conducted under a contract, grant, or cooperative agreement with a department, agency, or instrumentality of the U.S. government (or under a subcontract between the prime contractor of the department, agency, or

instrumentality, and the person described in paragraph (a) of this section), with the approval of the FAA, or under an exemption issued by the FAA. The FAA will process requests for approval or exemption in a timely manner, with the order of preference being: First, for those operations in support of U.S. government-sponsored activities; second, for those operations in support of government-sponsored activities of a foreign country with the support of a U.S. government department, agency, or instrumentality; and third, for all other operations.

(2) [Reserved]

(d) *Emergency situations.* In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this section to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR part 119, 121, 125, or 135, each person who deviates from this section must, within 10 days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons for it.

(e) *Expiration.* This Special Federal Aviation Regulation will remain in effect until March 20, 2019. The FAA may amend, rescind, or extend this Special Federal Aviation Regulation as necessary.

[Docket FAA-2011-0246, Amdt. 91-321C, 82 FR 14436, Mar. 21, 2017]

§ 91.1607 Special Federal Aviation Regulation No. 113 - Prohibition Against Certain Flights in the Simferopol (UKFV) and the Dnipropetrovsk (UKDV) Flight Information Regions (FIRs).

(a) *Applicability.* This Special Federal Aviation Regulation (SFAR) applies to the following persons:

- (1) All U.S. air carriers and U.S. commercial operators;
- (2) All persons exercising the privileges of an airman certificate issued by the FAA, except when such persons are operating U.S.-registered aircraft for a foreign air carrier; and
- (3) All operators of U.S.-registered civil aircraft, except where the operator of such aircraft is a foreign air carrier.

(b) *Flight prohibition.* Except as provided in paragraphs (c) and (d) of this section, no person described in paragraph (a) of this section may conduct flight operations in the Simferopol (UKFV) FIR or the Dnipropetrovsk (UKDV) FIR.

(1)(i) The lateral limits of the prohibited airspace includes that area currently described as the Simferopol (UKFV) FIR, which is defined as:

465800N 0360000E-463500N 0364200E-
463424N 0372206E-452700N 0364100E-
452242N 0364100E-451824N 0363524E-
451442N 0363542E-451218N 0363200E-
450418N 0363418E-445612N 0363636E-
443100N 0364000E-424400N 0361600E-

424700N 0340000E-424800N 0320000E-
 424800N 0310000E-424800N 0304500E-
 434100N 0303200E-441000N 0302512E-
 441500N 0302400E-444600N 0300900E-
 445447N 0300448E-445230N 0302130E-
 445848N 0303342E-451530N 0310642E-
 452436N 0312500E-453828N 0315311E-
 454436N 0320548E-455442N 0322700E-
 460730N 0325430E-464600N 0325300E-
 474400N 0330300E-472700N 0344800E-
 470630N 0355500E-465800N 0360000E

(ii) The prohibited airspace within the lateral limits extends in altitude from the surface to unlimited.

(2)(i) The lateral limits of the prohibited airspace includes that area previously described as the Dnipropetrovsk (UKDV) FIR, which is defined as:

511400N 0342700E-504942N 0341300E-
 502043N 0335720E-501246N 0335307E-
 491848N 0333700E-485700N 0332200E-
 484118N 0324431E-483620N 0324010E-
 483128N 0323605E-482300N 0323900E-
 480730N 0325324E-474600N 0325000E-
 474400N 0330300E-472700N 0344800E-
 470630N 0355500E-465800N 0360000E-
 463500N 0364200E-463424N 0372206E-
 463930N 0372518E-464700N 0373000E-
 465900N 0382000E-470642N 0381324E-
 then along state boundary until point/-511400N 0342700

(ii) The prohibited airspace within the lateral limits extends in altitude from the surface to unlimited.

(c) *Permitted operations.* This section does not prohibit persons described in paragraph (a) of this section from conducting flight operations in either or both of the Simferopol (UKFV) or Dnipropetrovsk (UKDV) FIRs, provided that such flight operations are conducted under a contract, grant, or cooperative agreement with a department, agency, or instrumentality of the U.S. government (or under a subcontract between the prime contractor of the department, agency, or instrumentality and the person described in paragraph (a) of this section) with the approval of the FAA, or under an exemption issued by the FAA. The FAA will process requests for approval or exemption in a timely manner, with the order of preference being: first, for those operations in support of U.S. government-sponsored activities; second, for those operations in support of government-sponsored activities of a foreign country with the support of a U.S. government department, agency, or instrumentality; and third, for all other operations.

(d) *Emergency situations.* In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this section to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR parts 119, 121, 125, or 135, each person who deviates from this section must, within 10 days of the deviation, excluding Saturdays, Sundays, and Federal

holidays, submit to the nearest FAA Flight Standards District Office (FSDO) a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons for it.

(e) *Expiration.* This SFAR will remain in effect until October 27, 2018. The FAA may amend, rescind, or extend this SFAR as necessary.

[Doc. No. FAA-2014-0225, 79 FR 77862, Dec. 29, 2014, as amended by Amdt. 91-331B, 80 FR 65625, Oct. 27, 2015; Docket FAA-2014-0225, Amdt. 91-331C, 81 FR 47700, July 22, 2016; Docket FAA-2014-0225, Amdt. 91-331D, 81 FR 74675, Oct. 27, 2016]

§ 91.1611 Special Federal Aviation Regulation No. 115 - Prohibition Against Certain Flights in Specified Areas of the Sanaa (OYSC) Flight Information Region (FIR).

(a) *Applicability.* This Special Federal Aviation Regulation (SFAR) applies to the following persons:

- (1) All U.S. air carriers and U.S. commercial operators;
- (2) All persons exercising the privileges of an airman certificate issued by the FAA, except when such persons are operating U.S.-registered aircraft for a foreign air carrier; and
- (3) All operators of U.S.-registered civil aircraft, except where the operator of such aircraft is a foreign air carrier.

(b) *Flight prohibition.* Except as provided in paragraphs (c) and (d) of this section, no person described in paragraph (a) of this section may conduct flight operations in the Sanaa (OYSC) Flight Information Region (FIR), excluding that airspace east and southeast of a line drawn direct from KAPET (163322N 0530614E) to NODMA (152603N 0533359E), then direct from NODMA to PAKER (115500N 0463500E).

(c) *Permitted operations.* This section does not prohibit persons described in paragraph (a) of this section from conducting flight operations in the Sanaa (OYSC) FIR in that airspace west and northwest of a line drawn direct from KAPET (163322N 0530614E) to NODMA (152603N 0533359E), then direct from NODMA to PAKER (115500N 0463500E), provided that such flight operations are conducted under a contract, grant, or cooperative agreement with a department, agency, or instrumentality of the U.S. government (or under a subcontract between the prime contractor of the department, agency, or instrumentality, and the person subject to paragraph (a)), with the approval of the FAA, or under an exemption issued by the FAA. The FAA will process requests for approval or exemption in a timely manner, with the order of preference being: first, for those operations in support of U.S. government-sponsored activities; second, for those operations in support of government-sponsored activities of a foreign country with the support of a U.S. government department, agency, or instrumentality; and third, for all other operations.

(d) *Emergency situations.* In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this section to the extent required by that emergency. Except for

U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR part 119, 121, 125, or 135, each person who deviates from this section must, within 10 days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office (FSDO) a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons for it.

(e) *Expiration.* This SFAR will remain in effect until January 7, 2018. The FAA may amend, rescind, or extend this SFAR as necessary.

[Docket FAA-2015-8672, Amdt.91-340, 81 FR 731, Jan. 7, 2016]

§ 91.1613 Special Federal Aviation Regulation No. 107 - Prohibition Against Certain Flights in the Territory and Airspace of Somalia.

(a) *Applicability.* This Special Federal Aviation Regulation (SFAR) applies to the following persons:

- (1) All U.S. air carriers and U.S. commercial operators;
- (2) All persons exercising the privileges of an airman certificate issued by the FAA, except when such persons are operating U.S.-registered aircraft for a foreign air carrier; and
- (3) All operators of U.S.-registered civil aircraft, except where the operator of such aircraft is a foreign air carrier.

(b) *Flight prohibition.* Except as provided in paragraphs (c) and (d) of this section, no person described in paragraph (a) of this section may conduct flight operations in the territory and airspace of Somalia at altitudes below Flight Level (FL) 260. Overflights of Somalia may be conducted at or above FL260 subject to the approval of, and in accordance with the conditions established by, the appropriate authorities of Somalia.

(c) *Permitted operations.* This section does not prohibit persons described in paragraph (a) of this section from conducting flight operations in the territory and airspace of Somalia at altitudes below FL260, provided that such flight operations are conducted under a contract, grant, or cooperative agreement with a department, agency, or instrumentality of the U.S. government (or under a subcontract between the prime contractor of the department, agency, or instrumentality, and the person described in paragraph (a) of this section) with the approval of the FAA or under an exemption issued by the FAA. The FAA will process requests for approval or exemption in a timely manner, with the order of preference being: First, for those operations in support of U.S. government-sponsored activities; second, for those operations in support of government-sponsored activities of a foreign country with the support of a U.S. government department, agency, or instrumentality; and third, for all other operations.

(d) *Emergency situations.* In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this section to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to

the requirements of 14 CFR part 119, 121, 125, or 135, each person who deviates from this section must, within 10 days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office (FSDO) a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons for it.

(e) *Expiration.* This SFAR will remain in effect until January 7, 2018. The FAA may amend, rescind, or extend this SFAR as necessary.

[Docket FAA-2007-27602, Amdt.91-339, 81 FR 726, Jan. 7, 2016]

Subpart N - Mitsubishi MU-2B Series Special Training, Experience, and Operating Requirements

Source:

Docket FAA-2006-24981, Amdt. 91-344, 81 FR 61591, Sept. 7, 2016, unless otherwise noted.

§ 91.1701 Applicability.

(a) On and after November 7, 2016, all training conducted in an MU-2B must follow an approved MU-2B training program that meets the standards of this subpart.

(b) This subpart applies to all persons who operate a Mitsubishi MU-2B series airplane, including those who act as pilot in command, act as second-in-command, or other persons who manipulate the controls while under the supervision of a pilot in command.

(c) This subpart also applies to those persons who provide pilot training for a Mitsubishi MU-2B series airplane. The requirements in this subpart are in addition to the requirements of parts 61, 91, and 135 of this chapter.

§ 91.1703 Compliance and eligibility.

(a) Except as provided in paragraph (b) of this section, no person may manipulate the controls, act as PIC, act as second-in-command, or provide pilot training for a Mitsubishi MU-2B series airplane unless that person meets the requirements of this subpart.

(b) A person who does not meet the requirements of this subpart may manipulate the controls of a Mitsubishi MU-2B series airplane if a pilot in command who meets the requirements of this subpart is occupying a pilot station, no passengers or cargo are carried on board the airplane, and the flight is being conducted for one of the following reasons -

(1) The pilot in command is providing pilot training to the manipulator of the controls;

(2) The pilot in command is conducting a maintenance test flight with a second pilot or certificated mechanic; or

(3) The pilot in command is conducting simulated instrument flight and is using a safety pilot other than the pilot

in command who manipulates the controls for the purposes of § 91.109(b).

(c) A person is required to complete *Initial/transition training* if that person has fewer than -

(1) 50 hours of documented flight time manipulating the controls while serving as pilot in command of a Mitsubishi MU-2B series airplane in the preceding 24 months; or

(2) 500 hours of documented flight time manipulating the controls while serving as pilot in command of a Mitsubishi MU-2B series airplane.

(d) A person is eligible to receive *Requalification training* in lieu of Initial/transition training if that person has at least -

(1) 50 hours of documented flight time manipulating the controls while serving as pilot in command of a Mitsubishi MU-2B series airplane in the preceding 24 months; or

(2) 500 hours of documented flight time manipulating the controls while serving as pilot in command of a Mitsubishi MU-2B series airplane.

(e) A person is required to complete *Recurrent training* within the preceding 12 months. Successful completion of Initial/transition or Requalification training within the preceding 12 months satisfies the requirement of Recurrent training. A person must successfully complete Initial/transition training or Requalification training before being eligible to receive Recurrent training.

(f) Successful completion of Initial/transition training or Requalification training is a one-time requirement. A person may elect to retake Initial/transition training or Requalification training in lieu of Recurrent training.

(g) A person is required to complete Differences training in accordance with an FAA approved MU-2B training program if that person operates more than one MU-2B model as specified in § 91.1707(c).

§ 91.1705 Required pilot training.

(a) Except as provided in § 91.1703(b), no person may manipulate the controls, act as pilot in command, or act as second-in-command of a Mitsubishi MU-2B series airplane for the purpose of flight unless -

(1) The requirements for ground and flight training on Initial/transition, Requalification, Recurrent, and Differences training have been completed in accordance with an FAA approved MU-2B training program that meets the standards of this subpart; and

(2) That person's logbook has been endorsed in accordance with paragraph (f) of this section.

(b) Except as provided in § 91.1703(b), no person may manipulate the controls, act as pilot in command, or act as second-in-command, of a Mitsubishi MU-2B series airplane for the purpose of flight unless -

(1) That person satisfactorily completes, if applicable, annual Recurrent pilot training on the *Special Emphasis Items*, and all items listed in the *Training Course Final Phase Check* in accordance with an FAA approved MU-2B training program that meets the standards of this subpart; and

(2) That person's logbook has been endorsed in accordance with paragraph (f) of this section.

(c) Satisfactory completion of the competency check required by § 135.293 of this chapter within the preceding 12 calendar months may not be substituted for the Mitsubishi MU-2B series airplane annual recurrent flight training of this section.

(d) Satisfactory completion of a Federal Aviation Administration sponsored pilot proficiency program, as described in § 61.56(e) of this chapter may not be substituted for the Mitsubishi MU-2B series airplane annual recurrent flight training of this section.

(e) If a person complies with the requirements of paragraph (a) or (b) of this section in the calendar month before or the calendar month after the month in which compliance with these paragraphs are required, that person is considered to have accomplished the training requirement in the month the training is due.

(f) The endorsement required under paragraph (a) and (b) of this section must be made by -

(1) A certificated flight instructor or a simulator instructor authorized by a Training Center certificated under part 142 of this chapter and meeting the qualifications of § 91.1713; or

(2) For persons operating the Mitsubishi MU-2B series airplane for a 14 CFR part 119 certificate holder within the last 12 calendar months, the part 119 certificate holder's flight instructor if authorized by the FAA and if that flight instructor meets the requirements of § 91.1713.

(g) All training conducted for a Mitsubishi MU-2B series airplane must be completed in accordance with an MU-2B series airplane checklist that has been accepted by the Federal Aviation Administration's MU-2B Flight Standardization Board or the applicable MU-2B series checklist (incorporated by reference, see § 91.1721).

(h) MU-2B training programs must contain ground training and flight training sufficient to ensure pilot proficiency for the safe operation of MU-2B aircraft, including:

(1) A ground training curriculum sufficient to ensure pilot knowledge of MU-2B aircraft, aircraft systems, and procedures, necessary for safe operation; and

(2) Flight training curriculum including flight training maneuver profiles sufficient in number and detail to ensure pilot proficiency in all MU-2B operations for each MU-2B model in correlation with MU-2B limitations, procedures, aircraft performance, and MU-2B Cockpit Checklist procedures applicable to the MU-2B model being trained. A MU-2B training program must contain, at a minimum, the following flight training maneuver profiles applicable to the MU-2B model being trained:

- (i) Normal takeoff with 5- and 20- degrees flaps;
- (ii) Takeoff engine failure with 5- and 20- degrees flaps;
- (iii) Takeoff engine failure on runway or rejected takeoff;
- (iv) Takeoff engine failure after liftoff - unable to climb (may be completed in classroom or flight training device only);
- (v) Steep turns;

- (vi) Slow flight maneuvers;
 - (vii) One engine inoperative maneuvering with loss of directional control;
 - (viii) Approach to stall in clean configuration and with wings level;
 - (ix) Approach to stall in takeoff configuration with 15- to 30- degrees bank;
 - (x) Approach to stall in landing configuration with gear down and 40-degrees of flaps;
 - (xi) Accelerated stall with no flaps;
 - (xii) Emergency descent at low speed;
 - (xiii) Emergency descent at high speed;
 - (xiv) Unusual attitude recovery with the nose high;
 - (xv) Unusual attitude recovery with the nose low;
 - (xvi) Normal landing with 20- and 40- degrees flaps;
 - (xvii) Go around and rejected landing;
 - (xviii) No flap or 5- degrees flaps landing;
 - (xix) One engine inoperative landing with 5- and 20- degrees flaps;
 - (xx) Crosswind landing;
 - (xxi) Instrument landing system (ILS) and missed approach ;
 - (xxii) Two engine missed approach;
 - (xxiii) One engine inoperative ILS and missed approach;
 - (xxiv) One engine inoperative missed approach;
 - (xxv) Non-precision and missed approach;
 - (xxvi) Non-precision continuous descent final approach and missed approach;
 - (xxvii) One engine inoperative non-precision and missed approach;
 - (xxviii) One engine inoperative non-precision CDFA and missed approach;
 - (xxix) Circling approach at weather minimums;
 - (xxx) One engine inoperative circling approach at weather minimums.
- (3) Flight training must include a final phase check sufficient to document pilot proficiency in the flight training maneuver profiles at the completion of training; and

(4) Differences training for applicable MU-2B model variants sufficient to ensure pilot proficiency in each model operated. Current MU-2B differences requirements are specified in § 91.1707(c). A person must complete Differences training if a person operates more than one MU-2B model as specified in § 91.1707(c). Differences training between the factory type design K and M models of the MU-2B airplane, and the factory type design J and L models of the MU-2B airplane, may be accomplished with Level A training. All other factory type design differences training must be accomplished with Level B training unless otherwise specified in § 91.1707(c). A Level A or B differences training is not a recurring annual requirement. Once a person has completed Initial Level A or B Differences training between the applicable different models, no additional differences training between those models is required.

(5) Icing training sufficient to ensure pilot knowledge and safe operation of the MU-2B aircraft in icing conditions as established by the FAA;

(6) Ground and flight training programs must include training hours identified by § 91.1707(a) for ground instruction, § 91.1707(b) for flight instruction, and § 91.1707(c) for differences training.

(i) No training credit is given for second-in-command training and no credit is given for right seat time under this program. Only the sole manipulator of the controls of the MU-2B airplane, flight training device, or Level C or D simulator can receive training credit under this program;

(ii) An MU-2B airplane must be operated in accordance with an FAA approved MU-2B training program that meets the standards of this subpart and the training hours in § 91.1707.

(7) Endorsements given for compliance with paragraph (f) of this section must be appropriate to the content of that specific MU-2B training program's compliance with standards of this subpart.

§ 91.1707 Training program hours.

(a) Ground instruction hours are listed in the following table:

| Initial/transition | Requalificaton | Recurrent |
|--------------------|----------------|-----------|
| 20 hours | 12 hours | 8 hours. |

(b) Flight instruction hours are listed in the following table:

| Initial/transition | Requalification | Recurrent |
|---|----------------------------|--|
| 12 hours with a minimum of 6 hours at level E | 8 hours level C or level E | 4 hours at level E, or 6 hours at level C. |

(c) Differences training hours are listed in the following table:

| | |
|---|--------------------------------|
| 2 factory type design models concurrently | 1.5 hours required at level B. |
| More than 2 factory type design models concurrently | 3 hours at level B. |

Each additional factory type design model added separately

1.5 hours at level B.

(d) Definitions of levels of training as used in this subpart:

(1) LEVEL A Training - Training that is conducted through self-instruction by the pilot.

(2) LEVEL B Training - Training that is conducted in the classroom environment with the aid of a qualified instructor who meets the requirements of this subpart.

(3) LEVEL C Training - Training that is accomplished in an FAA-approved Level 5 or 6 flight training device. In addition to the basic FTD requirements, the FTD must be representative of the MU-2B cockpit controls and be specifically approved by the FAA for the MU-2B airplane.

(4) Level E Training - Training that must be accomplished in the MU-2B airplane, Level C simulator, or Level D simulator.

§ 91.1709 Training program approval.

To obtain approval for an MU-2B training program, training providers must submit a proposed training program to the Administrator.

(a) Only training programs approved by the Administrator may be used to satisfy the standards of this subpart.

(b) For part 91 training providers, training programs will be approved for 24 months, unless sooner superseded or rescinded.

(c) The Administrator may require revision of an approved MU-2B training program at any time.

(d) A training provider must present its approved training program and FAA approval documentation to any representative of the Administrator, upon request.

§ 91.1711 Aeronautical experience.

No person may act as a pilot in command of a Mitsubishi MU-2B series airplane for the purpose of flight unless that person holds an airplane category and multi-engine land class rating, and has logged a minimum of 100 flight hours of PIC time in multi-engine airplanes.

§ 91.1713 Instruction, checking, and evaluation.

(a) *Flight Instructor (Airplane)*. No flight instructor may provide instruction or conduct a flight review in a Mitsubishi MU-2B series airplane unless that flight instructor

(1) Meets the pilot training and documentation requirements of § 91.1705 before giving flight instruction in the Mitsubishi MU-2B series airplane;

(2) Meets the currency requirements of §§ 91.1715(a) and 91.1715(c)

(3) Has a minimum total pilot time of 2,000 pilot-in-command hours and 800 pilot-in-command hours in multiengine airplanes; and

(4) Has:

(i) 300 pilot-in-command hours in the Mitsubishi MU-2B series airplane, 50 hours of which must have been within the preceding 12 months; or

(ii) 100 pilot-in-command hours in the Mitsubishi MU-2B series airplane, 25 hours of which must have been within the preceding 12 months, and 300 hours providing instruction in a FAA-approved Mitsubishi MU-2B simulator or FAA-approved Mitsubishi MU-2B flight training device, 25 hours of which must have been within the preceding 12 months.

(b) *Flight Instructor (Simulator/Flight Training Device)*. No flight instructor may provide instruction for the Mitsubishi MU-2B series airplane unless that instructor meets the requirements of this paragraph -

(1) Each flight instructor who provides flight training for the Mitsubishi MU-2B series airplane must meet the pilot training and documentation requirements of § 91.1705 before giving flight instruction for the Mitsubishi MU-2B series airplane;

(2) Each flight instructor who provides flight training for the Mitsubishi MU-2B series airplane must meet the currency requirements of § 91.1715(c) before giving flight instruction for the Mitsubishi MU-2B series airplane;

(3) Each flight instructor who provides flight training for the Mitsubishi MU-2B series airplane must have:

(i) A minimum total pilot time of 2000 pilot-in-command hours and 800 pilot-in-command hours in multiengine airplanes; and

(ii) Within the preceding 12 months, either 50 hours of Mitsubishi MU-2B series airplane pilot-in-command experience or 50 hours providing simulator or flight training device instruction for the Mitsubishi MU-2B.

(c) *Checking and evaluation*. No person may provide checking or evaluation for the Mitsubishi MU-2B series airplane unless that person meets the requirements of this paragraph -

(1) For the purpose of checking, designated pilot examiners, training center evaluators, and check airmen must have completed the appropriate training in the Mitsubishi MU-2B series airplane in accordance with § 91.1705;

(2) For checking conducted in the Mitsubishi MU-2B series airplane, each designated pilot examiner and check airman must have 100 hours pilot-in-command flight time in the Mitsubishi MU-2B series airplane and maintain currency in accordance with § 91.1715.

§ 91.1715 Currency requirements and flight review.

(a) The takeoff and landing currency requirements of § 61.57 of this chapter must be maintained in the Mitsubishi MU-2B series airplane. Takeoff and landings in other multiengine airplanes do not meet the takeoff and landing currency requirements for the Mitsubishi MU-2B series plane.

Takeoff and landings in either the short-body or long-body Mitsubishi MU-2B model airplane may be credited toward takeoff and landing currency for both Mitsubishi MU-2B model groups.

(b) Instrument experience obtained in other category and class of aircraft may be used to satisfy the instrument currency requirements of § 61.57 of this chapter for the Mitsubishi MU-2B series airplane.

(c) Satisfactory completion of a flight review to satisfy the requirements of § 61.56 of this chapter is valid for operation of a Mitsubishi MU-2B series airplane only if that flight review is conducted in a Mitsubishi MU-2B series airplane or an MU-2B Simulator approved for landings with an approved course conducted under part 142 of this chapter. The flight review for Mitsubishi MU-2B series airplanes must include the *Special Emphasis Items*, and all items listed in the *Training Course Final Phase Check* in accordance with an approved MU-2B Training Program.

(d) A person who successfully completes the Initial/transition, Recurrent, or Recurrent training requirements under § 91.1705 of this chapter also meet the requirements of § 61.56 of this chapter and need not accomplish a separate flight review provided that at least 1 hour of the flight training was conducted in the Mitsubishi MU-2B series airplane or an MU-2B Simulator approved for landings with an approved course conducted under part 142 of this chapter.

[Docket FAA-2006-24981, Amdt. 91-344, 81 FR 61591, Sept. 7, 2016; Amdt. 91-344A, 82 FR 21472, May 9, 2017]

§ 91.1717 Operating requirements.

(a) Except as provided in paragraph (b) of this section, no person may operate a Mitsubishi MU-2B airplane in single pilot operations unless that airplane has a functional autopilot.

(b) A person may operate a Mitsubishi MU-2B airplane in single pilot operations without a functional autopilot when -

(1) Operating under day visual flight rule requirements; or

(2) Authorized under a FAA approved minimum equipment list for that airplane, operating under instrument flight rule requirements in daytime visual meteorological conditions.

(c) No person may operate a Mitsubishi MU-2B series airplane unless a copy of the appropriate Mitsubishi Heavy Industries MU-2B Airplane Flight Manual is carried on board the airplane and is accessible during each flight at the pilot station.

(d) No person may operate a Mitsubishi MU-2B series airplane unless an MU-2B series airplane checklist, appropriate for the model being operated and accepted by the Federal Aviation Administration MU-2B Flight Standardization Board, is accessible for each flight at the pilot station and is used by the flight crewmembers when operating the airplane.

(e) No person may operate a Mitsubishi MU-2B series airplane contrary to the standards of this subpart.

(f) If there are any differences between the training and operating requirements of this subpart and the MU-2B Airplane Flight Manual's procedures sections (Normal, Abnormal, and Emergency) and the MU-2B airplane series checklist incorporated by reference in § 91.1721, the person operating the airplane must operate the airplane in accordance with the training specified in this subpart.

§ 91.1719 Credit for prior training.

Initial/transition, requalification, recurrent or Level B differences training conducted prior to November 7, 2016, compliant with SFAR No. 108, Section 3 of this part, is considered to be compliant with this subpart, if the student met the eligibility requirements for the applicable category of training and the student's instructor met the experience requirements of this subpart.

§ 91.1721 Incorporation by reference.

(a) The Mitsubishi Heavy Industries MU-2B Cockpit Checklists are incorporated by reference into this part. The Director of the Federal Register approved this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. All approved material is available for inspection at U.S. Department of Transportation, Docket Management Facility, Room W 12-140, West Building Ground Floor, 1200 New Jersey Ave. SE., Washington, DC 20590-0001, or at the National Archives and Records Administration, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) Mitsubishi Heavy Industries America, Inc., 4951 Airport Parkway, Suite 530, Addison, TX 75001.

(1) Mitsubishi Heavy Industries MU-2B Checklists:

(i) Cockpit Checklist, Model MU-2B-60, Type Certificate A10SW, MHI Document No. YET06220C, accepted by FSB on February 12, 2007.

(ii) Cockpit Checklist, Model MU-2B-40, Type Certificate A10SW, MHI Document No. YET06256A, accepted by FSB on February 12, 2007.

(iii) Cockpit Checklist, Model MU-2B-36A, Type Certificate A10SW, MHI Document No. YET06257B, accepted by FSB on February 12, 2007.

(iv) Cockpit Checklist, Model MU-2B-36, Type Certificate A2PC, MHI Document No. YET06252B, accepted by FSB on February 12, 2007.

(v) Cockpit Checklist, Model MU-2B-35, Type Certificate A2PC, MHI Document No. YET06251B, accepted by FSB on February 12, 2007.

(vi) Cockpit Checklist, Model MU-2B-30, Type Certificate A2PC, MHI Document No. YET06250A, accepted by FSB on March 2, 2007.

(vii) Cockpit Checklist, Model MU-2B-26A, Type Certificate A10SW, MHI Document No. YET06255A, accepted by FSB on February 12, 2007.

(viii) Cockpit Checklist, Model MU-2B-26, Type Certificate A2PC, MHI Document No. YET06249A, accepted by FSB on March 2, 2007.

(ix) Cockpit Checklist, Model MU-2B-26, Type Certificate A10SW, MHI Document No. YET06254A, accepted by FSB on March 2, 2007.

(x) Cockpit Checklist, Model MU-2B-25, Type Certificate A10SW, MHI Document No. YET06253A, accepted by FSB on March 2, 2007.

(xi) Cockpit Checklist, Model MU-2B-25, Type Certificate A2PC, MHI Document No. YET06248A, accepted by FSB on March 2, 2007.

(xii) Cockpit Checklist, Model MU-2B-20, Type Certificate A2PC, MHI Document No. YET06247A, accepted by FSB on February 12, 2007.

(xiii)-(xiv) [Reserved]

(xv) Cockpit Checklist, Model MU-2B-15, Type Certificate A2PC, MHI Document No. YET06246A, accepted by FSB on March 2, 2007.

(xvi) Cockpit Checklist, Model MU-2B-10, Type Certificate A2PC, MHI Document No. YET06245A, accepted by FSB on March 2, 2007.

(xvii) Cockpit Checklist, Model MU-2B, Type Certificate A2PC, MHI Document No. YET06244A, accepted by FSB on March 2, 2007.

(2) [Reserved]

[Docket FAA-2006-24981, Amdt. 91-344, 81 FR 61591, Sept. 7, 2016; Amdt. 91-344A, 82 FR 21472, May 9, 2017]

Appendix A to Part 91 - Category II Operations: Manual, Instruments, Equipment, and Maintenance

1. Category II Manual

(a) *Application for approval.* An applicant for approval of a Category II manual or an amendment to an approved Category II manual must submit the proposed manual or amendment to the Flight Standards District Office having jurisdiction of the area in which the applicant is located. If the application requests an evaluation program, it must include the following:

(1) The location of the aircraft and the place where the demonstrations are to be conducted; and

(2) The date the demonstrations are to commence (at least 10 days after filing the application).

(b) *Contents.* Each Category II manual must contain:

(1) The registration number, make, and model of the aircraft to which it applies;

(2) A maintenance program as specified in section 4 of this appendix; and

(3) The procedures and instructions related to recognition of decision height, use of runway visual range information, approach monitoring, the decision region (the region between the middle marker and the decision height), the maximum permissible deviations of the basic ILS indicator within the decision region, a missed approach, use of airborne low

approach equipment, minimum altitude for the use of the autopilot, instrument and equipment failure warning systems, instrument failure, and other procedures, instructions, and limitations that may be found necessary by the Administrator.

2. Required Instruments and Equipment

The instruments and equipment listed in this section must be installed in each aircraft operated in a Category II operation. This section does not require duplication of instruments and equipment required by § 91.205 or any other provisions of this chapter.

(a) *Group I.* (1) Two localizer and glide slope receiving systems. Each system must provide a basic ILS display and each side of the instrument panel must have a basic ILS display. However, a single localizer antenna and a single glide slope antenna may be used.

(2) A communications system that does not affect the operation of at least one of the ILS systems.

(3) A marker beacon receiver that provides distinctive aural and visual indications of the outer and the middle markers.

(4) Two gyroscopic pitch and bank indicating systems.

(5) Two gyroscopic direction indicating systems.

(6) Two airspeed indicators.

(7) Two sensitive altimeters adjustable for barometric pressure, each having a placarded correction for altimeter scale error and for the wheel height of the aircraft. After June 26, 1979, two sensitive altimeters adjustable for barometric pressure, having markings at 20-foot intervals and each having a placarded correction for altimeter scale error and for the wheel height of the aircraft.

(8) Two vertical speed indicators.

(9) A flight control guidance system that consists of either an automatic approach coupler or a flight director system. A flight director system must display computed information as steering command in relation to an ILS localizer and, on the same instrument, either computed information as pitch command in relation to an ILS glide slope or basic ILS glide slope information. An automatic approach coupler must provide at least automatic steering in relation to an ILS localizer. The flight control guidance system may be operated from one of the receiving systems required by subparagraph (1) of this paragraph.

(10) For Category II operations with decision heights below 150 feet either a marker beacon receiver providing aural and visual indications of the inner marker or a radio altimeter.

(b) *Group II.* (1) Warning systems for immediate detection by the pilot of system faults in items (1), (4), (5), and (9) of Group I and, if installed for use in Category III operations, the radio altimeter and autothrottle system.

(2) Dual controls.

(3) An externally vented static pressure system with an alternate static pressure source.

(4) A windshield wiper or equivalent means of providing adequate cockpit visibility for a safe visual transition by either pilot to touchdown and rollout.

(5) A heat source for each airspeed system pitot tube installed or an equivalent means of preventing malfunctioning due to icing of the pitot system.

3. Instruments and Equipment Approval

(a) *General.* The instruments and equipment required by section 2 of this appendix must be approved as provided in this section before being used in Category II operations. Before presenting an aircraft for approval of the instruments and equipment, it must be shown that since the beginning of the 12th calendar month before the date of submission -

(1) The ILS localizer and glide slope equipment were bench checked according to the manufacturer's instructions and found to meet those standards specified in RTCA Paper 23-63/DO-117 dated March 14, 1963, "Standard Adjustment Criteria for Airborne Localizer and Glide Slope Receivers," which may be obtained from the RTCA Secretariat, 1425 K St., NW., Washington, DC 20005.

(2) The altimeters and the static pressure systems were tested and inspected in accordance with appendix E to part 43 of this chapter; and

(3) All other instruments and items of equipment specified in section 2(a) of this appendix that are listed in the proposed maintenance program were bench checked and found to meet the manufacturer's specifications.

(b) *Flight control guidance system.* All components of the flight control guidance system must be approved as installed by the evaluation program specified in paragraph (e) of this section if they have not been approved for Category III operations under applicable type or supplemental type certification procedures. In addition, subsequent changes to make, model, or design of the components must be approved under this paragraph. Related systems or devices, such as the autothrottle and computed missed approach guidance system, must be approved in the same manner if they are to be used for Category II operations.

(c) *Radio altimeter.* A radio altimeter must meet the performance criteria of this paragraph for original approval and after each subsequent alteration.

(1) It must display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain.

(2) It must display wheel height above the terrain to an accuracy of plus or minus 5 feet or 5 percent, whichever is greater, under the following conditions:

(i) Pitch angles of zero to plus or minus 5 degrees about the mean approach attitude.

(ii) Roll angles of zero to 20 degrees in either direction.

(iii) Forward velocities from minimum approach speed up to 200 knots.

(iv) Sink rates from zero to 15 feet per second at altitudes from 100 to 200 feet.

(3) Over level ground, it must track the actual altitude of the aircraft without significant lag or oscillation.

(4) With the aircraft at an altitude of 200 feet or less, any abrupt change in terrain representing no more than 10 percent

of the aircraft's altitude must not cause the altimeter to unlock, and indicator response to such changes must not exceed 0.1 seconds and, in addition, if the system unlocks for greater changes, it must reacquire the signal in less than 1 second.

(5) Systems that contain a push-to-test feature must test the entire system (with or without an antenna) at a simulated altitude of less than 500 feet.

(6) The system must provide to the flight crew a positive failure warning display any time there is a loss of power or an absence of ground return signals within the designed range of operating altitudes.

(d) *Other instruments and equipment.* All other instruments and items of equipment required by § 2 of this appendix must be capable of performing as necessary for Category II operations. Approval is also required after each subsequent alteration to these instruments and items of equipment.

(e) *Evaluation program - (1) Application.* Approval by evaluation is requested as a part of the application for approval of the Category II manual.

(2) *Demonstrations.* Unless otherwise authorized by the Administrator, the evaluation program for each aircraft requires the demonstrations specified in this paragraph. At least 50 ILS approaches must be flown with at least five approaches on each of three different ILS facilities and no more than one half of the total approaches on any one ILS facility. All approaches shall be flown under simulated instrument conditions to a 100-foot decision height and 90 percent of the total approaches made must be successful. A successful approach is one in which -

(i) At the 100-foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed must be plus or minus 5 knots of programmed airspeed, but may not be less than computed threshold speed if autothrottles are used);

(ii) The aircraft at the 100-foot decision height, is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the runway extended;

(iii) Deviation from glide slope after leaving the outer marker does not exceed 50 percent of full-scale deflection as displayed on the ILS indicator;

(iv) No unusual roughness or excessive attitude changes occur after leaving the middle marker; and

(v) In the case of an aircraft equipped with an approach coupler, the aircraft is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing.

(3) *Records.* During the evaluation program the following information must be maintained by the applicant for the aircraft with respect to each approach and made available to the Administrator upon request:

(i) Each deficiency in airborne instruments and equipment that prevented the initiation of an approach.

(ii) The reasons for discontinuing an approach, including the altitude above the runway at which it was discontinued.

(iii) Speed control at the 100-foot decision height if auto throttles are used.

(iv) Trim condition of the aircraft upon disconnecting the auto coupler with respect to continuation to flare and landing.

(v) Position of the aircraft at the middle marker and at the decision height indicated both on a diagram of the basic ILS display and a diagram of the runway extended to the middle marker. Estimated touchdown point must be indicated on the runway diagram.

(vi) Compatibility of flight director with the auto coupler, if applicable.

(vii) Quality of overall system performance.

(4) *Evaluation.* A final evaluation of the flight control guidance system is made upon successful completion of the demonstrations. If no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.

4. Maintenance program

(a) Each maintenance program must contain the following:

(1) A list of each instrument and item of equipment specified in § 2 of this appendix that is installed in the aircraft and approved for Category II operations, including the make and model of those specified in § 2(a).

(2) A schedule that provides for the performance of inspections under subparagraph (5) of this paragraph within 3 calendar months after the date of the previous inspection. The inspection must be performed by a person authorized by part 43 of this chapter, except that each alternate inspection may be replaced by a functional flight check. This functional flight check must be performed by a pilot holding a Category II pilot authorization for the type aircraft checked.

(3) A schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in section 2(a) within 12 calendar months after the date of the previous bench check.

(4) A schedule that provides for the performance of a test and inspection of each static pressure system in accordance with appendix E to part 43 of this chapter within 12 calendar months after the date of the previous test and inspection.

(5) The procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in section 2(a) of this appendix to perform as approved for Category II operations including a procedure for recording functional flight checks.

(6) A procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment.

(7) A procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its Category II approval condition before it is returned to service for Category II operations.

(8) A procedure for an entry in the maintenance records required by § 43.9 of this chapter that shows the date, airport,

and reasons for each discontinued Category II operation because of a malfunction of a listed instrument or item of equipment.

(b) *Bench check.* A bench check required by this section must comply with this paragraph.

(1) It must be performed by a certificated repair station holding one of the following ratings as appropriate to the equipment checked:

(i) An instrument rating.

(ii) A radio rating.

(2) It must consist of removal of an instrument or item of equipment and performance of the following:

(i) A visual inspection for cleanliness, impending failure, and the need for lubrication, repair, or replacement of parts;

(ii) Correction of items found by that visual inspection; and

(iii) Calibration to at least the manufacturer's specifications unless otherwise specified in the approved Category II manual for the aircraft in which the instrument or item of equipment is installed.

(c) *Extensions.* After the completion of one maintenance cycle of 12 calendar months, a request to extend the period for checks, tests, and inspections is approved if it is shown that the performance of particular equipment justifies the requested extension.

[Doc. No. 18334, 54 FR 34325, Aug. 18, 1989, as amended by Amdt. 91-269, 66 FR 41116, Aug. 6, 2001]

Appendix B to Part 91 - Authorizations To Exceed Mach 1 (§ 91.817)

Section 1. Application

(a) An applicant for an authorization to exceed Mach 1 must apply in a form and manner prescribed by the Administrator and must comply with this appendix.

(b) In addition, each application for an authorization to exceed Mach 1 covered by section 2(a) of this appendix must contain all information requested by the Administrator necessary to assist him in determining whether the designation of a particular test area or issuance of a particular authorization is a "major Federal action significantly affecting the quality of the human environment" within the meaning of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), and to assist him in complying with that act and with related Executive Orders, guidelines, and orders prior to such action.

(c) In addition, each application for an authorization to exceed Mach 1 covered by section 2(a) of this appendix must contain -

(1) Information showing that operation at a speed greater than Mach 1 is necessary to accomplish one or more of the purposes specified in section 2(a) of this appendix, including a showing that the purpose of the test cannot be safely or properly accomplished by overocean testing;

(2) A description of the test area proposed by the applicant, including an environmental analysis of that area meeting the requirements of paragraph (b) of this section; and

(3) Conditions and limitations that will ensure that no measurable sonic boom overpressure will reach the surface outside of the designated test area.

(d) An application is denied if the Administrator finds that such action is necessary to protect or enhance the environment.

Section 2. Issuance

(a) For a flight in a designated test area, an authorization to exceed Mach 1 may be issued when the Administrator has taken the environmental protective actions specified in section 1(b) of this appendix and the applicant shows one or more of the following:

(1) The flight is necessary to show compliance with airworthiness requirements.

(2) The flight is necessary to determine the sonic boom characteristics of the airplane or to establish means of reducing or eliminating the effects of sonic boom.

(3) The flight is necessary to demonstrate the conditions and limitations under which speeds greater than a true flight Mach number of 1 will not cause a measurable sonic boom overpressure to reach the surface.

(b) For a flight outside of a designated test area, an authorization to exceed Mach 1 may be issued if the applicant shows conservatively under paragraph (a)(3) of this section that -

(1) The flight will not cause a measurable sonic boom overpressure to reach the surface when the aircraft is operated under conditions and limitations demonstrated under paragraph (a)(3) of this section; and

(2) Those conditions and limitations represent all foreseeable operating conditions.

Section 3. Duration

(a) An authorization to exceed Mach 1 is effective until it expires or is surrendered, or until it is suspended or terminated by the Administrator. Such an authorization may be amended or suspended by the Administrator at any time if the Administrator finds that such action is necessary to protect the environment. Within 30 days of notification of amendment, the holder of the authorization must request reconsideration or the amendment becomes final. Within 30 days of notification of suspension, the holder of the authorization must request reconsideration or the authorization is automatically terminated. If reconsideration is requested within the 30-day period, the amendment or suspension continues until the holder shows why the authorization should not be amended or terminated. Upon such showing, the Administrator may terminate or amend the authorization if the Administrator finds that such action is necessary to protect the environment, or he may reinstate the authorization without amendment if he finds that termination or amendment is not necessary to protect the environment.

(b) Findings and actions by the Administrator under this section do not affect any certificate issued under title VI of the Federal Aviation Act of 1958.

[Doc. No. 18334, 54 FR 34327, Aug. 18, 1989]

Appendix C to Part 91 - Operations in the North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) Airspace

Section 1

NAT MNPS airspace is that volume of airspace between FL 285 and FL 420 extending between latitude 27 degrees north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik Oceanic and in the west by the western boundary of Reykjavik Oceanic Control Area, the western boundary of Gander Oceanic Control Area, and the western boundary of New York Oceanic Control Area, excluding the areas west of 60 degrees west and south of 38 degrees 30 minutes north.

Section 2

The navigation performance capability required for aircraft to be operated in the airspace defined in section 1 of this appendix is as follows:

(a) The standard deviation of lateral track errors shall be less than 6.3 NM (11.7 Km). Standard deviation is a statistical measure of data about a mean value. The mean is zero nautical miles. The overall form of data is such that the plus and minus 1 standard deviation about the mean encompasses approximately 68 percent of the data and plus or minus 2 deviations encompasses approximately 95 percent.

(b) The proportion of the total flight time spent by aircraft 30 NM (55.6 Km) or more off the cleared track shall be less than $5.3 \times 10^{#4}$ (less than 1 hour in 1,887 flight hours).

(c) The proportion of the total flight time spent by aircraft between 50 NM and 70 NM (92.6 Km and 129.6 Km) off the cleared track shall be less than $13 \times 10^{#5}$ (less than 1 hour in 7,693 flight hours.)

Section 3

Air traffic control (ATC) may authorize an aircraft operator to deviate from the requirements of § 91.705 for a specific flight if, at the time of flight plan filing for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden upon, the operations of other aircraft which meet the requirements of § 91.705.

[Doc. No. 18334, 54 FR 34327, Aug. 18, 1989, as amended by Amdt. 91-254, 62 FR 17487, Apr. 9, 1997]

Appendix D to Part 91 - Airports/Locations: Special Operating Restrictions

Section 1. Locations at which the requirements of § 91.215(b)(2) and § 91.225(d)(2) apply. The requirements of §§ 91.215(b)(2) and 91.225(d)(2) apply below 10,000 feet MSL within a 30-nautical-mile radius of each location in the following list.

Atlanta, GA (Hartsfield-Jackson Atlanta International Airport)
 Baltimore, MD (Baltimore/Washington International Thurgood Marshall Airport)
 Boston, MA (General Edward Lawrence Logan International Airport)
 Camp Springs, MD (Joint Base Andrews)
 Chantilly, VA (Washington Dulles International Airport)
 Charlotte, NC (Charlotte/Douglas International Airport)
 Chicago, IL (Chicago-O'Hare International Airport)
 Cleveland, OH (Cleveland-Hopkins International Airport)
 Covington, KY (Cincinnati/Northern Kentucky International Airport)
 Dallas, TX (Dallas/Fort Worth International Airport)
 Denver, CO (Denver International Airport)
 Detroit, MI (Detroit Metropolitan Wayne County Airport)
 Honolulu, HI (Honolulu International Airport)
 Houston, TX (George Bush Intercontinental/Houston Airport)
 Houston, TX (William P. Hobby Airport)
 Kansas City, MO (Kansas City International Airport)
 Las Vegas, NV (McCarran International Airport)
 Los Angeles, CA (Los Angeles International Airport)
 Memphis, TN (Memphis International Airport)
 Miami, FL (Miami International Airport)
 Minneapolis, MN (Minneapolis-St. Paul International/Wold-Chamberlain Airport)
 Newark, NJ (Newark Liberty International Airport)
 New Orleans, LA (Louis Armstrong New Orleans International Airport)
 New York, NY (John F. Kennedy International Airport)
 New York, NY (LaGuardia Airport)
 Orlando, FL (Orlando International Airport)
 Philadelphia, PA (Philadelphia International Airport)
 Phoenix, AZ (Phoenix Sky Harbor International Airport)
 Pittsburgh, PA (Pittsburgh International Airport)
 St. Louis, MO (Lambert-St. Louis International Airport)
 Salt Lake City, UT (Salt Lake City International Airport)
 San Diego, CA (Miramar Marine Corps Air Station)
 San Diego, CA (San Diego International Airport)
 San Francisco, CA (San Francisco International Airport)
 Seattle, WA (Seattle-Tacoma International Airport)
 Tampa, FL (Tampa International Airport)
 Washington, DC (Ronald Reagan Washington National Airport)

Section 2. Airports at which the requirements of § 91.215(b)(5)(ii) apply. [Reserved]

Section 3. Locations at which fixed-wing Special VFR operations are prohibited.

The Special VFR weather minimums of § 91.157 do not apply to the following airports:

Atlanta, GA (Hartsfield-Jackson Atlanta International Airport)
 Baltimore, MD (Baltimore/Washington International Thurgood Marshall Airport)

Boston, MA (General Edward Lawrence Logan International Airport)
 Buffalo, NY (Greater Buffalo International Airport)
 Camp Springs, MD (Joint Base Andrews)
 Chicago, IL (Chicago-O'Hare International Airport)
 Cleveland, OH (Cleveland-Hopkins International Airport)
 Columbus, OH (Port Columbus International Airport)
 Covington, KY (Cincinnati/Northern Kentucky International Airport)
 Dallas, TX (Dallas/Fort Worth International Airport)
 Dallas, TX (Dallas Love Field Airport)
 Denver, CO (Denver International Airport)
 Detroit, MI (Detroit Metropolitan Wayne County Airport)
 Honolulu, HI (Honolulu International Airport)
 Houston, TX (George Bush Intercontinental/Houston Airport)
 Indianapolis, IN (Indianapolis International Airport)
 Los Angeles, CA (Los Angeles International Airport)
 Louisville, KY (Louisville International Airport-Standiford Field)
 Memphis, TN (Memphis International Airport)
 Miami, FL (Miami International Airport)
 Minneapolis, MN (Minneapolis-St. Paul International/Wold-Chamberlain Airport)
 Newark, NJ (Newark Liberty International Airport)
 New York, NY (John F. Kennedy International Airport)
 New York, NY (LaGuardia Airport)
 New Orleans, LA (Louis Armstrong New Orleans International Airport)
 Philadelphia, PA (Philadelphia International Airport)
 Pittsburgh, PA (Pittsburgh International Airport)
 Portland, OR (Portland International Airport)
 San Francisco, CA (San Francisco International Airport)
 Seattle, WA (Seattle-Tacoma International Airport)
 St. Louis, MO (Lambert-St. Louis International Airport)
 Tampa, FL (Tampa International Airport)
 Washington, DC (Ronald Reagan Washington National Airport)

Section 4. Locations at which solo student, sport, and recreational pilot activity is not permitted.

Pursuant to § 91.131(b)(2), solo student, sport, and recreational pilot operations are not permitted at any of the following airports.

Atlanta, GA (Hartsfield-Jackson Atlanta International Airport)
 Boston, MA (General Edward Lawrence Logan International Airport)
 Camp Springs, MD (Joint Base Andrews)
 Chicago, IL (Chicago-O'Hare International Airport)
 Dallas, TX (Dallas/Fort Worth International Airport)
 Los Angeles, CA (Los Angeles International Airport)
 Miami, FL (Miami International Airport)
 Newark, NJ (Newark Liberty International Airport)
 New York, NY (John F. Kennedy International Airport)
 New York, NY (LaGuardia Airport)

San Francisco, CA (San Francisco International Airport)
 Washington, DC (Ronald Reagan Washington National Airport)

[Amdt. 91-227, 56 FR 65661, Dec. 17, 1991]

Editorial Note:

For Federal Register citations affecting appendix D to part 91, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

Effective Date Note:

By Amdt. 91-236, 59 FR 2918, Jan. 19, 1994, as corrected by Amdt. 91-237, 59 FR 6547, Feb. 11, 1994, appendix D to part 91 was amended in sections 1 and 3 in the Denver, CO, entry by revising “Stapleton” to read “Denver” effective Mar. 9, 1994. By Amdt. 91-238, 59 FR 10958, Mar. 9, 1994, the effective date was delayed to May 15, 1994. By Amdt. 91-241, 59 FR 24916, May 13, 1994, the effective date was suspended indefinitely.

Appendix E to Part 91 - Airplane Flight Recorder Specifications

| Parameters | Range | Installed system 1 minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution 4 read out |
|--|--|---|--|--------------------------|
| Relative Time (From Recorded on Prior to Takeoff) | 8 hr minimum | ±0.125% per hour | 1 | 1 sec. |
| Indicated Airspeed | V _{so} to VD (KIAS) | ±5% or ±10 kts., whichever is greater. Resolution 2 kts. below 175 KIAS | 1 | 1% 3 |
| Altitude | #1,000 ft. to max cert. alt. of A/C | ±100 to ±700 ft. (see Table 1, TSO C51-a) | 1 | 25 to 150 ft. |
| Magnetic Heading | 360° | ±5° | 1 | 1° |
| Vertical Acceleration | #3g to + 6g | ±0.2g in addition to ±0.3g maximum datum | 4 (or 1 per second where peaks, ref. to 1g are recorded) | 0.03g. |
| Longitudinal Acceleration | ±1.0g | ±1.5% max. range excluding datum error of ±5% | 2 | 0.01g. |
| Pitch Attitude | 100% of usable | ±2° | 1 | 0.8° |
| Roll Attitude | ±60° or 100% of usable range, whichever is greater | ±2° | 1 | 0.8° |
| Stabilizer Trim Position, or | Full Range | ±3% unless higher uniquely required | 1 | 1% 3 |
| Pitch Control Position 5 | | | | |
| Engine Power, Each Engine: | Full Range | ±3% unless higher uniquely required | 1 | 1% 3 |
| Fan or N 1 Speed or EPR or Cockpit indications Used for Aircraft Certification OR | Maximum Range | ±5% | 1 | 1% 3 |
| Prop. speed and Torque (Sample Once/Sec) | | | 1 (prop Speed) | 1% 3 |

| Parameters | Range | Installed system ¹ minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution ⁴ read out |
|---|--|---|--------------------------------|-------------------------------------|
| as Close together as Practicable) | | | 1 (torque) | 1% 3 |
| Altitude Rate ² (need depends on altitude resolution) | ±8,000 fpm | ±10%. Resolution 250 fpm below 12,000 ft. indicated | 1 | 250 fpm. below 12,000 |
| Angle of Attack ² (need depends on altitude resolution) | #20° to 40° or 100% of usable range | ±2° | 1 | 0.8% 3 |
| Radio Transmitter Keying (Discrete) | On/Off | | 1 | |
| TE Flaps (Discrete or Analog) | Each discrete position (U, D, T/O, AAP) OR | | 1 | |
| LE Flaps (Discrete or Analog) | Analog 0-100% range | ±3% | 1 | 1% 3 |
| | Each discrete position (U, D, T/O, AAP) OR | | 1 | |
| Thrust Reverser, Each Engine (Discrete) | Analog 0-100% range | ±3° | 1 | 1% 3 |
| | Stowed or full reverse | | | |
| Spoiler/Speedbrake (Discrete) | Stowed or out | | 1 | |
| Autopilot Engaged (Discrete) | Engaged or Disengaged | | 1 | |

¹ When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

² If data from the altitude encoding altimeter (100 ft. resolution) is used, then either one of these parameters should also be recorded. If however, altitude is recorded at a minimum resolution of 25 feet, then these two parameters can be omitted.

³ Per cent of full range.

⁴ This column applies to aircraft manufactured after October 11, 1991.

⁵ For Pitch Control Position only, for all aircraft manufactured on or after April 6, 2012, the sampling interval (per second) is 8. Each input must be recorded at this rate. Alternately sampling inputs (interleaving) to meet this sampling interval is prohibited.

[Doc. No. 18334, 54 FR 34327, Aug. 18, 1989, as amended by Amdt. 91-300, 73 FR 12565, Mar. 7, 2008; 73 FR 15280, Mar. 21, 2008; Amdt. 91-313, 75 FR 17046, Apr. 5, 2010; Amdt. 91-329, 78 FR 39971, July 3, 2013]

Appendix F to Part 91 - Helicopter Flight Recorder Specifications

| Parameters | Range | Installed system ¹ minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution ³ read out |
|---|--------------|---|--------------------------------|----------------------------------|
| Relative Time (From Recorded on Prior to Takeoff) | 4 hr minimum | ±0.125% per hour | 1 | 1 sec. |

| Parameters | Range | Installed system 1 minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution 3 read out |
|--|---|---|--|-----------------------|
| Indicated Airspeed | VM in to VD (KIAS) (minimum airspeed signal attainable with installed pilot-static system) | ±5% or ±10 kts., whichever is greater | 1 | 1 kt. |
| Altitude | #1,000 ft. to 20,000 ft. pressure altitude | ±100 to ±700 ft. (see Table 1, TSO C51-a) | 1 | 25 to 150 ft. |
| Magnetic Heading | 360° | ±5° | 1 | 1° |
| Vertical Acceleration | #3g to + 6g | ±0.2g in addition to ±0.3g maximum datum | 4 (or 1 per second where peaks, ref. to 1g are recorded) | 0.05g. |
| Longitudinal Acceleration | ±1.0g | ±1.5% max. range excluding datum error of ±5% | 2 | 0.03g. |
| Pitch Attitude | 100% of usable range | ±2° | 1 | 0.8° |
| Roll Attitude | ±60 or 100% of usable range, whichever is greater | ±2° | 1 | 0.8° |
| Altitude Rate | ±8,000 fpm | ±10% Resolution 250 fpm below 12,000 ft. indicated | 1 | 250 fpm below 12,000. |
| <i>Engine Power, Each Engine</i> | | | | |
| Main Rotor Speed | Maximum Range | ±5% | 1 | 1%2. |
| Free or Power Turbine | Maximum Range | ±5% | 1 | 1%2. |
| Engine Torque | Maximum Range | ±5% | 1 | 1%2. |
| <i>Flight Control Hydraulic Pressure</i> | | | | |
| Primary (Discrete) | High/Low | | 1 | |
| Secondary - if applicable (Discrete) | High/Low | | 1 | |
| Radio Transmitter Keying (Discrete) | On/Off | | 1 | |
| Autopilot Engaged (Discrete) | Engaged or Disengaged | | 1 | |
| SAS Status-Engaged (Discrete) | Engaged or Disengaged | | 1 | |
| SAS Fault Status (Discrete) | Fault/OK | | 1 | |
| <i>Flight Controls</i> | | | | |
| Collective 4 | Full range | ±3% | 2 | 1%2. |
| Pedal Position | Full range | ±3% | 2 | 1%2. |

| Parameters | Range | Installed system ¹ minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution 3 read out |
|---------------------------------------|------------|---|--------------------------------|-----------------------|
| 4 | | | | |
| Lat. Cyclic 4 | Full range | ±3% | 2 | 1% ² . |
| Long. Cyclic 4 | Full range | ±3% | 2 | 1% ² . |
| Controllable Stabilator Position 4 | Full range | ±3% | 2 | 1% ² . |

¹ When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

² Per cent of full range.

³ This column applies to aircraft manufactured after October 11, 1991.

⁴ For all aircraft manufactured on or after April 6, 2012, the sampling interval per second is 4.

[Doc. No. 18334, 54 FR 34328, Aug. 18, 1989; 54 FR 41211, Oct. 5, 1989; 54 FR 53036, Dec. 26, 1989; Amdt. 91-300, 73 FR 12565, Mar. 7, 2008; 73 FR 15280, Mar. 21, 2008; Amdt. 91-313, 75 FR 17046, Apr. 5, 2010]

Appendix G to Part 91 - Operations in Reduced Vertical Separation Minimum (RVSM) Airspace

Section 1. Definitions

Reduced Vertical Separation Minimum (RVSM) Airspace. Within RVSM airspace, air traffic control (ATC) separates aircraft by a minimum of 1,000 feet vertically between flight level (FL) 290 and FL 410 inclusive. RVSM airspace is special qualification airspace; the operator and the aircraft used by the operator must be approved by the Administrator. Air-traffic control notifies operators of RVSM by providing route planning information. Section 8 of this appendix identifies airspace where RVSM may be applied.

RVSM Group Aircraft. Aircraft within a group of aircraft, approved as a group by the Administrator, in which each of the aircraft satisfy each of the following:

(a) The aircraft have been manufactured to the same design, and have been approved under the same type certificate, amended type certificate, or supplemental type certificate.

(b) The static system of each aircraft is installed in a manner and position that is the same as those of the other aircraft in the group. The same static source error correction is incorporated in each aircraft of the group.

(c) The avionics units installed in each aircraft to meet the minimum RVSM equipment requirements of this appendix are:

(1) Manufactured to the same manufacturer specification and have the same part number; or

(2) Of a different manufacturer or part number, if the applicant demonstrates that the equipment provides equivalent system performance.

RVSM Nongroup Aircraft. An aircraft that is approved for RVSM operations as an individual aircraft.

RVSM Flight envelope. An RVSM flight envelope includes the range of Mach number, weight divided by atmospheric pressure ratio, and altitudes over which an aircraft is approved to be operated in cruising flight within RVSM airspace. RVSM flight envelopes are defined as follows:

(a) The *full RVSM flight envelope* is bounded as follows:

(1) The altitude flight envelope extends from FL 290 upward to the lowest altitude of the following:

- (i) FL 410 (the RVSM altitude limit);
- (ii) The maximum certificated altitude for the aircraft; or
- (iii) The altitude limited by cruise thrust, buffet, or other flight limitations.

(2) The airspeed flight envelope extends:

(i) From the airspeed of the slats/flaps-up maximum endurance (holding) airspeed, or the maneuvering airspeed, whichever is lower;

(ii) To the maximum operating airspeed (V_{mo}/M_{mo}), or airspeed limited by cruise thrust buffet, or other flight limitations, whichever is lower.

(3) All permissible gross weights within the flight envelopes defined in paragraphs (1) and (2) of this definition.

(b) The *basic RVSM flight envelope* is the same as the full RVSM flight envelope except that the airspeed flight envelope extends:

(1) From the airspeed of the slats/flaps-up maximum endurance (holding) airspeed, or the maneuver airspeed, whichever is lower;

(2) To the upper Mach/airspeed boundary defined for the full RVSM flight envelope, or a specified lower value not less than the long-range cruise Mach number plus .04 Mach, unless

further limited by available cruise thrust, buffet, or other flight limitations.

Section 2. Aircraft Approval

(a) An operator may be authorized to conduct RVSM operations if the Administrator finds that its aircraft comply with this section.

(b) The applicant for authorization shall submit the appropriate data package for aircraft approval. The package must consist of at least the following:

(1) An identification of the RVSM aircraft group or the nongroup aircraft;

(2) A definition of the RVSM flight envelopes applicable to the subject aircraft;

(3) Documentation that establishes compliance with the applicable RVSM aircraft requirements of this section; and

(4) The conformity tests used to ensure that aircraft approved with the data package meet the RVSM aircraft requirements.

(c) *Altitude-keeping equipment: All aircraft.* To approve an aircraft group or a nongroup aircraft, the Administrator must find that the aircraft meets the following requirements:

(1) The aircraft must be equipped with two operational independent altitude measurement systems.

(2) The aircraft must be equipped with at least one automatic altitude control system that controls the aircraft altitude -

(i) Within a tolerance band of ± 65 feet about an acquired altitude when the aircraft is operated in straight and level flight under nonturbulent, nongust conditions; or

(ii) Within a tolerance band of ± 130 feet under nonturbulent, nongust conditions for aircraft for which application for type certification occurred on or before April 9, 1997 that are equipped with an automatic altitude control system with flight management/performance system inputs.

(3) The aircraft must be equipped with an altitude alert system that signals an alert when the altitude displayed to the flight crew deviates from the selected altitude by more than:

(i) ± 300 feet for aircraft for which application for type certification was made on or before April 9, 1997; or

(ii) ± 200 feet for aircraft for which application for type certification is made after April 9, 1997.

(d) *Altimetry system error containment: Group aircraft for which application for type certification was made on or before April 9, 1997.* To approve group aircraft for which application for type certification was made on or before April 9, 1997, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) At the point in the basic RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 80 feet.

(2) At the point in the basic RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 200 feet.

(3) At the point in the full RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 120 feet.

(4) At the point in the full RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 245 feet.

(5) *Necessary operating restrictions.* If the applicant demonstrates that its aircraft otherwise comply with the ASE containment requirements, the Administrator may establish an operating restriction on that applicant's aircraft to restrict the aircraft from operating in areas of the basic RVSM flight envelope where the absolute value of mean ASE exceeds 80 feet, and/or the absolute value of mean ASE plus three standard deviations exceeds 200 feet; or from operating in areas of the full RVSM flight envelope where the absolute value of the mean ASE exceeds 120 feet and/or the absolute value of the mean ASE plus three standard deviations exceeds 245 feet.

(e) *Altimetry system error containment: Group aircraft for which application for type certification is made after April 9, 1997.* To approve group aircraft for which application for type certification is made after April 9, 1997, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) At the point in the full RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 80 feet.

(2) At the point in the full RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 200 feet.

(f) *Altimetry system error containment: Nongroup aircraft.* To approve a nongroup aircraft, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) For each condition in the basic RVSM flight envelope, the largest combined absolute value for residual static source error plus the avionics error may not exceed 160 feet.

(2) For each condition in the full RVSM flight envelope, the largest combined absolute value for residual static source error plus the avionics error may not exceed 200 feet.

(g) *Traffic Alert and Collision Avoidance System (TCAS) Compatibility With RVSM Operations: All aircraft.* After March 31, 2002, unless otherwise authorized by the Administrator, if you operate an aircraft that is equipped with TCAS II in RVSM airspace, it must be a TCAS II that meets TSO C-119b (Version 7.0), or a later version.

(h) If the Administrator finds that the applicant's aircraft comply with this section, the Administrator notifies the applicant in writing.

Section 3. Operator Authorization

(a) Authority for an operator to conduct flight in airspace where RVSM is applied is issued in operations specifications, a Letter of Authorization, or management specifications issued under subpart K of this part, as appropriate. To issue an RVSM authorization, the Administrator must find that the operator's

aircraft have been approved in accordance with Section 2 of this appendix and the operator complies with this section.

(b) An applicant for authorization to operate within RVSM airspace shall apply in a form and manner prescribed by the Administrator. The application must include the following:

(1) [Reserved]

(2) For an applicant who operates under part 121 or 135 of this chapter or under subpart K of this part, initial and recurring pilot training requirements.

(3) Policies and procedures: An applicant who operates under part 121 or 135 of this chapter or under subpart K of this part must submit RVSM policies and procedures that will enable it to conduct RVSM operations safely.

(c) Validation and Demonstration. In a manner prescribed by the Administrator, the operator must provide evidence that:

(1) It is capable to operate and maintain each aircraft or aircraft group for which it applies for approval to operate in RVSM airspace; and

(2) Each pilot has an adequate knowledge of RVSM requirements, policies, and procedures.

Section 4. RVSM Operations

(a) Each person requesting a clearance to operate within RVSM airspace shall correctly annotate the flight plan filed with air traffic control with the status of the operator and aircraft with regard to RVSM approval. Each operator shall verify RVSM applicability for the flight planned route through the appropriate flight planning information sources.

(b) No person may show, on the flight plan filed with air traffic control, an operator or aircraft as approved for RVSM operations, or operate on a route or in an area where RVSM approval is required, unless:

(1) The operator is authorized by the Administrator to perform such operations; and

(2) The aircraft has been approved and complies with the requirements of Section 2 of this appendix.

Section 5. Deviation Authority Approval

The Administrator may authorize an aircraft operator to deviate from the requirements of § 91.180 or § 91.706 for a specific flight in RVSM airspace if that operator has not been approved in accordance with section 3 of this appendix if:

(a) The operator submits a request in a time and manner acceptable to the Administrator; and

(b) At the time of filing the flight plan for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden on, the operations of operators who have been approved for RVSM operations in accordance with Section 3 of this appendix.

Section 6. Reporting Altitude-Keeping Errors

Each operator shall report to the Administrator each event in which the operator's aircraft has exhibited the following altitude-keeping performance:

(a) Total vertical error of 300 feet or more;

(b) Altimetry system error of 245 feet or more; or

(c) Assigned altitude deviation of 300 feet or more.

Section 7. Removal or Amendment of Authority

The Administrator may amend operations specifications or management specifications issued under subpart K of this part to revoke or restrict an RVSM authorization, or may revoke or restrict an RVSM letter of authorization, if the Administrator determines that the operator is not complying, or is unable to comply, with this appendix or subpart H of this part. Examples of reasons for amendment, revocation, or restriction include, but are not limited to, an operator's:

(a) Committing one or more altitude-keeping errors in RVSM airspace;

(b) Failing to make an effective and timely response to identify and correct an altitude-keeping error; or

(c) Failing to report an altitude-keeping error.

Section 8. Airspace Designation

(a) *RVSM in the North Atlantic.* (1) RVSM may be applied in the NAT in the following ICAO Flight Information Regions (FIRs): New York Oceanic, Gander Oceanic, Sondrestrom FIR, Reykjavik Oceanic, Shanwick Oceanic, and Santa Maria Oceanic.

(2) RVSM may be effective in the Minimum Navigation Performance Specification (MNPS) airspace within the NAT. The MNPS airspace within the NAT is defined by the volume of airspace between FL 285 and FL 420 (inclusive) extending between latitude 27 degrees north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik Oceanic and in the west by the western boundaries of control areas Reykjavik Oceanic, Gander Oceanic, and New York Oceanic, excluding the areas west of 60 degrees west and south of 38 degrees 30 minutes north.

(b) *RVSM in the Pacific.* (1) RVSM may be applied in the Pacific in the following ICAO Flight Information Regions (FIRs): Anchorage Arctic, Anchorage Continental, Anchorage Oceanic, Auckland Oceanic, Brisbane, Edmonton, Honiara, Los Angeles, Melbourne, Nadi, Naha, Nauru, New Zealand, Oakland, Oakland Oceanic, Port Moresby, Seattle, Tahiti, Tokyo, Ujung Pandang and Vancouver.

(c) *RVSM in the West Atlantic Route System (WATRS).* RVSM may be applied in the New York FIR portion of the West Atlantic Route System (WATRS). The area is defined as beginning at a point 38°30# N/60°00#W direct to 38°30# N/69°15# W direct to 38°20# N/69°57# W direct to 37°31# N/71°41# W direct to 37°13# N/72°40# W direct to 35°05# N/72°40# W direct to 34°54# N/72°57# W direct to 34°29# N/73°34# W direct to 34°33# N/73°41# W direct to 34°19# N/74°02# W direct to 34°14# N/73°57# W direct to 32°12# N/76°49# W direct to 32°20# N/77°00# W direct to 28°08# N/77°00# W direct to 27°50# N/76°32# W direct to 27°50# N/74°50# W direct to 25°00# N/73°21# W direct to 25°00#05# N/69°13#06# W direct to 25°00# N/69°07# W direct to 23°30#

N/68°40# W direct to 23°30# N/60°00# W to the point of beginning.

(d) *RVSM in the United States*. RVSM may be applied in the airspace of the 48 contiguous states, District of Columbia, and Alaska, including that airspace overlying the waters within 12 nautical miles of the coast.

(e) *RVSM in the gulf of Mexico*. RVSM may be applied in the Gulf of Mexico in the following areas: Gulf of Mexico High Offshore Airspace, Houston Oceanic ICAO FIR and Miami Oceanic ICAO FIR.

(f) *RVSM in Atlantic High Offshore Airspace and the San Juan FIR*. RVSM may be applied in Atlantic High Offshore Airspace and in the San Juan ICAO FIR.

[Doc. No. 28870, 62 FR 17487, Apr. 9, 1997, as amended by Amdt. 91-261, 65 FR 5942, Feb. 7, 2000; Amdt. 91-271, 66 FR 63895, Dec. 10, 2001; Amdt. 91-274, 68 FR 54584, Sept. 17, 2003; Amdt. 91-276, 68 FR 70133, Dec. 17, 2003; Docket FAA-2015-1746, Amdt. 91-342, 81 FR 47017, July 20, 2016]

PART 97 - STANDARD INSTRUMENT PROCEDURES

Authority:

49 U.S.C. 106(f), 106(g), 40103, 40106, 40113, 40114, 40120, 44502, 44514, 44701, 44719, and 44721-44722.

Source:

Docket No. 1580, 28 FR 6719, June 29, 1963, unless otherwise noted.

Subpart A - General

§ 97.1 Applicability.

(a) This part prescribes standard instrument approach procedures to civil airports in the United States and the weather minimums that apply to landings under IFR at those airports.

(b) This part also prescribes obstacle departure procedures (ODPs) for certain civil airports in the United States and the weather minimums that apply to takeoffs under IFR at civil airports in the United States.

[Doc. No. FAA-2002-14002, 72 FR 31679, June 7, 2007]

§ 97.3 Symbols and terms used in procedures.

As used in the standard instrument procedures prescribed in this part -

Aircraft approach category means a grouping of aircraft based on a speed of VREF, if specified, or if VREF is not specified, 1.3 V_{SO} at the maximum certificated landing weight. VREF, V_{SO}, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. The categories are as follows -

- (1) Category A: Speed less than 91 knots.
- (2) Category B: Speed 91 knots or more but less than 121 knots.
- (3) Category C: Speed 121 knots or more but less than 141 knots.
- (4) Category D: Speed 141 knots or more but less than 166 knots.
- (5) Category E: Speed 166 knots or more.

Approach procedure segments for which altitudes (minimum altitudes, unless otherwise specified) and paths are prescribed in procedures, are as follows -

(1) Initial approach is the segment between the initial approach fix and the intermediate fix or the point where the aircraft is established on the intermediate course or final approach course.

(2) Initial approach altitude is the altitude (or altitudes, in high altitude procedure) prescribed for the initial approach segment of an instrument approach.

(3) Intermediate approach is the segment between the intermediate fix or point and the final approach fix.

(4) Final approach is the segment between the final approach fix or point and the runway, airport, or missed approach point.

(5) Missed approach is the segment between the missed approach point, or point of arrival at decision altitude or decision height (DA/DH), and the missed approach fix at the prescribed altitude.

Ceiling means the minimum ceiling, expressed in feet above the airport elevation, required for takeoff or required for designating an airport as an alternate airport.

Copter procedures means helicopter procedures, with applicable minimums as prescribed in § 97.35. Helicopters may also use other procedures prescribed in subpart C of this part and may use the Category A minimum descent altitude (MDA), or decision altitude or decision height (DA/DH). For other than “copter-only” approaches, the required visibility minimum for Category I approaches may be reduced to one-half the published visibility minimum for Category A aircraft, but in no case may it be reduced to less than one-quarter mile prevailing visibility, or, if reported, 1,200 feet RVR. Reduction of visibility minima on Category II instrument approach procedures is prohibited.

FAF means final approach fix.

HAA means height above airport and is expressed in feet.

HAL means height above landing and is the height of the DA/MDA above a designated helicopter landing area elevation used for helicopter instrument approach procedures and is expressed in feet.

HAS means height above the surface and is the height of the DA/MDA above the highest terrain/surface within a 5,200-foot radius of the missed approach point used in helicopter instrument approach procedures and is expressed in feet above ground level (AGL).

HAT means height above touchdown.

HCH means heliport crossing height and is the computed height of the vertical guidance path above the heliport elevation at the heliport expressed in feet.

Helipoint means the aiming point for the final approach course. It is normally the center point of the touchdown and lift-off area (TLOF).

Hold in lieu of PT means a holding pattern established under applicable FAA criteria, and used in lieu of a procedure turn to execute a course reversal.

MAP means missed approach point.

More than 65 knots means an aircraft that has a stalling speed of more than 65 knots (as established in an approved flight manual) at maximum certificated landing weight with full flaps, landing gear extended, and power off.

MSA means minimum safe altitude, expressed in feet above mean sea level, depicted on an approach chart that provides at least 1,000 feet of obstacle clearance for emergency use within a certain distance from the specified navigation facility or fix.

NA means not authorized.

NOPT means no procedure turn required. Altitude prescribed applies only if procedure turn is not executed.

Procedure turn means the maneuver prescribed when it is necessary to reverse direction to establish the aircraft on an intermediate or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, the point at which the turn may be begun, and the type and rate of turn, is left to the discretion of the pilot.

RA means radio altimeter setting height.

RVV means runway visibility value.

SIAP means standard instrument approach procedure.

65 knots or less means an aircraft that has a stalling speed of 65 knots or less (as established in an approved flight manual) at maximum certificated landing weight with full flaps, landing gear extended, and power off.

T means nonstandard takeoff minimums or specified departure routes/procedures or both.

TDZ means touchdown zone.

Visibility minimum means the minimum visibility specified for approach, landing, or takeoff, expressed in statute miles, or in feet where RVR is reported.

[Doc. No. FAA-2002-14002, 72 FR 31679, June 7, 2007]

§ 97.5 Bearings, courses, tracks, headings, radials, miles.

(a) All bearings, courses, tracks, headings, and radials in this part are magnetic, unless otherwise designated.

(b) RVR values are stated in feet. Other visibility values are stated in statute miles. All other mileages are stated in nautical miles.

[Doc. No. 561, 32 FR 13912, Oct. 6, 1967, as amended by Amdt. 97-1336, 72 FR 31680, June 7, 2007]

Subpart B - Procedures

Editorial Note:

The procedures set forth in this subpart were formerly carried as §§ 609.100 through 609.500 of this title and were transferred to part 97 as §§ 97.11 through 97.19, respectively, but are not carried in the Code of Federal Regulations. For Federal Register citations affecting these procedures, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 97.10 [Reserved]

Subpart C - TERPS Procedures

Source:

Docket No. 8130, 32 FR 13912, Oct. 6, 1967, unless otherwise noted.

Editorial Note:

The procedures for §§ 97.21 through 97.35, respectively, are not carried in the Code of Federal Regulations. For Federal Register citations affecting these procedures, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 97.20 General.

(a) This subpart prescribes standard instrument approach procedures and takeoff minimums and obstacle departure procedures (ODPs) based on the criteria contained in FAA Order 8260.3, U.S. Standard for Terminal Instrument Procedures (TERPs), and other related Orders in the 8260 series that also address instrument procedure design criteria.

(b) Standard instrument approach procedures and associated supporting data adopted by the FAA are documented on FAA Forms 8260-3, 8260-4, 8260-5. Takeoff minimums and obstacle departure procedures (ODPs) are documented on FAA Form 8260-15A. These forms are incorporated by reference. The Director of the Federal Register approved this incorporation by reference pursuant to 5 U.S.C. 552(a) and 1 CFR part 51. The standard instrument approach procedures and takeoff minimums and obstacle departure procedures (ODPs) are available for examination at the FAA's Rules Docket (AGC-200) and at the National Flight Data Center, 800 Independence Avenue, SW., Washington, DC 20590, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(c) Standard instrument approach procedures and takeoff minimums and obstacle departure procedures (ODPs) are

depicted on aeronautical charts published by the FAA National Aeronautical Charting Office. These charts are available for purchase from the FAA's National Aeronautical Charting Office, Distribution Division, 6303 Ivy Lane, Suite 400, Greenbelt, MD 20770.

[Doc. No. FAA-2002-14002, 72 FR 31680, June 7, 2007]

PART 103 - ULTRALIGHT VEHICLES

Authority:

49 U.S.C. 106(g), 40103-40104, 40113, 44701.

Source:

Docket No. 21631, 47 FR 38776, Sept. 2, 1982, unless otherwise noted.

Subpart A - General

§ 103.1 Applicability.

This part prescribes rules governing the operation of ultralight vehicles in the United States. For the purposes of this part, an ultralight vehicle is a vehicle that:

- (a) Is used or intended to be used for manned operation in the air by a single occupant;
- (b) Is used or intended to be used for recreation or sport purposes only;
- (c) Does not have any U.S. or foreign airworthiness certificate; and
- (d) If unpowered, weighs less than 155 pounds; or
- (e) If powered:
 - (1) Weighs less than 254 pounds empty weight, excluding floats and safety devices which are intended for deployment in a potentially catastrophic situation;
 - (2) Has a fuel capacity not exceeding 5 U.S. gallons;
 - (3) Is not capable of more than 55 knots calibrated airspeed at full power in level flight; and
 - (4) Has a power-off stall speed which does not exceed 24 knots calibrated airspeed.

§ 103.3 Inspection requirements.

(a) Any person operating an ultralight vehicle under this part shall, upon request, allow the Administrator, or his designee, to inspect the vehicle to determine the applicability of this part.

(b) The pilot or operator of an ultralight vehicle must, upon request of the Administrator, furnish satisfactory evidence that the vehicle is subject only to the provisions of this part.

§ 103.5 Waivers.

No person may conduct operations that require a deviation from this part except under a written waiver issued by the Administrator.

§ 103.7 Certification and registration.

(a) Notwithstanding any other section pertaining to certification of aircraft or their parts or equipment, ultralight vehicles and their component parts and equipment are not required to meet the airworthiness certification standards specified for aircraft or to have certificates of airworthiness.

(b) Notwithstanding any other section pertaining to airman certification, operators of ultralight vehicles are not required to meet any aeronautical knowledge, age, or experience requirements to operate those vehicles or to have airman or medical certificates.

(c) Notwithstanding any other section pertaining to registration and marking of aircraft, ultralight vehicles are not required to be registered or to bear markings of any type.

Subpart B - Operating Rules

§ 103.9 Hazardous operations.

(a) No person may operate any ultralight vehicle in a manner that creates a hazard to other persons or property.

(b) No person may allow an object to be dropped from an ultralight vehicle if such action creates a hazard to other persons or property.

§ 103.11 Daylight operations.

(a) No person may operate an ultralight vehicle except between the hours of sunrise and sunset.

(b) Notwithstanding paragraph (a) of this section, ultralight vehicles may be operated during the twilight periods 30 minutes before official sunrise and 30 minutes after official sunset or, in Alaska, during the period of civil twilight as defined in the Air Almanac, if:

- (1) The vehicle is equipped with an operating anticollision light visible for at least 3 statute miles; and
- (2) All operations are conducted in uncontrolled airspace.

§ 103.13 Operation near aircraft; right-of-way rules.

(a) Each person operating an ultralight vehicle shall maintain vigilance so as to see and avoid aircraft and shall yield the right-of-way to all aircraft.

(b) No person may operate an ultralight vehicle in a manner that creates a collision hazard with respect to any aircraft.

(c) Powered ultralights shall yield the right-of-way to unpowered ultralights.

§ 103.15 Operations over congested areas.

No person may operate an ultralight vehicle over any congested area of a city, town, or settlement, or over any open air assembly of persons.

§ 103.17 Operations in certain airspace.

No person may operate an ultralight vehicle within Class A, Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated

for an airport unless that person has prior authorization from the ATC facility having jurisdiction over that airspace.

[Amdt. 103-17, 56 FR 65662, Dec. 17, 1991]

§ 103.19 Operations in prohibited or restricted areas.

No person may operate an ultralight vehicle in prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate.

§ 103.20 Flight restrictions in the proximity of certain areas designated by notice to airmen.

No person may operate an ultralight vehicle in areas designated in a Notice to Airmen under § 91.137, § 91.138, § 91.141, § 91.143 or § 91.145 of this chapter, unless authorized by:

- (a) Air Traffic Control (ATC); or

(b) A Flight Standards Certificate of Waiver or Authorization issued for the demonstration or event.

[Doc. No. FAA-2000-8274, 66 FR 47378, Sept. 11, 2001]

§ 103.21 Visual reference with the surface.

No person may operate an ultralight vehicle except by visual reference with the surface.

§ 103.23 Flight visibility and cloud clearance requirements.

No person may operate an ultralight vehicle when the flight visibility or distance from clouds is less than that in the table found below. All operations in Class A, Class B, Class C, and Class D airspace or Class E airspace designated for an airport must receive prior ATC authorization as required in § 103.17 of this part.

| Airspace | Flight visibility | Distance from clouds |
|--|-------------------|--|
| Class A | Not applicable | Not Applicable. |
| Class B | 3 statute miles | Clear of Clouds. |
| Class C | 3 statute miles | 500 feet below. 1,000 feet above. 2,000 feet horizontal. |
| Class D | 3 statute miles | 500 feet below. 1,000 feet above. 2,000 feet horizontal. |
| Class E: | | |
| Less than 10,000 feet MSL | 3 statute miles | 500 feet below. 1,000 feet above. 2,000 feet horizontal. |
| At or above 10,000 feet MSL | 5 statute miles | 1,000 feet below. 1,000 feet above. 1 statute mile horizontal. |
| Class G: | | |
| 1,200 feet or less above the surface (regardless of MSL altitude) | 1 statute mile | Clear of clouds. |
| More than 1,200 feet above the surface but less than 10,000 feet MSL | 1 statute mile | 500 feet below. 1,000 feet above. 2,000 feet horizontal. |
| More than 1,200 feet above the surface and at or above 10,000 feet MSL | 5 statute miles | 1,000 feet below. 1,000 feet above. |

| Airspace | Flight visibility | Distance from clouds |
|----------|-------------------|----------------------------|
| | | 1 statute mile horizontal. |

[Amdt. 103-17, 56 FR 65662, Dec. 17, 1991]

PART 105 - PARACHUTE OPERATIONS

Authority:

49 U.S.C. 106(g), 40113-40114, 44701-44702, 44721.

Source:

Docket No. FAA-1999-5483, 66 FR 23553, May 9, 2001, unless otherwise noted.

§ 105.1 Applicability.

(a) Except as provided in paragraphs (b) and (c) of this section, this part prescribes rules governing parachute operations conducted in the United States.

(b) This part does not apply to a parachute operation conducted -

(1) In response to an in-flight emergency, or

(2) To meet an emergency on the surface when it is conducted at the direction or with the approval of an agency of the United States, or of a State, Puerto Rico, the District of Columbia, or a possession of the United States, or an agency or political subdivision thereof.

(c) Sections 105.5, 105.9, 105.13, 105.15, 105.17, 105.19 through 105.23, 105.25(a)(1) and 105.27 of this part do not apply to a parachute operation conducted by a member of an Armed Force -

(1) Over or within a restricted area when that area is under the control of an Armed Force.

(2) During military operations in uncontrolled airspace.

§ 105.3 Definitions.

For the purposes of this part -

Approved parachute means a parachute manufactured under a type certificate or a Technical Standard Order (C-23 series), or a personnel-carrying U.S. military parachute (other than a high altitude, high speed, or ejection type) identified by a Navy Air Facility, an Army Air Field, and Air Force-Navy drawing number, an Army Air Field order number, or any other military designation or specification number.

Automatic Activation Device means a self-contained mechanical or electro-mechanical device that is attached to the interior of the reserve parachute container, which automatically initiates parachute deployment of the reserve parachute at a pre-set altitude, time, percentage of terminal velocity, or combination thereof.

Direct Supervision means that a certificated rigger personally observes a non-certificated person packing a main

parachute to the extent necessary to ensure that it is being done properly, and takes responsibility for that packing.

Drop Zone means any pre-determined area upon which parachutists or objects land after making an intentional parachute jump or drop. The center-point target of a drop zone is expressed in nautical miles from the nearest VOR facility when 30 nautical miles or less; or from the nearest airport, town, or city depicted on the appropriate Coast and Geodetic Survey World Aeronautical Chart or Sectional Aeronautical Chart, when the nearest VOR facility is more than 30 nautical miles from the drop zone.

Foreign parachutist means a parachutist who is neither a U.S. citizen or a resident alien and is participating in parachute operations within the United States using parachute equipment not manufactured in the United States.

Freefall means the portion of a parachute jump or drop between aircraft exit and parachute deployment in which the parachute is activated manually by the parachutist at the parachutist's discretion or automatically, or, in the case of an object, is activated automatically.

Main parachute means a parachute worn as the primary parachute used or intended to be used in conjunction with a reserve parachute.

Object means any item other than a person that descends to the surface from an aircraft in flight when a parachute is used or is intended to be used during all or part of the descent.

Parachute drop means the descent of an object to the surface from an aircraft in flight when a parachute is used or intended to be used during all or part of that descent.

Parachute jump means a parachute operation that involves the descent of one or more persons to the surface from an aircraft in flight when an aircraft is used or intended to be used during all or part of that descent.

Parachute operation means the performance of all activity for the purpose of, or in support of, a parachute jump or a parachute drop. This parachute operation can involve, but is not limited to, the following persons: parachutist, parachutist in command and passenger in tandem parachute operations, drop zone or owner or operator, jump master, certificated parachute rigger, or pilot.

Parachutist means a person who intends to exit an aircraft while in flight using a single-harness, dual parachute system to descend to the surface.

Parachutist in command means the person responsible for the operation and safety of a tandem parachute operation.

Passenger parachutist means a person who boards an aircraft, acting as other than the parachutist in command of a tandem parachute operation, with the intent of exiting the aircraft while in-flight using the forward harness of a dual harness tandem parachute system to descend to the surface.

Pilot chute means a small parachute used to initiate and/or accelerate deployment of a main or reserve parachute.

Ram-air parachute means a parachute with a canopy consisting of an upper and lower surface that is inflated by ram air entering through specially designed openings in the front of the canopy to form a gliding airfoil.

Reserve parachute means an approved parachute worn for emergency use to be activated only upon failure of the main parachute or in any other emergency where use of the main parachute is impractical or use of the main parachute would increase risk.

Single-harness, dual parachute system: means the combination of a main parachute, approved reserve parachute, and approved single person harness and dual-parachute container. This parachute system may have an operational automatic activation device installed.

Tandem parachute operation: means a parachute operation in which more than one person simultaneously uses the same tandem parachute system while descending to the surface from an aircraft in flight.

Tandem parachute system: means the combination of a main parachute, approved reserve parachute, and approved harness and dual parachute container, and a separate approved forward harness for a passenger parachutist. This parachute system must have an operational automatic activation device installed.

§ 105.5 General.

No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from an aircraft, if that operation creates a hazard to air traffic or to persons or property on the surface.

§ 105.7 Use of alcohol and drugs.

No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a person to conduct a parachute operation from that aircraft, if that person is or appears to be under the influence of -

- (a) Alcohol, or
- (b) Any drug that affects that person's faculties in any way contrary to safety.

§ 105.9 Inspections.

The Administrator may inspect any parachute operation to which this part applies (including inspections at the site where the parachute operation is being conducted) to determine compliance with the regulations of this part.

Subpart B - Operating Rules

§ 105.13 Radio equipment and use requirements.

- (a) Except when otherwise authorized by air traffic control -

(1) No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from that aircraft, in or into controlled airspace unless, during that flight -

(i) The aircraft is equipped with a functioning two-way radio communication system appropriate to the air traffic control facilities being used; and

(ii) Radio communications have been established between the aircraft and the air traffic control facility having jurisdiction over the affected airspace of the first intended exit altitude at least 5 minutes before the parachute operation begins. The pilot in command must establish radio communications to receive information regarding air traffic activity in the vicinity of the parachute operation.

(2) The pilot in command of an aircraft used for any parachute operation in or into controlled airspace must, during each flight -

(i) Continuously monitor the appropriate frequency of the aircraft's radio communications system from the time radio communications are first established between the aircraft and air traffic control, until the pilot advises air traffic control that the parachute operation has ended for that flight.

(ii) Advise air traffic control when the last parachutist or object leaves the aircraft.

(b) Parachute operations must be aborted if, prior to receipt of a required air traffic control authorization, or during any parachute operation in or into controlled airspace, the required radio communications system is or becomes inoperative.

§ 105.15 Information required and notice of cancellation or postponement of a parachute operation.

(a) Each person requesting an authorization under §§ 105.21(b) and 105.25(a)(2) of this part and each person submitting a notification under § 105.25(a)(3) of this part must provide the following information (on an individual or group basis):

- (1) The date and time the parachute operation will begin.
- (2) The radius of the drop zone around the target expressed in nautical miles.
- (3) The location of the center of the drop zone in relation to -

(i) The nearest VOR facility in terms of the VOR radial on which it is located and its distance in nautical miles from the VOR facility when that facility is 30 nautical miles or less from the drop zone target; or

(ii) the nearest airport, town, or city depicted on the appropriate Coast and Geodetic Survey World Aeronautical Chart or Sectional Aeronautical Chart, when the nearest VOR facility is more than 30 nautical miles from the drop zone target.

(4) Each altitude above mean sea level at which the aircraft will be operated when parachutists or objects exist the aircraft.

(5) The duration of the intended parachute operation.

(6) The name, address, and telephone number of the person who requests the authorization or gives notice of the parachute operation.

(7) The registration number of the aircraft to be used.

(8) The name of the air traffic control facility with jurisdiction of the airspace at the first intended exit altitude to be used for the parachute operation.

(b) Each holder of a certificate of authorization issued under §§ 105.21(b) and 105.25(b) of this part must present that certificate for inspection upon the request of the Administrator or any Federal, State, or local official.

(c) Each person requesting an authorization under §§ 105.21(b) and 105.25(a)(2) of this part and each person

submitting a notice under § 105.25(a)(3) of this part must promptly notify the air traffic control facility having jurisdiction over the affected airspace if the proposed or scheduled parachute operation is canceled or postponed.

§ 105.17 Flight visibility and clearance from cloud requirements.

No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from that aircraft -

(a) Into or through a cloud, or

(b) When the flight visibility or the distance from any cloud is less than that prescribed in the following table:

| Altitude | Flight visibility (statute miles) | Distance from clouds |
|--|--------------------------------------|--|
| 1,200 feet or less above the surface regardless of the MSL altitude | 3 | 500 feet below, 1,000 feet above, 2,000 feet horizontal. |
| More than 1,200 feet above the surface but less than 10,000 feet MSL | 3 | 500 feet below, 1,000 feet above, 2,000 feet horizontal. |
| More than 1,200 feet above the surface and at or above 10,000 feet MSL | 5 | 1,000 feet below, 1,000 feet above, 1 mile horizontal. |

§ 105.19 Parachute operations between sunset and sunrise.

(a) No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a person to conduct a parachute operation from an aircraft between sunset and sunrise, unless the person or object descending from the aircraft displays a light that is visible for at least 3 statute miles.

(b) The light required by paragraph (a) of this section must be displayed from the time that the person or object is under a properly functioning open parachute until that person or object reaches the surface.

§ 105.21 Parachute operations over or into a congested area or an open-air assembly of persons.

(a) No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from that aircraft, over or into a congested area of a city, town, or settlement, or an open-air assembly of persons unless a certificate of authorization for that parachute operation has been issued under this section. However, a parachutist may drift over a congested area or an open-air assembly of persons with a fully deployed and properly functioning parachute if that parachutist is at a sufficient altitude to avoid creating a hazard to persons or property on the surface.

(b) An application for a certificate of authorization issued under this section must -

(1) Be made in the form and manner prescribed by the Administrator, and

(2) Contain the information required in § 105.15(a) of this part.

(c) Each holder of, and each person named as a participant in a certificate of authorization issued under this section must comply with all requirements contained in the certificate of authorization.

(d) Each holder of a certificate of authorization issued under this section must present that certificate for inspection upon the request of the Administrator, or any Federal, State, or local official.

§ 105.23 Parachute operations over or onto airports.

No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from that aircraft, over or onto any airport unless -

(a) For airports with an operating control tower:

(1) Prior approval has been obtained from the management of the airport to conduct parachute operations over or on that airport.

(2) Approval has been obtained from the control tower to conduct parachute operations over or onto that airport.

(3) Two-way radio communications are maintained between the pilot of the aircraft involved in the parachute operation and the control tower of the airport over or onto which the parachute operation is being conducted.

(b) For airports without an operating control tower, prior approval has been obtained from the management of the airport to conduct parachute operations over or on that airport.

(c) A parachutist may drift over that airport with a fully deployed and properly functioning parachute if the parachutist

is at least 2,000 feet above that airport's traffic pattern, and avoids creating a hazard to air traffic or to persons and property on the ground.

§ 105.25 Parachute operations in designated airspace.

(a) No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from that aircraft -

(1) Over or within a restricted area or prohibited area unless the controlling agency of the area concerned has authorized that parachute operation;

(2) Within or into a Class A, B, C, D airspace area without, or in violation of the requirements of, an air traffic control authorization issued under this section;

(3) Except as provided in paragraph (c) and (d) of this section, within or into Class E or G airspace area unless the air traffic control facility having jurisdiction over the airspace at the first intended exit altitude is notified of the parachute operation no earlier than 24 hours before or no later than 1 hour before the parachute operation begins.

(b) Each request for a parachute operation authorization or notification required under this section must be submitted to the air traffic control facility having jurisdiction over the airspace at the first intended exit altitude and must include the information prescribed by § 105.15(a) of this part.

(c) For the purposes of paragraph (a)(3) of this section, air traffic control facilities may accept a written notification from an organization that conducts parachute operations and lists the scheduled series of parachute operations to be conducted over a stated period of time not longer than 12 calendar months. The notification must contain the information prescribed by § 105.15(a) of this part, identify the responsible persons associated with that parachute operation, and be submitted at least 15 days, but not more than 30 days, before the parachute operation begins. The FAA may revoke the acceptance of the notification for any failure of the organization conducting the parachute operations to comply with its requirements.

(d) Paragraph (a)(3) of this section does not apply to a parachute operation conducted by a member of an Armed Force within a restricted area that extends upward from the surface when that area is under the control of an Armed Force.

Subpart C - Parachute Equipment and Packing

§ 105.41 Applicability.

This subpart prescribed rules governing parachute equipment used in civil parachute operations.

§ 105.43 Use of single-harness, dual-parachute systems.

No person may conduct a parachute operation using a single-harness, dual-parachute system, and no pilot in

command of an aircraft may allow any person to conduct a parachute operation from that aircraft using a single-harness, dual-parachute system, unless that system has at least one main parachute, one approved reserve parachute, and one approved single person harness and container that are packed as follows:

(a) The main parachute must have been packed within 180 days before the date of its use by a certificated parachute rigger, the person making the next jump with that parachute, or a non-certificated person under the direct supervision of a certificated parachute rigger.

(b) The reserve parachute must have been packed by a certificated parachute rigger -

(1) Within 180 days before the date of its use, if its canopy, shroud, and harness are composed exclusively of nylon, rayon, or similar synthetic fiber or material that is substantially resistant to damage from mold, mildew, and other fungi, and other rotting agents propagated in a moist environment; or

(2) Within 60 days before the date of its use, if it is composed of any amount of silk, pongee, or other natural fiber, or material not specified in paragraph (b)(1) of this section.

(c) If installed, the automatic activation device must be maintained in accordance with manufacturer instructions for that automatic activation device.

[Doc. No. FAA-1999-5483, 66 FR 23553, May 9, 2001, as amended by Amdt. 105-13, 73 FR 69531, Nov. 19, 2008]

§ 105.45 Use of tandem parachute systems.

(a) No person may conduct a parachute operation using a tandem parachute system, and no pilot in command of an aircraft may allow any person to conduct a parachute operation from that aircraft using a tandem parachute system, unless -

(1) One of the parachutists using the tandem parachute system is the parachutist in command, and meets the following requirements:

(i) Has a minimum of 3 years of experience in parachuting, and must provide documentation that the parachutist -

(ii) Has completed a minimum of 500 freefall parachute jumps using a ram-air parachute, and

(iii) Holds a master parachute license issued by an organization recognized by the FAA, and

(iv) Has successfully completed a tandem instructor course given by the manufacturer of the tandem parachute system used in the parachute operation or a course acceptable to the Administrator.

(v) Has been certified by the appropriate parachute manufacturer or tandem course provider as being properly trained on the use of the specific tandem parachute system to be used.

(2) The person acting as parachutist in command:

(i) Has briefed the passenger parachutist before boarding the aircraft. The briefing must include the procedures to be used in case of an emergency with the aircraft or after exiting the aircraft, while preparing to exit and exiting the aircraft, freefall, operating the parachute after freefall, landing approach, and landing.

(ii) Uses the harness position prescribed by the manufacturer of the tandem parachute equipment.

(b) No person may make a parachute jump with a tandem parachute system unless -

(1) The main parachute has been packed by a certificated parachute rigger, the parachutist in command making the next jump with that parachute, or a person under the direct supervision of a certificated parachute rigger.

(2) The reserve parachute has been packed by a certificated parachute rigger in accordance with § 105.43(b) of this part.

(3) The tandem parachute system contains an operational automatic activation device for the reserve parachute, approved by the manufacturer of that tandem parachute system. The device must -

(i) Have been maintained in accordance with manufacturer instructions, and

(ii) Be armed during each tandem parachute operation.

(4) The passenger parachutist is provided with a manual main parachute activation device and instructed on the use of that device, if required by the owner/operator.

(5) The main parachute is equipped with a single-point release system.

(6) The reserve parachute meets Technical Standard Order C23 specifications.

§ 105.47 Use of static lines.

(a) Except as provided in paragraph (c) of this section, no person may conduct a parachute operation using a static line attached to the aircraft and the main parachute unless an assist device, described and attached as follows, is used to aid the pilot chute in performing its function, or, if no pilot chute is used, to aid in the direct deployment of the main parachute canopy. The assist device must -

(1) Be long enough to allow the main parachute container to open before a load is placed on the device.

(2) Have a static load strength of -

(i) At least 28 pounds but not more than 160 pounds if it is used to aid the pilot chute in performing its function; or

(ii) At least 56 pounds but not more than 320 pounds if it is used to aid in the direct deployment of the main parachute canopy; and

(3) Be attached as follows:

(i) At one end, to the static line above the static-line pins or, if static-line pins are not used, above the static-line ties to the parachute cone.

(ii) At the other end, to the pilot chute apex, bridle cord, or bridle loop, or, if no pilot chute is used, to the main parachute canopy.

(b) No person may attach an assist device required by paragraph (a) of this section to any main parachute unless that person is a certificated parachute rigger or that person makes the next parachute jump with that parachute.

(c) An assist device is not required for parachute operations using direct-deployed, ram-air parachutes.

§ 105.49 Foreign parachutists and equipment.

(a) No person may conduct a parachute operation, and no pilot in command of an aircraft may allow a parachute operation to be conducted from that aircraft with an unapproved foreign parachute system unless -

(1) The parachute system is worn by a foreign parachutist who is the owner of that system.

(2) The parachute system is of a single-harness dual parachute type.

(3) The parachute system meets the civil aviation authority requirements of the foreign parachutist's country.

(4) All foreign non-approved parachutes deployed by a foreign parachutist during a parachute operation conducted under this section shall be packed as follows -

(i) The main parachute must be packed by the foreign parachutist making the next parachute jump with that parachute, a certificated parachute rigger, or any other person acceptable to the Administrator.

(ii) The reserve parachute must be packed in accordance with the foreign parachutist's civil aviation authority requirements, by a certificated parachute rigger, or any other person acceptable to the Administrator.

PART 107 - SMALL UNMANNED AIRCRAFT SYSTEMS

Authority:

49 U.S.C. 106(f), 40101 note, 40103(b), 44701(a)(5); Sec. 333 of Pub. L. 112-95, 126 Stat. 75.

Source:

Docket FAA-2015-0150, Amdt. 107-1, 81 FR 42209, June 28, 2016, unless otherwise noted.

Subpart A - General

§ 107.1 Applicability.

(a) Except as provided in paragraph (b) of this section, this part applies to the registration, airman certification, and operation of civil small unmanned aircraft systems within the United States.

(b) This part does not apply to the following:

(1) Air carrier operations;

(2) Any aircraft subject to the provisions of part 101 of this chapter; or

(3) Any operation that a remote pilot in command elects to conduct pursuant to an exemption issued under section 333 of Public Law 112-95, unless otherwise specified in the exemption.

§ 107.3 Definitions.

The following definitions apply to this part. If there is a conflict between the definitions of this part and definitions specified in § 1.1 of this chapter, the definitions in this part control for purposes of this part:

Control station means an interface used by the remote pilot to control the flight path of the small unmanned aircraft.

Corrective lenses means spectacles or contact lenses.

Small unmanned aircraft means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft.

Small unmanned aircraft system (small UAS) means a small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system.

Unmanned aircraft means an aircraft operated without the possibility of direct human intervention from within or on the aircraft.

Visual observer means a person who is designated by the remote pilot in command to assist the remote pilot in command and the person manipulating the flight controls of the small UAS to see and avoid other air traffic or objects aloft or on the ground.

§ 107.5 Falsification, reproduction or alteration.

(a) No person may make or cause to be made -

(1) Any fraudulent or intentionally false record or report that is required to be made, kept, or used to show compliance with any requirement under this part.

(2) Any reproduction or alteration, for fraudulent purpose, of any certificate, rating, authorization, record or report under this part.

(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for any of the following:

(1) Denial of an application for a remote pilot certificate or a certificate of waiver,

(2) Suspension or revocation of any certificate or waiver issued by the Administrator under this part and held by that person; or

(3) A civil penalty.

§ 107.7 Inspection, testing, and demonstration of compliance.

(a) A remote pilot in command, owner, or person manipulating the flight controls of a small unmanned aircraft system must, upon request, make available to the Administrator:

(1) The remote pilot certificate with a small UAS rating; and

(2) Any other document, record, or report required to be kept under the regulations of this chapter.

(b) The remote pilot in command, visual observer, owner, operator, or person manipulating the flight controls of a small unmanned aircraft system must, upon request, allow the Administrator to make any test or inspection of the small unmanned aircraft system, the remote pilot in command, the person manipulating the flight controls of a small unmanned aircraft system, and, if applicable, the visual observer to determine compliance with this part.

§ 107.9 Accident reporting.

No later than 10 calendar days after an operation that meets the criteria of either paragraph (a) or (b) of this section, a remote pilot in command must report to the FAA, in a manner acceptable to the Administrator, any operation of the small unmanned aircraft involving at least:

(a) Serious injury to any person or any loss of consciousness; or

(b) Damage to any property, other than the small unmanned aircraft, unless one of the following conditions is satisfied:

(1) The cost of repair (including materials and labor) does not exceed \$500; or

(2) The fair market value of the property does not exceed \$500 in the event of total loss.

Subpart B - Operating Rules**§ 107.11 Applicability.**

This subpart applies to the operation of all civil small unmanned aircraft systems subject to this part.

§ 107.12 Requirement for a remote pilot certificate with a small UAS rating.

(a) Except as provided in paragraph (c) of this section, no person may manipulate the flight controls of a small unmanned aircraft system unless:

(1) That person has a remote pilot certificate with a small UAS rating issued pursuant to subpart C of this part and satisfies the requirements of § 107.65; or

(2) That person is under the direct supervision of a remote pilot in command and the remote pilot in command has the ability to immediately take direct control of the flight of the small unmanned aircraft.

(b) Except as provided in paragraph (c) of this section, no person may act as a remote pilot in command unless that person has a remote pilot certificate with a small UAS rating issued pursuant to Subpart C of this part and satisfies the requirements of § 107.65.

(c) The Administrator may, consistent with international standards, authorize an airman to operate a civil foreign-registered small unmanned aircraft without an FAA-issued remote pilot certificate with a small UAS rating.

§ 107.13 Registration.

A person operating a civil small unmanned aircraft system for purposes of flight must comply with the provisions of § 91.203(a)(2) of this chapter.

§ 107.15 Condition for safe operation.

(a) No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation.

(b) No person may continue flight of the small unmanned aircraft when he or she knows or has reason to know that the small unmanned aircraft system is no longer in a condition for safe operation.

§ 107.17 Medical condition.

No person may manipulate the flight controls of a small unmanned aircraft system or act as a remote pilot in command, visual observer, or direct participant in the operation of the small unmanned aircraft if he or she knows or has reason to know that he or she has a physical or mental condition that would interfere with the safe operation of the small unmanned aircraft system.

§ 107.19 Remote pilot in command.

(a) A remote pilot in command must be designated before or during the flight of the small unmanned aircraft.

(b) The remote pilot in command is directly responsible for and is the final authority as to the operation of the small unmanned aircraft system.

(c) The remote pilot in command must ensure that the small unmanned aircraft will pose no undue hazard to other people, other aircraft, or other property in the event of a loss of control of the aircraft for any reason.

(d) The remote pilot in command must ensure that the small UAS operation complies with all applicable regulations of this chapter.

(e) The remote pilot in command must have the ability to direct the small unmanned aircraft to ensure compliance with the applicable provisions of this chapter.

§ 107.21 In-flight emergency.

(a) In an in-flight emergency requiring immediate action, the remote pilot in command may deviate from any rule of this part to the extent necessary to meet that emergency.

(b) Each remote pilot in command who deviates from a rule under paragraph (a) of this section must, upon request of the Administrator, send a written report of that deviation to the Administrator.

§ 107.23 Hazardous operation.

No person may:

(a) Operate a small unmanned aircraft system in a careless or reckless manner so as to endanger the life or property of another; or

(b) Allow an object to be dropped from a small unmanned aircraft in a manner that creates an undue hazard to persons or property.

§ 107.25 Operation from a moving vehicle or aircraft.

No person may operate a small unmanned aircraft system -

(a) From a moving aircraft; or

(b) From a moving land or water-borne vehicle unless the small unmanned aircraft is flown over a sparsely populated area and is not transporting another person's property for compensation or hire.

§ 107.27 Alcohol or drugs.

A person manipulating the flight controls of a small unmanned aircraft system or acting as a remote pilot in command or visual observer must comply with the provisions of §§ 91.17 and 91.19 of this chapter.

§ 107.29 Daylight operation.

(a) No person may operate a small unmanned aircraft system during night.

(b) No person may operate a small unmanned aircraft system during periods of civil twilight unless the small unmanned aircraft has lighted anti-collision lighting visible for at least 3 statute miles. The remote pilot in command may reduce the intensity of the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so.

(c) For purposes of paragraph (b) of this section, civil twilight refers to the following:

(1) Except for Alaska, a period of time that begins 30 minutes before official sunrise and ends at official sunrise;

(2) Except for Alaska, a period of time that begins at official sunset and ends 30 minutes after official sunset; and

(3) In Alaska, the period of civil twilight as defined in the Air Almanac.

§ 107.31 Visual line of sight aircraft operation.

(a) With vision that is unaided by any device other than corrective lenses, the remote pilot in command, the visual observer (if one is used), and the person manipulating the flight control of the small unmanned aircraft system must be able to see the unmanned aircraft throughout the entire flight in order to:

(1) Know the unmanned aircraft's location;

(2) Determine the unmanned aircraft's attitude, altitude, and direction of flight;

(3) Observe the airspace for other air traffic or hazards; and

(4) Determine that the unmanned aircraft does not endanger the life or property of another.

(b) Throughout the entire flight of the small unmanned aircraft, the ability described in paragraph (a) of this section must be exercised by either:

(1) The remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system; or

(2) A visual observer.

§ 107.33 Visual observer.

If a visual observer is used during the aircraft operation, all of the following requirements must be met:

(a) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must maintain effective communication with each other at all times.

(b) The remote pilot in command must ensure that the visual observer is able to see the unmanned aircraft in the manner specified in § 107.31.

(c) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must coordinate to do the following:

(1) Scan the airspace where the small unmanned aircraft is operating for any potential collision hazard; and

(2) Maintain awareness of the position of the small unmanned aircraft through direct visual observation.

§ 107.35 Operation of multiple small unmanned aircraft.

A person may not operate or act as a remote pilot in command or visual observer in the operation of more than one unmanned aircraft at the same time.

§ 107.36 Carriage of hazardous material.

A small unmanned aircraft may not carry hazardous material. For purposes of this section, the term hazardous material is defined in 49 CFR 171.8.

§ 107.37 Operation near aircraft; right-of-way rules.

(a) Each small unmanned aircraft must yield the right of way to all aircraft, airborne vehicles, and launch and reentry vehicles. Yielding the right of way means that the small unmanned aircraft must give way to the aircraft or vehicle and may not pass over, under, or ahead of it unless well clear.

(b) No person may operate a small unmanned aircraft so close to another aircraft as to create a collision hazard.

§ 107.39 Operation over human beings.

No person may operate a small unmanned aircraft over a human being unless that human being is:

(a) Directly participating in the operation of the small unmanned aircraft; or

(b) Located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft.

§ 107.41 Operation in certain airspace.

No person may operate a small unmanned aircraft in Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from Air Traffic Control (ATC).

§ 107.43 Operation in the vicinity of airports.

No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base.

§ 107.45 Operation in prohibited or restricted areas.

No person may operate a small unmanned aircraft in prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate.

§ 107.47 Flight restrictions in the proximity of certain areas designated by notice to airmen.

A person acting as a remote pilot in command must comply with the provisions of §§ 91.137 through 91.145 and 99.7 of this chapter.

§ 107.49 Preflight familiarization, inspection, and actions for aircraft operation.

Prior to flight, the remote pilot in command must:

(a) Assess the operating environment, considering risks to persons and property in the immediate vicinity both on the surface and in the air. This assessment must include:

(1) Local weather conditions;

(2) Local airspace and any flight restrictions;

(3) The location of persons and property on the surface; and

(4) Other ground hazards.

(b) Ensure that all persons directly participating in the small unmanned aircraft operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards;

(c) Ensure that all control links between ground control station and the small unmanned aircraft are working properly;

(d) If the small unmanned aircraft is powered, ensure that there is enough available power for the small unmanned aircraft system to operate for the intended operational time; and

(e) Ensure that any object attached or carried by the small unmanned aircraft is secure and does not adversely affect the flight characteristics or controllability of the aircraft.

§ 107.51 Operating limitations for small unmanned aircraft.

A remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system must comply with all of the following operating limitations when operating a small unmanned aircraft system:

(a) The groundspeed of the small unmanned aircraft may not exceed 87 knots (100 miles per hour).

(b) The altitude of the small unmanned aircraft cannot be higher than 400 feet above ground level, unless the small unmanned aircraft:

(1) Is flown within a 400-foot radius of a structure; and

(2) Does not fly higher than 400 feet above the structure's immediate uppermost limit.

(c) The minimum flight visibility, as observed from the location of the control station must be no less than 3 statute miles. For purposes of this section, flight visibility means the average slant distance from the control station at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

(d) The minimum distance of the small unmanned aircraft from clouds must be no less than:

(1) 500 feet below the cloud; and

(2) 2,000 feet horizontally from the cloud.

Subpart C - Remote Pilot Certification

§ 107.53 Applicability.

This subpart prescribes the requirements for issuing a remote pilot certificate with a small UAS rating.

§ 107.57 Offenses involving alcohol or drugs.

(a) A conviction for the violation of any Federal or State statute relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marijuana, or depressant or stimulant drugs or substances is grounds for:

(1) Denial of an application for a remote pilot certificate with a small UAS rating for a period of up to 1 year after the date of final conviction; or

(2) Suspension or revocation of a remote pilot certificate with a small UAS rating.

(b) Committing an act prohibited by § 91.17(a) or § 91.19(a) of this chapter is grounds for:

(1) Denial of an application for a remote pilot certificate with a small UAS rating for a period of up to 1 year after the date of that act; or

(2) Suspension or revocation of a remote pilot certificate with a small UAS rating.

§ 107.59 Refusal to submit to an alcohol test or to furnish test results.

A refusal to submit to a test to indicate the percentage by weight of alcohol in the blood, when requested by a law enforcement officer in accordance with § 91.17(c) of this chapter, or a refusal to furnish or authorize the release of the test results requested by the Administrator in accordance with § 91.17(c) or (d) of this chapter, is grounds for:

(a) Denial of an application for a remote pilot certificate with a small UAS rating for a period of up to 1 year after the date of that refusal; or

(b) Suspension or revocation of a remote pilot certificate with a small UAS rating.

§ 107.61 Eligibility.

Subject to the provisions of §§ 107.57 and 107.59, in order to be eligible for a remote pilot certificate with a small UAS rating under this subpart, a person must:

(a) Be at least 16 years of age;

(b) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, the FAA may place such operating limitations on that applicant's certificate as are necessary for the safe operation of the small unmanned aircraft;

(c) Not know or have reason to know that he or she has a physical or mental condition that would interfere with the safe operation of a small unmanned aircraft system; and

(d) Demonstrate aeronautical knowledge by satisfying one of the following conditions:

(1) Pass an initial aeronautical knowledge test covering the areas of knowledge specified in § 107.73(a); or

(2) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, complete an initial training course covering the areas of knowledge specified in § 107.74(a) in a manner acceptable to the Administrator.

§ 107.63 Issuance of a remote pilot certificate with a small UAS rating.

An applicant for a remote pilot certificate with a small UAS rating under this subpart must make the application in a form and manner acceptable to the Administrator.

(a) The application must include either:

(1) Evidence showing that the applicant passed an initial aeronautical knowledge test. If applying using a paper application, this evidence must be an airman knowledge test report showing passage of the knowledge test; or

(2) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, a certificate of completion of a part 107 initial training course.

(b) If the application is being made pursuant to paragraph (a)(2) of this section:

(1) The application must be submitted to a Flight Standards District Office, a designated pilot examiner, an airman certification representative for a pilot school, a certificated flight instructor, or other person authorized by the Administrator;

(2) The person accepting the application submission must verify the identity of the applicant in a manner acceptable to the Administrator; and

(3) The person making the application must, by logbook endorsement or other manner acceptable to the Administrator, show the applicant meets the flight review requirements specified in § 61.56 of this chapter.

§ 107.64 Temporary certificate.

(a) A temporary remote pilot certificate with a small UAS rating is issued for up to 120 calendar days, at which time a permanent certificate will be issued to a person whom the Administrator finds qualified under this part.

(b) A temporary remote pilot certificate with a small UAS rating expires:

- (1) On the expiration date shown on the certificate;
- (2) Upon receipt of the permanent certificate; or
- (3) Upon receipt of a notice that the certificate sought is denied or revoked.

§ 107.65 Aeronautical knowledge recency.

A person may not operate a small unmanned aircraft system unless that person has completed one of the following, within the previous 24 calendar months:

- (a) Passed an initial aeronautical knowledge test covering the areas of knowledge specified in § 107.73(a);
- (b) Passed a recurrent aeronautical knowledge test covering the areas of knowledge specified in § 107.73(b); or
- (c) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, passed either an initial or recurrent training course covering the areas of knowledge specified in § 107.74(a) or (b) in a manner acceptable to the Administrator.

§ 107.67 Knowledge tests: General procedures and passing grades.

(a) Knowledge tests prescribed by or under this part are given by persons and in the manner designated by the Administrator.

(b) An applicant for a knowledge test must have proper identification at the time of application that contains the applicant's:

- (1) Photograph;
- (2) Signature;
- (3) Date of birth, which shows the applicant meets or will meet the age requirements of this part for the certificate and rating sought before the expiration date of the airman knowledge test report; and
- (4) Permanent mailing address. If the applicant's permanent mailing address is a post office box number, then the applicant must also provide a current residential address.

(c) The minimum passing grade for the knowledge test will be specified by the Administrator.

§ 107.69 Knowledge tests: Cheating or other unauthorized conduct.

(a) An applicant for a knowledge test may not:

- (1) Copy or intentionally remove any knowledge test;
- (2) Give to another applicant or receive from another applicant any part or copy of a knowledge test;
- (3) Give or receive assistance on a knowledge test during the period that test is being given;
- (4) Take any part of a knowledge test on behalf of another person;
- (5) Be represented by, or represent, another person for a knowledge test;
- (6) Use any material or aid during the period that the test is being given, unless specifically authorized to do so by the Administrator; and
- (7) Intentionally cause, assist, or participate in any act prohibited by this paragraph.

(b) An applicant who the Administrator finds has committed an act prohibited by paragraph (a) of this section is prohibited, for 1 year after the date of committing that act, from:

- (1) Applying for any certificate, rating, or authorization issued under this chapter; and
 - (2) Applying for and taking any test under this chapter.
- (c) Any certificate or rating held by an applicant may be suspended or revoked if the Administrator finds that person has committed an act prohibited by paragraph (a) of this section.

§ 107.71 Retesting after failure.

An applicant for a knowledge test who fails that test may not reapply for the test for 14 calendar days after failing the test.

§ 107.73 Initial and recurrent knowledge tests.

(a) An initial aeronautical knowledge test covers the following areas of knowledge:

- (1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
- (2) Airspace classification, operating requirements, and flight restrictions affecting small unmanned aircraft operation;
- (3) Aviation weather sources and effects of weather on small unmanned aircraft performance;
- (4) Small unmanned aircraft loading;
- (5) Emergency procedures;
- (6) Crew resource management;
- (7) Radio communication procedures;
- (8) Determining the performance of small unmanned aircraft;
- (9) Physiological effects of drugs and alcohol;
- (10) Aeronautical decision-making and judgment;
- (11) Airport operations; and
- (12) Maintenance and preflight inspection procedures.

(b) A recurrent aeronautical knowledge test covers the following areas of knowledge:

(1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;

(2) Airspace classification and operating requirements and flight restrictions affecting small unmanned aircraft operation;

(3) Emergency procedures;

(4) Crew resource management;

(5) Aeronautical decision-making and judgment;

(6) Airport operations; and

(7) Maintenance and preflight inspection procedures.

§ 107.74 Initial and recurrent training courses.

(a) An initial training course covers the following areas of knowledge:

(1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;

(2) Effects of weather on small unmanned aircraft performance;

(3) Small unmanned aircraft loading;

(4) Emergency procedures;

(5) Crew resource management;

(6) Determining the performance of small unmanned aircraft; and

(7) Maintenance and preflight inspection procedures.

(b) A recurrent training course covers the following areas of knowledge:

(1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;

(2) Emergency procedures;

(3) Crew resource management; and

(4) Maintenance and preflight inspection procedures.

§ 107.77 Change of name or address.

(a) *Change of name.* An application to change the name on a certificate issued under this subpart must be accompanied by the applicant's:

(1) Remote pilot certificate with small UAS rating; and

(2) A copy of the marriage license, court order, or other document verifying the name change.

(b) The documents in paragraph (a) of this section will be returned to the applicant after inspection.

(c) *Change of address.* The holder of a remote pilot certificate with small UAS rating issued under this subpart who has made a change in permanent mailing address may not, after 30 days from that date, exercise the privileges of the certificate unless the holder has notified the FAA of the change in address using one of the following methods:

(1) By letter to the FAA Airman Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125 providing the new permanent mailing address, or if the permanent mailing address includes a post office box number, then the holder's current residential address; or

(2) By using the FAA Web site portal at *www.faa.gov* providing the new permanent mailing address, or if the permanent mailing address includes a post office box number, then the holder's current residential address.

§ 107.79 Voluntary surrender of certificate.

(a) The holder of a certificate issued under this subpart may voluntarily surrender it for cancellation.

(b) Any request made under paragraph (a) of this section must include the following signed statement or its equivalent: "I voluntarily surrender my remote pilot certificate with a small UAS rating for cancellation. This request is made for my own reasons, with full knowledge that my certificate will not be reissued to me unless I again complete the requirements specified in §§ 107.61 and 107.63."

Subpart D - Waivers

§ 107.200 Waiver policy and requirements.

(a) The Administrator may issue a certificate of waiver authorizing a deviation from any regulation specified in § 107.205 if the Administrator finds that a proposed small UAS operation can safely be conducted under the terms of that certificate of waiver.

(b) A request for a certificate of waiver must contain a complete description of the proposed operation and justification that establishes that the operation can safely be conducted under the terms of a certificate of waiver.

(c) The Administrator may prescribe additional limitations that the Administrator considers necessary.

(d) A person who receives a certificate of waiver issued under this section:

(1) May deviate from the regulations of this part to the extent specified in the certificate of waiver; and

(2) Must comply with any conditions or limitations that are specified in the certificate of waiver.

§ 107.205 List of regulations subject to waiver.

A certificate of waiver issued pursuant to § 107.200 may authorize a deviation from the following regulations of this part:

(a) Section 107.25 - Operation from a moving vehicle or aircraft. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.

(b) Section 107.29 - Daylight operation.

(c) Section 107.31 - Visual line of sight aircraft operation. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.

(d) Section 107.33 - Visual observer.

(e) Section 107.35 - Operation of multiple small unmanned aircraft systems.

(f) Section 107.37(a) - Yielding the right of way.

(g) Section 107.39 - Operation over people.

(h) Section 107.41 - Operation in certain airspace.

(i) Section 107.51 - Operating limitations for small unmanned aircraft.

July 25, 2017

Title 14 - Aeronautics and Space--Volume 3

CHAPTER I - FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION (CONTINUED)

SUBCHAPTER G - AIR CARRIERS AND OPERATORS FOR COMPENSATION OR HIRE: CERTIFICATION AND OPERATIONS

PART 110 - GENERAL REQUIREMENTS

Authority:

49 U.S.C. 106(g), 1153, 40101, 40102, 40103, 40113, 44105, 44106, 44111, 44701-44717, 44722, 44901, 44903, 44904, 44906, 44912, 44914, 44936, 44938, 46103, 46105.

Source:

Docket No. FAA-2009-0140, 76 FR 7486, Feb. 10, 2011, unless otherwise noted.

§ 110.1 Applicability.

This part governs all operations conducted under subchapter G of this chapter.

§ 110.2 Definitions

For the purpose of this subchapter, the term -

All-cargo operation means any operation for compensation or hire that is other than a passenger-carrying operation or, if passengers are carried, they are only those specified in § 121.583(a) or § 135.85 of this chapter.

Certificate-holding district office means the Flight Standards District Office that has responsibility for

administering the certificate and is charged with the overall inspection of the certificate holder's operations.

Commercial air tour means a flight conducted for compensation or hire in an airplane or helicopter where a purpose of the flight is sightseeing. The FAA may consider the following factors in determining whether a flight is a commercial air tour:

(1) Whether there was a holding out to the public of willingness to conduct a sightseeing flight for compensation or hire;

(2) Whether the person offering the flight provided a narrative that referred to areas or points of interest on the surface below the route of the flight;

(3) The area of operation;

(4) How often the person offering the flight conducts such flights;

(5) The route of flight;

(6) The inclusion of sightseeing flights as part of any travel arrangement package;

(7) Whether the flight in question would have been canceled based on poor visibility of the surface below the route of the flight; and

(8) Any other factors that the FAA considers appropriate.

Commuter operation means any scheduled operation conducted by any person operating one of the following types of aircraft with a frequency of operations of at least five round trips per week on at least one route between two or more points according to the published flight schedules:

(1) Airplanes, other than turbojet-powered airplanes, having a maximum passenger-seat configuration of 9 seats or less, excluding each crewmember seat, and a maximum payload capacity of 7,500 pounds or less; or

(2) Rotorcraft.

Direct air carrier means a person who provides or offers to provide air transportation and who has control over the operational functions performed in providing that transportation.

DOD commercial air carrier evaluator means a qualified Air Mobility Command, Survey and Analysis Office cockpit evaluator performing the duties specified in Public Law 99-661 when the evaluator is flying on an air carrier that is contracted or pursuing a contract with the U.S. Department of Defense (DOD).

Domestic operation means any scheduled operation conducted by any person operating any airplane described in paragraph (1) of this definition at locations described in paragraph (2) of this definition:

(1) Airplanes:

(i) Turbojet-powered airplanes;

(ii) Airplanes having a passenger-seat configuration of more than 9 passenger seats, excluding each crewmember seat; or

(iii) Airplanes having a payload capacity of more than 7,500 pounds.

(2) Locations:

(i) Between any points within the 48 contiguous States of the United States or the District of Columbia; or

(ii) Operations solely within the 48 contiguous States of the United States or the District of Columbia; or

(iii) Operations entirely within any State, territory, or possession of the United States; or

(iv) When specifically authorized by the Administrator, operations between any point within the 48 contiguous States of the United States or the District of Columbia and any specifically authorized point located outside the 48 contiguous States of the United States or the District of Columbia.

Empty weight means the weight of the airframe, engines, propellers, rotors, and fixed equipment. Empty weight excludes the weight of the crew and payload, but includes the weight of all fixed ballast, unusable fuel supply, undrainable oil, total quantity of engine coolant, and total quantity of hydraulic fluid.

Flag operation means any scheduled operation conducted by any person operating any airplane described in paragraph (1) of this definition at the locations described in paragraph (2) of this definition:

(1) Airplanes:

(i) Turbojet-powered airplanes;

(ii) Airplanes having a passenger-seat configuration of more than 9 passenger seats, excluding each crewmember seat; or

(iii) Airplanes having a payload capacity of more than 7,500 pounds.

(2) Locations:

(i) Between any point within the State of Alaska or the State of Hawaii or any territory or possession of the United States and any point outside the State of Alaska or the State of Hawaii or any territory or possession of the United States, respectively; or

(ii) Between any point within the 48 contiguous States of the United States or the District of Columbia and any point outside the 48 contiguous States of the United States and the District of Columbia.

(iii) Between any point outside the U.S. and another point outside the U.S.

Justifiable aircraft equipment means any equipment necessary for the operation of the aircraft. It does not include equipment or ballast specifically installed, permanently or otherwise, for the purpose of altering the empty weight of an aircraft to meet the maximum payload capacity.

Kind of operation means one of the various operations a certificate holder is authorized to conduct, as specified in its operations specifications, *i.e.*, domestic, flag, supplemental, commuter, or on-demand operations.

Maximum payload capacity means:

(1) For an aircraft for which a maximum zero fuel weight is prescribed in FAA technical specifications, the maximum zero fuel weight, less empty weight, less all justifiable aircraft equipment, and less the operating load (consisting of minimum flightcrew, foods and beverages, and supplies and equipment

related to foods and beverages, but not including disposable fuel or oil).

(2) For all other aircraft, the maximum certificated takeoff weight of an aircraft, less the empty weight, less all justifiable aircraft equipment, and less the operating load (consisting of minimum fuel load, oil, and flightcrew). The allowance for the weight of the crew, oil, and fuel is as follows:

(i) Crew - for each crewmember required by the Federal Aviation Regulations -

(A) For male flightcrew members - 180 pounds.

(B) For female flightcrew members - 140 pounds.

(C) For male flight attendants - 180 pounds.

(D) For female flight attendants - 130 pounds.

(E) For flight attendants not identified by gender - 140 pounds.

(ii) Oil - 350 pounds or the oil capacity as specified on the Type Certificate Data Sheet.

(iii) Fuel - the minimum weight of fuel required by the applicable Federal Aviation Regulations for a flight between domestic points 174 nautical miles apart under VFR weather conditions that does not involve extended overwater operations.

Maximum zero fuel weight means the maximum permissible weight of an aircraft with no disposable fuel or oil. The zero fuel weight figure may be found in either the aircraft type certificate data sheet, the approved Aircraft Flight Manual, or both.

Noncommon carriage means an aircraft operation for compensation or hire that does not involve a holding out to others.

On-demand operation means any operation for compensation or hire that is one of the following:

(1) Passenger-carrying operations conducted as a public charter under part 380 of this chapter or any operations in which the departure time, departure location, and arrival location are specifically negotiated with the customer or the customer's representative that are any of the following types of operations:

(i) Common carriage operations conducted with airplanes, including turbojet-powered airplanes, having a passenger-seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pounds or less, except that operations using a specific airplane that is also used in domestic or flag operations and that is so listed in the operations specifications as required by § 119.49(a)(4) of this chapter for those operations are considered supplemental operations;

(ii) Noncommon or private carriage operations conducted with airplanes having a passenger-seat configuration of less than 20 seats, excluding each crewmember seat, and a payload capacity of less than 6,000 pounds; or

(iii) Any rotorcraft operation.

(2) Scheduled passenger-carrying operations conducted with one of the following types of aircraft with a frequency of operations of less than five round trips per week on at least one

route between two or more points according to the published flight schedules:

(i) Airplanes, other than turbojet powered airplanes, having a maximum passenger-seat configuration of 9 seats or less, excluding each crewmember seat, and a maximum payload capacity of 7,500 pounds or less; or

(ii) Rotorcraft.

(3) All-cargo operations conducted with airplanes having a payload capacity of 7,500 pounds or less, or with rotorcraft.

Passenger-carrying operation means any aircraft operation carrying any person, unless the only persons on the aircraft are those identified in §§ 121.583(a) or 135.85 of this chapter, as applicable. An aircraft used in a passenger-carrying operation may also carry cargo or mail in addition to passengers.

Principal base of operations means the primary operating location of a certificate holder as established by the certificate holder.

Provisional airport means an airport approved by the Administrator for use by a certificate holder for the purpose of providing service to a community when the regular airport used by the certificate holder is not available.

Regular airport means an airport used by a certificate holder in scheduled operations and listed in its operations specifications.

Scheduled operation means any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial operator for which the certificate holder or its representative offers in advance the departure location, departure time, and arrival location. It does not include any passenger-carrying operation that is conducted as a public charter operation under part 380 of this chapter.

Supplemental operation means any common carriage operation for compensation or hire conducted with any airplane described in paragraph (1) of this definition that is a type of operation described in paragraph (2) of this definition:

(1) Airplanes:

(i) Airplanes having a passenger-seat configuration of more than 30 seats, excluding each crewmember seat;

(ii) Airplanes having a payload capacity of more than 7,500 pounds; or

(iii) Each propeller-powered airplane having a passenger-seat configuration of more than 9 seats and less than 31 seats, excluding each crewmember seat, that is also used in domestic or flag operations and that is so listed in the operations specifications as required by § 119.49(a)(4) of this chapter for those operations; or

(iv) Each turbojet powered airplane having a passenger seat configuration of 1 or more and less than 31 seats, excluding each crewmember seat, that is also used in domestic or flag operations and that is so listed in the operations specifications as required by § 119.49(a)(4) of this chapter for those operations.

(2) Types of operation:

(i) Operations for which the departure time, departure location, and arrival location are specifically negotiated with the customer or the customer's representative;

(ii) All-cargo operations; or

(iii) Passenger-carrying public charter operations conducted under part 380 of this chapter.

Wet lease means any leasing arrangement whereby a person agrees to provide an entire aircraft and at least one crewmember. A wet lease does not include a code-sharing arrangement.

When common carriage is not involved or operations not involving common carriage means any of the following:

(1) Noncommon carriage.

(2) Operations in which persons or cargo are transported without compensation or hire.

(3) Operations not involving the transportation of persons or cargo.

(4) Private carriage.

Years in service means the calendar time elapsed since an aircraft was issued its first U.S. or first foreign airworthiness certificate.

PART 117 - FLIGHT AND DUTY LIMITATIONS AND REST REQUIREMENTS: FLIGHTCREW MEMBERS

Authority:

49 U.S.C. 106(g), 40113, 40119, 44101, 44701-44702, 44705, 44709-44711, 44713, 44716-44717, 44722, 46901, 44903-44904, 44912, 46105.

Source:

Docket No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012, unless otherwise noted.

§ 117.1 Applicability.

(a) This part prescribes flight and duty limitations and rest requirements for all flightcrew members and certificate holders conducting passenger operations under part 121 of this chapter.

(b) This part applies to all operations directed by part 121 certificate holders under part 91, other than subpart K, of this chapter if any segment is conducted as a domestic passenger, flag passenger, or supplemental passenger operation.

(c) This part applies to all flightcrew members when participating in an operation under part 91, other than subpart K of this chapter, on behalf of the part 121 certificate holder if any flight segment is conducted as a domestic passenger, flag passenger, or supplemental passenger operation.

(d) Notwithstanding paragraphs (a), (b) and (c) of this section, a certificate holder may conduct under part 117 its part 121 operations pursuant to 121.470, 121.480, or 121.500.

§ 117.3 Definitions.

In addition to the definitions in §§ 1.1 and 110.2 of this chapter, the following definitions apply to this part. In the event there is a conflict in definitions, the definitions in this part control for purposes of the flight and duty limitations and rest requirements of this part.

Acclimated means a condition in which a flightcrew member has been in a theater for 72 hours or has been given at least 36 consecutive hours free from duty.

Airport/standby reserve means a defined duty period during which a flightcrew member is required by a certificate holder to be at an airport for a possible assignment.

Augmented flightcrew means a flightcrew that has more than the minimum number of flightcrew members required by the airplane type certificate to operate the aircraft to allow a flightcrew member to be replaced by another qualified flightcrew member for in-flight rest.

Calendar day means a 24-hour period from 0000 through 2359 using Coordinated Universal Time or local time.

Certificate holder means a person who holds or is required to hold an air carrier certificate or operating certificate issued under part 119 of this chapter.

Deadhead transportation means transportation of a flightcrew member as a passenger or non-operating flightcrew member, by any mode of transportation, as required by a certificate holder, excluding transportation to or from a suitable accommodation. All time spent in deadhead transportation is duty and is not rest. For purposes of determining the maximum flight duty period in Table B of this part, deadhead transportation is not considered a flight segment.

Duty means any task that a flightcrew member performs as required by the certificate holder, including but not limited to flight duty period, flight duty, pre- and post-flight duties, administrative work, training, deadhead transportation, aircraft positioning on the ground, aircraft loading, and aircraft servicing.

Fatigue means a physiological state of reduced mental or physical performance capability resulting from lack of sleep or increased physical activity that can reduce a flightcrew member's alertness and ability to safely operate an aircraft or perform safety-related duties.

Fatigue risk management system (FRMS) means a management system for a certificate holder to use to mitigate the effects of fatigue in its particular operations. It is a data-driven process and a systematic method used to continuously monitor and manage safety risks associated with fatigue-related error.

Fit for duty means physiologically and mentally prepared and capable of performing assigned duties at the highest degree of safety.

Flight duty period (FDP) means a period that begins when a flightcrew member is required to report for duty with the intention of conducting a flight, a series of flights, or positioning or ferrying flights, and ends when the aircraft is parked after the last flight and there is no intention for further aircraft movement by the same flightcrew member. A flight duty period includes the duties performed by the flightcrew member on behalf of the certificate holder that occur before a flight segment or between flight segments without a required intervening rest period. Examples of tasks that are part of the flight duty period include deadhead transportation, training conducted in an aircraft or flight simulator, and airport/standby reserve, if the above tasks occur before a flight segment or between flight segments without an intervening required rest period.

Home base means the location designated by a certificate holder where a flightcrew member normally begins and ends his or her duty periods.

Lineholder means a flightcrew member who has an assigned flight duty period and is not acting as a reserve flightcrew member.

Long-call reserve means that, prior to beginning the rest period required by § 117.25, the flightcrew member is notified by the certificate holder to report for a flight duty period following the completion of the rest period.

Physiological night's rest means 10 hours of rest that encompasses the hours of 0100 and 0700 at the flightcrew member's home base, unless the individual has acclimated to a different theater. If the flightcrew member has acclimated to a different theater, the rest must encompass the hours of 0100 and 0700 at the acclimated location.

Report time means the time that the certificate holder requires a flightcrew member to report for an assignment.

Reserve availability period means a duty period during which a certificate holder requires a flightcrew member on short call reserve to be available to receive an assignment for a flight duty period.

Reserve flightcrew member means a flightcrew member who a certificate holder requires to be available to receive an assignment for duty.

Rest facility means a bunk or seat accommodation installed in an aircraft that provides a flightcrew member with a sleep opportunity.

(1) *Class 1 rest facility* means a bunk or other surface that allows for a flat sleeping position and is located separate from both the flight deck and passenger cabin in an area that is temperature-controlled, allows the flightcrew member to control light, and provides isolation from noise and disturbance.

(2) *Class 2 rest facility* means a seat in an aircraft cabin that allows for a flat or near flat sleeping position; is separated from passengers by a minimum of a curtain to provide darkness and some sound mitigation; and is reasonably free from disturbance by passengers or flightcrew members.

(3) *Class 3 rest facility* means a seat in an aircraft cabin or flight deck that reclines at least 40 degrees and provides leg and foot support.

Rest period means a continuous period determined prospectively during which the flightcrew member is free from all restraint by the certificate holder, including freedom from present responsibility for work should the occasion arise.

Scheduled means to appoint, assign, or designate for a fixed time.

Short-call reserve means a period of time in which a flightcrew member is assigned to a reserve availability period.

Split duty means a flight duty period that has a scheduled break in duty that is less than a required rest period.

Suitable accommodation means a temperature-controlled facility with sound mitigation and the ability to control light that provides a flightcrew member with the ability to sleep either in a bed, bunk or in a chair that allows for flat or near flat sleeping position. Suitable accommodation only applies to ground facilities and does not apply to aircraft onboard rest facilities.

Theater means a geographical area in which the distance between the flightcrew member's flight duty period departure point and arrival point differs by no more than 60 degrees longitude.

Unforeseen operational circumstance means an unplanned event of insufficient duration to allow for adjustments to schedules, including unforecast weather, equipment malfunction, or air traffic delay that is not reasonably expected.

Window of circadian low means a period of maximum sleepiness that occurs between 0200 and 0559 during a physiological night.

[Doc. No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012; Amdt. 117-1A, 77 FR 28764, May 16, 2012; Amdt. 117-1, 78 FR 69288, Nov. 19, 2013]

§ 117.5 Fitness for duty.

(a) Each flightcrew member must report for any flight duty period rested and prepared to perform his or her assigned duties.

(b) No certificate holder may assign and no flightcrew member may accept assignment to a flight duty period if the flightcrew member has reported for a flight duty period too fatigued to safely perform his or her assigned duties.

(c) No certificate holder may permit a flightcrew member to continue a flight duty period if the flightcrew member has reported him or herself too fatigued to continue the assigned flight duty period.

(d) As part of the dispatch or flight release, as applicable, each flightcrew member must affirmatively state he or she is fit for duty prior to commencing flight.

§ 117.7 Fatigue risk management system.

(a) No certificate holder may exceed any provision of this part unless approved by the FAA under a Fatigue Risk Management System that provides at least an equivalent level

of safety against fatigue-related accidents or incidents as the other provisions of this part.

(b) The Fatigue Risk Management System must include:

- (1) A fatigue risk management policy.
- (2) An education and awareness training program.
- (3) A fatigue reporting system.
- (4) A system for monitoring flightcrew fatigue.
- (5) An incident reporting process.
- (6) A performance evaluation.

§ 117.9 Fatigue education and awareness training program.

(a) Each certificate holder must develop and implement an education and awareness training program, approved by the Administrator. This program must provide annual education and awareness training to all employees of the certificate holder responsible for administering the provisions of this rule including flightcrew members, dispatchers, individuals directly involved in the scheduling of flightcrew members, individuals directly involved in operational control, and any employee providing direct management oversight of those areas.

(b) The fatigue education and awareness training program must be designed to increase awareness of:

- (1) Fatigue;
- (2) The effects of fatigue on pilots; and
- (3) Fatigue countermeasures

(c) (1) Each certificate holder must update its fatigue education and awareness training program every two years and submit the update to the Administrator for review and acceptance.

(2) Not later than 12 months after the date of submission of the fatigue education and awareness training program required by (c)(1) of this section, the Administrator shall review and accept or reject the update. If the Administrator rejects an update, the Administrator shall provide suggested modifications for resubmission of the update.

§ 117.11 Flight time limitation.

(a) No certificate holder may schedule and no flightcrew member may accept an assignment or continue an assigned flight duty period if the total flight time:

(1) Will exceed the limits specified in Table A of this part if the operation is conducted with the minimum required flightcrew.

(2) Will exceed 13 hours if the operation is conducted with a 3-pilot flightcrew.

(3) Will exceed 17 hours if the operation is conducted with a 4-pilot flightcrew.

(b) If unforeseen operational circumstances arise after takeoff that are beyond the certificate holder's control, a flightcrew member may exceed the maximum flight time specified in paragraph (a) of this section and the cumulative flight time limits in 117.23(b) to the extent necessary to safely

land the aircraft at the next destination airport or alternate, as appropriate.

(c) Each certificate holder must report to the Administrator within 10 days any flight time that exceeded the maximum flight time limits permitted by this section or § 117.23(b). The report must contain a description of the extended flight time limitation and the circumstances surrounding the need for the extension.

[Doc. No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012; Amdt. 117-1, 78 FR 8362, Feb. 6, 2013; 78 FR 69288, Nov. 19, 2013]

§ 117.13 Flight duty period: Unaugmented operations.

(a) Except as provided for in § 117.15, no certificate holder may assign and no flightcrew member may accept an assignment for an unaugmented flight operation if the scheduled flight duty period will exceed the limits in Table B of this part.

(b) If the flightcrew member is not acclimated:

(1) The maximum flight duty period in Table B of this part is reduced by 30 minutes.

(2) The applicable flight duty period is based on the local time at the theater in which the flightcrew member was last acclimated.

§ 117.15 Flight duty period: Split duty.

For an unaugmented operation only, if a flightcrew member is provided with a rest opportunity (an opportunity to sleep) in a suitable accommodation during his or her flight duty period, the time that the flightcrew member spends in the suitable accommodation is not part of that flightcrew member's flight duty period if all of the following conditions are met:

(a) The rest opportunity is provided between the hours of 22:00 and 05:00 local time.

(b) The time spent in the suitable accommodation is at least 3 hours, measured from the time that the flightcrew member reaches the suitable accommodation.

(c) The rest opportunity is scheduled before the beginning of the flight duty period in which that rest opportunity is taken.

(d) The rest opportunity that the flightcrew member is actually provided may not be less than the rest opportunity that was scheduled.

(e) The rest opportunity is not provided until the first segment of the flight duty period has been completed.

(f) The combined time of the flight duty period and the rest opportunity provided in this section does not exceed 14 hours.

§ 117.17 Flight duty period: Augmented flightcrew.

(a) For flight operations conducted with an acclimated augmented flightcrew, no certificate holder may assign and no flightcrew member may accept an assignment if the scheduled flight duty period will exceed the limits specified in Table C of this part.

(b) If the flightcrew member is not acclimated:

(1) The maximum flight duty period in Table C of this part is reduced by 30 minutes.

(2) The applicable flight duty period is based on the local time at the theater in which the flightcrew member was last acclimated.

(c) No certificate holder may assign and no flightcrew member may accept an assignment under this section unless during the flight duty period:

(1) Two consecutive hours in the second half of the flight duty period are available for in-flight rest for the pilot flying the aircraft during landing.

(2) Ninety consecutive minutes are available for in-flight rest for the pilot performing monitoring duties during landing.

(d) No certificate holder may assign and no flightcrew member may accept an assignment involving more than three flight segments under this section.

(e) At all times during flight, at least one flightcrew member qualified in accordance with § 121.543(b)(3)(i) of this chapter must be at the flight controls.

§ 117.19 Flight duty period extensions.

(a) For augmented and unaugmented operations, if unforeseen operational circumstances arise prior to takeoff:

(1) The pilot in command and the certificate holder may extend the maximum flight duty period permitted in Tables B or C of this part up to 2 hours. The pilot in command and the certificate holder may also extend the maximum combined flight duty period and reserve availability period limits specified in § 117.21(c)(3) and (4) of this part up to 2 hours.

(2) An extension in the flight duty period under paragraph (a)(1) of this section of more than 30 minutes may occur only once prior to receiving a rest period described in § 117.25(b).

(3) A flight duty period cannot be extended under paragraph (a)(1) of this section if it causes a flightcrew member to exceed the cumulative flight duty period limits specified in 117.23(c).

(4) Each certificate holder must report to the Administrator within 10 days any flight duty period that exceeded the maximum flight duty period permitted in Tables B or C of this part by more than 30 minutes. The report must contain the following:

(i) A description of the extended flight duty period and the circumstances surrounding the need for the extension; and

(ii) If the circumstances giving rise to the extension were within the certificate holder's control, the corrective action(s) that the certificate holder intends to take to minimize the need for future extensions.

(5) Each certificate holder must implement the corrective action(s) reported in paragraph (a)(4) of this section within 30 days from the date of the extended flight duty period.

(b) For augmented and unaugmented operations, if unforeseen operational circumstances arise after takeoff:

(1) The pilot in command and the certificate holder may extend maximum flight duty periods specified in Tables B or C

of this part to the extent necessary to safely land the aircraft at the next destination airport or alternate airport, as appropriate.

(2) An extension of the flight duty period under paragraph (b)(1) of this section of more than 30 minutes may occur only once prior to receiving a rest period described in § 117.25(b).

(3) An extension taken under paragraph (b) of this section may exceed the cumulative flight duty period limits specified in 117.23(c).

(4) Each certificate holder must report to the Administrator within 10 days any flight duty period that either exceeded the cumulative flight duty periods specified in § 117.23(c), or exceeded the maximum flight duty period limits permitted by Tables B or C of this part by more than 30 minutes. The report must contain a description of the circumstances surrounding the affected flight duty period.

[Doc. No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012; Amdt. 117-1A, 77 FR 28764, May 16, 2012; Amdt. 117-1, 78 FR 8362, Feb. 6, 2013; 78 FR 69288, Nov. 19, 2013]

§ 117.21 Reserve status.

(a) Unless specifically designated as airport/standby or short-call reserve by the certificate holder, all reserve is considered long-call reserve.

(b) Any reserve that meets the definition of airport/standby reserve must be designated as airport/standby reserve. For airport/standby reserve, all time spent in a reserve status is part of the flightcrew member's flight duty period.

(c) For short call reserve,

(1) The reserve availability period may not exceed 14 hours.

(2) For a flightcrew member who has completed a reserve availability period, no certificate holder may schedule and no flightcrew member may accept an assignment of a reserve availability period unless the flightcrew member receives the required rest in § 117.25(e).

(3) For an unaugmented operation, the total number of hours a flightcrew member may spend in a flight duty period and a reserve availability period may not exceed the lesser of the maximum applicable flight duty period in Table B of this part plus 4 hours, or 16 hours, as measured from the beginning of the reserve availability period.

(4) For an augmented operation, the total number of hours a flightcrew member may spend in a flight duty period and a reserve availability period may not exceed the flight duty period in Table C of this part plus 4 hours, as measured from the beginning of the reserve availability period.

(d) For long call reserve, if a certificate holder contacts a flightcrew member to assign him or her to a flight duty period that will begin before and operate into the flightcrew member's window of circadian low, the flightcrew member must receive a 12 hour notice of report time from the certificate holder.

(e) A certificate holder may shift a reserve flightcrew member's reserve status from long-call to short-call only if the flightcrew member receives a rest period as provided in § 117.25(e).

§ 117.23 Cumulative limitations.

(a) The limitations of this section include all flying by flightcrew members on behalf of any certificate holder or 91K Program Manager during the applicable periods.

(b) No certificate holder may schedule and no flightcrew member may accept an assignment if the flightcrew member's total flight time will exceed the following:

(1) 100 hours in any 672 consecutive hours or

(2) 1,000 hours in any 365 consecutive calendar day period.

(c) No certificate holder may schedule and no flightcrew member may accept an assignment if the flightcrew member's total Flight Duty Period will exceed:

(1) 60 flight duty period hours in any 168 consecutive hours or

(2) 190 flight duty period hours in any 672 consecutive hours.

[Doc. No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012; Amdt. 117-1A, 77 FR 28764, May 16, 2012; Amdt. 117-1, 78 FR 69288, Nov. 19, 2013]

§ 117.25 Rest period.

(a) No certificate holder may assign and no flightcrew member may accept assignment to any reserve or duty with the certificate holder during any required rest period.

(b) Before beginning any reserve or flight duty period a flightcrew member must be given at least 30 consecutive hours free from all duty within the past 168 consecutive hour period.

(c) If a flightcrew member operating in a new theater has received 36 consecutive hours of rest, that flightcrew member is acclimated and the rest period meets the requirements of paragraph (b) of this section.

(d) A flightcrew member must be given a minimum of 56 consecutive hours rest upon return to home base if the flightcrew member: (1) Travels more than 60° longitude during a flight duty period or a series of flight duty period, and (2) is away from home base for more than 168 consecutive hours during this travel. The 56 hours of rest specified in this section must encompass three physiological nights' rest based on local time.

(e) No certificate holder may schedule and no flightcrew member may accept an assignment for any reserve or flight duty period unless the flightcrew member is given a rest period of at least 10 consecutive hours immediately before beginning the reserve or flight duty period measured from the time the flightcrew member is released from duty. The 10 hour rest period must provide the flightcrew member with a minimum of 8 uninterrupted hours of sleep opportunity.

(f) If a flightcrew member determines that a rest period under paragraph (e) of this section will not provide eight uninterrupted hours of sleep opportunity, the flightcrew member must notify the certificate holder. The flightcrew member cannot report for the assigned flight duty period until he or she receives a rest period specified in paragraph (e) of this section.

(g) If a flightcrew member engaged in deadhead transportation exceeds the applicable flight duty period in Table B of this part, the flightcrew member must be given a rest period equal to the length of the deadhead transportation but not less than the required rest in paragraph (e) of this section before beginning a flight duty period.

[Doc. No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012; Amdt. 117-1A, 77 FR 28764, May 16, 2012; Amdt. 117-1, 78 FR 8362, Feb. 6, 2013]

§ 117.27 Consecutive nighttime operations.

A certificate holder may schedule and a flightcrew member may accept up to five consecutive flight duty periods that infringe on the window of circadian low if the certificate holder provides the flightcrew member with an opportunity to rest in a suitable accommodation during each of the consecutive nighttime flight duty periods. The rest opportunity must be at least 2 hours, measured from the time that the flightcrew member reaches the suitable accommodation, and must comply with the conditions specified in § 117.15(a), (c), (d), and (e). Otherwise, no certificate holder may schedule and no flightcrew member may accept more than three consecutive flight duty periods that infringe on the window of circadian low. For purposes of this section, any split duty rest that is provided in accordance with § 117.15 counts as part of a flight duty period.

§ 117.29 Emergency and government sponsored operations.

(a) This section applies to operations conducted pursuant to contracts with the U.S. Government and operations conducted pursuant to a deviation under § 119.57 of this chapter that cannot otherwise be conducted under this part because of circumstances that could prevent flightcrew members from being relieved by another crew or safely provided with the rest required under § 117.25 at the end of the applicable flight duty period.

(b) The pilot-in-command may determine that the maximum applicable flight duty period, flight time, and/or combined flight duty period and reserve availability period limits must be exceeded to the extent necessary to allow the

flightcrew to fly to the closest destination where they can safely be relieved from duty by another flightcrew or can receive the requisite amount of rest prior to commencing their next flight duty period.

(c) A flight duty period may not be extended for an operation conducted pursuant to a contract with the U.S. Government if it causes a flightcrew member to exceed the cumulative flight time limits in § 117.23(b) and the cumulative flight duty period limits in § 117.23(c).

(d) The flightcrew shall be given a rest period immediately after reaching the destination described in paragraph (b) of this section equal to the length of the actual flight duty period or 24 hours, whichever is less.

(e) Each certificate holder must report within 10 days:

(1) Any flight duty period that exceeded the maximum flight duty period permitted in Tables B or C of this part, as applicable, by more than 30 minutes;

(2) Any flight time that exceeded the maximum flight time limits permitted in Table A of this part and § 117.11, as applicable; and

(3) Any flight duty period or flight time that exceeded the cumulative limits specified in § 117.23.

(f) The report must contain the following:

(1) A description of the extended flight duty period and flight time limitation, and the circumstances surrounding the need for the extension; and

(2) If the circumstances giving rise to the extension(s) were within the certificate holder's control, the corrective action(s) that the certificate holder intends to take to minimize the need for future extensions.

(g) Each certificate holder must implement the corrective action(s) reported pursuant to paragraph (f)(2) of this section within 30 days from the date of the extended flight duty period and/or the extended flight time.

[Doc. No. FAA-2009-1093, 77 FR 398, Jan. 4, 2012; Amdt. 117-1A, 77 FR 28764, May 16, 2012; Amdt. 117-1, 78 FR 8362, Feb. 6, 2013; 78 FR 69288, Nov. 19, 2013]

Table A to Part 117 - Maximum Flight Time Limits for Unaugmented Operations Table

| Time of report (acclimated) | Maximum flight time (hours) |
|--------------------------------|-----------------------------------|
| 0000-0459 | 8 |
| 0500-1959 | 9 |
| 2000-2359 | 8 |

Table B to Part 117 - Flight Duty Period: Unaugmented Operations

| Scheduled time of start (acclimated time) | Maximum flight duty period (hours) for lineholders based on number of flight segments | | | | | | |
|---|---|----|----|----|------|----|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 + |
| | 0000-0359 | 9 | 9 | 9 | 9 | 9 | 9 |
| 0400-0459 | 10 | 10 | 10 | 10 | 9 | 9 | 9 |
| 0500-0559 | 12 | 12 | 12 | 12 | 11.5 | 11 | 10.5 |
| 0600-0659 | 13 | 13 | 12 | 12 | 11.5 | 11 | 10.5 |
| 0700-1159 | 14 | 14 | 13 | 13 | 12.5 | 12 | 11.5 |
| 1200-1259 | 13 | 13 | 13 | 13 | 12.5 | 12 | 11.5 |
| 1300-1659 | 12 | 12 | 12 | 12 | 11.5 | 11 | 10.5 |
| 1700-2159 | 12 | 12 | 11 | 11 | 10 | 9 | 9 |
| 2200-2259 | 11 | 11 | 10 | 10 | 9 | 9 | 9 |
| 2300-2359 | 10 | 10 | 10 | 9 | 9 | 9 | 9 |

Table C to Part 117 - Flight Duty Period: Augmented Operations

| Scheduled time of start (acclimated time) | Maximum flight duty period (hours) based on rest facility and number of pilots | | | | | |
|---|--|----------|---------------|----------|---------------|----------|
| | Class 1 | | Class 2 | | Class 3 | |
| | rest facility | | rest facility | | rest facility | |
| | 3 pilots | 4 pilots | 3 pilots | 4 pilots | 3 pilots | 4 pilots |
| 0000-0559 | 15 | 17 | 14 | 15.5 | 13 | 13.5 |
| 0600-0659 | 16 | 18.5 | 15 | 16.5 | 14 | 14.5 |
| 0700-1259 | 17 | 19 | 16.5 | 18 | 15 | 15.5 |
| 1300-1659 | 16 | 18.5 | 15 | 16.5 | 14 | 14.5 |
| 1700-2359 | 15 | 17 | 14 | 15.5 | 13 | 13.5 |

**PART 119 - CERTIFICATION:
AIR CARRIERS AND
COMMERCIAL OPERATORS**

Subpart A - General

§ 119.1 Applicability.

(a) This part applies to each person operating or intending to operate civil aircraft -

(1) As an air carrier or commercial operator, or both, in air commerce; or

(2) When common carriage is not involved, in operations of U.S.-registered civil airplanes with a seat configuration of 20 or more passengers, or a maximum payload capacity of 6,000 pounds or more.

(b) This part prescribes -

Authority:

Pub. L. 111-216, sec. 215 (August 1, 2010); 49 U.S.C. 106(f), 106(g), 1153, 40101, 40102, 40103, 40113, 44105, 44106, 44111, 44701-44717, 44722, 44901, 44903, 44904, 44906, 44912, 44914, 44936, 44938, 46103, 46105.

Source:

Docket No. 28154, 60 FR 65913, Dec. 20, 1995, unless otherwise noted.

(1) The types of air operator certificates issued by the Federal Aviation Administration, including air carrier certificates and operating certificates;

(2) The certification requirements an operator must meet in order to obtain and hold a certificate authorizing operations under part 121, 125, or 135 of this chapter and operations specifications for each kind of operation to be conducted and each class and size of aircraft to be operated under part 121 or 135 of this chapter;

(3) The requirements an operator must meet to conduct operations under part 121, 125, or 135 of this chapter and in operating each class and size of aircraft authorized in its operations specifications;

(4) Requirements affecting wet leasing of aircraft and other arrangements for transportation by air;

(5) Requirements for obtaining deviation authority to perform operations under a military contract and obtaining deviation authority to perform an emergency operation; and

(6) Requirements for management personnel for operations conducted under part 121 or part 135 of this chapter.

(c) Persons subject to this part must comply with the other requirements of this chapter, except where those requirements are modified by or where additional requirements are imposed by part 119, 121, 125, or 135 of this chapter.

(d) This part does not govern operations conducted under part 91, subpart K (when common carriage is not involved) nor does it govern operations conducted under part 129, 133, 137, or 139 of this chapter.

(e) Except for operations when common carriage is not involved conducted with airplanes having a passenger-seat configuration of 20 seats or more, excluding any required crewmember seat, or a payload capacity of 6,000 pounds or more, this part does not apply to -

(1) Student instruction;

(2) Nonstop Commercial Air Tours conducted after September 11, 2007, in an airplane or helicopter having a standard airworthiness certificate and passenger-seat configuration of 30 seats or fewer and a maximum payload capacity of 7,500 pounds or less that begin and end at the same airport, and are conducted within a 25-statute mile radius of that airport, in compliance with the Letter of Authorization issued under § 91.147 of this chapter. For nonstop Commercial Air Tours conducted in accordance with part 136, subpart B of this chapter, National Parks Air Tour Management, the requirements of part 119 of this chapter apply unless excepted in § 136.37(g)(2). For Nonstop Commercial Air Tours conducted in the vicinity of the Grand Canyon National Park, Arizona, the requirements of SFAR 50-2, part 93, subpart U, and part 119 of this chapter, as applicable, apply.

(3) Ferry or training flights;

(4) Aerial work operations, including -

(i) Crop dusting, seeding, spraying, and bird chasing;

(ii) Banner towing;

(iii) Aerial photography or survey;

(iv) Fire fighting;

(v) Helicopter operations in construction or repair work (but it does apply to transportation to and from the site of operations); and

(vi) Powerline or pipeline patrol;

(5) Sightseeing flights conducted in hot air balloons;

(6) Nonstop flights conducted within a 25-statute-mile radius of the airport of takeoff carrying persons or objects for the purpose of conducting intentional parachute operations.

(7) Helicopter flights conducted within a 25 statute mile radius of the airport of takeoff if -

(i) Not more than two passengers are carried in the helicopter in addition to the required flightcrew;

(ii) Each flight is made under day VFR conditions;

(iii) The helicopter used is certificated in the standard category and complies with the 100-hour inspection requirements of part 91 of this chapter;

(iv) The operator notifies the FAA Flight Standards District Office responsible for the geographic area concerned at least 72 hours before each flight and furnishes any essential information that the office requests;

(v) The number of flights does not exceed a total of six in any calendar year;

(vi) Each flight has been approved by the Administrator; and

(vii) Cargo is not carried in or on the helicopter;

(8) Operations conducted under part 133 of this chapter or 375 of this title;

(9) Emergency mail service conducted under 49 U.S.C. 41906;

(10) Operations conducted under the provisions of § 91.321 of this chapter; or

(11) Small UAS operations conducted under part 107 of this chapter.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-4, 66 FR 23557, May 9, 2001; Amdt. 119-5, 67 FR 9554, Mar. 1, 2002; Amdt. 119-7, 68 FR 54584, Sept. 17, 2003; 72 FR 6911, Feb. 13, 2007; Docket FAA-2015-0150, Amdt. 119-18, 81 FR 42214, June 28, 2016]

§ 119.3 [Reserved]

§ 119.5 Certifications, authorizations, and prohibitions.

(a) A person authorized by the Administrator to conduct operations as a direct air carrier will be issued an Air Carrier Certificate.

(b) A person who is not authorized to conduct direct air carrier operations, but who is authorized by the Administrator to conduct operations as a U.S. commercial operator, will be issued an Operating Certificate.

(c) A person who is not authorized to conduct direct air carrier operations, but who is authorized by the Administrator to conduct operations when common carriage is not involved as an operator of U.S.-registered civil airplanes with a seat configuration of 20 or more passengers, or a maximum

payload capacity of 6,000 pounds or more, will be issued an Operating Certificate.

(d) A person authorized to engage in common carriage under part 121 or part 135 of this chapter, or both, shall be issued only one certificate authorizing such common carriage, regardless of the kind of operation or the class or size of aircraft to be operated.

(e) A person authorized to engage in noncommon or private carriage under part 125 or part 135 of this chapter, or both, shall be issued only one certificate authorizing such carriage, regardless of the kind of operation or the class or size of aircraft to be operated.

(f) A person conducting operations under more than one paragraph of §§ 119.21, 119.23, or 119.25 shall conduct those operations in compliance with -

(1) The requirements specified in each paragraph of those sections for the kind of operation conducted under that paragraph; and

(2) The appropriate authorizations, limitations, and procedures specified in the operations specifications for each kind of operation.

(g) No person may operate as a direct air carrier or as a commercial operator without, or in violation of, an appropriate certificate and appropriate operations specifications. No person may operate as a direct air carrier or as a commercial operator in violation of any deviation or exemption authority, if issued to that person or that person's representative.

(h) A person holding an Operating Certificate authorizing noncommon or private carriage operations shall not conduct any operations in common carriage. A person holding an Air Carrier Certificate or Operating Certificate authorizing common carriage operations shall not conduct any operations in noncommon carriage.

(i) No person may operate as a direct air carrier without holding appropriate economic authority from the Department of Transportation.

(j) A certificate holder under this part may not operate aircraft under part 121 or part 135 of this chapter in a geographical area unless its operations specifications specifically authorize the certificate holder to operate in that area.

(k) No person may advertise or otherwise offer to perform an operation subject to this part unless that person is authorized by the Federal Aviation Administration to conduct that operation.

(l) No person may operate an aircraft under this part, part 121 of this chapter, or part 135 of this chapter in violation of an air carrier operating certificate, operating certificate, or appropriate operations specifications issued under this part.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-3, 62 FR 13253, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997]

§ 119.7 Operations specifications.

(a) Each certificate holder's operations specifications must contain -

(1) The authorizations, limitations, and certain procedures under which each kind of operation, if applicable, is to be conducted; and

(2) Certain other procedures under which each class and size of aircraft is to be operated.

(b) Except for operations specifications paragraphs identifying authorized kinds of operations, operations specifications are not a part of a certificate.

§ 119.8 Safety Management Systems.

(a) Certificate holders authorized to conduct operations under part 121 of this chapter must have a safety management system that meets the requirements of part 5 of this chapter and is acceptable to the Administrator by March 9, 2018.

(b) A person applying to the Administrator for an air carrier certificate or operating certificate to conduct operations under part 121 of this chapter after March 9, 2015, must demonstrate, as part of the application process under § 119.35, that it has an SMS that meets the standards set forth in part 5 of this chapter and is acceptable to the Administrator.

[Doc. No. FAA-2009-0671, 80 FR 1328, Jan. 8, 2015]

§ 119.9 Use of business names.

(a) A certificate holder under this part may not operate an aircraft under part 121 or part 135 of this chapter using a business name other than a business name appearing in the certificate holder's operations specifications.

(b) No person may operate an aircraft under part 121 or part 135 of this chapter unless the name of the certificate holder who is operating the aircraft, or the air carrier or operating certificate number of the certificate holder who is operating the aircraft, is legibly displayed on the aircraft and is clearly visible and readable from the outside of the aircraft to a person standing on the ground at any time except during flight time. The means of displaying the name on the aircraft and its readability must be acceptable to the Administrator.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-3, 62 FR 13253, Mar. 19, 1997]

Subpart B - Applicability of Operating Requirements to Different Kinds of Operations Under Parts 121, 125, and 135 of This Chapter

§ 119.21 Commercial operators engaged in intrastate common carriage and direct air carriers.

(a) Each person who conducts airplane operations as a commercial operator engaged in intrastate common carriage of persons or property for compensation or hire in air commerce,

or as a direct air carrier, shall comply with the certification and operations specifications requirements in subpart C of this part, and shall conduct its:

(1) Domestic operations in accordance with the applicable requirements of part 121 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements. However, based on a showing of safety in air commerce, the Administrator may permit persons who conduct domestic operations between any point located within any of the following Alaskan islands and any point in the State of Alaska to comply with the requirements applicable to flag operations contained in subpart U of part 121 of this chapter:

- (i) The Aleutian Islands.
- (ii) The Pribilof Islands.
- (iii) The Shumagin Islands.

(2) Flag operations in accordance with the applicable requirements of part 121 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements.

(3) Supplemental operations in accordance with the applicable requirements of part 121 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements. However, based on a determination of safety in air commerce, the Administrator may authorize or require those operations to be conducted under paragraph (a)(1) or (a)(2) of this section.

(4) Commuter operations in accordance with the applicable requirements of part 135 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements.

(5) On-demand operations in accordance with the applicable requirements of part 135 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements.

(b) Persons who are subject to the requirements of paragraph (a)(4) of this section may conduct those operations in accordance with the requirements of paragraph (a)(1) or (a)(2) of this section, provided they obtain authorization from the Administrator.

(c) Persons who are subject to the requirements of paragraph (a)(5) of this section may conduct those operations in accordance with the requirements of paragraph (a)(3) of this section, provided they obtain authorization from the Administrator.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-2, 61 FR 30433, June 14, 1996; Amdt. 119-3, 62 FR 13254, Mar. 19, 1997]

§ 119.23 Operators engaged in passenger-carrying operations, cargo operations, or both with airplanes when common carriage is not involved.

(a) Each person who conducts operations when common carriage is not involved with airplanes having a passenger-seat configuration of 20 seats or more, excluding each crewmember

seat, or a payload capacity of 6,000 pounds or more, shall, unless deviation authority is issued -

(1) Comply with the certification and operations specifications requirements of part 125 of this chapter;

(2) Conduct its operations with those airplanes in accordance with the requirements of part 125 of this chapter; and

(3) Be issued operations specifications in accordance with those requirements.

(b) Each person who conducts noncommon carriage (except as provided in § 91.501(b) of this chapter) or private carriage operations for compensation or hire with airplanes having a passenger-seat configuration of less than 20 seats, excluding each crewmember seat, and a payload capacity of less than 6,000 pounds shall -

(1) Comply with the certification and operations specifications requirements in subpart C of this part;

(2) Conduct those operations in accordance with the requirements of part 135 of this chapter, except for those requirements applicable only to commuter operations; and

(3) Be issued operations specifications in accordance with those requirements.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-2, 61 FR 30434, June 14, 1996]

§ 119.25 Rotorcraft operations: Direct air carriers and commercial operators.

Each person who conducts rotorcraft operations for compensation or hire must comply with the certification and operations specifications requirements of Subpart C of this part, and shall conduct its:

(a) Commuter operations in accordance with the applicable requirements of part 135 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements.

(b) On-demand operations in accordance with the applicable requirements of part 135 of this chapter, and shall be issued operations specifications for those operations in accordance with those requirements.

Subpart C - Certification, Operations Specifications, and Certain Other Requirements for Operations Conducted Under Part 121 or Part 135 of This Chapter

§ 119.31 Applicability.

This subpart sets out certification requirements and prescribes the content of operations specifications and certain other requirements for operations conducted under part 121 or part 135 of this chapter.

§ 119.33 General requirements.

(a) A person may not operate as a direct air carrier unless that person -

- (1) Is a citizen of the United States;
- (2) Obtains an Air Carrier Certificate; and
- (3) Obtains operations specifications that prescribe the authorizations, limitations, and procedures under which each kind of operation must be conducted.

(b) A person other than a direct air carrier may not conduct any commercial passenger or cargo aircraft operation for compensation or hire under part 121 or part 135 of this chapter unless that person -

- (1) Is a citizen of the United States;
- (2) Obtains an Operating Certificate; and
- (3) Obtains operations specifications that prescribe the authorizations, limitations, and procedures under which each kind of operation must be conducted.

(c) Each applicant for a certificate under this part and each applicant for operations specifications authorizing a new kind of operation that is subject to § 121.163 or § 135.145 of this chapter shall conduct proving tests as authorized by the Administrator during the application process for authority to conduct operations under part 121 or part 135 of this chapter. All proving tests must be conducted in a manner acceptable to the Administrator. All proving tests must be conducted under the appropriate operating and maintenance requirements of part 121 or 135 of this chapter that would apply if the applicant were fully certificated. The Administrator will issue a letter of authorization to each person stating the various authorities under which the proving tests shall be conducted.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-2, 61 FR 30434, June 14, 1996]

§ 119.35 Certificate application requirements for all operators.

(a) A person applying to the Administrator for an Air Carrier Certificate or Operating Certificate under this part (applicant) must submit an application -

- (1) In a form and manner prescribed by the Administrator; and
- (2) Containing any information the Administrator requires the applicant to submit.

(b) Each applicant must submit the application to the Administrator at least 90 days before the date of intended operation.

[Doc. No. 28154, 62 FR 13254, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997]

§ 119.36 Additional certificate application requirements for commercial operators.

(a) Each applicant for the original issue of an operating certificate for the purpose of conducting intrastate common carriage operations under part 121 or part 135 of this chapter must submit an application in a form and manner prescribed

by the Administrator to the Flight Standards District Office in whose area the applicant proposes to establish or has established his or her principal base of operations.

(b) Each application submitted under paragraph (a) of this section must contain a signed statement showing the following:

- (1) For corporate applicants:
 - (i) The name and address of each stockholder who owns 5 percent or more of the total voting stock of the corporation, and if that stockholder is not the sole beneficial owner of the stock, the name and address of each beneficial owner. An individual is considered to own the stock owned, directly or indirectly, by or for his or her spouse, children, grandchildren, or parents.
 - (ii) The name and address of each director and each officer and each person employed or who will be employed in a management position described in §§ 119.65 and 119.69, as applicable.
 - (iii) The name and address of each person directly or indirectly controlling or controlled by the applicant and each person under direct or indirect control with the applicant.

- (2) For non-corporate applicants:
 - (i) The name and address of each person having a financial interest therein and the nature and extent of that interest.
 - (ii) The name and address of each person employed or who will be employed in a management position described in §§ 119.65 and 119.69, as applicable.

(c) In addition, each applicant for the original issue of an operating certificate under paragraph (a) of this section must submit with the application a signed statement showing -

- (1) The nature and scope of its intended operation, including the name and address of each person, if any, with whom the applicant has a contract to provide services as a commercial operator and the scope, nature, date, and duration of each of those contracts; and
- (2) For applicants intending to conduct operations under part 121 of this chapter, the financial information listed in paragraph (e) of this section.

(d) Each applicant for, or holder of, a certificate issued under paragraph (a) of this section, shall notify the Administrator within 10 days after -

- (1) A change in any of the persons, or the names and addresses of any of the persons, submitted to the Administrator under paragraph (b)(1) or (b)(2) of this section; or

(2) For applicants intending to conduct operations under part 121 of this chapter, a change in the financial information submitted to the Administrator under paragraph (e) of this section that occurs while the application for the issue is pending before the FAA and that would make the applicant's financial situation substantially less favorable than originally reported.

(e) Each applicant for the original issue of an operating certificate under paragraph (a) of this section who intends to conduct operations under part 121 of this chapter must submit the following financial information:

(1) A balance sheet that shows assets, liabilities, and net worth, as of a date not more than 60 days before the date of application.

(2) An itemization of liabilities more than 60 days past due on the balance sheet date, if any, showing each creditor's name and address, a description of the liability, and the amount and due date of the liability.

(3) An itemization of claims in litigation, if any, against the applicant as of the date of application showing each claimant's name and address and a description and the amount of the claim.

(4) A detailed projection of the proposed operation covering 6 complete months after the month in which the certificate is expected to be issued including -

(i) Estimated amount and source of both operating and nonoperating revenue, including identification of its existing and anticipated income producing contracts and estimated revenue per mile or hour of operation by aircraft type;

(ii) Estimated amount of operating and nonoperating expenses by expense objective classification; and

(iii) Estimated net profit or loss for the period.

(5) An estimate of the cash that will be needed for the proposed operations during the first 6 months after the month in which the certificate is expected to be issued, including -

(i) Acquisition of property and equipment (explain);

(ii) Retirement of debt (explain);

(iii) Additional working capital (explain);

(iv) Operating losses other than depreciation and amortization (explain); and

(v) Other (explain).

(6) An estimate of the cash that will be available during the first 6 months after the month in which the certificate is expected to be issued, from -

(i) Sale of property or flight equipment (explain);

(ii) New debt (explain);

(iii) New equity (explain);

(iv) Working capital reduction (explain);

(v) Operations (profits) (explain);

(vi) Depreciation and amortization (explain); and

(vii) Other (explain).

(7) A schedule of insurance coverage in effect on the balance sheet date showing insurance companies; policy numbers; types, amounts, and period of coverage; and special conditions, exclusions, and limitations.

(8) Any other financial information that the Administrator requires to enable him or her to determine that the applicant has sufficient financial resources to conduct his or her operations with the degree of safety required in the public interest.

(f) Each financial statement containing financial information required by paragraph (e) of this section must be based on accounts prepared and maintained on an accrual basis in accordance with generally accepted accounting principles applied on a consistent basis, and must contain the name and address of the applicant's public accounting firm, if any.

Information submitted must be signed by an officer, owner, or partner of the applicant or certificate holder.

[Doc. No. 28154, 62 FR 13254, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997]

§ 119.37 Contents of an Air Carrier Certificate or Operating Certificate.

The Air Carrier Certificate or Operating Certificate includes -

(a) The certificate holder's name;

(b) The location of the certificate holder's principal base of operations;

(c) The certificate number;

(d) The certificate's effective date; and

(e) The name or the designator of the certificate-holding district office.

§ 119.39 Issuing or denying a certificate.

(a) An applicant may be issued an Air Carrier Certificate or Operating Certificate if, after investigation, the Administrator finds that the applicant -

(1) Meets the applicable requirements of this part;

(2) Holds the economic authority applicable to the kinds of operations to be conducted, issued by the Department of Transportation, if required; and

(3) Is properly and adequately equipped in accordance with the requirements of this chapter and is able to conduct a safe operation under appropriate provisions of part 121 or part 135 of this chapter and operations specifications issued under this part.

(b) An application for a certificate may be denied if the Administrator finds that -

(1) The applicant is not properly or adequately equipped or is not able to conduct safe operations under this subchapter;

(2) The applicant previously held an Air Carrier Certificate or Operating Certificate which was revoked;

(3) The applicant intends to or fills a key management position listed in § 119.65(a) or § 119.69(a), as applicable, with an individual who exercised control over or who held the same or a similar position with a certificate holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process;

(4) An individual who will have control over or have a substantial ownership interest in the applicant had the same or similar control or interest in a certificate holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process; or

(5) In the case of an applicant for an Operating Certificate for intrastate common carriage, that for financial reasons the applicant is not able to conduct a safe operation.

§ 119.41 Amending a certificate.

(a) The Administrator may amend any certificate issued under this part if -

(1) The Administrator determines, under 49 U.S.C. 44709 and part 13 of this chapter, that safety in air commerce and the public interest requires the amendment; or

(2) The certificate holder applies for the amendment and the certificate-holding district office determines that safety in air commerce and the public interest allows the amendment.

(b) When the Administrator proposes to issue an order amending, suspending, or revoking all or part of any certificate, the procedure in § 13.19 of this chapter applies.

(c) When the certificate holder applies for an amendment of its certificate, the following procedure applies:

(1) The certificate holder must file an application to amend its certificate with the certificate-holding district office at least 15 days before the date proposed by the applicant for the amendment to become effective, unless the administrator approves filing within a shorter period; and

(2) The application must be submitted to the certificate-holding district office in the form and manner prescribed by the Administrator.

(d) When a certificate holder seeks reconsideration of a decision from the certificate-holding district office concerning amendments of a certificate, the following procedure applies:

(1) The petition for reconsideration must be made within 30 days after the certificate holder receives the notice of denial; and

(2) The certificate holder must petition for reconsideration to the Director, Flight Standards Service.

§ 119.43 Certificate holder's duty to maintain operations specifications.

(a) Each certificate holder shall maintain a complete and separate set of its operations specifications at its principal base of operations.

(b) Each certificate holder shall insert pertinent excerpts of its operations specifications, or references thereto, in its manual and shall -

(1) Clearly identify each such excerpt as a part of its operations specifications; and

(2) State that compliance with each operations specifications requirement is mandatory.

(c) Each certificate holder shall keep each of its employees and other persons used in its operations informed of the provisions of its operations specifications that apply to that employee's or person's duties and responsibilities.

§ 119.45 [Reserved]**§ 119.47 Maintaining a principal base of operations, main operations base, and main maintenance base; change of address.**

(a) Each certificate holder must maintain a principal base of operations. Each certificate holder may also establish a main operations base and a main maintenance base which may be located at either the same location as the principal base of operations or at separate locations.

(b) At least 30 days before it proposes to establish or change the location of its principal base of operations, its main operations base, or its main maintenance base, a certificate holder must provide written notification to its certificate-holding district office.

§ 119.49 Contents of operations specifications.

(a) Each certificate holder conducting domestic, flag, or commuter operations must obtain operations specifications containing all of the following:

(1) The specific location of the certificate holder's principal base of operations and, if different, the address that shall serve as the primary point of contact for correspondence between the FAA and the certificate holder and the name and mailing address of the certificate holder's agent for service.

(2) Other business names under which the certificate holder may operate.

(3) Reference to the economic authority issued by the Department of Transportation, if required.

(4) Type of aircraft, registration markings, and serial numbers of each aircraft authorized for use, each regular and alternate airport to be used in scheduled operations, and, except for commuter operations, each provisional and refueling airport.

(i) Subject to the approval of the Administrator with regard to form and content, the certificate holder may incorporate by reference the items listed in paragraph (a)(4) of this section into the certificate holder's operations specifications by maintaining a current listing of those items and by referring to the specific list in the applicable paragraph of the operations specifications.

(ii) The certificate holder may not conduct any operation using any aircraft or airport not listed.

(5) Kinds of operations authorized.

(6) Authorization and limitations for routes and areas of operations.

(7) Airport limitations.

(8) Time limitations, or standards for determining time limitations, for overhauling, inspecting, and checking airframes, engines, propellers, rotors, appliances, and emergency equipment.

(9) Authorization for the method of controlling weight and balance of aircraft.

(10) Interline equipment interchange requirements, if relevant.

(11) Aircraft wet lease information required by § 119.53(c).

(12) Any authorized deviation and exemption granted from any requirement of this chapter.

(13) An authorization permitting, or a prohibition against, accepting, handling, and transporting materials regulated as hazardous materials in transport under 49 CFR parts 171 through 180.

(14) Any other item the Administrator determines is necessary.

(b) Each certificate holder conducting supplemental operations must obtain operations specifications containing all of the following:

(1) The specific location of the certificate holder's principal base of operations, and, if different, the address that shall serve as the primary point of contact for correspondence between the FAA and the certificate holder and the name and mailing address of the certificate holder's agent for service.

(2) Other business names under which the certificate holder may operate.

(3) Reference to the economic authority issued by the Department of Transportation, if required.

(4) Type of aircraft, registration markings, and serial number of each aircraft authorized for use.

(i) Subject to the approval of the Administrator with regard to form and content, the certificate holder may incorporate by reference the items listed in paragraph (b)(4) of this section into the certificate holder's operations specifications by maintaining a current listing of those items and by referring to the specific list in the applicable paragraph of the operations specifications.

(ii) The certificate holder may not conduct any operation using any aircraft not listed.

(5) Kinds of operations authorized.

(6) Authorization and limitations for routes and areas of operations.

(7) Special airport authorizations and limitations.

(8) Time limitations, or standards for determining time limitations, for overhauling, inspecting, and checking airframes, engines, propellers, appliances, and emergency equipment.

(9) Authorization for the method of controlling weight and balance of aircraft.

(10) Aircraft wet lease information required by § 119.53(c).

(11) Any authorization or requirement to conduct supplemental operations as provided by § 119.21(a)(3).

(12) Any authorized deviation or exemption from any requirement of this chapter.

(13) An authorization permitting, or a prohibition against, accepting, handling, and transporting materials regulated as hazardous materials in transport under 49 CFR parts 171 through 180.

(14) Any other item the Administrator determines is necessary.

(c) Each certificate holder conducting on-demand operations must obtain operations specifications containing all of the following:

(1) The specific location of the certificate holder's principal base of operations, and if different, the address that shall serve as the primary point of contact for correspondence between the FAA and the name and mailing address of the certificate holder's agent for service.

(2) Other business names under which the certificate holder may operate.

(3) Reference to the economic authority issued by the Department of Transportation, if required.

(4) Kind and area of operations authorized.

(5) Category and class of aircraft that may be used in those operations.

(6) Type of aircraft, registration markings, and serial number of each aircraft that is subject to an airworthiness maintenance program required by § 135.411(a)(2) of this chapter.

(i) Subject to the approval of the Administrator with regard to form and content, the certificate holder may incorporate by reference the items listed in paragraph (c)(6) of this section into the certificate holder's operations specifications by maintaining a current listing of those items and by referring to the specific list in the applicable paragraph of the operations specifications.

(ii) The certificate holder may not conduct any operation using any aircraft not listed.

(7) Registration markings of each aircraft that is to be inspected under an approved aircraft inspection program under § 135.419 of this chapter.

(8) Time limitations or standards for determining time limitations, for overhauls, inspections, and checks for airframes, engines, propellers, rotors, appliances, and emergency equipment of aircraft that are subject to an airworthiness maintenance program required by § 135.411(a)(2) of this chapter.

(9) Additional maintenance items required by the Administrator under § 135.421 of this chapter.

(10) Aircraft wet lease information required by § 119.53(c).

(11) Any authorized deviation or exemption from any requirement of this chapter.

(12) An authorization permitting, or a prohibition against, accepting, handling, and transporting materials regulated as hazardous materials in transport under 49 CFR parts 171 through 180.

(13) Any other item the Administrator determines is necessary.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-10, 70 FR 58823, Oct. 7, 2005; Amdt. 119-13, 75 FR 26645, May 12, 2010]

§ 119.51 Amending operations specifications.

(a) The Administrator may amend any operations specifications issued under this part if -

(1) The Administrator determines that safety in air commerce and the public interest require the amendment; or

(2) The certificate holder applies for the amendment, and the Administrator determines that safety in air commerce and the public interest allows the amendment.

(b) Except as provided in paragraph (e) of this section, when the Administrator initiates an amendment to a certificate holder's operations specifications, the following procedure applies:

(1) The certificate-holding district office notifies the certificate holder in writing of the proposed amendment.

(2) The certificate-holding district office sets a reasonable period (but not less than 7 days) within which the certificate holder may submit written information, views, and arguments on the amendment.

(3) After considering all material presented, the certificate-holding district office notifies the certificate holder of -

- (i) The adoption of the proposed amendment;
- (ii) The partial adoption of the proposed amendment; or
- (iii) The withdrawal of the proposed amendment.

(4) If the certificate-holding district office issues an amendment to the operations specifications, it becomes effective not less than 30 days after the certificate holder receives notice of it unless -

(i) The certificate-holding district office finds under paragraph (e) of this section that there is an emergency requiring immediate action with respect to safety in air commerce; or

(ii) The certificate holder petitions for reconsideration of the amendment under paragraph (d) of this section.

(c) When the certificate holder applies for an amendment to its operations specifications, the following procedure applies:

(1) The certificate holder must file an application to amend its operations specifications -

(i) At least 90 days before the date proposed by the applicant for the amendment to become effective, unless a shorter time is approved, in cases of mergers; acquisitions of airline operational assets that require an additional showing of safety (e.g., proving tests); changes in the kind of operation as defined in § 110.2; resumption of operations following a suspension of operations as a result of bankruptcy actions; or the initial introduction of aircraft not before proven for use in air carrier or commercial operator operations.

(ii) At least 15 days before the date proposed by the applicant for the amendment to become effective in all other cases.

(2) The application must be submitted to the certificate-holding district office in a form and manner prescribed by the Administrator.

(3) After considering all material presented, the certificate-holding district office notifies the certificate holder of -

- (i) The adoption of the applied for amendment;
- (ii) The partial adoption of the applied for amendment; or
- (iii) The denial of the applied for amendment. The certificate holder may petition for reconsideration of a denial under paragraph (d) of this section.

(4) If the certificate-holding district office approves the amendment, following coordination with the certificate holder regarding its implementation, the amendment is effective on the date the Administrator approves it.

(d) When a certificate holder seeks reconsideration of a decision from the certificate-holding district office concerning the amendment of operations specifications, the following procedure applies:

(1) The certificate holder must petition for reconsideration of that decision within 30 days of the date that the certificate holder receives a notice of denial of the amendment to its operations specifications, or of the date it receives notice of an FAA-initiated amendment to its operations specifications, whichever circumstance applies.

(2) The certificate holder must address its petition to the Director, Flight Standards Service.

(3) A petition for reconsideration, if filed within the 30-day period, suspends the effectiveness of any amendment issued by the certificate-holding district office unless the certificate-holding district office has found, under paragraph (e) of this section, that an emergency exists requiring immediate action with respect to safety in air transportation or air commerce.

(4) If a petition for reconsideration is not filed within 30 days, the procedures of paragraph (c) of this section apply.

(e) If the certificate-holding district office finds that an emergency exists requiring immediate action with respect to safety in air commerce or air transportation that makes the procedures set out in this section impracticable or contrary to the public interest:

(1) The certificate-holding district office amends the operations specifications and makes the amendment effective on the day the certificate holder receives notice of it.

(2) In the notice to the certificate holder, the certificate-holding district office articulates the reasons for its finding that an emergency exists requiring immediate action with respect to safety in air transportation or air commerce or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-14, 76 FR 7488, Feb. 10, 2011]

§ 119.53 Wet leasing of aircraft and other arrangements for transportation by air.

(a) Unless otherwise authorized by the Administrator, prior to conducting operations involving a wet lease, each certificate holder under this part authorized to conduct common carriage operations under this subchapter shall provide the Administrator with a copy of the wet lease to be executed which would lease the aircraft to any other person engaged in common carriage operations under this subchapter,

including foreign air carriers, or to any other foreign person engaged in common carriage wholly outside the United States.

(b) No certificate holder under this part may wet lease from a foreign air carrier or any other foreign person or any person not authorized to engage in common carriage.

(c) Upon receiving a copy of a wet lease, the Administrator determines which party to the agreement has operational control of the aircraft and issues amendments to the operations specifications of each party to the agreement, as needed. The lessor must provide the following information to be incorporated into the operations specifications of both parties, as needed.

(1) The names of the parties to the agreement and the duration thereof.

(2) The nationality and registration markings of each aircraft involved in the agreement.

(3) The kind of operation (e.g., domestic, flag, supplemental, commuter, or on-demand).

(4) The airports or areas of operation.

(5) A statement specifying the party deemed to have operational control and the times, airports, or areas under which such operational control is exercised.

(d) In making the determination of paragraph (c) of this section, the Administrator will consider the following:

(1) Crewmembers and training.

(2) Airworthiness and performance of maintenance.

(3) Dispatch.

(4) Servicing the aircraft.

(5) Scheduling.

(6) Any other factor the Administrator considers relevant.

(e) Other arrangements for transportation by air: Except as provided in paragraph (f) of this section, a certificate holder under this part operating under part 121 or 135 of this chapter may not conduct any operation for another certificate holder under this part or a foreign air carrier under part 129 of this chapter or a foreign person engaged in common carriage wholly outside the United States unless it holds applicable Department of Transportation economic authority, if required, and is authorized under its operations specifications to conduct the same kinds of operations (as defined in § 110.2). The certificate holder conducting the substitute operation must conduct that operation in accordance with the same operations authority held by the certificate holder arranging for the substitute operation. These substitute operations must be conducted between airports for which the substitute certificate holder holds authority for scheduled operations or within areas of operations for which the substitute certificate holder has authority for supplemental or on-demand operations.

(f) A certificate holder under this part may, if authorized by the Department of Transportation under § 380.3 of this title and the Administrator in the case of interstate commuter, interstate domestic, and flag operations, or the Administrator in the case of scheduled intrastate common carriage operations, conduct one or more flights for passengers who are stranded because of the cancellation of their scheduled flights. These flights must

be conducted under the rules of part 121 or part 135 of this chapter applicable to supplemental or on-demand operations.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-14, 76 FR 7488, Feb. 10, 2011]

§ 119.55 Obtaining deviation authority to perform operations under a U.S. military contract.

(a) The Administrator may authorize a certificate holder that is authorized to conduct supplemental or on-demand operations to deviate from the applicable requirements of this part, part 117, part 121, or part 135 of this chapter in order to perform operations under a U.S. military contract.

(b) A certificate holder that has a contract with the U.S. Department of Defense's Air Mobility Command (AMC) must submit a request for deviation authority to AMC. AMC will review the requests, then forward the carriers' consolidated requests, along with AMC's recommendations, to the FAA for review and action.

(c) The Administrator may authorize a deviation to perform operations under a U.S. military contract under the following conditions -

(1) The Department of Defense certifies to the Administrator that the operation is essential to the national defense;

(2) The Department of Defense further certifies that the certificate holder cannot perform the operation without deviation authority;

(3) The certificate holder will perform the operation under a contract or subcontract for the benefit of a U.S. armed service; and

(4) The Administrator finds that the deviation is based on grounds other than economic advantage either to the certificate holder or to the United States.

(d) In the case where the Administrator authorizes a deviation under this section, the Administrator will issue an appropriate amendment to the certificate holder's operations specifications.

(e) The Administrator may, at any time, terminate any grant of deviation authority issued under this section.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-16, 77 FR 402, Jan. 4, 2012]

§ 119.57 Obtaining deviation authority to perform an emergency operation.

(a) In emergency conditions, the Administrator may authorize deviations if -

(1) Those conditions necessitate the transportation of persons or supplies for the protection of life or property; and

(2) The Administrator finds that a deviation is necessary for the expeditious conduct of the operations.

(b) When the Administrator authorizes deviations for operations under emergency conditions -

(1) The Administrator will issue an appropriate amendment to the certificate holder's operations specifications; or

(2) If the nature of the emergency does not permit timely amendment of the operations specifications -

(i) The Administrator may authorize the deviation orally; and

(ii) The certificate holder shall provide documentation describing the nature of the emergency to the certificate-holding district office within 24 hours after completing the operation.

§ 119.59 Conducting tests and inspections.

(a) At any time or place, the Administrator may conduct an inspection or test to determine whether a certificate holder under this part is complying with title 49 of the United States Code, applicable regulations, the certificate, or the certificate holder's operations specifications.

(b) The certificate holder must -

(1) Make available to the Administrator at the certificate holder's principal base of operations -

(i) The certificate holder's Air Carrier Certificate or the certificate holder's Operating Certificate and the certificate holder's operations specifications; and

(ii) A current listing that will include the location and persons responsible for each record, document, and report required to be kept by the certificate holder under title 49 of the United States Code applicable to the operation of the certificate holder.

(2) Allow the Administrator to make any test or inspection to determine compliance respecting any matter stated in paragraph (a) of this section.

(c) Each employee of, or person used by, the certificate holder who is responsible for maintaining the certificate holder's records must make those records available to the Administrator.

(d) The Administrator may determine a certificate holder's continued eligibility to hold its certificate and/or operations specifications on any grounds listed in paragraph (a) of this section, or any other appropriate grounds.

(e) Failure by any certificate holder to make available to the Administrator upon request, the certificate, operations specifications, or any required record, document, or report is grounds for suspension of all or any part of the certificate holder's certificate and operations specifications.

(f) In the case of operators conducting intrastate common carriage operations, these inspections and tests include inspections and tests of financial books and records.

§ 119.61 Duration and surrender of certificate and operations specifications.

(a) An Air Carrier Certificate or Operating Certificate issued under this part is effective until -

(1) The certificate holder surrenders it to the Administrator; or

(2) The Administrator suspends, revokes, or otherwise terminates the certificate.

(b) Operations specifications issued under this part, part 121, or part 135 of this chapter are effective unless -

(1) The Administrator suspends, revokes, or otherwise terminates the certificate;

(2) The operations specifications are amended as provided in § 119.51;

(3) The certificate holder does not conduct a kind of operation for more than the time specified in § 119.63 and fails to follow the procedures of § 119.63 upon resuming that kind of operation; or

(4) The Administrator suspends or revokes the operations specifications for a kind of operation.

(c) Within 30 days after a certificate holder terminates operations under part 135 of this chapter, the operating certificate and operations specifications must be surrendered by the certificate holder to the certificate-holding district office.

§ 119.63 Recency of operation.

(a) Except as provided in paragraph (b) of this section, no certificate holder may conduct a kind of operation for which it holds authority in its operations specifications unless the certificate holder has conducted that kind of operation within the preceding number of consecutive calendar days specified in this paragraph:

(1) For domestic, flag, or commuter operations - 30 days.

(2) For supplemental or on-demand operations - 90 days, except that if the certificate holder has authority to conduct domestic, flag, or commuter operations, and has conducted domestic, flag or commuter operations within the previous 30 days, this paragraph does not apply.

(b) If a certificate holder does not conduct a kind of operation for which it is authorized in its operations specifications within the number of calendar days specified in paragraph (a) of this section, it shall not conduct such kind of operation unless -

(1) It advises the Administrator at least 5 consecutive calendar days before resumption of that kind of operation; and

(2) It makes itself available and accessible during the 5 consecutive calendar day period in the event that the FAA decides to conduct a full inspection reexamination to determine whether the certificate holder remains properly and adequately equipped and able to conduct a safe operation.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-2, 61 FR 30434, June 14, 1996]

§ 119.65 Management personnel required for operations conducted under part 121 of this chapter.

(a) Each certificate holder must have sufficient qualified management and technical personnel to ensure the highest degree of safety in its operations. The certificate holder must have qualified personnel serving full-time in the following or equivalent positions:

(1) Director of Safety.

- (2) Director of Operations.
- (3) Chief Pilot.
- (4) Director of Maintenance.
- (5) Chief Inspector.

(b) The Administrator may approve positions or numbers of positions other than those listed in paragraph (a) of this section for a particular operation if the certificate holder shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel due to -

- (1) The kind of operation involved;
- (2) The number and type of airplanes used; and
- (3) The area of operations.

(c) The title of the positions required under paragraph (a) of this section or the title and number of equivalent positions approved under paragraph (b) of this section shall be set forth in the certificate holder's operations specifications.

(d) The individuals who serve in the positions required or approved under paragraph (a) or (b) of this section and anyone in a position to exercise control over operations conducted under the operating certificate must -

(1) Be qualified through training, experience, and expertise;

(2) To the extent of their responsibilities, have a full understanding of the following materials with respect to the certificate holder's operation -

- (i) Aviation safety standards and safe operating practices;
- (ii) 14 CFR Chapter I (Federal Aviation Regulations);
- (iii) The certificate holder's operations specifications;
- (iv) All appropriate maintenance and airworthiness requirements of this chapter (e.g., parts 1, 21, 23, 25, 43, 45, 47, 65, 91, and 121 of this chapter); and
- (v) The manual required by § 121.133 of this chapter; and
- (3) Discharge their duties to meet applicable legal requirements and to maintain safe operations.

(e) Each certificate holder must:

(1) State in the general policy provisions of the manual required by § 121.133 of this chapter, the duties, responsibilities, and authority of personnel required under paragraph (a) of this section;

(2) List in the manual the names and business addresses of the individuals assigned to those positions; and

(3) Notify the certificate-holding district office within 10 days of any change in personnel or any vacancy in any position listed.

§ 119.67 Management personnel: Qualifications for operations conducted under part 121 of this chapter.

(a) To serve as Director of Operations under § 119.65(a) a person must -

- (1) Hold an airline transport pilot certificate;
- (2) Have at least 3 years supervisory or managerial experience within the last 6 years in a position that exercised operational control over any operations conducted with large

airplanes under part 121 or part 135 of this chapter, or if the certificate holder uses only small airplanes in its operations, the experience may be obtained in large or small airplanes; and

(3) In the case of a person becoming a Director of Operations -

(i) For the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of a large airplane operated under part 121 or part 135 of this chapter, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(ii) In the case of a person with previous experience as a Director of Operations, have at least 3 years experience as pilot in command of a large airplane operated under part 121 or part 135 of this chapter, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(b) To serve as Chief Pilot under § 119.65(a) a person must hold an airline transport pilot certificate with appropriate ratings for at least one of the airplanes used in the certificate holder's operation and:

(1) In the case of a person becoming a Chief Pilot for the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of a large airplane operated under part 121 or part 135 of this chapter, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(2) In the case of a person with previous experience as a Chief Pilot, have at least 3 years experience, as pilot in command of a large airplane operated under part 121 or part 135 of this chapter, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(c) To serve as Director of Maintenance under § 119.65(a) a person must -

(1) Hold a mechanic certificate with airframe and powerplant ratings;

(2) Have 1 year of experience in a position responsible for returning airplanes to service;

(3) Have at least 1 year of experience in a supervisory capacity under either paragraph (c)(4)(i) or (c)(4)(ii) of this section maintaining the same category and class of airplane as the certificate holder uses; and

(4) Have 3 years experience within the past 6 years in one or a combination of the following -

(i) Maintaining large airplanes with 10 or more passenger seats, including at the time of appointment as Director of Maintenance, experience in maintaining the same category and class of airplane as the certificate holder uses; or

(ii) Repairing airplanes in a certificated airframe repair station that is rated to maintain airplanes in the same category and class of airplane as the certificate holder uses.

(d) To serve as Chief Inspector under § 119.65(a) a person must -

(1) Hold a mechanic certificate with both airframe and powerplant ratings, and have held these ratings for at least 3 years;

(2) Have at least 3 years of maintenance experience on different types of large airplanes with 10 or more passenger seats with an air carrier or certificated repair station, 1 year of which must have been as maintenance inspector; and

(3) Have at least 1 year of experience in a supervisory capacity maintaining the same category and class of aircraft as the certificate holder uses.

(e) A certificate holder may request a deviation to employ a person who does not meet the appropriate airman experience, managerial experience, or supervisory experience requirements of this section if the Manager of the Air Transportation Division, AFS-200, or the Manager of the Aircraft Maintenance Division, AFS-300, as appropriate, finds that the person has comparable experience, and can effectively perform the functions associated with the position in accordance with the requirements of this chapter and the procedures outlined in the certificate holder's manual. Grants of deviation under this paragraph may be granted after consideration of the size and scope of the operation and the qualifications of the intended personnel. The Administrator may, at any time, terminate any grant of deviation authority issued under this paragraph.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-2, 61 FR 30434, June 14, 1996; Amdt. 119-3, 62 FR 13255, Mar. 19, 1997]

§ 119.69 Management personnel required for operations conducted under part 135 of this chapter.

(a) Each certificate holder must have sufficient qualified management and technical personnel to ensure the safety of its operations. Except for a certificate holder using only one pilot in its operations, the certificate holder must have qualified personnel serving in the following or equivalent positions:

(1) Director of Operations.

(2) Chief Pilot.

(3) Director of Maintenance.

(b) The Administrator may approve positions or numbers of positions other than those listed in paragraph (a) of this section for a particular operation if the certificate holder shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel due to -

(1) The kind of operation involved;

(2) The number and type of aircraft used; and

(3) The area of operations.

(c) The title of the positions required under paragraph (a) of this section or the title and number of equivalent positions approved under paragraph (b) of this section shall be set forth in the certificate holder's operations specifications.

(d) The individuals who serve in the positions required or approved under paragraph (a) or (b) of this section and anyone in a position to exercise control over operations conducted under the operating certificate must -

(1) Be qualified through training, experience, and expertise;

(2) To the extent of their responsibilities, have a full understanding of the following material with respect to the certificate holder's operation -

(i) Aviation safety standards and safe operating practices;

(ii) 14 CFR Chapter I (Federal Aviation Regulations);

(iii) The certificate holder's operations specifications;

(iv) All appropriate maintenance and airworthiness requirements of this chapter (e.g., parts 1, 21, 23, 25, 43, 45, 47, 65, 91, and 135 of this chapter); and

(v) The manual required by § 135.21 of this chapter; and

(3) Discharge their duties to meet applicable legal requirements and to maintain safe operations.

(e) Each certificate holder must -

(1) State in the general policy provisions of the manual required by § 135.21 of this chapter, the duties, responsibilities, and authority of personnel required or approved under paragraph (a) or (b), respectively, of this section;

(2) List in the manual the names and business addresses of the individuals assigned to those positions; and

(3) Notify the certificate-holding district office within 10 days of any change in personnel or any vacancy in any position listed.

§ 119.71 Management personnel: Qualifications for operations conducted under part 135 of this chapter.

(a) To serve as Director of Operations under § 119.69(a) for a certificate holder conducting any operations for which the pilot in command is required to hold an airline transport pilot certificate a person must hold an airline transport pilot certificate and either:

(1) Have at least 3 years supervisory or managerial experience within the last 6 years in a position that exercised operational control over any operations conducted under part 121 or part 135 of this chapter; or

(2) In the case of a person becoming Director of Operations -

(i) For the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(ii) In the case of a person with previous experience as a Director of Operations, have at least 3 years experience, as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(b) To serve as Director of Operations under § 119.69(a) for a certificate holder that only conducts operations for which the pilot in command is required to hold a commercial pilot certificate, a person must hold at least a commercial pilot

certificate. If an instrument rating is required for any pilot in command for that certificate holder, the Director of Operations must also hold an instrument rating. In addition, the Director of Operations must either -

(1) Have at least 3 years supervisory or managerial experience within the last 6 years in a position that exercised operational control over any operations conducted under part 121 or part 135 of this chapter; or

(2) In the case of a person becoming Director of Operations -

(i) For the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(ii) In the case of a person with previous experience as a Director of Operations, have at least 3 years experience as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(c) To serve as Chief Pilot under § 119.69(a) for a certificate holder conducting any operation for which the pilot in command is required to hold an airline transport pilot certificate a person must hold an airline transport pilot certificate with appropriate ratings and be qualified to serve as pilot in command in at least one aircraft used in the certificate holder's operation and:

(1) In the case of a person becoming a Chief Pilot for the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(2) In the case of a person with previous experience as a Chief Pilot, have at least 3 years experience as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(d) To serve as Chief Pilot under § 119.69(a) for a certificate holder that only conducts operations for which the pilot in command is required to hold a commercial pilot certificate, a person must hold at least a commercial pilot certificate. If an instrument rating is required for any pilot in command for that certificate holder, the Chief Pilot must also hold an instrument rating. The Chief Pilot must be qualified to serve as pilot in command in at least one aircraft used in the certificate holder's operation. In addition, the Chief Pilot must:

(1) In the case of a person becoming a Chief Pilot for the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(2) In the case of a person with previous experience as a Chief Pilot, have at least 3 years experience as pilot in command of an aircraft operated under part 121 or part 135 of this chapter.

(e) To serve as Director of Maintenance under § 119.69(a) a person must hold a mechanic certificate with airframe and powerplant ratings and either:

(1) Have 3 years of experience within the past 6 years maintaining aircraft as a certificated mechanic, including, at the time of appointment as Director of Maintenance,

experience in maintaining the same category and class of aircraft as the certificate holder uses; or

(2) Have 3 years of experience within the past 6 years repairing aircraft in a certificated airframe repair station, including 1 year in the capacity of approving aircraft for return to service.

(f) A certificate holder may request a deviation to employ a person who does not meet the appropriate airmen experience requirements, managerial experience requirements, or supervisory experience requirements of this section if the Manager of the Air Transportation Division, AFS-200, or the Manager of the Aircraft Maintenance Division, AFS-300, as appropriate, find that the person has comparable experience, and can effectively perform the functions associated with the position in accordance with the requirements of this chapter and the procedures outlined in the certificate holder's manual. The Administrator may, at any time, terminate any grant of deviation authority issued under this paragraph.

[Doc. No. 28154, 60 FR 65913, Dec. 20, 1995, as amended by Amdt. 119-3, 62 FR 13255, Mar. 19, 1997; Amdt. 119-12, 72 FR 54816, Sept. 27, 2007]

§ 119.73 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no certificate holder conducting operations under part 121 or 135 of this chapter may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

(1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and

(2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the certificate holder.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a certificate holder in a matter before the agency if the individual makes any written or oral communication on behalf of the certificate holder to the agency (or any of its officers or employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a certificate holder from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual was employed by the certificate holder before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52235, Aug. 22, 2011]

PART 120 - DRUG AND ALCOHOL TESTING PROGRAM

Authority:

49 U.S.C. 106(f), 106(g), 40101-40103, 40113, 40120, 41706, 41721, 44106, 44701, 44702, 44703, 44709, 44710, 44711, 45101-45105, 46105, 46306.

Source:

Docket No. FAA-2008-0937, 74 FR 22653, May 14, 2009, unless otherwise noted.

Subpart A - General

§ 120.1 Applicability.

This part applies to the following persons:

(a) All air carriers and operators certificated under part 119 of this chapter authorized to conduct operations under part 121 or part 135 of this chapter, all air traffic control facilities not operated by the FAA or by or under contract to the U.S. military; and all operators as defined in 14 CFR 91.147.

(b) All individuals who perform, either directly or by contract, a safety-sensitive function listed in subpart E or subpart F of this part.

(c) All part 145 certificate holders who perform safety-sensitive functions and elect to implement a drug and alcohol testing program under this part.

(d) All contractors who elect to implement a drug and alcohol testing program under this part.

§ 120.3 Purpose.

The purpose of this part is to establish a program designed to help prevent accidents and injuries resulting from the use of prohibited drugs or the misuse of alcohol by employees who perform safety-sensitive functions in aviation.

§ 120.5 Procedures.

Each employer having a drug and alcohol testing program under this part must ensure that all drug and alcohol testing conducted pursuant to this part complies with the procedures set forth in 49 CFR part 40.

§ 120.7 Definitions.

For the purposes of this part, the following definitions apply:

(a) *Accident* means an occurrence associated with the operation of an aircraft which takes place between the time any individual boards the aircraft with the intention of flight and all such individuals have disembarked, and in which any individual suffers death or serious injury, or in which the aircraft receives substantial damage.

(b) *Alcohol* means the intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohols, including methyl or isopropyl alcohol.

(c) *Alcohol concentration (or content)* means the alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by an evidential breath test under subpart F of this part.

(d) *Alcohol use* means the consumption of any beverage, mixture, or preparation, including any medication, containing alcohol.

(e) *Contractor* is an individual or company that performs a safety-sensitive function by contract for an employer or another contractor.

(f) *Covered employee* means an individual who performs, either directly or by contract, a safety-sensitive function listed in §§ 120.105 and 120.215 for an employer (as defined in paragraph (i) of this section). For purposes of pre-employment testing only, the term “covered employee” includes an individual applying to perform a safety-sensitive function.

(g) *DOT agency* means an agency (or “operating administration”) of the United States Department of Transportation administering regulations requiring drug and alcohol testing (14 CFR parts 61, 65, 121, and 135; 46 CFR part 16; 49 CFR parts 199, 219, and 382) in accordance with 49 CFR part 40.

(h) *Employee* is an individual who is hired, either directly or by contract, to perform a safety-sensitive function for an employer, as defined in paragraph (i) of this section. An employee is also an individual who transfers into a position to perform a safety-sensitive function for an employer.

(i) *Employer* is a part 119 certificate holder with authority to operate under parts 121 and/or 135 of this chapter, an operator as defined in § 91.147 of this chapter, or an air traffic control facility not operated by the FAA or by or under contract to the U.S. Military. An employer may use a contract employee who is not included under that employer's FAA-mandated drug and alcohol testing program to perform a safety-sensitive function only if that contract employee is included under the contractor's FAA-mandated drug and alcohol testing program and is performing a safety-sensitive function on behalf of that contractor (i.e., within the scope of employment with the contractor.)

(j) *Hire* means retaining an individual for a safety-sensitive function as a paid employee, as a volunteer, or through barter or other form of compensation.

(k) *Performing* (a safety-sensitive function): an employee is considered to be performing a safety-sensitive function during any period in which he or she is actually performing, ready to perform, or immediately available to perform such function.

(l) *Positive rate for random drug testing* means the number of verified positive results for random drug tests conducted under subpart E of this part, plus the number of refusals of random drug tests required by subpart E of this part, divided

by the total number of random drug test results (*i.e.*, positives, negatives, and refusals) under subpart E of this part.

(m) *Prohibited drug* means marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, as specified in 49 CFR 40.85.

(n) *Refusal to submit to alcohol test* means that a covered employee has engaged in conduct including but not limited to that described in 49 CFR 40.261, or has failed to remain readily available for post-accident testing as required by subpart F of this part.

(o) *Refusal to submit to drug test* means that an employee engages in conduct including but not limited to that described in 49 CFR 40.191.

(p) *Safety-sensitive function* means a function listed in §§ 120.105 and 120.215.

(q) *Verified negative drug test result* means a drug test result from an HHS-certified laboratory that has undergone review by an MRO and has been determined by the MRO to be a negative result.

(r) *Verified positive drug test result* means a drug test result from an HHS-certified laboratory that has undergone review by an MRO and has been determined by the MRO to be a positive result.

(s) *Violation rate for random alcohol testing* means the number of 0.04, and above, random alcohol confirmation test results conducted under subpart F of this part, plus the number of refusals of random alcohol tests required by subpart F of this part, divided by the total number of random alcohol screening tests (including refusals) conducted under subpart F of this part.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3153, Jan. 20, 2010]

Subpart B - Individuals Certificated Under Parts 61, 63, and 65

§ 120.11 Refusal to submit to a drug or alcohol test by a Part 61 certificate holder.

(a) This section applies to all individuals who hold a certificate under part 61 of this chapter and who are subject to drug and alcohol testing under this part.

(b) Refusal by the holder of a certificate issued under part 61 of this chapter to take a drug or alcohol test required under the provisions of this part is grounds for:

(1) Denial of an application for any certificate, rating, or authorization issued under part 61 of this chapter for a period of up to 1 year after the date of such refusal; and

(2) Suspension or revocation of any certificate, rating, or authorization issued under part 61 of this chapter.

§ 120.13 Refusal to submit to a drug or alcohol test by a Part 63 certificate holder.

(a) This section applies to all individuals who hold a certificate under part 63 of this chapter and who are subject to drug and alcohol testing under this part.

(b) Refusal by the holder of a certificate issued under part 63 of this chapter to take a drug or alcohol test required under the provisions of this part is grounds for:

(1) Denial of an application for any certificate or rating issued under part 63 of this chapter for a period of up to 1 year after the date of such refusal; and

(2) Suspension or revocation of any certificate or rating issued under part 63 of this chapter.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3153, Jan. 20, 2010]

§ 120.15 Refusal to submit to a drug or alcohol test by a Part 65 certificate holder.

(a) This section applies to all individuals who hold a certificate under part 65 of this chapter and who are subject to drug and alcohol testing under this part.

(b) Refusal by the holder of a certificate issued under part 65 of this chapter to take a drug or alcohol test required under the provisions of this part is grounds for:

(1) Denial of an application for any certificate or rating issued under part 65 of this chapter for a period of up to 1 year after the date of such refusal; and

(2) Suspension or revocation of any certificate or rating issued under part 65 of this chapter.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3153, Jan. 20, 2010]

Subpart C - Air Traffic Controllers

§ 120.17 Use of prohibited drugs.

(a) Each employer shall provide each employee performing a function listed in subpart E of this part, and his or her supervisor, with the training specified in that subpart. No employer may use any contractor to perform an air traffic control function unless that contractor provides each of its employees performing that function for the employer, and his or her supervisor, with the training specified in subpart E of this part.

(b) No employer may knowingly use any individual to perform, nor may any individual perform for an employer, either directly or by contract, any air traffic control function while that individual has a prohibited drug, as defined in this part, in his or her system.

(c) No employer shall knowingly use any individual to perform, nor may any individual perform for an employer, either directly or by contract, any air traffic control function if the individual has a verified positive drug test result on, or has refused to submit to, a drug test required by subpart E of

this part and the individual has not met the requirements of subpart E of this part for returning to the performance of safety-sensitive duties.

(d) Each employer shall test each of its employees who perform any air traffic control function in accordance with subpart E of this part. No employer may use any contractor to perform any air traffic control function unless that contractor tests each employee performing such a function for the employer in accordance with subpart E of this part.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3153, Jan. 20, 2010]

§ 120.19 Misuse of alcohol.

(a) This section applies to covered employees who perform air traffic control duties directly or by contract for an employer that is an air traffic control facility not operated by the FAA or the US military.

(b) *Alcohol concentration.* No covered employee shall report for duty or remain on duty requiring the performance of safety-sensitive functions while having an alcohol concentration of 0.04 or greater. No employer having actual knowledge that an employee has an alcohol concentration of 0.04 or greater shall permit the employee to perform or continue to perform safety-sensitive functions.

(c) *On-duty use.* No covered employee shall use alcohol while performing safety-sensitive functions. No employer having actual knowledge that a covered employee is using alcohol while performing safety-sensitive functions shall permit the employee to perform or continue to perform safety-sensitive functions.

(d) *Pre-duty use.* No covered employee shall perform air traffic control duties within 8 hours after using alcohol. No employer having actual knowledge that such an employee has used alcohol within 8 hours shall permit the employee to perform or continue to perform air traffic control duties.

(e) *Use following an accident.* No covered employee who has actual knowledge of an accident involving an aircraft for which he or she performed a safety-sensitive function at or near the time of the accident shall use alcohol for 8 hours following the accident, unless he or she has been given a post-accident test under subpart F of this part or the employer has determined that the employee's performance could not have contributed to the accident.

(f) *Refusal to submit to a required alcohol test.* A covered employee may not refuse to submit to any alcohol test required under subpart F of this part. An employer may not permit an employee who refuses to submit to such a test to perform or continue to perform safety-sensitive functions.

§ 120.21 Testing for alcohol.

(a) Each air traffic control facility not operated by the FAA or the U.S. military must establish an alcohol testing program in accordance with the provisions of subpart F of this part.

(b) No employer shall use any individual who meets the definition of covered employee in subpart A of this part to

perform a safety-sensitive function listed in subpart F of this part unless that individual is subject to testing for alcohol misuse in accordance with the provisions of that subpart.

Subpart D - Part 119 Certificate Holders Authorized To Conduct Operations under Part 121 or Part 135 or Operators Under § 91.147 of This Chapter and Safety-Sensitive Employees

§ 120.31 Prohibited drugs.

(a) Each certificate holder or operator shall provide each employee performing a function listed in subpart E of this part, and his or her supervisor, with the training specified in that subpart.

(b) No certificate holder or operator may use any contractor to perform a function listed in subpart E of this part unless that contractor provides each of its employees performing that function for the certificate holder or operator, and his or her supervisor, with the training specified in that subpart.

§ 120.33 Use of prohibited drugs.

(a) This section applies to individuals who perform a function listed in subpart E of this part for a certificate holder or operator. For the purpose of this section, an individual who performs such a function pursuant to a contract with the certificate holder or the operator is considered to be performing that function for the certificate holder or the operator.

(b) No certificate holder or operator may knowingly use any individual to perform, nor may any individual perform for a certificate holder or an operator, either directly or by contract, any function listed in subpart E of this part while that individual has a prohibited drug, as defined in this part, in his or her system.

(c) No certificate holder or operator shall knowingly use any individual to perform, nor shall any individual perform for a certificate holder or operator, either directly or by contract, any safety-sensitive function if that individual has a verified positive drug test result on, or has refused to submit to, a drug test required by subpart E of this part and the individual has not met the requirements of that subpart for returning to the performance of safety-sensitive duties.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3153, Jan. 20, 2010]

§ 120.35 Testing for prohibited drugs.

(a) Each certificate holder or operator shall test each of its employees who perform a function listed in subpart E of this part in accordance with that subpart.

(b) Except as provided in paragraph (c) of this section, no certificate holder or operator may use any contractor to perform a function listed in subpart E of this part unless that contractor tests each employee performing such a function

for the certificate holder or operator in accordance with that subpart.

(c) If a certificate holder conducts an on-demand operation into an airport at which no maintenance providers are available that are subject to the requirements of subpart E of this part and emergency maintenance is required, the certificate holder may use individuals not meeting the requirements of paragraph (b) of this section to provide such emergency maintenance under both of the following conditions:

(1) The certificate holder must give written notification of the emergency maintenance to the Drug Abatement Program Division, AAM-800, 800 Independence Avenue, SW., Washington, DC 20591, within 10 days after being provided same in accordance with this paragraph. A certificate holder must retain copies of all such written notifications for two years.

(2) The aircraft must be reinspected by maintenance personnel who meet the requirements of paragraph (b) of this section when the aircraft is next at an airport where such maintenance personnel are available.

(d) For purposes of this section, emergency maintenance means maintenance that -

(1) Is not scheduled and

(2) Is made necessary by an aircraft condition not discovered prior to the departure for that location.

§ 120.37 Misuse of alcohol.

(a) *General.* This section applies to covered employees who perform a function listed in subpart F of this part for a certificate holder. For the purpose of this section, an individual who meets the definition of covered employee in subpart F of this part is considered to be performing the function for the certificate holder.

(b) *Alcohol concentration.* No covered employee shall report for duty or remain on duty requiring the performance of safety-sensitive functions while having an alcohol concentration of 0.04 or greater. No certificate holder having actual knowledge that an employee has an alcohol concentration of 0.04 or greater shall permit the employee to perform or continue to perform safety-sensitive functions.

(c) *On-duty use.* No covered employee shall use alcohol while performing safety-sensitive functions. No certificate holder having actual knowledge that a covered employee is using alcohol while performing safety-sensitive functions shall permit the employee to perform or continue to perform safety-sensitive functions.

(d) *Pre-duty use.* (1) No covered employee shall perform flight crewmember or flight attendant duties within 8 hours after using alcohol. No certificate holder having actual knowledge that such an employee has used alcohol within 8 hours shall permit the employee to perform or continue to perform the specified duties.

(2) No covered employee shall perform safety-sensitive duties other than those specified in paragraph (d)(1) of this section within 4 hours after using alcohol. No certificate holder

having actual knowledge that such an employee has used alcohol within 4 hours shall permit the employee to perform or to continue to perform safety-sensitive functions.

(e) *Use following an accident.* No covered employee who has actual knowledge of an accident involving an aircraft for which he or she performed a safety-sensitive function at or near the time of the accident shall use alcohol for 8 hours following the accident, unless he or she has been given a post-accident test under subpart F of this part, or the employer has determined that the employee's performance could not have contributed to the accident.

(f) *Refusal to submit to a required alcohol test.* A covered employee must not refuse to submit to any alcohol test required under subpart F of this part. A certificate holder must not permit an employee who refuses to submit to such a test to perform or continue to perform safety-sensitive functions.

§ 120.39 Testing for alcohol.

(a) Each certificate holder must establish an alcohol testing program in accordance with the provisions of subpart F of this part.

(b) Except as provided in paragraph (c) of this section, no certificate holder or operator may use any individual who meets the definition of covered employee in subpart A of this part to perform a safety-sensitive function listed in that subpart F of this part unless that individual is subject to testing for alcohol misuse in accordance with the provisions of that subpart.

(c) If a certificate holder conducts an on-demand operation into an airport at which no maintenance providers are available that are subject to the requirements of subpart F of this part and emergency maintenance is required, the certificate holder may use individuals not meeting the requirements of paragraph (b) of this section to provide such emergency maintenance under both of the following conditions:

(1) The certificate holder must give written notification of the emergency maintenance to the Drug Abatement Program Division, AAM-800, 800 Independence Avenue, SW., Washington, DC 20591, within 10 days after being provided same in accordance with this paragraph. A certificate holder must retain copies of all such written notifications for two years.

(2) The aircraft must be reinspected by maintenance personnel who meet the requirements of paragraph (b) of this section when the aircraft is next at an airport where such maintenance personnel are available.

(d) For purposes of this section, emergency maintenance means maintenance that -

(1) Is not scheduled and

(2) Is made necessary by an aircraft condition not discovered prior to the departure for that location.

Subpart E - Drug Testing Program Requirements

§ 120.101 Scope.

This subpart contains the standards and components that must be included in a drug testing program required by this part.

§ 120.103 General.

(a) *Purpose.* The purpose of this subpart is to establish a program designed to help prevent accidents and injuries resulting from the use of prohibited drugs by employees who perform safety-sensitive functions.

(b) *DOT procedures.* (1) Each employer shall ensure that drug testing programs conducted pursuant to 14 CFR parts 65, 91, 121, and 135 comply with the requirements of this subpart and the “Procedures for Transportation Workplace Drug Testing Programs” published by the Department of Transportation (DOT) (49 CFR part 40).

(2) An employer may not use or contract with any drug testing laboratory that is not certified by the Department of Health and Human Services (HHS) under the National Laboratory Certification Program.

(c) *Employer responsibility.* As an employer, you are responsible for all actions of your officials, representatives, and service agents in carrying out the requirements of this subpart and 49 CFR part 40.

(d) *Applicable Federal Regulations.* The following applicable regulations appear in 49 CFR or 14 CFR:

(1) 49 CFR Part 40 - Procedures for Transportation Workplace Drug Testing Programs

(2) 14 CFR:

(i) § 67.107 - First-Class Airman Medical Certificate, Mental.

(ii) § 67.207 - Second-Class Airman Medical Certificate, Mental.

(iii) § 67.307 - Third-Class Airman Medical Certificate, Mental.

(iv) § 91.147 - Passenger carrying flight for compensation or hire.

(v) § 135.1 - Applicability

(e) *Falsification.* No individual may make, or cause to be made, any of the following:

(1) Any fraudulent or intentionally false statement in any application of a drug testing program.

(2) Any fraudulent or intentionally false entry in any record or report that is made, kept, or used to show compliance with this part.

(3) Any reproduction or alteration, for fraudulent purposes, of any report or record required to be kept by this part.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3153, Jan. 20, 2010]

§ 120.105 Employees who must be tested.

Each employee, including any assistant, helper, or individual in a training status, who performs a safety-sensitive function listed in this section directly or by contract (including by subcontract at any tier) for an employer as defined in this subpart must be subject to drug testing under a drug testing program implemented in accordance with this subpart. This includes full-time, part-time, temporary, and intermittent employees regardless of the degree of supervision. The safety-sensitive functions are:

- (a) Flight crewmember duties.
- (b) Flight attendant duties.
- (c) Flight instruction duties.
- (d) Aircraft dispatcher duties.
- (e) Aircraft maintenance and preventive maintenance duties.
- (f) Ground security coordinator duties.
- (g) Aviation screening duties.
- (h) Air traffic control duties.
- (i) Operations control specialist duties.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009, as amended by Amdt. 120-2, 79 FR 9973, Feb. 21, 2014]

§ 120.107 Substances for which testing must be conducted.

Each employer shall test each employee who performs a safety-sensitive function for evidence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines during each test required by § 120.109.

§ 120.109 Types of drug testing required.

Each employer shall conduct the types of testing described in this section in accordance with the procedures set forth in this subpart and the DOT “Procedures for Transportation Workplace Drug Testing Programs” (49 CFR part 40).

(a) *Pre-employment drug testing.* (1) No employer may hire any individual for a safety-sensitive function listed in § 120.105 unless the employer first conducts a pre-employment test and receives a verified negative drug test result for that individual.

(2) No employer may allow an individual to transfer from a nonsafety-sensitive to a safety-sensitive function unless the employer first conducts a pre-employment test and receives a verified negative drug test result for the individual.

(3) Employers must conduct another pre-employment test and receive a verified negative drug test result before hiring or transferring an individual into a safety-sensitive function if more than 180 days elapse between conducting the pre-employment test required by paragraphs (a)(1) or (2) of this section and hiring or transferring the individual into a safety-sensitive function, resulting in that individual being brought under an FAA drug testing program.

(4) If the following criteria are met, an employer is permitted to conduct a pre-employment test, and if such a test

is conducted, the employer must receive a negative test result before putting the individual into a safety-sensitive function:

(i) The individual previously performed a safety-sensitive function for the employer and the employer is not required to pre-employment test the individual under paragraphs (a)(1) or (2) of this section before putting the individual to work in a safety-sensitive function;

(ii) The employer removed the individual from the employer's random testing program conducted under this subpart for reasons other than a verified positive test result on an FAA-mandated drug test or a refusal to submit to such testing; and

(iii) The individual will be returning to the performance of a safety-sensitive function.

(5) Before hiring or transferring an individual to a safety-sensitive function, the employer must advise each individual that the individual will be required to undergo pre-employment testing in accordance with this subpart, to determine the presence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, or a metabolite of those drugs in the individual's system. The employer shall provide this same notification to each individual required by the employer to undergo pre-employment testing under paragraph (a)(4) of this section.

(b) *Random drug testing.* (1) Except as provided in paragraphs (b)(2) through (b)(4) of this section, the minimum annual percentage rate for random drug testing shall be 50 percent of covered employees.

(2) The Administrator's decision to increase or decrease the minimum annual percentage rate for random drug testing is based on the reported positive rate for the entire industry. All information used for this determination is drawn from the statistical reports required by § 120.119. In order to ensure reliability of the data, the Administrator considers the quality and completeness of the reported data, may obtain additional information or reports from employers, and may make appropriate modifications in calculating the industry positive rate. Each year, the Administrator will publish in the Federal Register the minimum annual percentage rate for random drug testing of covered employees. The new minimum annual percentage rate for random drug testing will be applicable starting January 1 of the calendar year following publication.

(3) When the minimum annual percentage rate for random drug testing is 50 percent, the Administrator may lower this rate to 25 percent of all covered employees if the Administrator determines that the data received under the reporting requirements of this subpart for two consecutive calendar years indicate that the reported positive rate is less than 1.0 percent.

(4) When the minimum annual percentage rate for random drug testing is 25 percent, and the data received under the reporting requirements of this subpart for any calendar year indicate that the reported positive rate is equal to or greater than 1.0 percent, the Administrator will increase the minimum

annual percentage rate for random drug testing to 50 percent of all covered employees.

(5) The selection of employees for random drug testing shall be made by a scientifically valid method, such as a random-number table or a computer-based random number generator that is matched with employees' Social Security numbers, payroll identification numbers, or other comparable identifying numbers. Under the selection process used, each covered employee shall have an equal chance of being tested each time selections are made.

(6) As an employer, you must select and test a percentage of employees at least equal to the minimum annual percentage rate each year.

(i) As an employer, to determine whether you have met the minimum annual percentage rate, you must divide the number of random testing results for safety-sensitive employees by the average number of safety-sensitive employees eligible for random testing.

(A) To calculate whether you have met the annual minimum percentage rate, count all random positives, random negatives, and random refusals as your "random testing results."

(B) To calculate the average number of safety-sensitive employees eligible for random testing throughout the year, add the total number of safety-sensitive employees eligible for testing during each random testing period for the year and divide that total by the number of random testing periods. Only safety-sensitive employees are to be in an employer's random testing pool, and all safety-sensitive employees must be in the random pool. If you are an employer conducting random testing more often than once per month (*e.g.*, you select daily, weekly, bi-weekly) you do not need to compute this total number of safety-sensitive employees more than on a once per month basis.

(ii) As an employer, you may use a service agent to perform random selections for you, and your safety-sensitive employees may be part of a larger random testing pool of safety-sensitive employees. However, you must ensure that the service agent you use is testing at the appropriate percentage established for your industry and that only safety-sensitive employees are in the random testing pool. For example:

(A) If the service agent has your employees in a random testing pool for your company alone, you must ensure that the testing is conducted at least at the minimum annual percentage rate under this part.

(B) If the service agent has your employees in a random testing pool combined with other FAA-regulated companies, you must ensure that the testing is conducted at least at the minimum annual percentage rate under this part.

(C) If the service agent has your employees in a random testing pool combined with other DOT-regulated companies, you must ensure that the testing is conducted at least at the highest rate required for any DOT-regulated company in the pool.

(7) Each employer shall ensure that random drug tests conducted under this subpart are unannounced and that the dates for administering random tests are spread reasonably throughout the calendar year.

(8) Each employer shall require that each safety-sensitive employee who is notified of selection for random drug testing proceeds to the collection site immediately; provided, however, that if the employee is performing a safety-sensitive function at the time of the notification, the employer shall instead ensure that the employee ceases to perform the safety-sensitive function and proceeds to the collection site as soon as possible.

(9) If a given covered employee is subject to random drug testing under the drug testing rules of more than one DOT agency, the employee shall be subject to random drug testing at the percentage rate established for the calendar year by the DOT agency regulating more than 50 percent of the employee's function.

(10) If an employer is required to conduct random drug testing under the drug testing rules of more than one DOT agency, the employer may -

(i) Establish separate pools for random selection, with each pool containing the covered employees who are subject to testing at the same required rate; or

(ii) Randomly select covered employees for testing at the highest percentage rate established for the calendar year by any DOT agency to which the employer is subject.

(11) An employer required to conduct random drug testing under the anti-drug rules of more than one DOT agency shall provide each such agency access to the employer's records of random drug testing, as determined to be necessary by the agency to ensure the employer's compliance with the rule.

(c) *Post-accident drug testing.* Each employer shall test each employee who performs a safety-sensitive function for the presence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, or a metabolite of those drugs in the employee's system if that employee's performance either contributed to an accident or can not be completely discounted as a contributing factor to the accident. The employee shall be tested as soon as possible but not later than 32 hours after the accident. The decision not to administer a test under this section must be based on a determination, using the best information available at the time of the determination, that the employee's performance could not have contributed to the accident. The employee shall submit to post-accident testing under this section.

(d) *Drug testing based on reasonable cause.* Each employer must test each employee who performs a safety-sensitive function and who is reasonably suspected of having used a prohibited drug. The decision to test must be based on a reasonable and articulable belief that the employee is using a prohibited drug on the basis of specific contemporaneous physical, behavioral, or performance indicators of probable drug use. At least two of the employee's supervisors, one of whom is trained in detection of the symptoms of possible drug

use, must substantiate and concur in the decision to test an employee who is reasonably suspected of drug use; except that in the case of an employer, other than a part 121 certificate holder, who employs 50 or fewer employees who perform safety-sensitive functions, one supervisor who is trained in detection of symptoms of possible drug use must substantiate the decision to test an employee who is reasonably suspected of drug use.

(e) *Return to duty drug testing.* Each employer shall ensure that before an individual is returned to duty to perform a safety-sensitive function after refusing to submit to a drug test required by this subpart or receiving a verified positive drug test result on a test conducted under this subpart the individual shall undergo a return-to-duty drug test. No employer shall allow an individual required to undergo return-to-duty testing to perform a safety-sensitive function unless the employer has received a verified negative drug test result for the individual. The test cannot occur until after the SAP has determined that the employee has successfully complied with the prescribed education and/or treatment.

(f) *Follow-up drug testing.* (1) Each employer shall implement a reasonable program of unannounced testing of each individual who has been hired to perform or who has been returned to the performance of a safety-sensitive function after refusing to submit to a drug test required by this subpart or receiving a verified positive drug test result on a test conducted under this subpart.

(2) The number and frequency of such testing shall be determined by the employer's Substance Abuse Professional conducted in accordance with the provisions of 49 CFR part 40, but shall consist of at least six tests in the first 12 months following the employee's return to duty.

(3) The employer must direct the employee to undergo testing for alcohol in accordance with subpart F of this part, in addition to drugs, if the Substance Abuse Professional determines that alcohol testing is necessary for the particular employee. Any such alcohol testing shall be conducted in accordance with the provisions of 49 CFR part 40.

(4) Follow-up testing shall not exceed 60 months after the date the individual begins to perform or returns to the performance of a safety-sensitive function. The Substance Abuse Professional may terminate the requirement for follow-up testing at any time after the first six tests have been conducted, if the Substance Abuse Professional determines that such testing is no longer necessary.

§ 120.111 Administrative and other matters.

(a) *MRO record retention requirements.* (1) Records concerning drug tests confirmed positive by the laboratory shall be maintained by the MRO for 5 years. Such records include the MRO copies of the custody and control form, medical interviews, documentation of the basis for verifying as negative test results confirmed as positive by the laboratory, any other documentation concerning the MRO's verification process.

(2) Should the employer change MRO's for any reason, the employer shall ensure that the former MRO forwards all records maintained pursuant to this rule to the new MRO within ten working days of receiving notice from the employer of the new MRO's name and address.

(3) Any employer obtaining MRO services by contract, including a contract through a C/TPA, shall ensure that the contract includes a recordkeeping provision that is consistent with this paragraph, including requirements for transferring records to a new MRO.

(b) *Access to records.* The employer and the MRO shall permit the Administrator or the Administrator's representative to examine records required to be kept under this subpart and 49 CFR part 40. The Administrator or the Administrator's representative may require that all records maintained by the service agent for the employer must be produced at the employer's place of business.

(c) *Release of drug testing information.* An employer shall release information regarding an employee's drug testing results, evaluation, or rehabilitation to a third party in accordance with 49 CFR part 40. Except as required by law, this subpart, or 49 CFR part 40, no employer shall release employee information.

(d) *Refusal to submit to testing.* Each employer must notify the FAA within 2 working days of any employee who holds a certificate issued under part 61, part 63, or part 65 of this chapter who has refused to submit to a drug test required under this subpart. Notification must be sent to: Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591, or by fax to (202) 267-5200.

(e) *Permanent disqualification from service.* (1) An employee who has verified positive drug test results on two drug tests required by this subpart of this chapter, and conducted after September 19, 1994, is permanently precluded from performing for an employer the safety-sensitive duties the employee performed prior to the second drug test.

(2) An employee who has engaged in prohibited drug use during the performance of a safety-sensitive function after September 19, 1994 is permanently precluded from performing that safety-sensitive function for an employer.

(f) *DOT management information system annual reports.* Copies of any annual reports submitted to the FAA under this subpart must be maintained by the employer for a minimum of 5 years.

§ 120.113 Medical Review Officer, Substance Abuse Professional, and Employer Responsibilities.

(a) The employer shall designate or appoint a Medical Review Officer (MRO) who shall be qualified in accordance with 49 CFR part 40 and shall perform the functions set forth in 49 CFR part 40 and this subpart. If the employer does not have a qualified individual on staff to serve as MRO, the employer may contract for the provision of MRO services as part of its drug testing program.

(b) *Medical Review Officer (MRO).* The MRO must perform the functions set forth in subpart G of 49 CFR part 40, and subpart E of this part. The MRO shall not delay verification of the primary test result following a request for a split specimen test unless such delay is based on reasons other than the fact that the split specimen test result is pending. If the primary test result is verified as positive, actions required under this rule (e.g., notification to the Federal Air Surgeon, removal from safety-sensitive position) are not stayed during the 72-hour request period or pending receipt of the split specimen test result.

(c) *Substance Abuse Professional (SAP).* The SAP must perform the functions set forth in 49 CFR part 40, subpart O.

(d) *Additional Medical Review Officer, Substance Abuse Professional, and Employer Responsibilities Regarding 14 CFR part 67 Airman Medical Certificate Holders.* (1) As part of verifying a confirmed positive test result or refusal to submit to a test, the MRO must ask and the individual must answer whether he or she holds an airman medical certificate issued under 14 CFR part 67 or would be required to hold an airman medical certificate to perform a safety-sensitive function for the employer. If the individual answers in the affirmative to either question, in addition to notifying the employer in accordance with 49 CFR part 40, the MRO must forward to the Federal Air Surgeon, at the address listed in paragraph (d)(5) of this section, the name of the individual, along with identifying information and supporting documentation, within 2 working days after verifying a positive drug test result or refusal to submit to a test.

(2) During the SAP interview required for a verified positive test result or a refusal to submit to a test, the SAP must ask and the individual must answer whether he or she holds or would be required to hold an airman medical certificate issued under 14 CFR part 67 to perform a safety-sensitive function for the employer. If the individual answers in the affirmative, the individual must obtain an airman medical certificate issued by the Federal Air Surgeon dated after the verified positive drug test result date or refusal to test date. After the individual obtains this airman medical certificate, the SAP may recommend to the employer that the individual may be returned to a safety-sensitive position. The receipt of an airman medical certificate does not alter any obligations otherwise required by 49 CFR part 40 or this subpart.

(3) An employer must forward to the Federal Air Surgeon within 2 working days of receipt, copies of all reports provided to the employer by a SAP regarding the following:

(i) An individual who the MRO has reported to the Federal Air Surgeon under § 120.113 (d)(1); or

(ii) An individual who the employer has reported to the Federal Air Surgeon under § 120.111(d).

(4) The employer must not permit an employee who is required to hold an airman medical certificate under 14 CFR part 67 to perform a safety-sensitive duty to resume that duty until the employee has:

(i) Been issued an airman medical certificate from the Federal Air Surgeon after the date of the verified positive drug test result or refusal to test; and

(ii) Met the return to duty requirements in accordance with 49 CFR part 40.

(5) Reports required under this section shall be forwarded to the Federal Air Surgeon, Federal Aviation Administration, Office of Aerospace Medicine, Attn: Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591.

(6) MROs, SAPs, and employers who send reports to the Federal Air Surgeon must keep a copy of each report for 5 years.

§ 120.115 Employee Assistance Program (EAP).

(a) The employer shall provide an EAP for employees. The employer may establish the EAP as a part of its internal personnel services or the employer may contract with an entity that will provide EAP services to an employee. Each EAP must include education and training on drug use for employees and training for supervisors making determinations for testing of employees based on reasonable cause.

(b) *EAP education program.* (1) Each EAP education program must include at least the following elements:

(i) Display and distribution of informational material;

(ii) Display and distribution of a community service hot-line telephone number for employee assistance; and

(iii) Display and distribution of the employer's policy regarding drug use in the workplace.

(2) The employer's policy shall include information regarding the consequences under the rule of using drugs while performing safety-sensitive functions, receiving a verified positive drug test result, or refusing to submit to a drug test required under the rule.

(c) *EAP training program.* (1) Each employer shall implement a reasonable program of initial training for

employees. The employee training program must include at least the following elements:

(i) The effects and consequences of drug use on individual health, safety, and work environment;

(ii) The manifestations and behavioral cues that may indicate drug use and abuse; and

(2) The employer's supervisory personnel who will determine when an employee is subject to testing based on reasonable cause shall receive specific training on specific, contemporaneous physical, behavioral, and performance indicators of probable drug use in addition to the training specified in § 120.115 (c).

(3) The employer shall ensure that supervisors who will make reasonable cause determinations receive at least 60 minutes of initial training.

(4) The employer shall implement a reasonable recurrent training program for supervisory personnel making reasonable cause determinations during subsequent years.

(5) Documentation of all training given to employees and supervisory personnel must be included in the training program.

(6) The employer shall identify the employee and supervisor EAP training in the employer's drug testing program.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009, as amended by Amdt. 120-1, 78 FR 42003, July 15, 2013]

§ 120.117 Implementing a drug testing program.

(a) Each company must meet the requirements of this subpart. Use the following chart to determine whether your company must obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification, Letter of Authorization, or Drug and Alcohol Testing Program Registration from the FAA:

| If you are . . . | You must . . . |
|---|--|
| (1) A part 119 certificate holder with authority to operate under parts 121 or 135 | Obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification by contacting your FAA Principal Operations Inspector. |
| (2) An operator as defined in § 91.147 of this chapter | Obtain a Letter of Authorization by contacting the Flight Standards District Office nearest to your principal place of business. |
| (3) A part 119 certificate holder with authority to operate under parts 121 or 135 and an operator as defined in § 91.147 of this chapter | Complete the requirements in paragraphs 1 and 2 of this chart and advise the Flight Standards District Office and the Drug Abatement Division that the § 91.147 operation will be included under the part 119 testing program. Contact the Drug Abatement Division at FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591. |
| (4) An air traffic control facility not operated by the FAA or by or under contract to the U.S. Military | Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591. |

| If you are . . . | You must . . . |
|---|---|
| (5) A part 145 certificate holder who has your own drug testing program | Obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification by contacting your Principal Maintenance Inspector or register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591, if you opt to conduct your own drug testing program. |
| (6) A contractor who has your own drug testing program | Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591, if you opt to conduct your own drug testing program. |
| <p>(b) Use the following chart for implementing a drug testing program if you are applying for a part 119 certificate with authority to operate under parts 121 or 135 of this chapter, if you intend to begin operations as defined in § 91.147 of this chapter, or if you intend to begin air traffic control operations (not operated by the FAA or by or under contract</p> | <p>to the U.S. Military). Use it to determine whether you need to have an Antidrug and Alcohol Misuse Prevention Program Operations Specification, Letter of Authorization, or Drug and Alcohol Testing Program Registration from the FAA. Your employees who perform safety-sensitive functions must be tested in accordance with this subpart. The chart follows:</p> |
| If you . . . | You must . . . |
| (1) Apply for a part 119 certificate with authority to operate under parts 121 or 135 | (i) Have an Antidrug and Alcohol Misuse Prevention Program Operations Specification, |
| | (ii) Implement an FAA drug testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| (2) Intend to begin operations as defined in § 91.147 of this chapter | (i) Have a Letter of Authorization, |
| | (ii) Implement an FAA drug testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| (3) Apply for a part 119 certificate with authority to operate under parts 121 or 135 and intend to begin operations as defined in § 91.147 of this chapter | (i) Have an Antidrug and Alcohol Misuse Prevention Program Operations Specification and a Letter of Authorization, |
| | (ii) Implement your combined FAA drug testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| (4) Intend to begin air traffic control operations (at an air traffic control facility not operated by the FAA or by or under contract to the U.S. military) | (i) Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591, prior to starting operations, |
| | (ii) Implement an FAA drug testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| <p>(c) If you are an individual or company that intends to provide safety-sensitive services by contract to a part 119 certificate holder with authority to operate under parts 121 and/ or 135 of this chapter, an operation as defined in § 91.147 of</p> | <p>this chapter, or an air traffic control facility not operated by the FAA or by or under contract to the U.S. military, use the following chart to determine what you must do if you opt to have your own drug testing program.</p> |
| If you . . . | And you opt to conduct your own drug program, you must . . . |
| (1) Are a part 145 certificate holder | (i) Have an Antidrug and Alcohol Misuse Prevention Program Operations Specification or register with the FAA, Office of |

| If you . . . | And you opt to conduct your own drug program, you must . . . |
|----------------------|--|
| | Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591, |
| | (ii) Implement an FAA drug testing program no later than the date you start performing safety-sensitive functions for a part 119 certificate holder with authority to operate under parts 121 or 135, or operator as defined in § 91.147 of this chapter, and |
| | (iii) Meet the requirements of this subpart as if you were an employer. |
| (2) Are a contractor | (i) Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591, |
| | (ii) Implement an FAA drug testing program no later than the date you start performing safety-sensitive functions for a part 119 certificate holder with authority to operate under parts 121 or 135, or operator as defined in § 91.147 of this chapter, or an air traffic control facility not operated by the FAA or by or under contract to the U.S. Military, and |
| | (iii) Meet the requirements of this subpart as if you were an employer. |

(d) *Obtaining an Antidrug and Alcohol Misuse Prevention Program Operations Specification.* (1) To obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification, you must contact your FAA Principal Operations Inspector or Principal Maintenance Inspector. Provide him/her with the following information:

- (i) Company name.
- (ii) Certificate number.
- (iii) Telephone number.
- (iv) Address where your drug and alcohol testing program records are kept.
- (v) Whether you have 50 or more safety-sensitive employees, or 49 or fewer safety-sensitive employees. (Part 119 certificate holders with authority to operate only under part 121 of this chapter are not required to provide this information.)

(2) You must certify on your Antidrug and Alcohol Misuse Prevention Program Operations Specification issued by your FAA Principal Operations Inspector or Principal Maintenance Inspector that you will comply with this part and 49 CFR part 40.

(3) You are required to obtain only one Antidrug and Alcohol Misuse Prevention Program Operations Specification to satisfy this requirement under this part.

(4) You must update the Antidrug and Alcohol Misuse Prevention Program Operations Specification when any changes to the information contained in the Operation Specification occur.

(e) *Register your Drug and Alcohol Testing Program by obtaining a Letter of Authorization from the FAA in accordance with § 91.147.* (1) A drug and alcohol testing program is considered registered when the following

information is submitted to the Flight Standards District Office nearest your principal place of business:

- (i) Company name.
- (ii) Telephone number.
- (iii) Address where your drug and alcohol testing program records are kept.
- (iv) Type of safety-sensitive functions you or your employees perform (such as flight instruction duties, aircraft dispatcher duties, maintenance or preventive maintenance duties, ground security coordinator duties, aviation screening duties, air traffic control duties).
- (v) Whether you have 50 or more covered employees, or 49 or fewer covered employees.
- (vi) A signed statement indicating that your company will comply with this part and 49 CFR part 40.

(2) This Letter of Authorization will satisfy the requirements for both your drug testing program under this subpart and your alcohol testing program under subpart F of this part.

(3) Update the Letter of Authorization information as changes occur. Send the updates to the Flight Standards District Office nearest your principal place of business.

(4) If you are a part 119 certificate holder with authority to operate under parts 121 or 135 and intend to begin operations as defined in § 91.147 of this chapter, you must also advise the Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591.

(f) *Obtaining a Drug and Alcohol Testing Program Registration from the FAA.* (1) Except as provided in paragraphs (d) and (e) of this section, to obtain a Drug and Alcohol Testing Program Registration from the FAA,

you must submit the following information to the Office of Aerospace Medicine, Drug Abatement Division:

- (i) Company name.
 - (ii) Telephone number.
 - (iii) Address where your drug and alcohol testing program records are kept.
 - (iv) Type of safety-sensitive functions you or your employees perform (such as flight instruction duties, aircraft dispatcher duties, maintenance or preventive maintenance duties, ground security coordinator duties, aviation screening duties, air traffic control duties).
 - (v) Whether you have 50 or more covered employees, or 49 or fewer covered employees.
 - (vi) A signed statement indicating that: your company will comply with this part and 49 CFR part 40; and you intend to provide safety-sensitive functions by contract (including subcontract at any tier) to a part 119 certificate holder with authority to operate under part 121 or part 135 of this chapter, an operator as defined in § 91.147 of this chapter, or an air traffic control facility not operated by the FAA or by or under contract to the U.S. military.
- (2) Send this information to the Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591.
 - (3) This Drug and Alcohol Testing Program Registration will satisfy the registration requirements for both your drug testing program under this subpart and your alcohol testing program under subpart F of this part.
 - (4) Update the registration information as changes occur. Send the updates to the address specified in paragraph (f)(2) of this section.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3154, Jan. 20, 2010, as amended by Amdt. 120-1, 78 FR 42003, July 15, 2013]

§ 120.119 Annual reports.

(a) Annual reports of testing results must be submitted to the FAA by March 15 of the succeeding calendar year for the prior calendar year (January 1 through December 31) in accordance with the following provisions:

- (1) Each part 121 certificate holder shall submit an annual report each year.
- (2) Each entity conducting a drug testing program under this part, other than a part 121 certificate holder, that has 50 or more employees performing a safety-sensitive function on January 1 of any calendar year shall submit an annual report to the FAA for that calendar year.
- (3) The Administrator reserves the right to require that aviation employers not otherwise required to submit annual reports prepare and submit such reports to the FAA. Employers that will be required to submit annual reports under this provision will be notified in writing by the FAA.

(b) As an employer, you must use the Management Information System (MIS) form and instructions as

required by 49 CFR part 40 (at 49 CFR 40.26 and appendix H to 49 CFR part 40). You may also use the electronic version of the MIS form provided by DOT. The Administrator may designate means (e.g., electronic program transmitted via the Internet) other than hard-copy, for MIS form submission. For information on where to submit MIS forms and for the electronic version of the form, see: http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/drug_alcohol.

(c) A service agent may prepare the MIS report on behalf of an employer. However, a company official (e.g., Designated Employer Representative as defined in 49 CFR part 40) must certify the accuracy and completeness of the MIS report, no matter who prepares it.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3154, Jan. 20, 2010]

§ 120.121 Preemption.

(a) The issuance of 14 CFR parts 65, 91, 121, and 135 by the FAA preempts any State or local law, rule, regulation, order, or standard covering the subject matter of 14 CFR parts 65, 91, 121, and 135, including but not limited to, drug testing of aviation personnel performing safety-sensitive functions.

(b) The issuance of 14 CFR parts 65, 91, 121, and 135 does not preempt provisions of state criminal law that impose sanctions for reckless conduct of an individual that leads to actual loss of life, injury, or damage to property whether such provisions apply specifically to aviation employees or generally to the public.

§ 120.123 Drug testing outside the territory of the United States.

(a) No part of the testing process (including specimen collection, laboratory processing, and MRO actions) shall be conducted outside the territory of the United States.

(1) Each employee who is assigned to perform safety-sensitive functions solely outside the territory of the United States shall be removed from the random testing pool upon the inception of such assignment.

(2) Each covered employee who is removed from the random testing pool under this section shall be returned to the random testing pool when the employee resumes the performance of safety-sensitive functions wholly or partially within the territory of the United States.

(b) The provisions of this subpart shall not apply to any individual who performs a function listed in § 120.105 by contract for an employer outside the territory of the United States.

§ 120.125 Waivers from 49 CFR 40.21.

An employer subject to this part may petition the Drug Abatement Division, Office of Aerospace Medicine, for a waiver allowing the employer to stand down an employee following a report of a laboratory confirmed positive drug test or refusal, pending the outcome of the verification process.

(a) Each petition for a waiver must be in writing and include substantial facts and justification to support the waiver. Each petition must satisfy the substantive requirements for obtaining a waiver, as provided in 49 CFR 40.21.

(b) Each petition for a waiver must be submitted to the Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591.

(c) The Administrator may grant a waiver subject to 49 CFR 40.21(d).

Subpart F - Alcohol Testing Program Requirements

§ 120.201 Scope.

This subpart contains the standards and components that must be included in an alcohol testing program required by this part.

§ 120.203 General.

(a) *Purpose.* The purpose of this subpart is to establish programs designed to help prevent accidents and injuries resulting from the misuse of alcohol by employees who perform safety-sensitive functions in aviation.

(b) *Alcohol testing procedures.* Each employer shall ensure that all alcohol testing conducted pursuant to this subpart complies with the procedures set forth in 49 CFR part 40. The provisions of 49 CFR part 40 that address alcohol testing are made applicable to employers by this subpart.

(c) *Employer responsibility.* As an employer, you are responsible for all actions of your officials, representatives, and service agents in carrying out the requirements of the DOT agency regulations.

§ 120.205 Preemption of State and local laws.

(a) Except as provided in paragraph (a)(2) of this section, these regulations preempt any State or local law, rule, regulation, or order to the extent that:

(1) Compliance with both the State or local requirement and this subpart is not possible; or

(2) Compliance with the State or local requirement is an obstacle to the accomplishment and execution of any requirement in this subpart.

(b) The alcohol testing requirements of this title shall not be construed to preempt provisions of State criminal law that impose sanctions for reckless conduct leading to actual loss of life, injury, or damage to property, whether the provisions apply specifically to transportation employees or employers or to the general public.

§ 120.207 Other requirements imposed by employers.

Except as expressly provided in these alcohol testing requirements, nothing in this subpart shall be construed to

affect the authority of employers, or the rights of employees, with respect to the use or possession of alcohol, including any authority and rights with respect to alcohol testing and rehabilitation.

§ 120.209 Requirement for notice.

Before performing an alcohol test under this subpart, each employer shall notify a covered employee that the alcohol test is required by this subpart. No employer shall falsely represent that a test is administered under this subpart.

§ 120.211 Applicable Federal regulations.

The following applicable regulations appear in 49 CFR and 14 CFR:

(a) 49 CFR Part 40 - Procedures for Transportation Workplace Drug Testing Programs

(b) 14 CFR:

(1) § 67.107 - First-Class Airman Medical Certificate, Mental.

(2) § 67.207 - Second-Class Airman Medical Certificate, Mental.

(3) § 67.307 - Third-Class Airman Medical Certificate, Mental.

(4) § 91.147 - Passenger carrying flights for compensation or hire.

(5) § 135.1 - Applicability

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3154, Jan. 20, 2010]

§ 120.213 Falsification.

No individual may make, or cause to be made, any of the following:

(a) Any fraudulent or intentionally false statement in any application of an alcohol testing program.

(b) Any fraudulent or intentionally false entry in any record or report that is made, kept, or used to show compliance with this subpart.

(c) Any reproduction or alteration, for fraudulent purposes, of any report or record required to be kept by this subpart.

§ 120.215 Covered employees.

(a) Each employee, including any assistant, helper, or individual in a training status, who performs a safety-sensitive function listed in this section directly or by contract (including by subcontract at any tier) for an employer as defined in this subpart must be subject to alcohol testing under an alcohol testing program implemented in accordance with this subpart. This includes full-time, part-time, temporary, and intermittent employees regardless of the degree of supervision. The safety-sensitive functions are:

(1) Flight crewmember duties.

(2) Flight attendant duties.

(3) Flight instruction duties.

(4) Aircraft dispatcher duties.

(5) Aircraft maintenance or preventive maintenance duties.

- (6) Ground security coordinator duties.
- (7) Aviation screening duties.
- (8) Air traffic control duties.
- (9) Operations control specialist duties.

(b) Each employer must identify any employee who is subject to the alcohol testing regulations of more than one DOT agency. Prior to conducting any alcohol test on a covered employee subject to the alcohol testing regulations of more than one DOT agency, the employer must determine which DOT agency authorizes or requires the test.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009, as amended by Amdt. 120-2, 79 FR 9973, Feb. 21, 2014]

§ 120.217 Tests required.

(a) *Pre-employment alcohol testing.* As an employer, you may, but are not required to, conduct pre-employment alcohol testing under this subpart. If you choose to conduct pre-employment alcohol testing, you must comply with the following requirements:

(1) You must conduct a pre-employment alcohol test before the first performance of safety-sensitive functions by every covered employee (whether a new employee or someone who has transferred to a position involving the performance of safety-sensitive functions).

(2) You must treat all safety-sensitive employees performing safety-sensitive functions the same for the purpose of pre-employment alcohol testing (*i.e.*, you must not test some covered employees and not others).

(3) You must conduct the pre-employment tests after making a contingent offer of employment or transfer, subject to the employee passing the pre-employment alcohol test.

(4) You must conduct all pre-employment alcohol tests using the alcohol testing procedures of 49 CFR part 40.

(5) You must not allow a covered employee to begin performing safety-sensitive functions unless the result of the employee's test indicates an alcohol concentration of less than 0.04. If a pre-employment test result under this paragraph indicates an alcohol concentration of 0.02 or greater but less than 0.04, the provisions of § 120.221(f) apply.

(b) *Post-accident alcohol testing.* (1) As soon as practicable following an accident, each employer shall test each surviving covered employee for alcohol if that employee's performance of a safety-sensitive function either contributed to the accident or cannot be completely discounted as a contributing factor to the accident. The decision not to administer a test under this section shall be based on the employer's determination, using the best available information at the time of the determination, that the covered employee's performance could not have contributed to the accident.

(2) If a test required by this section is not administered within 2 hours following the accident, the employer shall prepare and maintain on file a record stating the reasons the test was not promptly administered. If a test required by this section is not administered within 8 hours following the accident, the employer shall cease attempts to administer an

alcohol test and shall prepare and maintain the same record. Records shall be submitted to the FAA upon request of the Administrator or his or her designee.

(3) A covered employee who is subject to post-accident testing shall remain readily available for such testing or may be deemed by the employer to have refused to submit to testing. Nothing in this section shall be construed to require the delay of necessary medical attention for injured people following an accident or to prohibit a covered employee from leaving the scene of an accident for the period necessary to obtain assistance in responding to the accident or to obtain necessary emergency medical care.

(c) *Random alcohol testing.* (1) Except as provided in paragraphs (c)(2) through (c)(4) of this section, the minimum annual percentage rate for random alcohol testing will be 25 percent of the covered employees.

(2) The Administrator's decision to increase or decrease the minimum annual percentage rate for random alcohol testing is based on the violation rate for the entire industry. All information used for this determination is drawn from MIS reports required by this subpart. In order to ensure reliability of the data, the Administrator considers the quality and completeness of the reported data, may obtain additional information or reports from employers, and may make appropriate modifications in calculating the industry violation rate. Each year, the Administrator will publish in the Federal Register the minimum annual percentage rate for random alcohol testing of covered employees. The new minimum annual percentage rate for random alcohol testing will be applicable starting January 1 of the calendar year following publication.

(3)(i) When the minimum annual percentage rate for random alcohol testing is 25 percent or more, the Administrator may lower this rate to 10 percent of all covered employees if the Administrator determines that the data received under the reporting requirements of this subpart for two consecutive calendar years indicate that the violation rate is less than 0.5 percent.

(ii) When the minimum annual percentage rate for random alcohol testing is 50 percent, the Administrator may lower this rate to 25 percent of all covered employees if the Administrator determines that the data received under the reporting requirements of this subpart for two consecutive calendar years indicate that the violation rate is less than 1.0 percent but equal to or greater than 0.5 percent.

(4)(i) When the minimum annual percentage rate for random alcohol testing is 10 percent, and the data received under the reporting requirements of this subpart for that calendar year indicate that the violation rate is equal to or greater than 0.5 percent but less than 1.0 percent, the Administrator will increase the minimum annual percentage rate for random alcohol testing to 25 percent of all covered employees.

(ii) When the minimum annual percentage rate for random alcohol testing is 25 percent or less, and the data received under

the reporting requirements of this subpart for that calendar year indicate that the violation rate is equal to or greater than 1.0 percent, the Administrator will increase the minimum annual percentage rate for random alcohol testing to 50 percent of all covered employees.

(5) The selection of employees for random alcohol testing shall be made by a scientifically valid method, such as a random-number table or a computer-based random number generator that is matched with employees' Social Security numbers, payroll identification numbers, or other comparable identifying numbers. Under the selection process used, each covered employee shall have an equal chance of being tested each time selections are made.

(6) As an employer, you must select and test a percentage of employees at least equal to the minimum annual percentage rate each year.

(i) As an employer, to determine whether you have met the minimum annual percentage rate, you must divide the number of random alcohol screening test results for safety-sensitive employees by the average number of safety-sensitive employees eligible for random testing.

(A) To calculate whether you have met the annual minimum percentage rate, count all random screening test results below 0.02 breath alcohol concentration, random screening test results of 0.02 or greater breath alcohol concentration, and random refusals as your "random alcohol screening test results."

(B) To calculate the average number of safety-sensitive employees eligible for random testing throughout the year, add the total number of safety-sensitive employees eligible for testing during each random testing period for the year and divide that total by the number of random testing periods. Only safety-sensitive employees are to be in an employer's random testing pool, and all safety-sensitive employees must be in the random pool. If you are an employer conducting random testing more often than once per month (*e.g.*, you select daily, weekly, bi-weekly) you do not need to compute this total number of safety-sensitive employees more than on a once per month basis.

(ii) As an employer, you may use a service agent to perform random selections for you, and your safety-sensitive employees may be part of a larger random testing pool of safety-sensitive employees. However, you must ensure that the service agent you use is testing at the appropriate percentage established for your industry and that only safety-sensitive employees are in the random testing pool. For example:

(A) If the service agent has your employees in a random testing pool for your company alone, you must ensure that the testing is conducted at least at the minimum annual percentage rate under this part.

(B) If the service agent has your employees in a random testing pool combined with other FAA-regulated companies, you must ensure that the testing is conducted at least at the minimum annual percentage rate under this part.

(C) If the service agent has your employees in a random testing pool combined with other DOT-regulated companies, you must ensure that the testing is conducted at least at the highest rate required for any DOT-regulated company in the pool.

(7) Each employer shall ensure that random alcohol tests conducted under this subpart are unannounced and that the dates for administering random tests are spread reasonably throughout the calendar year.

(8) Each employer shall require that each covered employee who is notified of selection for random testing proceeds to the testing site immediately; provided, however, that if the employee is performing a safety-sensitive function at the time of the notification, the employer shall instead ensure that the employee ceases to perform the safety-sensitive function and proceeds to the testing site as soon as possible.

(9) A covered employee shall only be randomly tested while the employee is performing safety-sensitive functions; just before the employee is to perform safety-sensitive functions; or just after the employee has ceased performing such functions.

(10) If a given covered employee is subject to random alcohol testing under the alcohol testing rules of more than one DOT agency, the employee shall be subject to random alcohol testing at the percentage rate established for the calendar year by the DOT agency regulating more than 50 percent of the employee's functions.

(11) If an employer is required to conduct random alcohol testing under the alcohol testing rules of more than one DOT agency, the employer may -

(i) Establish separate pools for random selection, with each pool containing the covered employees who are subject to testing at the same required rate; or

(ii) Randomly select such employees for testing at the highest percentage rate established for the calendar year by any DOT agency to which the employer is subject.

(d) *Reasonable suspicion alcohol testing.* (1) An employer shall require a covered employee to submit to an alcohol test when the employer has reasonable suspicion to believe that the employee has violated the alcohol misuse prohibitions in §§ 120.19 or 120.37.

(2) The employer's determination that reasonable suspicion exists to require the covered employee to undergo an alcohol test shall be based on specific, contemporaneous, articulable observations concerning the appearance, behavior, speech or body odors of the employee. The required observations shall be made by a supervisor who is trained in detecting the symptoms of alcohol misuse. The supervisor who makes the determination that reasonable suspicion exists shall not conduct the breath alcohol test on that employee.

(3) Alcohol testing is authorized by this section only if the observations required by paragraph (d)(2) of this section are made during, just preceding, or just after the period of the work day that the covered employee is required to be in compliance with this rule. An employee may be directed

by the employer to undergo reasonable suspicion testing for alcohol only while the employee is performing safety-sensitive functions; just before the employee is to perform safety-sensitive functions; or just after the employee has ceased performing such functions.

(4)(i) If a test required by this section is not administered within 2 hours following the determination made under paragraph (d)(2) of this section, the employer shall prepare and maintain on file a record stating the reasons the test was not promptly administered. If a test required by this section is not administered within 8 hours following the determination made under paragraph (d)(2) of this section, the employer shall cease attempts to administer an alcohol test and shall state in the record the reasons for not administering the test.

(ii) Notwithstanding the absence of a reasonable suspicion alcohol test under this section, no covered employee shall report for duty or remain on duty requiring the performance of safety-sensitive functions while the employee is under the influence of, or impaired by, alcohol, as shown by the behavioral, speech, or performance indicators of alcohol misuse, nor shall an employer permit the covered employee to perform or continue to perform safety-sensitive functions until:

(A) An alcohol test is administered and the employee's alcohol concentration measures less than 0.02; or

(B) The start of the employee's next regularly scheduled duty period, but not less than 8 hours following the determination made under paragraph (d)(2) of this section that there is reasonable suspicion that the employee has violated the alcohol misuse provisions in §§ 120.19 or 120.37.

(iii) No employer shall take any action under this subpart against a covered employee based solely on the employee's behavior and appearance in the absence of an alcohol test. This does not prohibit an employer with authority independent of this subpart from taking any action otherwise consistent with law.

(e) *Return-to-duty alcohol testing.* Each employer shall ensure that before a covered employee returns to duty requiring the performance of a safety-sensitive function after engaging in conduct prohibited in §§ 120.19 or 120.37 the employee shall undergo a return-to-duty alcohol test with a result indicating an alcohol concentration of less than 0.02. The test cannot occur until after the SAP has determined that the employee has successfully complied with the prescribed education and/or treatment.

(f) *Follow-up alcohol testing.* (1) Each employer shall ensure that the employee who engages in conduct prohibited by §§ 120.19 or 120.37, is subject to unannounced follow-up alcohol testing as directed by a SAP.

(2) The number and frequency of such testing shall be determined by the employer's SAP, but must consist of at least six tests in the first 12 months following the employee's return to duty.

(3) The employer must direct the employee to undergo testing for drugs in accordance with subpart E of this part, in

addition to alcohol, if the SAP determines that drug testing is necessary for the particular employee. Any such drug testing shall be conducted in accordance with the provisions of 49 CFR part 40.

(4) Follow-up testing shall not exceed 60 months after the date the individual begins to perform, or returns to the performance of, a safety-sensitive function. The SAP may terminate the requirement for follow-up testing at any time after the first six tests have been conducted, if the SAP determines that such testing is no longer necessary.

(5) A covered employee shall be tested for alcohol under this section only while the employee is performing safety-sensitive functions, just before the employee is to perform safety-sensitive functions, or just after the employee has ceased performing such functions.

(g) *Retesting of covered employees with an alcohol concentration of 0.02 or greater but less than 0.04.* Each employer shall retest a covered employee to ensure compliance with the provisions of § 120.221(f) if the employer chooses to permit the employee to perform a safety-sensitive function within 8 hours following the administration of an alcohol test indicating an alcohol concentration of 0.02 or greater but less than 0.04.

§ 120.219 Handling of test results, record retention, and confidentiality.

(a) *Retention of records.* (1) *General requirement.* In addition to the records required to be maintained under 49 CFR part 40, employers must maintain records required by this subpart in a secure location with controlled access.

(2) *Period of retention.*

(i) *Five years.*

(A) Copies of any annual reports submitted to the FAA under this subpart for a minimum of 5 years.

(B) Records of notifications to the Federal Air Surgeon of refusals to submit to testing and violations of the alcohol misuse prohibitions in this chapter by covered employees who hold medical certificates issued under part 67 of this chapter.

(C) Documents presented by a covered employee to dispute the result of an alcohol test administered under this subpart.

(D) Records related to other violations of §§ 120.19 or 120.37.

(ii) *Two years.* Records related to the testing process and training required under this subpart.

(A) Documents related to the random selection process.

(B) Documents generated in connection with decisions to administer reasonable suspicion alcohol tests.

(C) Documents generated in connection with decisions on post-accident tests.

(D) Documents verifying existence of a medical explanation of the inability of a covered employee to provide adequate breath for testing.

(E) Materials on alcohol misuse awareness, including a copy of the employer's policy on alcohol misuse.

(F) Documentation of compliance with the requirements of § 120.223(a).

(G) Documentation of training provided to supervisors for the purpose of qualifying the supervisors to make a determination concerning the need for alcohol testing based on reasonable suspicion.

(H) Certification that any training conducted under this subpart complies with the requirements for such training.

(b) *Annual reports.* (1) Annual reports of alcohol testing program results must be submitted to the FAA by March 15 of the succeeding calendar year for the prior calendar year (January 1 through December 31) in accordance with the provisions of paragraphs (b)(1)(i) through (iii) of this section.

(i) Each part 121 certificate holder shall submit an annual report each year.

(ii) Each entity conducting an alcohol testing program under this part, other than a part 121 certificate holder, that has 50 or more employees performing a safety-sensitive function on January 1 of any calendar year shall submit an annual report to the FAA for that calendar year.

(iii) The Administrator reserves the right to require that aviation employers not otherwise required to submit annual reports prepare and submit such reports to the FAA. Employers that will be required to submit annual reports under this provision will be notified in writing by the FAA.

(2) As an employer, you must use the Management Information System (MIS) form and instructions as required by 49 CFR part 40 (at 49 CFR 40.26 and appendix H to 49 CFR part 40). You may also use the electronic version of the MIS form provided by the DOT. The Administrator may designate means (e.g., electronic program transmitted via the Internet) other than hard-copy, for MIS form submission. For information on where to submit MIS forms and for the electronic version of the form, see: http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/drug_alcohol/.

(3) A service agent may prepare the MIS report on behalf of an employer. However, a company official (e.g., Designated Employer Representative as defined in 49 CFR part 40) must certify the accuracy and completeness of the MIS report, no matter who prepares it.

(c) *Access to records and facilities.* (1) Except as required by law or expressly authorized or required in this subpart, no employer shall release covered employee information that is contained in records required to be maintained under this subpart.

(2) A covered employee is entitled, upon written request, to obtain copies of any records pertaining to the employee's use of alcohol, including any records pertaining to his or her alcohol tests in accordance with 49 CFR part 40. The employer shall promptly provide the records requested by the employee. Access to an employee's records shall not be contingent upon payment for records other than those specifically requested.

(3) Each employer shall permit access to all facilities utilized in complying with the requirements of this subpart

to the Secretary of Transportation or any DOT agency with regulatory authority over the employer or any of its covered employees.

§ 120.221 Consequences for employees engaging in alcohol-related conduct.

(a) *Removal from safety-sensitive function.* (1) Except as provided in 49 CFR part 40, no covered employee shall perform safety-sensitive functions if the employee has engaged in conduct prohibited by §§ 120.19 or 120.37, or an alcohol misuse rule of another DOT agency.

(2) No employer shall permit any covered employee to perform safety-sensitive functions if the employer has determined that the employee has violated this section.

(b) *Permanent disqualification from service.* (1) An employee who violates §§ 120.19(c) or 120.37(c) is permanently precluded from performing for an employer the safety-sensitive duties the employee performed before such violation.

(2) An employee who engages in alcohol use that violates another alcohol misuse provision of §§ 120.19 or 120.37, and who had previously engaged in alcohol use that violated the provisions of §§ 120.19 or 120.37 after becoming subject to such prohibitions, is permanently precluded from performing for an employer the safety-sensitive duties the employee performed before such violation.

(c) *Notice to the Federal Air Surgeon.* (1) An employer who determines that a covered employee who holds an airman medical certificate issued under part 67 of this chapter has engaged in alcohol use that violated the alcohol misuse provisions of §§ 120.19 or 120.37 shall notify the Federal Air Surgeon within 2 working days.

(2) Each such employer shall forward to the Federal Air Surgeon a copy of the report of any evaluation performed under the provisions of § 120.223(c) within 2 working days of the employer's receipt of the report.

(3) All documents must be sent to the Federal Air Surgeon, Federal Aviation Administration, Office of Aerospace Medicine, Attn: Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591.

(4) No covered employee who is required to hold an airman medical certificate in order to perform a safety-sensitive duty may perform that duty following a violation of this subpart until the covered employee obtains an airman medical certificate issued by the Federal Air Surgeon dated after the alcohol test result or refusal to test date. After the covered employee obtains this airman medical certificate, the SAP may recommend to the employer that the covered employee be returned to a safety-sensitive position. The receipt of an airman medical certificate does not alter any obligations otherwise required by 49 CFR part 40 or this subpart.

(5) Once the Federal Air Surgeon has recommended under paragraph (c)(4) of this section that the employee be permitted to perform safety-sensitive duties, the employer cannot permit the employee to perform those safety-sensitive duties until the

employer has ensured that the employee meets the return to duty requirements in accordance with 49 CFR part 40.

(d) *Notice of refusals.* Each covered employer must notify the FAA within 2 working days of any employee who holds a certificate issued under part 61, part 63, or part 65 of this chapter who has refused to submit to an alcohol test required under this subpart. Notification must be sent to: Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591, or by fax to (202) 267-5200.

(e) *Required evaluation and alcohol testing.* No covered employee who has engaged in conduct prohibited by §§ 120.19 or 120.37 shall perform safety-sensitive functions unless the employee has met the requirements of 49 CFR part 40. No employer shall permit a covered employee who has engaged in such conduct to perform safety-sensitive functions unless the employee has met the requirements of 49 CFR part 40.

(f) *Other alcohol-related conduct.* (1) No covered employee tested under this subpart who is found to have an alcohol concentration of 0.02 or greater but less than 0.04 shall perform or continue to perform safety-sensitive functions for an employer, nor shall an employer permit the employee to perform or continue to perform safety-sensitive functions, until:

(i) The employee's alcohol concentration measures less than 0.02; or

(ii) The start of the employee's next regularly scheduled duty period, but not less than 8 hours following administration of the test.

(2) Except as provided in paragraph (f)(1) of this section, no employer shall take any action under this rule against an employee based solely on test results showing an alcohol concentration less than 0.04. This does not prohibit an employer with authority independent of this rule from taking any action otherwise consistent with law.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009, as amended by Amdt. 120-1, 78 FR 42004, July 15, 2013]

§ 120.223 Alcohol misuse information, training, and substance abuse professionals.

(a) *Employer obligation to promulgate a policy on the misuse of alcohol.* (1) *General requirements.* Each employer shall provide educational materials that explain these alcohol testing requirements and the employer's policies and procedures with respect to meeting those requirements.

(i) The employer shall ensure that a copy of these materials is distributed to each covered employee prior to the start of alcohol testing under the employer's FAA-mandated alcohol testing program and to each individual subsequently hired for or transferred to a covered position.

(ii) Each employer shall provide written notice to representatives of employee organizations of the availability of this information.

(2) *Required content.* The materials to be made available to employees shall include detailed discussion of at least the following:

(i) The identity of the individual designated by the employer to answer employee questions about the materials.

(ii) The categories of employees who are subject to the provisions of these alcohol testing requirements.

(iii) Sufficient information about the safety-sensitive functions performed by those employees to make clear what period of the work day the covered employee is required to be in compliance with these alcohol testing requirements.

(iv) Specific information concerning employee conduct that is prohibited by this chapter.

(v) The circumstances under which a covered employee will be tested for alcohol under this subpart.

(vi) The procedures that will be used to test for the presence of alcohol, protect the employee and the integrity of the breath testing process, safeguard the validity of the test results, and ensure that those results are attributed to the correct employee.

(vii) The requirement that a covered employee submit to alcohol tests administered in accordance with this subpart.

(viii) An explanation of what constitutes a refusal to submit to an alcohol test and the attendant consequences.

(ix) The consequences for covered employees found to have violated the prohibitions in this chapter, including the requirement that the employee be removed immediately from performing safety-sensitive functions, and the process in 49 CFR part 40, subpart O.

(x) The consequences for covered employees found to have an alcohol concentration of 0.02 or greater but less than 0.04.

(xi) Information concerning the effects of alcohol misuse on an individual's health, work, and personal life; signs and symptoms of an alcohol problem; available methods of evaluating and resolving problems associated with the misuse of alcohol; and intervening when an alcohol problem is suspected, including confrontation, referral to any available employee assistance program, and/or referral to management.

(xii) Optional provisions. The materials supplied to covered employees may also include information on additional employer policies with respect to the use or possession of alcohol, including any consequences for an employee found to have a specified alcohol level, that are based on the employer's authority independent of this subpart. Any such additional policies or consequences must be clearly and obviously described as being based on independent authority.

(b) *Training for supervisors.* Each employer shall ensure that persons designated to determine whether reasonable suspicion exists to require a covered employee to undergo alcohol testing under § 120.217(d) of this subpart receive at least 60 minutes of training on the physical, behavioral, speech, and performance indicators of probable alcohol misuse.

(c) *Substance abuse professional (SAP) duties.* The SAP must perform the functions set forth in 49 CFR part 40, subpart O, and this subpart.

§ 120.225 How to implement an alcohol testing program.

(a) Each company must meet the requirements of this subpart. Use the following chart to determine whether

your company must obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification, Letter of Authorization, or Drug and Alcohol Testing Program Registration from the FAA:

| If you are . . . | You must . . . |
|---|--|
| (1) A part 119 certificate holder with authority to operate under part 121 or 135 | Obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification by contacting your FAA Principal Operations Inspector. |
| (2) An operator as defined in § 91.147 of this chapter | Obtain a Letter of Authorization by contacting the Flight Standards District Office nearest to your principal place of business. |
| (3) A part 119 certificate holder with authority to operate under part 121 or part 135 and an operator as defined in § 91.147 of this chapter | Complete the requirements in paragraphs 1 and 2 of this chart and advise the Flight Standards District Office and Drug Abatement Division that the § 91.147 operation will be included under the part 119 testing program. Contact Drug Abatement Division at FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591. |
| (4) An air traffic control facility not operated by the FAA or by or under contract to the U.S. Military | Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591. |
| (5) A part 145 certificate holder who has your own alcohol testing program | Obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification by contacting your Principal Maintenance Inspector or register with the FAA Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591, if you opt to conduct your own alcohol testing program. |
| (6) A contractor who has your own alcohol testing program | Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591, if you opt to conduct your own alcohol testing program. |

(b) Use the following chart for implementing an alcohol testing program if you are applying for a part 119 certificate with authority to operate under part 121 or part 135 of this chapter, if you intend to begin operations as defined in § 91.147 of this chapter, or if you intend to begin air traffic control operations (not operated by the FAA or by or under contract to the U.S. Military). Use it to determine whether

you need to have an Antidrug and Alcohol Misuse Prevention Program Operations Specification, Letter of Authorization, or Drug and Alcohol Testing Program Registration from the FAA. Your employees who perform safety-sensitive duties must be tested in accordance with this subpart. The chart follows:

| If you . . . | You must . . . |
|---|--|
| (1) Apply for a part 119 certificate with authority to operate under parts 121 or 135 | (i) Have an Antidrug and Alcohol Misuse Prevention Program Operations Specification, |
| | (ii) Implement an FAA alcohol testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| (2) Intend to begin operations as defined in § 91.147 of this chapter | (i) Have a Letter of Authorization, |
| | (ii) Implement an FAA alcohol testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |

| If you . . . | You must . . . |
|---|--|
| (3) Apply for a part 119 certificate with authority to operate under parts 121 or 135 and intend to begin operations as defined in § 91.147 of this chapter | (i) Have an Antidrug and Alcohol Misuse Prevention Program Operations Specification and a Letter of Authorization, (ii) Implement your combined FAA alcohol testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| (4) Intend to begin air traffic control operations (at an air traffic control facility not operated by the FAA or by or under contract to the U.S. military) | (i) Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591, prior to starting operations, |
| | (ii) Implement an FAA alcohol testing program no later than the date you start operations, and |
| | (iii) Meet the requirements of this subpart. |
| (c) If you are an individual or a company that intends to provide safety-sensitive services by contract to a part 119 certificate holder with authority to operate under parts 121 and/ | or 135 of this chapter or an operator as defined in § 91.147 of this chapter, use the following chart to determine what you must do if you opt to have your own alcohol testing program. |
| If you . . . | And you opt to conduct your own Alcohol Testing Program, you must . . . |
| (1) Are a part 145 certificate holder | (i) Have an Antidrug and Alcohol Misuse Prevention Program Operations Specifications or register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591, |
| | (ii) Implement an FAA alcohol testing program no later than the date you start performing safety-sensitive functions for a part 119 certificate holder with the authority to operate under parts 121 and/or 135, or operator as defined in § 91.147 of this chapter, and |
| | (iii) Meet the requirements of this subpart as if you were an employer. |
| (2) Are a contractor | (i) Register with the FAA, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue, SW., Washington, DC 20591, |
| | (ii) Implement an FAA alcohol testing program no later than the date you start performing safety-sensitive functions for a part 119 certificate holder with authority to operate under parts 121 and/or 135, or operator as defined in § 91.147 of this chapter, and |
| | (iii) Meet the requirements of this subpart as if you were an employer. |
| (d)(1) To obtain an Antidrug and Alcohol Misuse Prevention Program Operations Specification, you must contact your FAA Principal Operations Inspector or Principal Maintenance Inspector. Provide him/her with the following information: | with authority to operate only under part 121 of this chapter are not required to provide this information.) |
| (i) Company name. | (2) You must certify on your Antidrug and Alcohol Misuse Prevention Program Operations Specification, issued by your FAA Principal Operations Inspector or Principal Maintenance Inspector, that you will comply with this part and 49 CFR part 40. |
| (ii) Certificate number. | (3) You are required to obtain only one Antidrug and Alcohol Misuse Prevention Program Operations Specification to satisfy this requirement under this part. |
| (iii) Telephone number. | (4) You must update the Antidrug and Alcohol Misuse Prevention Program Operations Specification when any |
| (iv) Address where your drug and alcohol testing program records are kept. | |
| (v) Whether you have 50 or more covered employees, or 49 or fewer covered employees. (Part 119 certificate holders | |

changes to the information contained in the Operation Specification occur.

(e) *Register your Drug and Alcohol Testing Program by obtaining a Letter of Authorization from the FAA in accordance with § 91.147.* (1) A drug and alcohol testing program is considered registered when the following information is submitted to the Flight Standards District Office nearest your principal place of business:

- (i) Company name.
- (ii) Telephone number.
- (iii) Address where your drug and alcohol testing program records are kept.
- (iv) Type of safety-sensitive functions you or your employees perform (such as flight instruction duties, aircraft dispatcher duties, maintenance or preventive maintenance duties, ground security coordinator duties, aviation screening duties, air traffic control duties).

(v) Whether you have 50 or more covered employees, or 49 or fewer covered employees.

(vi) A signed statement indicating that your company will comply with this part and 49 CFR part 40.

(2) This Letter of Authorization will satisfy the requirements for both your drug testing program under subpart E of this part and your alcohol testing program under this subpart.

(3) Update the Letter of Authorization information as changes occur. Send the updates to the Flight Standards District Office nearest your principal place of business.

(4) If you are a part 119 certificate holder with authority to operate under part 121 or part 135 and intend to begin operations as defined in § 91.147 of this chapter, you must also advise the Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591.

(f) *Obtaining a Drug and Alcohol Testing Program Registration from the FAA.* (1) Except as provided in paragraphs (d) and (e) of this section, to obtain a Drug and Alcohol Testing Program Registration from the FAA you must submit the following information to the Office of Aerospace Medicine, Drug Abatement Division:

- (i) Company name.
- (ii) Telephone number.
- (iii) Address where your drug and alcohol testing program records are kept.
- (iv) Type of safety-sensitive functions you or your employees perform (such as flight instruction duties, aircraft dispatcher duties, maintenance or preventive maintenance duties, ground security coordinator duties, aviation screening duties, air traffic control duties).

(v) Whether you have 50 or more covered employees, or 49 or fewer covered employees.

(vi) A signed statement indicating that: your company will comply with this part and 49 CFR part 40; and you intend to provide safety-sensitive functions by contract (including subcontract at any tier) to a part 119 certificate holder with

authority to operate under part 121 or part 135 of this chapter, an operator as defined in § 91.147 of this chapter, or an air traffic control facility not operated by the FAA or by or under contract to the U.S. military.

(2) Send this information to the Federal Aviation Administration, Office of Aerospace Medicine, Drug Abatement Division (AAM-800), 800 Independence Avenue SW., Washington, DC 20591.

(3) This Drug and Alcohol Testing Program Registration will satisfy the registration requirements for both your drug testing program under subpart E of this part and your alcohol testing program under this subpart.

(4) Update the registration information as changes occur. Send the updates to the address specified in paragraph (f)(2) of this section.

[Doc. No. FAA-2008-0937, 74 FR 22653, May 14, 2009; Amdt. 120-0A, 75 FR 3154, Jan. 20, 2010, as amended by Amdt. 120-1, 78 FR 42005, July 15, 2013]

§ 120.227 Employees located outside the U.S.

(a) No covered employee shall be tested for alcohol misuse while located outside the territory of the United States.

(1) Each covered employee who is assigned to perform safety-sensitive functions solely outside the territory of the United States shall be removed from the random testing pool upon the inception of such assignment.

(2) Each covered employee who is removed from the random testing pool under this paragraph shall be returned to the random testing pool when the employee resumes the performance of safety-sensitive functions wholly or partially within the territory of the United States.

(b) The provisions of this subpart shall not apply to any person who performs a safety-sensitive function by contract for an employer outside the territory of the United States.

PART 121 - OPERATING REQUIREMENTS: DOMESTIC, FLAG, AND SUPPLEMENTAL OPERATIONS

Authority:

49 U.S.C. 106(f), 106(g), 40103, 40113, 40119, 41706, 42301 preceding note added by Pub. L. 112-95, sec. 412, 126 Stat. 89, 44101, 44701-44702, 44705, 44709-44711, 44713, 44716-44717, 44722, 44729, 44732; 46105; Pub. L. 111-216, 124 Stat. 2348 (49 U.S.C. 44701 note); Pub. L. 112-95 126 Stat 62 (49 U.S.C. 44732 note).

Special Federal Aviation Regulation No. 50-2

Editorial Note:

For the text of SFAR No. 50-2, see part 91 of this chapter.

Special Federal Aviation Regulation No. 71**Editorial Note:**

For the text of SFAR No. 71, see part 91 of this chapter.

Special Federal Aviation Regulation No. 97**Editorial Note:**

For the text of SFAR No. 97, see part 91 of this chapter.

Subpart A - General**§ 121.1 Applicability.**

This part prescribes rules governing -

(a) The domestic, flag, and supplemental operations of each person who holds or is required to hold an Air Carrier Certificate or Operating Certificate under part 119 of this chapter.

(b) Each person employed or used by a certificate holder conducting operations under this part including maintenance, preventive maintenance, and alteration of aircraft.

(c) Each person who applies for provisional approval of an Advanced Qualification Program curriculum, curriculum segment, or portion of a curriculum segment under SFAR No. 58 of 14 CFR part 121, and each person employed or used by an air carrier or commercial operator under this part to perform training, qualification, or evaluation functions under an Advanced Qualification Program under SFAR No. 58 of 14 CFR part 121.

(d) Nonstop Commercial Air Tours conducted for compensation or hire in accordance with § 119.1(e)(2) of this chapter must comply with drug and alcohol requirements in §§ 121.455, 121.457, 121.458 and 121.459, and with the provisions of part 136, subpart A of this chapter by September 11, 2007. An operator who does not hold an air carrier certificate or an operating certificate is permitted to use a person who is otherwise authorized to perform aircraft maintenance or preventive maintenance duties and who is not subject to anti-drug and alcohol misuse prevention programs to perform -

(1) Aircraft maintenance or preventive maintenance on the operator's aircraft if the operator would otherwise be required to transport the aircraft more than 50 nautical miles further than the repair point closest to the operator's principal base of operations to obtain these services; or

(2) Emergency repairs on the operator's aircraft if the aircraft cannot be safely operated to a location where an employee subject to FAA-approved programs can perform the repairs.

(e) Each person who is on board an aircraft being operated under this part.

(f) Each person who is an applicant for an Air Carrier Certificate or an Operating Certificate under part 119 of this chapter, when conducting proving tests.

(g) This part also establishes requirements for operators to take actions to support the continued airworthiness of each airplane.

[Doc. No. 28154, 60 FR 65925, Dec. 20, 1995, as amended by Amdt. 121-328, 72 FR 6912, Feb. 13, 2007; Amdt. 121-336, 72 FR 63411, Nov. 8, 2007]

§ 121.2 Compliance schedule for operators that transition to part 121; certain new entrant operators.

(a) *Applicability.* This section applies to the following:

(1) Each certificate holder that was issued an air carrier or operating certificate and operations specifications under the requirements of part 135 of this chapter or under SFAR No. 38-2 of 14 CFR part 121 before January 19, 1996, and that conducts scheduled passenger-carrying operations with:

(i) Nontransport category turbopropeller powered airplanes type certificated after December 31, 1964, that have a passenger seat configuration of 10-19 seats;

(ii) Transport category turbopropeller powered airplanes that have a passenger seat configuration of 20-30 seats; or

(iii) Turbojet engine powered airplanes having a passenger seat configuration of 1-30 seats.

(2) Each person who, after January 19, 1996, applies for or obtains an initial air carrier or operating certificate and operations specifications to conduct scheduled passenger-carrying operations in the kinds of airplanes described in paragraphs (a)(1)(i), (a)(1)(ii), or paragraph (a)(1)(iii) of this section.

(b) *Obtaining operations specifications.* A certificate holder described in paragraph (a)(1) of this section may not, after March 20, 1997, operate an airplane described in paragraphs (a)(1)(i), (a)(1)(ii), or (a)(1)(iii) of this section in scheduled passenger-carrying operations, unless it obtains operations specifications to conduct its scheduled operations under this part on or before March 20, 1997.

(c) *Regular or accelerated compliance.* Except as provided in paragraphs (d), (e), and (i) of this section, each certificate holder described in paragraphs (a)(1) of this section shall comply with each applicable requirement of this part on and after March 20, 1997 or on and after the date on which the certificate holder is issued operations specifications under this part, whichever occurs first. Except as provided in paragraphs (d) and (e) of this section, each person described in paragraph (a)(2) of this section shall comply with each applicable requirement of this part on and after the date on which that person is issued a certificate and operations specifications under this part.

(d) *Delayed compliance dates.* Unless paragraph (e) of this section specifies an earlier compliance date, no certificate holder that is covered by paragraph (a) of this section may operate an airplane in 14 CFR part 121 operations on or after a

date listed in this paragraph (d) unless that airplane meets the applicable requirement of this paragraph (d):

(1) *Nontransport category turbopropeller powered airplanes type certificated after December 31, 1964, that have a passenger seat configuration of 10-19 seats.* No certificate holder may operate under this part an airplane that is described in paragraph (a)(1)(i) of this section on or after a date listed in paragraph (d)(1) of this section unless that airplane meets the applicable requirement listed in paragraph (d)(1) of this section:

(i) December 20, 1997:

(A) Section 121.289, Landing gear aural warning.

(B) Section 121.308, Lavatory fire protection.

(C) Section 121.310(e), Emergency exit handle illumination.

(D) Section 121.337(b)(8), Protective breathing equipment.

(E) Section 121.340, Emergency flotation means.

(ii) December 20, 1999: Section 121.342, Pitot heat indication system.

(iii) December 20, 2010:

(A) For airplanes described in § 121.157(f), the Airplane Performance Operating Limitations in §§ 121.189 through 121.197.

(B) Section 121.161(b), Ditching approval.

(C) Section 121.305(j), Third attitude indicator.

(D) Section 121.312(c), Passenger seat cushion flammability.

(iv) March 12, 1999: Section 121.310(b)(1), Interior emergency exit locating sign.

(2) *Transport category turbopropeller powered airplanes that have a passenger seat configuration of 20-30 seats.* No certificate holder may operate under this part an airplane that is described in paragraph (a)(1)(ii) of this section on or after a date listed in paragraph (d)(2) of this section unless that airplane meets the applicable requirement listed in paragraph (d)(2) of this section:

(i) December 20, 1997:

(A) Section 121.308, Lavatory fire protection.

(B) Section 121.337(b) (8) and (9), Protective breathing equipment.

(C) Section 121.340, Emergency flotation means.

(ii) December 20, 2010: § 121.305(j), third attitude indicator.

(e) *Newly manufactured airplanes.* No certificate holder that is described in paragraph (a) of this section may operate under this part an airplane manufactured on or after a date listed in this paragraph unless that airplane meets the applicable requirement listed in this paragraph (e).

(1) For nontransport category turbopropeller powered airplanes type certificated after December 31, 1964, that have a passenger seat configuration of 10-19 seats:

(i) Manufactured on or after March 20, 1997:

(A) Section 121.305(j), Third attitude indicator.

(B) Section 121.311(f), Safety belts and shoulder harnesses.

(ii) Manufactured on or after December 20, 1997: Section 121.317(a), Fasten seat belt light.

(iii) Manufactured on or after December 20, 1999: Section 121.293, Takeoff warning system.

(iv) Manufactured on or after March 12, 1999: Section 121.310(b)(1), Interior emergency exit locating sign.

(2) For transport category turbopropeller powered airplanes that have a passenger seat configuration of 20-30 seats manufactured on or after March 20, 1997: Section 121.305(j), Third attitude indicator.

(f) *New type certification requirements.* No person may operate an airplane for which the application for a type certificate was filed after March 29, 1995, in 14 CFR part 121 operations unless that airplane is type certificated under part 25 of this chapter.

(g) *Transition plan.* Before March 19, 1996 each certificate holder described in paragraph (a)(1) of this section must submit to the FAA a transition plan (containing a calendar of events) for moving from conducting its scheduled operations under the commuter requirements of part 135 of this chapter to the requirements for domestic or flag operations under this part. Each transition plan must contain details on the following:

(1) Plans for obtaining new operations specifications authorizing domestic or flag operations;

(2) Plans for being in compliance with the applicable requirements of this part on or before March 20, 1997; and

(3) Plans for complying with the compliance date schedules contained in paragraphs (d) and (e) of this section.

(h) *Continuing requirements.* A certificate holder described in paragraph (a) of this section shall comply with the applicable airplane operating and equipment requirements of part 135 of this chapter for the airplanes described in paragraph (a)(1) of this section, until the airplane meets the specific compliance dates in paragraphs (d) and (e) of this section.

(i) Any training or qualification obtained by a crewmember under part 135 of this chapter before March 20, 1997, is entitled to credit under this part for the purpose of meeting the requirements of this part, as determined by the Administrator. Records kept by a certificate holder under part 135 of this chapter before March 20, 1997, can be annotated, with the approval of the Administrator, to reflect crewmember training and qualification credited toward part 121 requirements.

[Doc. No. 28154, 60 FR 65925, Dec. 20, 1995, as amended by Amdt. 121-253, 61 FR 2609, Jan. 26, 1996; Amdt. 121-256, 61 FR 30434, June 14, 1996; Amdt. 121-262, 62 FR 13256, Mar. 19, 1997; Amdt. 121-344, 74 FR 34234, July 15, 2009]

§ 121.4 Applicability of rules to unauthorized operators.

The rules in this part which refer to a person certificated under part 119 of this chapter apply also to any person who engages in an operation governed by this part without the

appropriate certificate and operations specifications required by part 119 of this chapter.

[Doc. No. 11675, 37 FR 20937, Oct. 5, 1972, as amended by Amdt. 121-251, 60 FR 65926, Dec. 20, 1995]

§ 121.7 Definitions.

The following definitions apply to those sections of part 121 that apply to ETOPS:

Adequate Airport means an airport that an airplane operator may list with approval from the FAA because that airport meets the landing limitations of § 121.197 and is either -

(1) An airport that meets the requirements of part 139, subpart D of this chapter, excluding those that apply to aircraft rescue and firefighting service, or

(2) A military airport that is active and operational.

ETOPS Alternate Airport means an adequate airport listed in the certificate holder's operations specifications that is designated in a dispatch or flight release for use in the event of a diversion during ETOPS. This definition applies to flight planning and does not in any way limit the authority of the pilot-in-command during flight.

ETOPS Area of Operation means one of the following areas:

(1) For turbine-engine-powered airplanes with two engines, an area beyond 60 minutes from an adequate airport, computed using a one-engine-inoperative cruise speed under standard conditions in still air.

(2) For turbine-engine-powered passenger-carrying airplanes with more than two engines, an area beyond 180 minutes from an adequate airport, computed using a one-engine-inoperative cruise speed under standard conditions in still air.

ETOPS Entry Point means the first point on the route of an ETOPS flight, determined using a one-engine-inoperative cruise speed under standard conditions in still air, that is -

(1) More than 60 minutes from an adequate airport for airplanes with two engines;

(2) More than 180 minutes from an adequate airport for passenger-carrying airplanes with more than two engines.

ETOPS Qualified Person means a person, performing maintenance for the certificate holder, who has satisfactorily completed the certificate holder's ETOPS training program.

Maximum Diversion Time means, for the purposes of ETOPS route planning, the longest diversion time authorized for a flight under the operator's ETOPS authority. It is calculated under standard conditions in still air at a one-engine-inoperative cruise speed.

North Pacific Area of Operation means Pacific Ocean areas north of 40° N latitudes including NOPAC ATS routes, and published PACOTS tracks between Japan and North America.

North Polar Area means the entire area north of 78° N latitude.

One-engine-inoperative-Cruise Speed means a speed within the certified operating limits of the airplane that is

specified by the certificate holder and approved by the FAA for -

(1) Calculating required fuel reserves needed to account for an inoperative engine; or

(2) Determining whether an ETOPS alternate is within the maximum diversion time authorized for an ETOPS flight.

South Polar Area means the entire area South of 60° S latitude.

[Doc. No. FAA-2002-6717, 72 FR 1878, Jan. 16, 2007]

§ 121.9 Fraud and falsification.

(a) No person may make, or cause to be made, any of the following:

(1) A fraudulent or intentionally false statement in any application or any amendment thereto, or in any other record or test result required by this part.

(2) A fraudulent or intentionally false statement in, or a known omission from, any record or report that is kept, made, or used to show compliance with this part, or to exercise any privileges under this chapter.

(b) The commission by any person of any act prohibited under paragraph (a) of this section is a basis for any one or any combination of the following:

(1) A civil penalty.

(2) Suspension or revocation of any certificate held by that person that was issued under this chapter.

(3) The denial of an application for any approval under this part.

(4) The removal of any approval under this part.

[Doc. No. FAA-2008-0677, 78 FR 67836, Nov. 12, 2013]

§ 121.11 Rules applicable to operations in a foreign country.

Each certificate holder shall, while operating an airplane within a foreign country, comply with the air traffic rules of the country concerned and the local airport rules, except where any rule of this part is more restrictive and may be followed without violating the rules of that country.

[Doc. No. 16383, 43 FR 22641, May 25, 1978]

§ 121.15 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

If a certificate holder operating under this part permits any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of § 91.19(a) of this chapter, that operation is a basis for suspending or revoking the certificate.

[Doc. No. 28154, 60 FR 65926, Dec. 20, 1995]

Subpart B - Certification Rules for Domestic and Flag Air Carriers [Reserved]

Subpart C - Certification Rules for Supplemental Air Carriers and Commercial Operators [Reserved]

Subpart D - Rules Governing All Certificate Holders Under This Part [Reserved]

Subpart E - Approval of Routes: Domestic and Flag Operations

Source:

Docket No. 6258, 29 FR 19194, Dec. 31, 1964, unless otherwise noted.

§ 121.91 Applicability.

This subpart prescribes rules for obtaining approval of routes by certificate holders conducting domestic or flag operations.

[Doc. No. 28154, 61 FR 2610, Jan. 26, 1996]

§ 121.93 Route requirements: General.

(a) Each certificate holder conducting domestic or flag operations seeking a route approval must show -

(1) That it is able to conduct satisfactorily scheduled operations between each regular, provisional, and refueling airport over that route or route segment; and

(2) That the facilities and services required by §§ 121.97 through 121.107 are available and adequate for the proposed operation.

The Administrator approves a route outside of controlled airspace if he determines that traffic density is such that an adequate level of safety can be assured.

(b) Paragraph (a) of this section does not require actual flight over a route or route segment if the certificate holder shows that the flight is not essential to safety, considering the availability and adequacy of airports, lighting, maintenance, communication, navigation, fueling, ground, and airplane radio facilities, and the ability of the personnel to be used in the proposed operation.

[Doc. No. 6258, 29 FR 19194, Dec. 31, 1964, as amended by Amdt. 121-3, 30 FR 3638, Mar. 19, 1965; Amdt. 121-253, 61 FR 2610, Jan. 26, 1996]

§ 121.95 Route width.

(a) Approved routes and route segments over U.S. Federal airways or foreign airways (and advisory routes in the case of certificate holders conducting flag operations) have a width equal to the designated width of those airways or routes.

Whenever the Administrator finds it necessary to determine the width of other approved routes, he considers the following:

- (1) Terrain clearance.
- (2) Minimum en route altitudes.
- (3) Ground and airborne navigation aids.
- (4) Air traffic density.
- (5) ATC procedures.

(b) Any route widths of other approved routes determined by the Administrator are specified in the certificate holder's operations specifications.

[Doc. No. 6258, 29 FR 19194, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2610, Jan. 26, 1996]

§ 121.97 Airports: Required data.

(a) Each certificate holder conducting domestic or flag operations must show that each route it submits for approval has enough airports that are properly equipped and adequate for the proposed operation, considering such items as size, surface, obstructions, facilities, public protection, lighting, navigational and communications aids, and ATC.

(b) Each certificate holder conducting domestic or flag operations must show that it has an approved system for obtaining, maintaining, and distributing to appropriate personnel current aeronautical data for each airport it uses to ensure a safe operation at that airport. The aeronautical data must include the following:

- (1) Airports.
 - (i) Facilities.
 - (ii) Public protection. After February 15, 2008, for ETOPS beyond 180 minutes or operations in the North Polar area and South Polar area, this includes facilities at each airport or in the immediate area sufficient to protect the passengers from the elements and to see to their welfare.
 - (iii) Navigational and communications aids.
 - (iv) Construction affecting takeoff, landing, or ground operations.

(v) Air traffic facilities.

(2) Runways, clearways and stopways.

(i) Dimensions.

(ii) Surface.

(iii) Marking and lighting systems.

(iv) Elevation and gradient.

(3) Displaced thresholds.

(i) Location.

(ii) Dimensions.

(iii) Takeoff or landing or both.

(4) Obstacles.

(i) Those affecting takeoff and landing performance computations in accordance with Subpart I of this part.

(ii) Controlling obstacles.

(5) Instrument flight procedures.

(i) Departure procedure.

(ii) Approach procedure.

(iii) Missed approach procedure.

(6) Special information.

- (i) Runway visual range measurement equipment.
- (ii) Prevailing winds under low visibility conditions.

(c) If the certificate-holding district office charged with the overall inspection of the certificate holder's operations finds that revisions are necessary for the continued adequacy of the certificate holder's system for collection, dissemination, and usage of aeronautical data that has been granted approval, the certificate holder shall, after notification by the certificate-holding district office, make those revisions in the system. Within 30 days after the certificate holder receives such notice, the certificate holder may file a petition to reconsider the notice with the Director, Flight Standards Service. This filing of a petition to reconsider stays the notice pending a decision by the Director, Flight Standards Service. However, if the certificate-holding district office finds that there is an emergency that requires immediate action in the interest of safety in air transportation, the Director, Flight Standards Service may, upon statement of the reasons, require a change effective without stay.

[Doc. No. 6258, 29 FR 19194, Dec. 31, 1964, as amended by Amdt. 121-162, 45 FR 46738, July 10, 1980; Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Amdt. 121-253, 61 FR 2610, Jan. 26, 1996; Amdt. 121-329, 72 FR 1878, Jan. 16, 2007]

§ 121.99 Communications facilities - domestic and flag operations.

(a) Each certificate holder conducting domestic or flag operations must show that a two-way communication system, or other means of communication approved by the FAA certificate holding district office, is available over the entire route. The communications may be direct links or via an approved communication link that will provide reliable and rapid communications under normal operating conditions between each airplane and the appropriate dispatch office, and between each airplane and the appropriate air traffic control unit.

(b) Except in an emergency, for all flag and domestic kinds of operations, the communications systems between each airplane and the dispatch office must be independent of any system operated by the United States.

(c) Each certificate holder conducting flag operations must provide voice communications for ETOPS where voice communication facilities are available. In determining whether facilities are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where facilities are not available or are of such poor quality that voice communication is not possible, another communication system must be substituted.

(d) Except as provided in paragraph (e) of this section, after February 15, 2008 for ETOPS beyond 180 minutes, each certificate holder conducting flag operations must have a second communication system in addition to that required by paragraph (c) of this section. That system must be able to provide immediate satellite-based voice communications of landline-telephone fidelity. The system must be able to

communicate between the flight crew and air traffic services, and the flight crew and the certificate holder. In determining whether such communications are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where immediate, satellite-based voice communications are not available, or are of such poor quality that voice communication is not possible, another communication system must be substituted.

(e) Operators of two-engine turbine-powered airplanes with 207 minute ETOPS approval in the North Pacific Area of Operation must comply with the requirements of paragraph (d) of this section as of February 15, 2007.

[Doc. No. 28154, 62 FR 13256, Mar. 19, 1997, as amended by Amdt. 121-329, 72 FR 1878, Jan. 16, 2007; Amdt. 121-333, 72 FR 31680, June 7, 2007]

§ 121.101 Weather reporting facilities.

(a) Each certificate holder conducting domestic or flag operations must show that enough weather reporting services are available along each route to ensure weather reports and forecasts necessary for the operation.

(b) Except as provided in paragraph (d) of this section, no certificate holder conducting domestic or flag operations may use any weather report to control flight unless -

(1) For operations within the 48 contiguous States and the District of Columbia, it was prepared by the U.S. National Weather Service or a source approved by the U.S. National Weather Service; or

(2) For operations conducted outside the 48 contiguous States and the District of Columbia, it was prepared by a source approved by the Administrator.

(c) Each certificate holder conducting domestic or flag operations that uses forecasts to control flight movements shall use forecasts prepared from weather reports specified in paragraph (b) of this section and from any source approved under its system adopted pursuant to paragraph (d) of this section.

(d) Each certificate holder conducting domestic or flag operations shall adopt and put into use an approved system for obtaining forecasts and reports of adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude wind shear, that may affect safety of flight on each route to be flown and at each airport to be used.

[Doc. No. 6258, 29 FR 19194, Dec. 31, 1964, as amended by Amdt. 121-27, 36 FR 13911, July 28, 1971; Amdt. 121-134, 42 FR 27573, May 31, 1977; Amdt. 121-253, 61 FR 2610, Jan. 26, 1996]

§ 121.103 En route navigation facilities.

(a) Except as provided in paragraph (b) of this section, each certificate holder conducting domestic or flag operations must show, for each proposed route (including to any regular, provisional, refueling or alternate airports), that suitable navigation aids are available to navigate the airplane along the route within the degree of accuracy required for ATC.

Navigation aids required for approval of routes outside of controlled airspace are listed in the certificate holder's operations specifications except for those aids required for routes to alternate airports.

(b) Navigation aids are not required for any of the following operations -

(1) Day VFR operations that the certificate holder shows can be conducted safely by pilotage because of the characteristics of the terrain;

(2) Night VFR operations on routes that the certificate holder shows have reliably lighted landmarks adequate for safe operation; and

(3) Other operations approved by the certificate holding district office.

[Doc. No. FAA-2002-14002, 72 FR 31681, June 7, 2007]

§ 121.105 Servicing and maintenance facilities.

Each certificate holder conducting domestic or flag operations must show that competent personnel and adequate facilities and equipment (including spare parts, supplies, and materials) are available at such points along the certificate holder's route as are necessary for the proper servicing, maintenance, and preventive maintenance of airplanes and auxiliary equipment.

[Doc. No. 28154, 61 FR 2610, Jan. 26, 1996]

§ 121.106 ETOPS Alternate Airport: Rescue and fire fighting service.

(a) Except as provided in paragraph (b) of this section, the following rescue and fire fighting service (RFFS) must be available at each airport listed as an ETOPS Alternate Airport in a dispatch or flight release.

(1) For ETOPS up to 180 minutes, each designated ETOPS Alternate Airport must have RFFS equivalent to that specified by ICAO as Category 4, or higher.

(2) For ETOPS beyond 180 minutes, each designated ETOPS Alternate Airport must have RFFS equivalent to that specified by ICAO Category 4, or higher. In addition, the aircraft must remain within the ETOPS authorized diversion time from an Adequate Airport that has RFFS equivalent to that specified by ICAO Category 7, or higher.

(b) If the equipment and personnel required in paragraph (a) of this section are not immediately available at an airport, the certificate holder may still list the airport on the dispatch or flight release if the airport's RFFS can be augmented to meet paragraph (a) of this section from local fire fighting assets. A 30-minute response time for augmentation is adequate if the local assets can be notified while the diverting airplane is en route. The augmenting equipment and personnel must be available on arrival of the diverting airplane and must remain as long as the diverting airplane needs RFFS.

[Doc. No. FAA-2002-6717, 72 FR 1879, Jan. 16, 2007]

§ 121.107 Dispatch centers.

Each certificate holder conducting domestic or flag operations must show that it has enough dispatch centers, adequate for the operations to be conducted, that are located at points necessary to ensure proper operational control of each flight.

[Doc. No. 28154, 61 FR 2610, Jan. 26, 1996]

Subpart F - Approval of Areas and Routes for Supplemental Operations

Source:

Docket No. 6258, 29 FR 19195, Dec. 31, 1964, unless otherwise noted.

§ 121.111 Applicability.

This subpart prescribes rules for obtaining approval of areas and routes by certificate holders conducting supplemental operations.

[Doc. No. 28154, 61 FR 2610, Jan. 26, 1996]

§ 121.113 Area and route requirements: General.

(a) Each certificate holder conducting supplemental operations seeking route and area approval must show -

(1) That it is able to conduct operations within the United States in accordance with paragraphs (a) (3) and (4) of this section;

(2) That it is able to conduct operations in accordance with the applicable requirements for each area outside the United States for which authorization is requested;

(3) That it is equipped and able to conduct operations over, and use the navigational facilities associated with, the Federal airways, foreign airways, or advisory routes (ADR's) to be used; and

(4) That it will conduct all IFR and night VFR operations over Federal airways, foreign airways, controlled airspace, or advisory routes (ADR's).

(b) Notwithstanding paragraph (a)(4) of this section, the Administrator may approve a route outside of controlled airspace if the certificate holder conducting supplemental operations shows the route is safe for operations and the Administrator finds that traffic density is such that an adequate level of safety can be assured. The certificate holder may not use such a route unless it is approved by the Administrator and is listed in the certificate holder's operations specifications.

[Doc. No. 6258, 29 FR 19195, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2610, Jan. 26, 1996]

§ 121.115 Route width.

(a) Routes and route segments over Federal airways, foreign airways, or advisory routes have a width equal to the designated width of those airways or advisory routes.

Whenever the Administrator finds it necessary to determine the width of other routes, he considers the following:

- (1) Terrain clearance.
- (2) Minimum en route altitudes.
- (3) Ground and airborne navigation aids.
- (4) Air traffic density.
- (5) ATC procedures.

(b) Any route widths of other routes determined by the Administrator are specified in the certificate holder's operations specifications.

[Doc. No. 6258, 29 FR 19195, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2610, Jan. 26, 1996]

§ 121.117 Airports: Required data.

(a) No certificate holder conducting supplemental operations may use any airport unless it is properly equipped and adequate for the proposed operation, considering such items as size, surface, obstructions, facilities, public protection, lighting, navigational and communications aids, and ATC.

(b) Each certificate holder conducting supplemental operations must show that it has an approved system for obtaining, maintaining, and distributing to appropriate personnel current aeronautical data for each airport it uses to ensure a safe operation at that airport. The aeronautical data must include the following:

- (1) Airports.
 - (i) Facilities.
 - (ii) Public protection.
 - (iii) Navigational and communications aids.
 - (iv) Construction affecting takeoff, landing, or ground operations.

(v) Air traffic facilities.

(2) Runways, clearways, and stopways.

(i) Dimensions.

(ii) Surface.

(iii) Marking and lighting systems.

(iv) Elevation and gradient.

(3) Displaced thresholds.

(i) Location.

(ii) Dimensions.

(iii) Takeoff or landing or both.

(4) Obstacles.

(i) Those affecting takeoff and landing performance computations in accordance with Subpart I of this part.

(ii) Controlling obstacles.

(5) Instrument flight procedures.

(i) Departure procedure.

(ii) Approach procedure.

(iii) Missed approach procedure.

(6) Special information.

(i) Runway visual range measurement equipment.

(ii) Prevailing winds under low visibility conditions.

(c) If the certificate-holding district office charged with the overall inspection of the certificate holder's operations finds

that revisions are necessary for the continued adequacy of the certificate holder's system for collection, dissemination, and usage of aeronautical data that has been granted approval, the certificate holder shall, after notification by the certificate-holding district office, make those revisions in the system. Within 30 days after the certificate holder receives such notice, the certificate holder may file a petition to reconsider the notice with the Director, Flight Standards Service. This filing of a petition to reconsider stays the notice pending a decision by the Director, Flight Standards Service. However, if the certificate-holding district office finds that there is an emergency that requires immediate action in the interest of safety in air transportation, the Director, Flight Standards Service may, upon a statement of the reasons, require a change effective without stay.

[Doc. No. 6258, 29 FR 19195, Dec. 31, 1964, as amended by Amdt. 121-162, 45 FR 46738, July 10, 1980; Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Amdt. 121-253, 61 FR 2610, Jan. 26, 1996]

§ 121.119 Weather reporting facilities.

(a) No certificate holder conducting supplemental operations may use any weather report to control flight unless it was prepared and released by the U.S. National Weather Service or a source approved by the Weather Bureau. For operations outside the U.S., or at U.S. Military airports, where those reports are not available, the certificate holder must show that its weather reports are prepared by a source found satisfactory by the Administrator.

(b) Each certificate holder conducting supplemental operations that uses forecasts to control flight movements shall use forecasts prepared from weather reports specified in paragraph (a) of this section.

[Doc. No. 6258, 29 FR 19195, Dec. 31, 1964, as amended by Amdt. 121-76, 36 FR 13911, July 28, 1971; Amdt. 121-253, 61 FR 2611, Jan. 26, 1996]

§ 121.121 En route navigation facilities.

(a) Except as provided in paragraph (b) of this section, no certificate holder conducting supplemental operations may conduct any operation over a route (including to any destination, refueling or alternate airports) unless suitable navigation aids are available to navigate the airplane along the route within the degree of accuracy required for ATC. Navigation aids required for routes outside of controlled airspace are listed in the certificate holder's operations specifications except for those aids required for routes to alternate airports.

(b) Navigation aids are not required for any of the following operations -

(1) Day VFR operations that the certificate holder shows can be conducted safely by pilotage because of the characteristics of the terrain;

(2) Night VFR operations on routes that the certificate holder shows have reliably lighted landmarks adequate for safe operation; and

(3) Other operations approved by the certificate holding district office.

[Doc. No. FAA-2002-14002, 72 FR 31681, June 7, 2007]

§ 121.122 Communications facilities - supplemental operations.

(a) Each certificate holder conducting supplemental operations other than all-cargo operations in an airplane with more than two engines must show that a two-way radio communication system or other means of communication approved by the FAA is available. It must ensure reliable and rapid communications under normal operating conditions over the entire route (either direct or via approved point-to-point circuits) between each airplane and the certificate holder, and between each airplane and the appropriate air traffic services, except as specified in § 121.351(c).

(b) Except as provided in paragraph (d) of this section, each certificate holder conducting supplemental operations other than all-cargo operations in an airplane with more than two engines must provide voice communications for ETOPS where voice communication facilities are available. In determining whether facilities are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where facilities are not available or are of such poor quality that voice communication is not possible, another communication system must be substituted.

(c) Except as provided in paragraph (d) of this section, for ETOPS beyond 180 minutes each certificate holder conducting supplemental operations other than all-cargo operations in an airplane with more than two engines must have a second communication system in addition to that required by paragraph (b) of this section. That system must be able to provide immediate satellite-based voice communications of landline telephone-fidelity. The system must provide communication capabilities between the flight crew and air traffic services and the flight crew and the certificate holder. In determining whether such communications are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where immediate, satellite-based voice communications are not available, or are of such poor quality that voice communication is not possible, another communication system must be substituted.

(d) Operators of turbine engine powered airplanes do not need to meet the requirements of paragraphs (b) and (c) of this section until February 15, 2008.

[Doc. No. FAA-2002-6717, 72 FR 1879, Jan. 16, 2007]

§ 121.123 Servicing maintenance facilities.

Each certificate holder conducting supplemental operations must show that competent personnel and adequate

facilities and equipment (including spare parts, supplies, and materials) are available for the proper servicing, maintenance, and preventive maintenance of aircraft and auxiliary equipment.

[Doc. No. 28154, 61 FR 2611, Jan. 26, 1996]

§ 121.125 Flight following system.

(a) Each certificate holder conducting supplemental operations must show that it has -

(1) An approved flight following system established in accordance with subpart U of this part and adequate for the proper monitoring of each flight, considering the operations to be conducted; and

(2) Flight following centers located at those points necessary -

(i) To ensure the proper monitoring of the progress of each flight with respect to its departure at the point of origin and arrival at its destination, including intermediate stops and diversions therefrom, and maintenance or mechanical delays encountered at those points or stops; and

(ii) To ensure that the pilot in command is provided with all information necessary for the safety of the flight.

(b) A certificate holder conducting supplemental operations may arrange to have flight following facilities provided by persons other than its employees, but in such a case the certificate holder continues to be primarily responsible for operational control of each flight.

(c) A flight following system need not provide for in-flight monitoring by a flight following center.

(d) The certificate holder's operations specifications specify the flight following system it is authorized to use and the location of the centers.

[Doc. No. 6258, 29 FR 19195, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2611, Jan. 26, 1996]

§ 121.127 Flight following system; requirements.

(a) Each certificate holder conducting supplemental operations using a flight following system must show that -

(1) The system has adequate facilities and personnel to provide the information necessary for the initiation and safe conduct of each flight to -

(i) The flight crew of each aircraft; and

(ii) The persons designated by the certificate holder to perform the function of operational control of the aircraft; and

(2) The system has a means of communication by private or available public facilities (such as telephone, telegraph, or radio) to monitor the progress of each flight with respect to its departure at the point of origin and arrival at its destination, including intermediate stops and diversions therefrom, and maintenance or mechanical delays encountered at those points or stops.

(b) The certificate holder conducting supplemental operations must show that the personnel specified in paragraph (a) of this section, and those it designates to perform the

function of operational control of the aircraft, are able to perform their required duties.

[Doc. No. 6258, 29 FR 19195, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2611, Jan. 26, 1996]

Subpart G - Manual Requirements

§ 121.131 Applicability.

This subpart prescribes requirements for preparing and maintaining manuals by all certificate holders.

[Doc. No. 6258, 29 FR 19196, Dec. 31, 1964]

§ 121.133 Preparation.

(a) Each certificate holder shall prepare and keep current a manual for the use and guidance of flight, ground operations, and management personnel in conducting its operations.

(b) For the purpose of this subpart, the certificate holder may prepare that part of the manual containing maintenance information and instructions, in whole or in part, in printed form or other form acceptable to the Administrator.

[Doc. No. 28154, 60 FR 65926, Dec. 20, 1995]

§ 121.135 Manual contents.

(a) Each manual required by § 121.133 must -

(1) Include instructions and information necessary to allow the personnel concerned to perform their duties and responsibilities with a high degree of safety;

(2) Be in a form that is easy to revise;

(3) Have the date of last revision on each page concerned; and

(4) Not be contrary to any applicable Federal regulation and, in the case of a flag or supplemental operation, any applicable foreign regulation, or the certificate holder's operations specifications or operating certificate.

(b) The manual may be in two or more separate parts, containing together all of the following information, but each part must contain that part of the information that is appropriate for each group of personnel:

(1) General policies.

(2) Duties and responsibilities of each crewmember, appropriate members of the ground organization, and management personnel.

(3) Reference to appropriate Federal Aviation Regulations.

(4) Flight dispatching and operational control, including procedures for coordinated dispatch or flight control or flight following procedures, as applicable.

(5) En route flight, navigation, and communication procedures, including procedures for the dispatch or release or continuance of flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route.

(6) For domestic or flag operations, appropriate information from the en route operations specifications, including for each approved route the types of airplanes

authorized, the type of operation such as VFR, IFR, day, night, etc., and any other pertinent information.

(7) For supplemental operations, appropriate information from the operations specifications, including the area of operations authorized, the types of airplanes authorized, the type of operation such as VFR, IFR, day, night, etc., and any other pertinent information.

(8) Appropriate information from the airport operations specifications, including for each airport -

(i) Its location (domestic and flag operations only);

(ii) Its designation (regular, alternate, provisional, etc.) (domestic and flag operations only);

(iii) The types of airplanes authorized (domestic and flag operations only);

(iv) Instrument approach procedures;

(v) Landing and takeoff minimums; and

(vi) Any other pertinent information.

(9) Takeoff, en route, and landing weight limitations.

(10) For ETOPS, airplane performance data to support all phases of these operations.

(11) Procedures for familiarizing passengers with the use of emergency equipment, during flight.

(12) Emergency equipment and procedures.

(13) The method of designating succession of command of flight crewmembers.

(14) Procedures for determining the usability of landing and takeoff areas, and for disseminating pertinent information thereon to operations personnel.

(15) Procedures for operating in periods of ice, hail, thunderstorms, turbulence, or any potentially hazardous meteorological condition.

(16) Each training program curriculum required by § 121.403.

(17) Instructions and procedures for maintenance, preventive maintenance, and servicing.

(18) Time limitations, or standards for determining time limitations, for overhauls, inspections, and checks of airframes, engines, propellers, appliances and emergency equipment.

(19) Procedures for refueling aircraft, eliminating fuel contamination, protection from fire (including electrostatic protection), and supervising and protecting passengers during refueling.

(20) Airworthiness inspections, including instructions covering procedures, standards, responsibilities, and authority of inspection personnel.

(21) Methods and procedures for maintaining the aircraft weight and center of gravity within approved limits.

(22) Where applicable, pilot and dispatcher route and airport qualification procedures.

(23) Accident notification procedures.

(24) After February 15, 2008, for passenger flag operations and for those supplemental operations that are not all-cargo operations outside the 48 contiguous States and Alaska,

(i) For ETOPS greater than 180 minutes a specific passenger recovery plan for each ETOPS Alternate Airport used in those operations, and

(ii) For operations in the North Polar Area and South Polar Area a specific passenger recovery plan for each diversion airport used in those operations.

(25)(i) Procedures and information, as described in paragraph (b)(25)(ii) of this section, to assist each crewmember and person performing or directly supervising the following job functions involving items for transport on an aircraft:

- (A) Acceptance;
- (B) Rejection;
- (C) Handling;
- (D) Storage incidental to transport;
- (E) Packaging of company material; or
- (F) Loading.

(ii) Ensure that the procedures and information described in this paragraph are sufficient to assist the person in identifying packages that are marked or labeled as containing hazardous materials or that show signs of containing undeclared hazardous materials. The procedures and information must include:

(A) Procedures for rejecting packages that do not conform to the Hazardous Materials Regulations in 49 CFR parts 171 through 180 or that appear to contain undeclared hazardous materials;

(B) Procedures for complying with the hazardous materials incident reporting requirements of 49 CFR 171.15 and 171.16 and discrepancy reporting requirements of 49 CFR 175.31

(C) The certificate holder's hazmat policies and whether the certificate holder is authorized to carry, or is prohibited from carrying, hazardous materials; and

(D) If the certificate holder's operations specifications permit the transport of hazardous materials, procedures and information to ensure the following:

(1) That packages containing hazardous materials are properly offered and accepted in compliance with 49 CFR parts 171 through 180;

(2) That packages containing hazardous materials are properly handled, stored, packaged, loaded, and carried on board an aircraft in compliance with 49 CFR parts 171 through 180;

(3) That the requirements for Notice to the Pilot in Command (49 CFR 175.33) are complied with; and

(4) That aircraft replacement parts, consumable materials or other items regulated by 49 CFR parts 171 through 180 are properly handled, packaged, and transported.

(26) Other information or instructions relating to safety.

(c) Each certificate holder shall maintain at least one complete copy of the manual at its principal base of operations.

[Doc. No. 6258, 29 FR 19196, Dec. 31, 1964, as amended by Amdt. 121-104, 38 FR 14915, June 7, 1973; Amdt. 121-106, 38 FR 22377, Aug. 20, 1973; Amdt. 121-143, 43 FR 22641, May 25, 1978; Amdt. 121-162, 45 FR 46739, July 10, 1980; Amdt.

121-251, 60 FR 65926, Dec. 20, 1995; Amdt. 121-250, 60 FR 65948, Dec. 20, 1995; Amdt. 121-316, 70 FR 58823, Oct. 7, 2005; Amdt. 121-329, 72 FR 1879, Jan. 16, 2007]

§ 121.137 Distribution and availability.

(a) Each certificate holder shall furnish copies of the manual required by § 121.133 (and the changes and additions thereto) or appropriate parts of the manual to -

(1) Its appropriate ground operations and maintenance personnel;

(2) Crewmembers; and

(3) Representatives of the Administrator assigned to it.

(b) Each person to whom a manual or appropriate parts of it are furnished under paragraph (a) of this section shall keep it up-to-date with the changes and additions furnished to that person and shall have the manual or appropriate parts of it accessible when performing assigned duties.

(c) For the purpose of complying with paragraph (a) of this section, a certificate holder may furnish the persons listed therein the maintenance part of the manual in printed form or other form, acceptable to the Administrator, that is retrievable in the English language.

[Doc. No. 6258, 29 FR 19196, Dec. 31, 1964, as amended by Amdt. 121-71, 35 FR 17176, Nov. 7, 1970; Amdt. 121-162, 45 FR 46739, July 10, 1980; Amdt. 121-262, 62 FR 13256, Mar. 19, 1997]

§ 121.139 Requirements for manual aboard aircraft: Supplemental operations.

(a) Except as provided in paragraph (b) of this section, each certificate holder conducting supplemental operations shall carry appropriate parts of the manual on each airplane when away from the principal base of operations. The appropriate parts must be available for use by ground or flight personnel. If the certificate holder carries aboard an airplane all or any portion of the maintenance part of its manual in other than printed form, it must carry a compatible reading device that produces a legible image of the maintenance information and instructions or a system that is able to retrieve the maintenance information and instructions in the English language.

(b) If a certificate holder conducting supplemental operations is able to perform all scheduled maintenance at specified stations where it keeps maintenance parts of the manual, it does not have to carry those parts of the manual aboard the aircraft en route to those stations.

[Doc. No. 6258, 29 FR 19196, Dec. 31, 1964, as amended by Amdt. 12-71, 35 FR 17176, Nov. 7, 1970; Amdt. 121-253, 61 FR 2611, Jan. 26, 1996; Amdt. 121-262, 62 FR 13256, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997]

§ 121.141 Airplane flight manual.

(a) Each certificate holder shall keep a current approved airplane flight manual for each type of airplane that it operates except for nontransport category airplanes certificated before January 1, 1965.

(b) In each airplane required to have an airplane flight manual in paragraph (a) of this section, the certificate holder shall carry either the manual required by § 121.133, if it contains the information required for the applicable flight manual and this information is clearly identified as flight manual requirements, or an approved Airplane Manual. If the certificate holder elects to carry the manual required by § 121.133, the certificate holder may revise the operating procedures sections and modify the presentation of performance data from the applicable flight manual if the revised operating procedures and modified performance data presentation are -

- (1) Approved by the Administrator; and
- (2) Clearly identified as airplane flight manual requirements.

[Doc. No. 28154, 60 FR 65927, Dec. 20, 1995]

Subpart H - Aircraft Requirements

Source:

Docket No. 6258, 29 FR 19197, Dec. 31, 1964, unless otherwise noted.

§ 121.151 Applicability.

This subpart prescribes aircraft requirements for all certificate holders.

§ 121.153 Aircraft requirements: General.

(a) Except as provided in paragraph (c) of this section, no certificate holder may operate an aircraft unless that aircraft -

- (1) Is registered as a civil aircraft of the United States and carries an appropriate current airworthiness certificate issued under this chapter; and
 - (2) Is in an airworthy condition and meets the applicable airworthiness requirements of this chapter, including those relating to identification and equipment.
- (b) A certificate holder may use an approved weight and balance control system based on average, assumed, or estimated weight to comply with applicable airworthiness requirements and operating limitations.

(c) A certificate holder may operate in common carriage, and for the carriage of mail, a civil aircraft which is leased or chartered to it without crew and is registered in a country which is a party to the Convention on International Civil Aviation if -

- (1) The aircraft carries an appropriate airworthiness certificate issued by the country of registration and meets the registration and identification requirements of that country;
- (2) The aircraft is of a type design which is approved under a U.S. type certificate and complies with all of the requirements of this chapter (14 CFR Chapter 1) that would be applicable to that aircraft were it registered in the United States, including the requirements which must be met for issuance of a U.S. standard airworthiness certificate (including

type design conformity, condition for safe operation, and the noise, fuel venting, and engine emission requirements of this chapter), except that a U.S. registration certificate and a U.S. standard airworthiness certificate will not be issued for the aircraft;

(3) The aircraft is operated by U.S.-certificated airmen employed by the certificate holder; and

(4) The certificate holder files a copy of the aircraft lease or charter agreement with the FAA Aircraft Registry, Department of Transportation, 6400 South MacArthur Boulevard, Oklahoma City, OK (Mailing address: P.O. Box 25504, Oklahoma City, OK 73125).

[Doc. No. 6258, 29 FR 19197, Dec. 31, 1964, as amended by Amdt. 121-165, 45 FR 68649, Oct. 16, 1980]

§ 121.155 [Reserved]

§ 121.157 Aircraft certification and equipment requirements.

(a) *Airplanes certificated before July 1, 1942.* No certificate holder may operate an airplane that was type certificated before July 1, 1942, unless -

- (1) That airplane meets the requirements of § 121.173(c), or
- (2) That airplane and all other airplanes of the same or related type operated by that certificate holder meet the performance requirements of sections 4a.737-T through 4a.750-T of the Civil Air Regulations as in effect on January 31, 1965; or §§ 25.45 through 25.75 and § 121.173(a), (b), (d), and (e) of this title.

(b) *Airplanes certificated after June 30, 1942.* Except as provided in paragraphs (c), (d), (e), and (f) of this section, no certificate holder may operate an airplane that was type certificated after June 30, 1942, unless it is certificated as a transport category airplane and meets the requirements of § 121.173(a), (b), (d), and (e).

(c) *C-46 type airplanes: passenger-carrying operations.* No certificate holder may operate a C-46 airplane in passenger-carrying operations unless that airplane is operated in accordance with the operating limitations for transport category airplanes and meets the requirements of paragraph (b) of this section or meets the requirements of part 4b, as in effect July 20, 1950, and the requirements of § 121.173 (a), (b), (d) and (e), except that -

- (1) The requirements of sections 4b.0 through 4b.19 as in effect May 18, 1954, must be complied with;
- (2) The birdproof windshield requirements of section 4b.352 need not be complied with;
- (3) The provisions of sections 4b.480 through 4b.490 (except sections 4b.484(a)(1) and 4b.487(e)), as in effect May 16, 1953, must be complied with; and
- (4) The provisions of paragraph 4b.484(a)(1), as in effect July 20, 1950, must be complied with.

In determining the takeoff path in accordance with section 4b.116 and the one-engine inoperative climb in accordance

with section 4b.120 (a) and (b), the propeller of the inoperative engine may be assumed to be feathered if the airplane is equipped with either an approved means for automatically indicating when the particular engine has failed or an approved means for automatically feathering the propeller of the inoperative engine. The Administrator may authorize deviations from compliance with the requirements of sections 4b.130 through 4b.190 and subparts C, D, E, and F of part 4b (as designated in this paragraph) if he finds that (considering the effect of design changes) compliance is extremely difficult to accomplish and that service experience with the C-46 airplane justifies the deviation.

(d) *C-46 type airplanes: cargo operations.* No certificate holder may use a nontransport category C-46 type airplane in cargo operations unless -

(1) It is certificated at a maximum gross weight that is not greater than 48,000 pounds;

(2) It meets the requirements of §§ 121.199 through 121.205 using the performance data in appendix C to this part;

(3) Before each flight, each engine contains at least 25 gallons of oil; and

(4) After December 31, 1964 -

(i) It is powered by a type and model engine as set forth in appendix C of this part, when certificated at a maximum gross takeoff weight greater than 45,000 pounds; and

(ii) It complies with the special airworthiness requirement set forth in §§ 121.213 through 121.287 of this part or in appendix C of this part.

(e) *Commuter category airplanes.* Except as provided in paragraph (f) of this section, no certificate holder may operate under this part a nontransport category airplane type certificated after December 31, 1964, and before March 30, 1995, unless it meets the applicable requirements of § 121.173 (a), (b), (d), and (e), and was type certificated in the commuter category.

(f) *Other nontransport category airplanes.* No certificate holder may operate under this part a nontransport category airplane type certificated after December 31, 1964, unless it meets the applicable requirements of § 121.173 (a), (b), (d), and (e), was manufactured before March 20, 1997, and meets one of the following:

(1) Until December 20, 2010:

(i) The airplane was type certificated in the normal category before July 1, 1970, and meets special conditions issued by the Administrator for airplanes intended for use in operations under part 135 of this chapter.

(ii) The airplane was type certificated in the normal category before July 19, 1970, and meets the additional airworthiness standards in SFAR No. 23, 14 CFR part 23.

(iii) The airplane was type certificated in the normal category and meets the additional airworthiness standards in appendix A of part 135 of this chapter.

(iv) The airplane was type certificated in the normal category and complies with either section 1.(a) or 1.(b) of SFAR No. 41 of 14 CFR part 21.

(2) The airplane was type certificated in the normal category, meets the additional requirements described in paragraphs (f)(1)(i) through (f)(1)(iv) of this section, and meets the performance requirements in appendix K of this part.

(g) *Certain newly manufactured airplanes.* No certificate holder may operate an airplane under this part that was type certificated as described in paragraphs (f)(1)(i) through (f)(1)(iv) of this section and that was manufactured after March 20, 1997, unless it meets the performance requirements in appendix K of this part.

(h) *Newly type certificated airplanes.* No person may operate under this part an airplane for which the application for a type certificate is submitted after March 29, 1995, unless the airplane is type certificated under part 25 of this chapter.

[Doc. No. 6258, 29 FR 19197, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65927, Dec. 20, 1995; Amdt. 121-256, 61 FR 30434, June 14, 1996]

§ 121.159 Single-engine airplanes prohibited.

No certificate holder may operate a single-engine airplane under this part.

[Doc. No. 28154, 60 FR 65927, Dec. 20, 1995]

§ 121.161 Airplane limitations: Type of route.

(a) Except as provided in paragraph (e) of this section, unless approved by the Administrator in accordance with Appendix P of this part and authorized in the certificate holder's operations specifications, no certificate holder may operate a turbine-engine-powered airplane over a route that contains a point -

(1) Farther than a flying time from an Adequate Airport (at a one-engine-inoperative cruise speed under standard conditions in still air) of 60 minutes for a two-engine airplane or 180 minutes for a passenger-carrying airplane with more than two engines;

(2) Within the North Polar Area; or

(3) Within the South Polar Area.

(b) Except as provided in paragraph (c) of this section, no certificate holder may operate a land airplane (other than a DC-3, C-46, CV-240, CV-340, CV-440, CV-580, CV-600, CV-640, or Martin 404) in an extended overwater operation unless it is certificated or approved as adequate for ditching under the ditching provisions of part 25 of this chapter.

(c) Until December 20, 2010, a certificate holder may operate, in an extended overwater operation, a nontransport category land airplane type certificated after December 31, 1964, that was not certificated or approved as adequate for ditching under the ditching provisions of part 25 of this chapter.

(d) Unless authorized by the Administrator based on the character of the terrain, the kind of operation, or the performance of the airplane to be used, no certificate holder may operate a reciprocating-engine-powered airplane over a route that contains a point farther than 60 minutes flying

time (at a one-engine-inoperative cruise speed under standard conditions in still air) from an Adequate Airport.

(e) Operators of turbine-engine powered airplanes with more than two engines do not need to meet the requirements of paragraph (a)(1) of this section until February 15, 2008.

[Doc. No. 7329, 31 FR 13078, Oct. 8, 1966, as amended by Amdt. 121-162, 45 FR 46739, July 10, 1980; Amdt. 121-251, 60 FR 65927, Dec. 20, 1995; Amdt. 121-329, 72 FR 1879, Jan. 16, 2007]

§ 121.162 ETOPS Type Design Approval Basis.

Except for a passenger-carrying airplane with more than two engines manufactured prior to February 17, 2015 and except for a two-engine airplane that, when used in ETOPS, is only used for ETOPS of 75 minutes or less, no certificate holder may conduct ETOPS unless the airplane has been type design approved for ETOPS and each airplane used in ETOPS complies with its CMP document as follows:

(a) For a two-engine airplane, that is of the same model airplane-engine combination that received FAA approval for ETOPS up to 180 minutes prior to February 15, 2007, the CMP document for that model airplane-engine combination in effect on February 14, 2007.

(b) For a two-engine airplane, that is not of the same model airplane-engine combination that received FAA approval for ETOPS up to 180 minutes before February 15, 2007, the CMP document for that new model airplane-engine combination issued in accordance with § 25.3(b)(1) of this chapter.

(c) For a two-engine airplane approved for ETOPS beyond 180 minutes, the CMP document for that model airplane-engine combination issued in accordance with § 25.3(b)(2) of this chapter.

(d) For an airplane with more than 2 engines manufactured on or after February 17, 2015, the CMP document for that model airplane-engine combination issued in accordance with § 25.3(c) of this chapter.

[Doc. No. FAA-2002-6717, 72 FR 1879, Jan. 16, 2007]

§ 121.163 Aircraft proving tests.

(a) *Initial airplane proving tests.* No person may operate an airplane not before proven for use in a kind of operation under this part or part 135 of this chapter unless an airplane of that type has had, in addition to the airplane certification tests, at least 100 hours of proving tests acceptable to the Administrator, including a representative number of flights into en route airports. The requirement for at least 100 hours of proving tests may be reduced by the Administrator if the Administrator determines that a satisfactory level of proficiency has been demonstrated to justify the reduction. At least 10 hours of proving flights must be flown at night; these tests are irreducible.

(b) *Proving tests for kinds of operations.* Unless otherwise authorized by the Administrator, for each type of airplane, a certificate holder must conduct at least 50 hours of proving tests acceptable to the Administrator for each kind of operation

it intends to conduct, including a representative number of flights into en route airports.

(c) *Proving tests for materially altered airplanes.* Unless otherwise authorized by the Administrator, for each type of airplane that is materially altered in design, a certificate holder must conduct at least 50 hours of proving tests acceptable to the Administrator for each kind of operation it intends to conduct with that airplane, including a representative number of flights into en route airports.

(d) *Definition of materially altered.* For the purposes of paragraph (c) of this section, a type of airplane is considered to be materially altered in design if the alteration includes -

(1) The installation of powerplants other than those of a type similar to those with which it is certificated; or

(2) Alterations to the aircraft or its components that materially affect flight characteristics.

(e) No certificate holder may carry passengers in an aircraft during proving tests, except for those needed to make the test and those designated by the Administrator. However, it may carry mail, express, or other cargo, when approved.

[Doc. No. 6258, 29 FR 19197, Dec. 31, 1964, as amended by Amdt. 121-42, 33 FR 10330, July 19, 1968; 34 FR 13468, Aug. 21, 1969; Amdt. 121-162, 45 FR 46739, July 10, 1980; Amdt. 121-251, 60 FR 65927, Dec. 20, 1995]

Subpart I - Airplane Performance Operating Limitations

Source:

Docket No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, unless otherwise noted.

Editorial Note:

Nomenclature changes to subpart I of part 121 appear at 60 FR 65928, Dec. 20, 1995.

§ 121.171 Applicability.

(a) This subpart prescribes airplane performance operating limitations for all certificate holders.

(b) For purposes of this part, *effective length of the runway* for landing means the distance from the point at which the obstruction clearance plane associated with the approach end of the runway intersects the centerline of the runway to the far end thereof.

(c) For the purposes of this subpart, *obstruction clearance plane* means a plane sloping upward from the runway at a slope of 1:20 to the horizontal, and tangent to or clearing all obstructions within a specified area surrounding the runway as shown in a profile view of that area. In the plan view, the centerline of the specified area coincides with the centerline of the runway, beginning at the point where the obstruction clearance plane intersects the centerline of the runway and proceeding to a point at least 1,500 feet from the beginning

point. Thereafter the centerline coincides with the takeoff path over the ground for the runway (in the case of takeoffs) or with the instrument approach counterpart (for landings), or, where the applicable one of these paths has not been established, it proceeds consistent with turns of at least 4,000 foot radius until a point is reached beyond which the obstruction clearance plane clears all obstructions. This area extends laterally 200 feet on each side of the centerline at the point where the obstruction clearance plane intersects the runway and continues at this width to the end of the runway; then it increases uniformly to 500 feet on each side of the centerline at a point 1,500 feet from the intersection of the obstruction clearance plane with the runway; thereafter it extends laterally 500 feet on each side of the centerline.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-132, 41 FR 55475, Dec. 20, 1976]

§ 121.173 General.

(a) Except as provided in paragraph (c) of this section, each certificate holder operating a reciprocating-engine-powered airplane shall comply with §§ 121.175 through 121.187.

(b) Except as provided in paragraph (c) of this section, each certificate holder operating a turbine-engine-powered airplane shall comply with the applicable provisions of §§ 121.189 through 121.197, except that when it operates -

(1) A turbo-propeller-powered airplane type certificated after August 29, 1959, but previously type certificated with the same number of reciprocating engines, the certificate holder may comply with §§ 121.175 through 121.187; or

(2) Until December 20, 2010, a turbo-propeller-powered airplane described in § 121.157(f), the certificate holder may comply with the applicable performance requirements of appendix K of this part.

(c) Each certificate holder operating a large nontransport category airplane type certificated before January 1, 1965, shall comply with §§ 121.199 through 121.205 and any determination of compliance must be based only on approved performance data.

(d) The performance data in the Airplane Flight Manual applies in determining compliance with §§ 121.175 through 121.197. Where conditions are different from those on which the performance data is based, compliance is determined by interpolation or by computing the effects of changes in the specific variables if the results of the interpolation or computations are substantially as accurate as the results of direct tests.

(e) Except as provided in paragraph (c) of this section, no person may take off a reciprocating-engine-powered airplane at a weight that is more than the allowable weight for the runway being used (determined under the runway takeoff limitations of the operating rules of 14 CFR part 121, subpart I) after taking into account the temperature operating correction factors in the applicable Airplane Flight Manual.

(f) The Administrator may authorize in the operations specifications deviations from the requirements in the subpart

if special circumstances make a literal observance of a requirement unnecessary for safety.

(g) The ten-mile width specified in §§ 121.179 through 121.183 may be reduced to five miles, for not more than 20 miles, when operating VFR or where navigation facilities furnish reliable and accurate identification of high ground and obstructions located outside of five miles, but within ten miles, on each side of the intended track.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

§ 121.175 Airplanes: Reciprocating engine-powered: Weight limitations.

(a) No person may take off a reciprocating engine powered airplane from an airport located at an elevation outside of the range for which maximum takeoff weights have been determined for that airplane.

(b) No person may take off a reciprocating engine powered airplane for an airport of intended destination that is located at an elevation outside of the range for which maximum landing weights have been determined for that airplane.

(c) No person may specify, or have specified, an alternate airport that is located at an elevation outside of the range for which maximum landing weights have been determined for the reciprocating engine powered airplane concerned.

(d) No person may take off a reciprocating engine powered airplane at a weight more than the maximum authorized takeoff weight for the elevation of the airport.

(e) No person may take off a reciprocating engine powered airplane if its weight on arrival at the airport of destination will be more than the maximum authorized landing weight for the elevation of that airport, allowing for normal consumption of fuel and oil en route.

(f) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

§ 121.177 Airplanes: Reciprocating engine-powered: Takeoff limitations.

(a) No person operating a reciprocating engine powered airplane may takeoff that airplane unless it is possible -

(1) To stop the airplane safely on the runway, as shown by the accelerate stop distance data, at any time during takeoff until reaching critical-engine failure speed;

(2) If the critical engine fails at any time after the airplane reaches critical-engine failure speed V_1 , to continue the takeoff and reach a height of 50 feet, as indicated by the takeoff path data, before passing over the end of the runway; and

(3) To clear all obstacles either by at least 50 feet vertically (as shown by the takeoff path data) or 200 feet horizontally within the airport boundaries and 300 feet horizontally beyond the boundaries, without banking before reaching a height of 50

feet (as shown by the takeoff path data) and thereafter without banking more than 15 degrees.

(b) In applying this section, corrections must be made for the effective runway gradient. To allow for wind effect, takeoff data based on still air may be corrected by taking into account not more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component.

(c) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-159, 45 FR 41593, June 19, 1980; Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

**§ 121.179 Airplanes: Reciprocating engine-powered:
En route limitations: All engines operating.**

(a) No person operating a reciprocating engine powered airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb (in feet per minute), with all engines operating, of at least $6.90 V_{SO}$ (that is, the number of feet per minute is obtained by multiplying the number of knots by 6.90) at an altitude of at least 1,000 feet above the highest ground or obstruction within ten miles of each side of the intended track.

(b) This section does not apply to airplanes certificated under part 4a of the Civil Air Regulations.

(c) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

**§ 121.181 Airplanes: Reciprocating engine-powered:
En route limitations: One engine inoperative.**

(a) Except as provided in paragraph (b) of this section, no person operating a reciprocating engine powered airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb (in feet per minute), with one engine inoperative, of at least $(0.079-0.106/N) V_{SO}^2$

(where N is the number of engines installed and V_{SO} is expressed in knots) at an altitude of at least 1,000 feet above the highest ground or obstruction within 10 miles of each side of the intended track. However, for the purposes of this paragraph the rate of climb for airplanes certificated under part 4a of the Civil Air Regulations is $0.026 V_{SO}^2$.

(b) In place of the requirements of paragraph (a) of this section, a person may, under an approved procedure, operate a reciprocating engine powered airplane, at an all-engines-operating altitude that allows the airplane to continue, after an engine failure, to an alternate airport where a landing can be made in accordance with § 121.187, allowing for normal consumption of fuel and oil. After the assumed failure, the flight path must clear the ground and any obstruction within

five miles on each side of the intended track by at least 2,000 feet.

(c) If an approved procedure under paragraph (b) of this section is used, the certificate holder shall comply with the following:

(1) The rate of climb (as prescribed in the Airplane Flight Manual for the appropriate weight and altitude) used in calculating the airplane's flight path shall be diminished by an amount, in feet per minute, equal to $(0.079-0.106/N) V_{SO}^2$

(when N is the number of engines installed and V_{SO} is expressed in knots) for airplanes certificated under part 25 of this chapter and by $0.026 V_{SO}^2$ for airplanes certificated under part 4a of the Civil Air Regulations.

(2) The all-engines-operating altitude shall be sufficient so that in the event the critical engine becomes inoperative at any point along the route, the flight will be able to proceed to a predetermined alternate airport by use of this procedure. In determining the takeoff weight, the airplane is assumed to pass over the critical obstruction following engine failure at a point no closer to the critical obstruction than the nearest approved radio navigational fix, unless the Administrator approves a procedure established on a different basis upon finding that adequate operational safeguards exist.

(3) The airplane must meet the provisions of paragraph (a) of this section at 1,000 feet above the airport used as an alternate in this procedure.

(4) The procedure must include an approved method of accounting for winds and temperatures that would otherwise adversely affect the flight path.

(5) In complying with this procedure fuel jettisoning is allowed if the certificate holder shows that it has an adequate training program, that proper instructions are given to the flight crew, and all other precautions are taken to insure a safe procedure.

(6) The certificate holder shall specify in the dispatch or flight release an alternate airport that meets the requirements of § 121.625.

(d) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

§ 121.183 Part 25 airplanes with four or more engines: Reciprocating engine powered: En route limitations: Two engines inoperative.

(a) No person may operate an airplane certificated under part 25 and having four or more engines unless -

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets the requirements of § 121.187; or

(2) It is operated at a weight allowing the airplane, with the two critical engines inoperative, to climb at $0.013 V_{SO}^2$ feet

per minute (that is, the number of feet per minute is obtained by multiplying the number of knots squared by 0.013) at an altitude of 1,000 feet above the highest ground or obstruction within 10 miles on each side of the intended track, or at an altitude of 5,000 feet, whichever is higher.

(b) For the purposes of paragraph (a)(2) of this section, it is assumed that -

(1) The two engines fail at the point that is most critical with respect to the takeoff weight:

(2) Consumption of fuel and oil is normal with all engines operating up to the point where the two engines fail and with two engines operating beyond that point;

(3) Where the engines are assumed to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb at the prescribed minimum altitude need not be shown during the descent from the cruising altitude to the prescribed minimum altitude, if those requirements can be met once the prescribed minimum altitude is reached, and assuming descent to be along a net flight path and the rate of descent to be $0.013 V_{SO}^2$ greater than the rate in the approved performance data; and

(4) If fuel jettisoning is provided, the airplane's weight at the point where the two engines fail is considered to be not less than that which would include enough fuel to proceed to an airport meeting the requirements of § 121.187 and to arrive at an altitude of at least 1,000 feet directly over that airport.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

**§ 121.185 Airplanes: Reciprocating engine-powered:
Landing limitations: Destination airport.**

(a) Except as provided in paragraph (b) of this section no person operating a reciprocating engine powered airplane may take off that airplane, unless its weight on arrival, allowing for normal consumption of fuel and oil in flight, would allow a full stop landing at the intended destination within 60 percent of the effective length of each runway described below from a point 50 feet directly above the intersection of the obstruction clearance plane and the runway. For the purposes of determining the allowable landing weight at the destination airport the following is assumed:

(1) The airplane is landed on the most favorable runway and in the most favorable direction in still air.

(2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction (forecast for the expected time of arrival), the ground handling characteristics of the type of airplane, and other conditions such as landing aids and terrain, and allowing for the effect of the landing path and roll of not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.

(b) An airplane that would be prohibited from being taken off because it could not meet the requirements of paragraph (a)(2) of this section may be taken off if an alternate airport

is specified that meets all of the requirements of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

(c) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

**§ 121.187 Airplanes: Reciprocating engine-powered:
Landing limitations: Alternate airport.**

(a) No person may list an airport as an alternate airport in a dispatch or flight release unless the airplane (at the weight anticipated at the time of arrival at the airport), based on the assumptions in § 121.185, can be brought to a full stop landing, within 70 percent of the effective length of the runway.

(b) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

**§ 121.189 Airplanes: Turbine engine powered:
Takeoff limitations.**

(a) No person operating a turbine engine powered airplane may take off that airplane at a weight greater than that listed in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at takeoff.

(b) No person operating a turbine engine powered airplane certificated after August 26, 1957, but before August 30, 1959 (SR422, 422A), may take off that airplane at a weight greater than that listed in the Airplane Flight Manual for the minimum distances required for takeoff. In the case of an airplane certificated after September 30, 1958 (SR422A, 422B), the takeoff distance may include a clearway distance but the clearway distance included may not be greater than of the takeoff run.

(c) No person operating a turbine engine powered airplane certificated after August 29, 1959 (SR422B), may take off that airplane at a weight greater than that listed in the Airplane Flight Manual at which compliance with the following may be shown:

(1) The accelerate-stop distance must not exceed the length of the runway plus the length of any stopway.

(2) The takeoff distance must not exceed the length of the runway plus the length of any clearway except that the length of any clearway included must not be greater than one-half the length of the runway.

(3) The takeoff run must not be greater than the length of the runway.

(d) No person operating a turbine engine powered airplane may take off that airplane at a weight greater than that listed in the Airplane Flight Manual -

(1) In the case of an airplane certificated after August 26, 1957, but before October 1, 1958 (SR422), that allows a

takeoff path that clears all obstacles either by at least (35 + 0.01D) feet vertically (D is the distance along the intended flight path from the end of the runway in feet), or by at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries; or

(2) In the case of an airplane certificated after September 30, 1958 (SR 422A, 422B), that allows a net takeoff flight path that clears all obstacles either by a height of at least 35 feet vertically, or by at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries.

(e) In determining maximum weights, minimum distances, and flight paths under paragraphs (a) through (d) of this section, correction must be made for the runway to be used, the elevation of the airport, the effective runway gradient, the ambient temperature and wind component at the time of takeoff, and, if operating limitations exist for the minimum distances required for takeoff from wet runways, the runway surface condition (dry or wet). Wet runway distances associated with grooved or porous friction course runways, if provided in the Airplane Flight Manual, may be used only for runways that are grooved or treated with a porous friction course (PFC) overlay, and that the operator determines are designed, constructed, and maintained in a manner acceptable to the Administrator.

(f) For the purposes of this section, it is assumed that the airplane is not banked before reaching a height of 50 feet, as shown by the takeoff path or net takeoff flight path data (as appropriate) in the Airplane Flight Manual, and thereafter that the maximum bank is not more than 15 degrees.

(g) For the purposes of this section the terms, *takeoff distance*, *takeoff run*, *net takeoff flight path* and *takeoff path* have the same meanings as set forth in the rules under which the airplane was certificated.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-268, 63 FR 8321, Feb. 18, 1998]

§ 121.191 Airplanes: Turbine engine powered: En route limitations: One engine inoperative.

(a) No person operating a turbine engine powered airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that is greater than that which (under the approved, one engine inoperative, en route net flight path data in the Airplane Flight Manual for that airplane) will allow compliance with paragraph (a) (1) or (2) of this section, based on the ambient temperatures expected en route:

(1) There is a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within five statute miles on each side of the intended track, and, in addition, if that airplane was certificated after August 29, 1959 (SR 422B) there is a positive slope at 1,500 feet above the airport where the airplane is assumed to land after an engine fails.

(2) The net flight path allows the airplane to continue flight from the cruising altitude to an airport where a landing can be made under § 121.197, clearing all terrain and obstructions

within five statute miles of the intended track by at least 2,000 feet vertically and with a positive slope at 1,000 feet above the airport where the airplane lands after an engine fails, or, if that airplane was certificated after September 30, 1958 (SR 422A, 422B), with a positive slope at 1,500 feet above the airport where the airplane lands after an engine fails.

(b) For the purposes of paragraph (a)(2) of this section, it is assumed that -

(1) The engine fails at the most critical point en route;

(2) The airplane passes over the critical obstruction, after engine failure at a point that is no closer to the obstruction than the nearest approved radio navigation fix, unless the Administrator authorizes a different procedure based on adequate operational safeguards;

(3) An approved method is used to allow for adverse winds;

(4) Fuel jettisoning will be allowed if the certificate holder shows that the crew is properly instructed, that the training program is adequate, and that all other precautions are taken to insure a safe procedure;

(5) The alternate airport is specified in the dispatch or flight release and meets the prescribed weather minimums; and

(6) The consumption of fuel and oil after engine failure is the same as the consumption that is allowed for in the approved net flight path data in the Airplane Flight Manual.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, as amended by Amdt. 121-143, 43 FR 22641, May 25, 1978]

§ 121.193 Airplanes: Turbine engine powered: En route limitations: Two engines inoperative.

(a) *Airplanes certificated after August 26, 1957, but before October 1, 1958* (SR 422). No person may operate a turbine engine powered airplane along an intended route unless he complies with either of the following:

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets the requirements of § 121.197.

(2) Its weight, according to the two-engine-inoperative, en route, net flight path data in the Airplane Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets the requirements of § 121.197, with a net flight path (considering the ambient temperature anticipated along the track) having a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within five miles on each side of the intended track, or at an altitude of 5,000 feet, whichever is higher.

For the purposes of paragraph (a)(2) of this section, it is assumed that the two engines fail at the most critical point en route, that if fuel jettisoning is provided, the airplane's weight at the point where the engines fail includes enough fuel to continue to the airport and to arrive at an altitude of at least 1,000 feet directly over the airport, and that the fuel and oil consumption after engine failure is the same as the

consumption allowed for in the net flight path data in the Airplane Flight Manual.

(b) *Aircraft certificated after September 30, 1958, but before August 30, 1959* (SR 422A). No person may operate a turbine engine powered airplane along an intended route unless he complies with either of the following:

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets the requirements of § 121.197.

(2) Its weight, according to the two-engine-inoperative, en route, net flight path data in the Airplane Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets the requirements of § 121.197, with a net flight path (considering the ambient temperatures anticipated along the track) having a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within 5 miles on each side of the intended track, or at an altitude of 2,000 feet, whichever is higher.

For the purposes of paragraph (b)(2) of this section, it is assumed that the two engines fail at the most critical point en route, that the airplane's weight at the point where the engines fail includes enough fuel to continue to the airport, to arrive at an altitude of at least 1,500 feet directly over the airport, and thereafter to fly for 15 minutes at cruise power or thrust, or both, and that the consumption of fuel and oil after engine failure is the same as the consumption allowed for in the net flight path data in the Airplane Flight Manual.

(c) *Aircraft certificated after August 29, 1959* (SR 422B). No person may operate a turbine engine powered airplane along an intended route unless he complies with either of the following:

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets the requirements of § 121.197.

(2) Its weight, according to the two-engine inoperative, en route, net flight path data in the Airplane Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets the requirements of § 121.197, with the net flight path (considering the ambient temperatures anticipated along the track) clearing vertically by at least 2,000 feet all terrain and obstructions within five statute miles (4.34 nautical miles) on each side of the intended track. For the purposes of this subparagraph, it is assumed that -

(i) The two engines fail at the most critical point en route;

(ii) The net flight path has a positive slope at 1,500 feet above the airport where the landing is assumed to be made after the engines fail;

(iii) Fuel jettisoning will be approved if the certificate holder shows that the crew is properly instructed, that the training program is adequate, and that all other precautions are taken to ensure a safe procedure;

(iv) The airplane's weight at the point where the two engines are assumed to fail provides enough fuel to continue to

the airport, to arrive at an altitude of at least 1,500 feet directly over the airport, and thereafter to fly for 15 minutes at cruise power or thrust, or both; and

(v) The consumption of fuel and oil after the engine failure is the same as the consumption that is allowed for in the net flight path data in the Airplane Flight Manual.

**§ 121.195 Airplanes: Turbine engine powered:
Landing limitations: Destination airports.**

(a) No person operating a turbine engine powered airplane may take off that airplane at such a weight that (allowing for normal consumption of fuel and oil in flight to the destination or alternate airport) the weight of the airplane on arrival would exceed the landing weight set forth in the Airplane Flight Manual for the elevation of the destination or alternate airport and the ambient temperature anticipated at the time of landing.

(b) Except as provided in paragraph (c), (d), or (e) of this section, no person operating a turbine engine powered airplane may take off that airplane unless its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance set forth in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions anticipated there at the time of landing), would allow a full stop landing at the intended destination airport within 60 percent of the effective length of each runway described below from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport the following is assumed:

(1) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.

(2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.

(c) A turbopropeller powered airplane that would be prohibited from being taken off because it could not meet the requirements of paragraph (b)(2) of this section, may be taken off if an alternate airport is specified that meets all the requirements of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

(d) Unless, based on a showing of actual operating landing techniques on wet runways, a shorter landing distance (but never less than that required by paragraph (b) of this section) has been approved for a specific type and model airplane and included in the Airplane Flight Manual, no person may takeoff a turbojet powered airplane when the appropriate weather reports and forecasts, or a combination thereof, indicate that the runways at the destination airport may be wet or slippery at the estimated time of arrival unless the effective runway length at the destination airport is at least 115 percent of the runway length required under paragraph (b) of this section.

(e) A turbojet powered airplane that would be prohibited from being taken off because it could not meet the

requirements of paragraph (b)(2) of this section may be taken off if an alternate airport is specified that meets all the requirements of paragraph (b) of this section.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-9, 30 FR 8572, July 7, 1965]

**§ 121.197 Airplanes: Turbine engine powered:
Landing limitations: Alternate airports.**

No person may list an airport as an alternate airport in a dispatch or flight release for a turbine engine powered airplane unless (based on the assumptions in § 121.195 (b)) that airplane at the weight anticipated at the time of arrival can be brought to a full stop landing within 70 percent of the effective length of the runway for turbopropeller powered airplanes and 60 percent of the effective length of the runway for turbojet powered airplanes, from a point 50 feet above the intersection of the obstruction clearance plane and the runway. In the case of an alternate airport for departure, as provided in § 121.617, allowance may be made for fuel jettisoning in addition to normal consumption of fuel and oil when determining the weight anticipated at the time of arrival.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-9, 30 FR 8572, July 7, 1965; Amdt. 121-179, 47 FR 33390, Aug. 2, 1982]

§ 121.198 Cargo service airplanes: Increased zero fuel and landing weights.

(a) Notwithstanding the applicable structural provisions of the airworthiness regulations but subject to paragraphs (b) through (g) of this section, a certificate holder may operate (for cargo service only) any of the following airplanes (certificated under part 4b of the Civil Air Regulations effective before March 13, 1956) at increased zero fuel and landing weights -

(1) DC-6A, DC-6B, DC-7B, and DC-7C; and

(2) L1049B, C, D, E, F, G, and H, and the L1649A when modified in accordance with supplemental type certificate SA 4-1402.

(b) The zero fuel weight (maximum weight of the airplane with no disposable fuel and oil) and the structural landing weight may be increased beyond the maximum approved in full compliance with applicable regulations only if the Administrator finds that -

(1) The increase is not likely to reduce seriously the structural strength;

(2) The probability of sudden fatigue failure is not noticeably increased;

(3) The flutter, deformation, and vibration characteristics do not fall below those required by applicable regulations; and

(4) All other applicable weight limitations will be met.

(c) No zero fuel weight may be increased by more than five percent, and the increase in the structural landing weight may not exceed the amount, in pounds, of the increase in zero fuel weight.

(d) Each airplane must be inspected in accordance with the approved special inspection procedures, for operations at

increased weights, established and issued by the manufacturer of the type of airplane.

(e) Each airplane operated under this section must be operated in accordance with the passenger-carrying performance operating limitations prescribed in this part.

(f) The Airplane Flight Manual for each airplane operated under this section must be appropriately revised to include the operating limitations and information needed for operation at the increased weights.

(g) Except as provided for the carrying of persons under § 121.583 each airplane operated at an increased weight under this section must, before it is used in passenger service, be inspected under the special inspection procedures for return to passenger service established and issued by the manufacturer and approved by the Administrator.

§ 121.199 Nontransport category airplanes: Takeoff limitations.

(a) No person operating a nontransport category airplane may take off that airplane at a weight greater than the weight that would allow the airplane to be brought to a safe stop within the effective length of the runway, from any point during the takeoff before reaching 105 percent of minimum control speed (the minimum speed at which an airplane can be safely controlled in flight after an engine becomes inoperative) or 115 percent of the power off stalling speed in the takeoff configuration, whichever is greater.

(b) For the purposes of this section -

(1) It may be assumed that takeoff power is used on all engines during the acceleration;

(2) Not more than 50 percent of the reported headwind component, or not less than 150 percent of the reported tailwind component, may be taken into account;

(3) The average runway gradient (the difference between the elevations of the endpoints of the runway divided by the total length) must be considered if it is more than one-half of 1 percent;

(4) It is assumed that the airplane is operating in standard atmosphere; and

(5) The *effective length of the runway* for takeoff means the distance from the end of the runway at which the takeoff is started to a point at which the obstruction clearance plane associated with the other end of the runway intersects the runway centerline.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-132, 41 FR 55475, Dec. 20, 1976]

§ 121.201 Nontransport category airplanes: En route limitations: One engine inoperative.

(a) Except as provided in paragraph (b) of this section, no person operating a nontransport category airplane may take off that airplane at a weight that does not allow a rate of climb of at least 50 feet a minute, with the critical engine inoperative, at an altitude of at least 1,000 feet above the highest obstruction

within five miles on each side of the intended track, or 5,000 feet, whichever is higher.

(b) Notwithstanding paragraph (a) of this section, if the Administrator finds that safe operations are not impaired, a person may operate the airplane at an altitude that allows the airplane, in case of engine failure, to clear all obstructions within 5 miles on each side of the intended track by 1,000 feet. If this procedure is used, the rate of descent for the appropriate weight and altitude is assumed to be 50 feet a minute greater than the rate in the approved performance data. Before approving such a procedure, the Administrator considers the following for the route, route segment, or area concerned:

- (1) The reliability of wind and weather forecasting.
 - (2) The location and kinds of navigation aids.
 - (3) The prevailing weather conditions, particularly the frequency and amount of turbulence normally encountered.
 - (4) Terrain features.
 - (5) Air traffic control problems.
 - (6) Any other operational factors that affect the operation.
- (c) For the purposes of this section, it is assumed that -
- (1) The critical engine is inoperative;
 - (2) The propeller of the inoperative engine is in the minimum drag position;
 - (3) The wing flaps and landing gear are in the most favorable position;
 - (4) The operating engines are operating at the maximum continuous power available;
 - (5) The airplane is operating in standard atmosphere; and
 - (6) The weight of the airplane is progressively reduced by the anticipated consumption of fuel and oil.

§ 121.203 Nontransport category airplanes: Landing limitations: Destination airport.

(a) No person operating a nontransport category airplane may take off that airplane at a weight that -

- (1) Allowing for anticipated consumption of fuel and oil, is greater than the weight that would allow a full stop landing within 60 percent of the effective length of the most suitable runway at the destination airport; and
 - (2) Is greater than the weight allowable if the landing is to be made on the runway -
 - (i) With the greatest effective length in still air; and
 - (ii) Required by the probable wind, taking into account not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.
- (b) For the purposes of this section, it is assumed that -
- (1) The airplane passes directly over the intersection of the obstruction clearance plane and the runway at a height of 50 feet in a steady gliding approach at a true indicated airspeed of at least $1.3 V_{SO}$;
 - (2) The landing does not require exceptional pilot skill; and
 - (3) The airplane is operating in standard atmosphere.

§ 121.205 Nontransport category airplanes: Landing limitations: Alternate airport.

No person may list an airport as an alternate airport in a dispatch or flight release for a nontransport category airplane unless that airplane (at the weight anticipated at the time of arrival) based on the assumptions contained in § 121.203, can be brought to a full stop landing within 70 percent of the effective length of the runway.

§ 121.207 Provisionally certificated airplanes: Operating limitations.

In addition to the limitations in § 91.317 of this chapter, the following limitations apply to the operation of provisionally certificated airplanes by certificate holders:

(a) In addition to crewmembers, each certificate holder may carry on such an airplane only those persons who are listed in § 121.547(c) or who are specifically authorized by both the certificate holder and the Administrator.

(b) Each certificate holder shall keep a log of each flight conducted under this section and shall keep accurate and complete records of each inspection made and all maintenance performed on the airplane. The certificate holder shall make the log and records made under this section available to the manufacturer and the Administrator.

[Doc. No. 28154, 61 FR 2611, Jan. 26, 1996]

Subpart J - Special Airworthiness Requirements

Source:

Docket No. 6258, 29 FR 19202, Dec. 31, 1964, unless otherwise noted.

§ 121.211 Applicability.

(a) This subpart prescribes special airworthiness requirements applicable to certificate holders as stated in paragraphs (b) through (e) of this section.

(b) Except as provided in paragraph (d) of this section, each airplane type certificated under Aero Bulletin 7A or part 04 of the Civil Air Regulations in effect before November 1, 1946 must meet the special airworthiness requirements in §§ 121.215 through 121.283.

(c) Each certificate holder must comply with the requirements of §§ 121.285 through 121.291.

(d) If the Administrator determines that, for a particular model of airplane used in cargo service, literal compliance with any requirement under paragraph (b) of this section would be extremely difficult and that compliance would not contribute materially to the objective sought, he may require compliance only with those requirements that are necessary to accomplish the basic objectives of this part.

(e) No person may operate under this part a nontransport category airplane type certificated after December 31, 1964, unless the airplane meets the special airworthiness requirements in § 121.293.

[Doc. No. 28154, 60 FR 65928, Dec. 20, 1995]

§ 121.213 [Reserved]

§ 121.215 Cabin interiors.

(a) Except as provided in § 121.312, each compartment used by the crew or passengers must meet the requirements of this section.

(b) Materials must be at least flash resistant.

(c) The wall and ceiling linings and the covering of upholstery, floors, and furnishings must be flame resistant.

(d) Each compartment where smoking is to be allowed must be equipped with self-contained ash trays that are completely removable and other compartments must be placarded against smoking.

(e) Each receptacle for used towels, papers, and wastes must be of fire-resistant material and must have a cover or other means of containing possible fires started in the receptacles.

[Doc. No. 6258, 29 FR 19202, Dec. 31, 1964, as amended by Amdt. 121-84, 37 FR 3974, Feb. 24, 1972]

§ 121.217 Internal doors.

In any case where internal doors are equipped with louvres or other ventilating means, there must be a means convenient to the crew for closing the flow of air through the door when necessary.

§ 121.219 Ventilation.

Each passenger or crew compartment must be suitably ventilated. Carbon monoxide concentration may not be more than one part in 20,000 parts of air, and fuel fumes may not be present. In any case where partitions between compartments have louvres or other means allowing air to flow between compartments, there must be a means convenient to the crew for closing the flow of air through the partitions, when necessary.

§ 121.221 Fire precautions.

(a) Each compartment must be designed so that, when used for storing cargo or baggage, it meets the following requirements:

(1) No compartment may include controls, wiring, lines, equipment, or accessories that would upon damage or failure, affect the safe operation of the airplane unless the item is adequately shielded, isolated, or otherwise protected so that it cannot be damaged by movement of cargo in the compartment and so that damage to or failure of the item would not create a fire hazard in the compartment.

(2) Cargo or baggage may not interfere with the functioning of the fire-protective features of the compartment.

(3) Materials used in the construction of the compartments, including tie-down equipment, must be at least flame resistant.

(4) Each compartment must include provisions for safeguarding against fires according to the classifications set forth in paragraphs (b) through (f) of this section.

(b) *Class A.* Cargo and baggage compartments are classified in the “A” category if -

(1) A fire therein would be readily discernible to a member of the crew while at his station; and

(2) All parts of the compartment are easily accessible in flight.

There must be a hand fire extinguisher available for each Class A compartment.

(c) *Class B.* Cargo and baggage compartments are classified in the “B” category if enough access is provided while in flight to enable a member of the crew to effectively reach all of the compartment and its contents with a hand fire extinguisher and the compartment is so designed that, when the access provisions are being used, no hazardous amount of smoke, flames, or extinguishing agent enters any compartment occupied by the crew or passengers. Each Class B compartment must comply with the following:

(1) It must have a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station.

(2) There must be a hand fire extinguisher available for the compartment.

(3) It must be lined with fire-resistant material, except that additional service lining of flame-resistant material may be used.

(d) *Class C.* Cargo and baggage compartments are classified in the “C” category if they do not conform with the requirements for the “A”, “B”, “D”, or “E” categories. Each Class C compartment must comply with the following:

(1) It must have a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station.

(2) It must have an approved built-in fire-extinguishing system controlled from the pilot or flight engineer station.

(3) It must be designed to exclude hazardous quantities of smoke, flames, or extinguishing agents from entering into any compartment occupied by the crew or passengers.

(4) It must have ventilation and draft controlled so that the extinguishing agent provided can control any fire that may start in the compartment.

(5) It must be lined with fire-resistant material, except that additional service lining of flame-resistant material may be used.

(e) *Class D.* Cargo and baggage compartments are classified in the “D” category if they are so designed and constructed that a fire occurring therein will be completely confined without endangering the safety of the airplane or the occupants. Each Class D compartment must comply with the following:

(1) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering any compartment occupied by the crew or passengers.

(2) Ventilation and drafts must be controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits.

(3) It must be completely lined with fire-resistant material.

(4) Consideration must be given to the effect of heat within the compartment on adjacent critical parts of the airplane.

(f) *Class E.* On airplanes used for the carriage of cargo only, the cabin area may be classified as a Class “E” compartment. Each Class E compartment must comply with the following:

(1) It must be completely lined with fire-resistant material.

(2) It must have a separate system of an approved type smoke or fire detector to give warning at the pilot or flight engineer station.

(3) It must have a means to shut off the ventilating air flow to or within the compartment and the controls for that means must be accessible to the flight crew in the crew compartment.

(4) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering the flight crew compartment.

(5) Required crew emergency exits must be accessible under all cargo loading conditions.

§ 121.223 Proof of compliance with § 121.221.

Compliance with those provisions of § 121.221 that refer to compartment accessibility, the entry of hazardous quantities of smoke or extinguishing agent into compartments occupied by the crew or passengers, and the dissipation of the extinguishing agent in Class “C” compartments must be shown by tests in flight. During these tests it must be shown that no inadvertent operation of smoke or fire detectors in other compartments within the airplane would occur as a result of fire contained in any one compartment, either during the time it is being extinguished, or thereafter, unless the extinguishing system floods those compartments simultaneously.

§ 121.225 Propeller deicing fluid.

If combustible fluid is used for propeller deicing, the certificate holder must comply with § 121.255.

§ 121.227 Pressure cross-feed arrangements.

(a) Pressure cross-feed lines may not pass through parts of the airplane used for carrying persons or cargo unless -

(1) There is a means to allow crewmembers to shut off the supply of fuel to these lines; or

(2) The lines are enclosed in a fuel and fume-proof enclosure that is ventilated and drained to the exterior of the airplane.

However, such an enclosure need not be used if those lines incorporate no fittings on or within the personnel or cargo areas and are suitably routed or protected to prevent accidental damage.

(b) Lines that can be isolated from the rest of the fuel system by valves at each end must incorporate provisions for

relieving excessive pressures that may result from exposure of the isolated line to high temperatures.

§ 121.229 Location of fuel tanks.

(a) Fuel tanks must be located in accordance with § 121.255.

(b) No part of the engine nacelle skin that lies immediately behind a major air outlet from the engine compartment may be used as the wall of an integral tank.

(c) Fuel tanks must be isolated from personnel compartments by means of fume- and fuel-proof enclosures.

§ 121.231 Fuel system lines and fittings.

(a) Fuel lines must be installed and supported so as to prevent excessive vibration and so as to be adequate to withstand loads due to fuel pressure and accelerated flight conditions.

(b) Lines connected to components of the airplanes between which there may be relative motion must incorporate provisions for flexibility.

(c) Flexible connections in lines that may be under pressure and subject to axial loading must use flexible hose assemblies rather than hose clamp connections.

(d) Flexible hose must be of an acceptable type or proven suitable for the particular application.

§ 121.233 Fuel lines and fittings in designated fire zones.

Fuel lines and fittings in each designated fire zone must comply with § 121.259.

§ 121.235 Fuel valves.

Each fuel valve must -

(a) Comply with § 121.257;

(b) Have positive stops or suitable index provisions in the “on” and “off” positions; and

(c) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines connected to the valve.

§ 121.237 Oil lines and fittings in designated fire zones.

Oil line and fittings in each designated fire zone must comply with § 121.259.

§ 121.239 Oil valves.

(a) Each oil valve must -

(1) Comply with § 121.257;

(2) Have positive stops or suitable index provisions in the “on” and “off” positions; and

(3) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines attached to the valve.

(b) The closing of an oil shutoff means must not prevent feathering the propeller, unless equivalent safety provisions are incorporated.

§ 121.241 Oil system drains.

Accessible drains incorporating either a manual or automatic means for positive locking in the closed position, must be provided to allow safe drainage of the entire oil system.

§ 121.243 Engine breather lines.

(a) Engine breather lines must be so arranged that condensed water vapor that may freeze and obstruct the line cannot accumulate at any point.

(b) Engine breathers must discharge in a location that does not constitute a fire hazard in case foaming occurs and so that oil emitted from the line does not impinge upon the pilots' windshield.

(c) Engine breathers may not discharge into the engine air induction system.

§ 121.245 Fire walls.

Each engine, auxiliary power unit, fuel-burning heater, or other item of combustion equipment that is intended for operation in flight must be isolated from the rest of the airplane by means of firewalls or shrouds, or by other equivalent means.

§ 121.247 Fire-wall construction.

Each fire wall and shroud must -

(a) Be so made that no hazardous quantity of air, fluids, or flame can pass from the engine compartment to other parts of the airplane;

(b) Have all openings in the fire wall or shroud sealed with close-fitting fire-proof grommets, bushings, or firewall fittings;

(c) Be made of fireproof material; and

(d) Be protected against corrosion.

§ 121.249 Cowling.

(a) Cowling must be made and supported so as to resist the vibration inertia, and air loads to which it may be normally subjected.

(b) Provisions must be made to allow rapid and complete drainage of the cowling in normal ground and flight attitudes. Drains must not discharge in locations constituting a fire hazard. Parts of the cowling that are subjected to high temperatures because they are near exhaust system parts or because of exhaust gas impingement must be made of fireproof material. Unless otherwise specified in these regulations all other parts of the cowling must be made of material that is at least fire resistant.

§ 121.251 Engine accessory section diaphragm.

Unless equivalent protection can be shown by other means, a diaphragm that complies with § 121.247 must be provided on air-cooled engines to isolate the engine power section and

all parts of the exhaust system from the engine accessory compartment.

§ 121.253 Powerplant fire protection.

(a) Designated fire zones must be protected from fire by compliance with §§ 121.255 through 121.261.

(b) Designated fire zones are -

(1) Engine accessory sections;

(2) Installations where no isolation is provided between the engine and accessory compartment; and

(3) Areas that contain auxiliary power units, fuel-burning heaters, and other combustion equipment.

§ 121.255 Flammable fluids.

(a) No tanks or reservoirs that are a part of a system containing flammable fluids or gases may be located in designated fire zones, except where the fluid contained, the design of the system, the materials used in the tank, the shutoff means, and the connections, lines, and controls provide equivalent safety.

(b) At least one-half inch of clear airspace must be provided between any tank or reservoir and a firewall or shroud isolating a designated fire zone.

§ 121.257 Shutoff means.

(a) Each engine must have a means for shutting off or otherwise preventing hazardous amounts of fuel, oil, deicer, and other flammable fluids from flowing into, within, or through any designated fire zone. However, means need not be provided to shut off flow in lines that are an integral part of an engine.

(b) The shutoff means must allow an emergency operating sequence that is compatible with the emergency operation of other equipment, such as feathering the propeller, to facilitate rapid and effective control of fires.

(c) Shutoff means must be located outside of designated fire zones, unless equivalent safety is provided, and it must be shown that no hazardous amount of flammable fluid will drain into any designated fire zone after a shut off.

(d) Adequate provisions must be made to guard against inadvertent operation of the shutoff means and to make it possible for the crew to reopen the shutoff means after it has been closed.

§ 121.259 Lines and fittings.

(a) Each line, and its fittings, that is located in a designated fire zone, if it carries flammable fluids or gases under pressure, or is attached directly to the engine, or is subject to relative motion between components (except lines and fittings forming an integral part of the engine), must be flexible and fire-resistant with fire-resistant, factory-fixed, detachable, or other approved fire-resistant ends.

(b) Lines and fittings that are not subject to pressure or to relative motion between components must be of fire-resistant materials.

§ 121.261 Vent and drain lines.

All vent and drain lines and their fittings, that are located in a designated fire zone must, if they carry flammable fluids or gases, comply with § 121.259, if the Administrator finds that the rupture or breakage of any vent or drain line may result in a fire hazard.

§ 121.263 Fire-extinguishing systems.

(a) Unless the certificate holder shows that equivalent protection against destruction of the airplane in case of fire is provided by the use of fireproof materials in the nacelle and other components that would be subjected to flame, fire-extinguishing systems must be provided to serve all designated fire zones.

(b) Materials in the fire-extinguishing system must not react chemically with the extinguishing agent so as to be a hazard.

§ 121.265 Fire-extinguishing agents.

Only methyl bromide, carbon dioxide, or another agent that has been shown to provide equivalent extinguishing action may be used as a fire-extinguishing agent. If methyl bromide or any other toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapors from entering any personnel compartment either because of leakage during normal operation of the airplane or because of discharging the fire extinguisher on the ground or in flight when there is a defect in the extinguishing system. If a methyl bromide system is used, the containers must be charged with dry agent and sealed by the fire-extinguisher manufacturer or some other person using satisfactory recharging equipment. If carbon dioxide is used, it must not be possible to discharge enough gas into the personnel compartments to create a danger of suffocating the occupants.

§ 121.267 Extinguishing agent container pressure relief.

Extinguishing agent containers must be provided with a pressure relief to prevent bursting of the container because of excessive internal pressures. The discharge line from the relief connection must terminate outside the airplane in a place convenient for inspection on the ground. An indicator must be provided at the discharge end of the line to provide a visual indication when the container has discharged.

§ 121.269 Extinguishing agent container compartment temperature.

Precautions must be taken to insure that the extinguishing agent containers are installed in places where reasonable temperatures can be maintained for effective use of the extinguishing system.

§ 121.271 Fire-extinguishing system materials.

(a) Except as provided in paragraph (b) of this section, each component of a fire-extinguishing system that is in a designated fire zone must be made of fireproof materials.

(b) Connections that are subject to relative motion between components of the airplane must be made of flexible materials that are at least fire-resistant and be located so as to minimize the probability of failure.

§ 121.273 Fire-detector systems.

Enough quick-acting fire detectors must be provided in each designated fire zone to assure the detection of any fire that may occur in that zone.

§ 121.275 Fire detectors.

Fire detectors must be made and installed in a manner that assures their ability to resist, without failure, all vibration, inertia, and other loads to which they may be normally subjected. Fire detectors must be unaffected by exposure to fumes, oil, water, or other fluids that may be present.

§ 121.277 Protection of other airplane components against fire.

(a) Except as provided in paragraph (b) of this section, all airplane surfaces aft of the nacelles in the area of one nacelle diameter on both sides of the nacelle centerline must be made of material that is at least fire resistant.

(b) Paragraph (a) of this section does not apply to tail surfaces lying behind nacelles unless the dimensional configuration of the airplane is such that the tail surfaces could be affected readily by heat, flames, or sparks emanating from a designated fire zone or from the engine compartment of any nacelle.

§ 121.279 Control of engine rotation.

(a) Except as provided in paragraph (b) of this section, each airplane must have a means of individually stopping and restarting the rotation of any engine in flight.

(b) In the case of turbine engine installations, a means of stopping the rotation need be provided only if the Administrator finds that rotation could jeopardize the safety of the airplane.

§ 121.281 Fuel system independence.

(a) Each airplane fuel system must be arranged so that the failure of any one component does not result in the irrecoverable loss of power of more than one engine.

(b) A separate fuel tank need not be provided for each engine if the certificate holder shows that the fuel system incorporates features that provide equivalent safety.

§ 121.283 Induction system ice prevention.

A means for preventing the malfunctioning of each engine due to ice accumulation in the engine air induction system must be provided for each airplane.

§ 121.285 Carriage of cargo in passenger compartments.

(a) Except as provided in paragraph (b), (c), or (d) of this section, no certificate holder may carry cargo in the passenger compartment of an airplane.

(b) Cargo may be carried anywhere in the passenger compartment if it is carried in an approved cargo bin that meets the following requirements:

(1) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by a factor of 1.15, using the combined weight of the bin and the maximum weight of cargo that may be carried in the bin.

(2) The maximum weight of cargo that the bin is approved to carry and any instructions necessary to insure proper weight distribution within the bin must be conspicuously marked on the bin.

(3) The bin may not impose any load on the floor or other structure of the airplane that exceeds the load limitations of that structure.

(4) The bin must be attached to the seat tracks or to the floor structure of the airplane, and its attachment must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by either the factor 1.15 or the seat attachment factor specified for the airplane, whichever is greater, using the combined weight of the bin and the maximum weight of cargo that may be carried in the bin.

(5) The bin may not be installed in a position that restricts access to or use of any required emergency exit, or of the aisle in the passenger compartment.

(6) The bin must be fully enclosed and made of material that is at least flame resistant.

(7) Suitable safeguards must be provided within the bin to prevent the cargo from shifting under emergency landing conditions.

(8) The bin may not be installed in a position that obscures any passenger's view of the "seat belt" sign "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.

(c) Cargo may be carried aft of a bulkhead or divider in any passenger compartment provided the cargo is restrained to the load factors in § 25.561(b)(3) and is loaded as follows:

(1) It is properly secured by a safety belt or other tiedown having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.

(2) It is packaged or covered in a manner to avoid possible injury to passengers and passenger compartment occupants.

(3) It does not impose any load on seats or the floor structure that exceeds the load limitation for those components.

(4) Its location does not restrict access to or use of any required emergency or regular exit, or of the aisle in the passenger compartment.

(5) Its location does not obscure any passenger's view of the "seat belt" sign, "no smoking" sign, or required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.

(d) Cargo, including carry-on baggage, may be carried anywhere in the passenger compartment of a nontransport category airplane type certificated after December 31, 1964, if it is carried in an approved cargo rack, bin, or compartment installed in or on the airplane, if it is secured by an approved means, or if it is carried in accordance with each of the following:

(1) For cargo, it is properly secured by a safety belt or other tie-down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions, or for carry-on baggage, it is restrained so as to prevent its movement during air turbulence.

(2) It is packaged or covered to avoid possible injury to occupants.

(3) It does not impose any load on seats or in the floor structure that exceeds the load limitation for those components.

(4) It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or is located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign or placard, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided.

(5) It is not carried directly above seated occupants.

(6) It is stowed in compliance with this section for takeoff and landing.

(7) For cargo-only operations, paragraph (d)(4) of this section does not apply if the cargo is loaded so that at least one emergency or regular exit is available to provide all occupants of the airplane a means of unobstructed exit from the airplane if an emergency occurs.

[Doc. No. 6258, 29 FR 19202, Dec. 31, 1964, as amended by Amdt. 121-179, 47 FR 33390, Aug. 2, 1982; Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

§ 121.287 Carriage of cargo in cargo compartments.

When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

§ 121.289 Landing gear: Aural warning device.

(a) Except for airplanes that comply with the requirements of § 25.729 of this chapter on or after January 6, 1992, each

airplane must have a landing gear aural warning device that functions continuously under the following conditions:

(1) For airplanes with an established approach wing-flap position, whenever the wing flaps are extended beyond the maximum certificated approach climb configuration position in the Airplane Flight Manual and the landing gear is not fully extended and locked.

(2) For airplanes without an established approach climb wing-flap position, whenever the wing flaps are extended beyond the position at which landing gear extension is normally performed and the landing gear is not fully extended and locked.

(b) The warning system required by paragraph (a) of this section -

(1) May not have a manual shutoff;

(2) Must be in addition to the throttle-actuated device installed under the type certification airworthiness requirements; and

(3) May utilize any part of the throttle-actuated system including the aural warning device.

(c) The flap position sensing unit may be installed at any suitable place in the airplane.

[Doc. No. 6258, 29 FR 19202, Dec. 31, 1964, as amended by Amdt. 121-3, 30 FR 3638, Mar. 19, 1965; Amdt. 121-130, 41 FR 47229, Oct. 28, 1976; Amdt. 121-227, 56 FR 63762, Dec. 5, 1991; Amdt. 121-251, 60 FR 65929, Dec. 20, 1995]

§ 121.291 Demonstration of emergency evacuation procedures.

(a) Except as provided in paragraph (a)(1) of this section, each certificate holder must conduct an actual demonstration of emergency evacuation procedures in accordance with paragraph (a) of appendix D to this part to show that each type and model of airplane with a seating capacity of more than 44 passengers to be used in its passenger-carrying operations allows the evacuation of the full capacity, including crewmembers, in 90 seconds or less.

(1) An actual demonstration need not be conducted if that airplane type and model has been shown to be in compliance with this paragraph in effect on or after October 24, 1967, or, if during type certification, with § 25.803 of this chapter in effect on or after December 1, 1978.

(2) Any actual demonstration conducted after September 27, 1993, must be in accordance with paragraph (a) of appendix D to this part in effect on or after that date or with § 25.803 in effect on or after that date.

(b) Each certificate holder conducting operations with airplanes with a seating capacity of more than 44 passengers must conduct a partial demonstration of emergency evacuation procedures in accordance with paragraph (c) of this section upon:

(1) Initial introduction of a type and model of airplane into passenger-carrying operation;

(2) Changing the number, location, or emergency evacuation duties or procedures of flight attendants who are required by § 121.391; or

(3) Changing the number, location, type of emergency exits, or type of opening mechanism on emergency exits available for evacuation.

(c) In conducting the partial demonstration required by paragraph (b) of this section, each certificate holder must:

(1) Demonstrate the effectiveness of its crewmember emergency training and evacuation procedures by conducting a demonstration, not requiring passengers and observed by the Administrator, in which the flight attendants for that type and model of airplane, using that operator's line operating procedures, open 50 percent of the required floor-level emergency exits and 50 percent of the required non-floor-level emergency exits whose opening by a flight attendant is defined as an emergency evacuation duty under § 121.397, and deploy 50 percent of the exit slides. The exits and slides will be selected by the administrator and must be ready for use within 15 seconds;

(2) Apply for and obtain approval from the certificate-holding district office before conducting the demonstration;

(3) Use flight attendants in this demonstration who have been selected at random by the Administrator, have completed the certificate holder's FAA-approved training program for the type and model of airplane, and have passed a written or practical examination on the emergency equipment and procedures; and

(4) Apply for and obtain approval from the certificate-holding district office before commencing operations with this type and model airplane.

(d) Each certificate holder operating or proposing to operate one or more landplanes in extended overwater operations, or otherwise required to have certain equipment under § 121.339, must show, by simulated ditching conducted in accordance with paragraph (b) of appendix D to this part, that it has the ability to efficiently carry out its ditching procedures. For certificate holders subject to § 121.2(a)(1), this paragraph applies only when a new type or model airplane is introduced into the certificate holder's operations after January 19, 1996.

(e) For a type and model airplane for which the simulated ditching specified in paragraph (d) has been conducted by a part 121 certificate holder, the requirements of paragraphs (b) (2), (b)(4), and (b)(5) of appendix D to this part are complied with if each life raft is removed from stowage, one life raft is launched and inflated (or one slide life raft is inflated) and crewmembers assigned to the inflated life raft display and describe the use of each item of required emergency equipment. The life raft or slide life raft to be inflated will be selected by the Administrator.

[Doc. No. 21269, 46 FR 61453, Dec. 17, 1981, as amended by Amdt. 121-233, 58 FR 45230, Aug. 26, 1993; Amdt. 121-251, 60 FR 65929, Dec. 20, 1995; Amdt. 121-307, 69 FR 67499, Nov. 17, 2004]

§ 121.293 Special airworthiness requirements for nontransport category airplanes type certificated after December 31, 1964.

No certificate holder may operate a nontransport category airplane manufactured after December 20, 1999 unless the airplane contains a takeoff warning system that meets the requirements of 14 CFR 25.703. However, the takeoff warning system does not have to cover any device for which it has been demonstrated that takeoff with that device in the most adverse position would not create a hazardous condition.

[Doc. No. 28154, 60 FR 65929, Dec. 20, 1995]

§ 121.295 Location for a suspect device.

After November 28, 2009, all airplanes with a maximum certificated passenger seating capacity of more than 60 persons must have a location where a suspected explosive or incendiary device found in flight can be placed to minimize the risk to the airplane.

[Doc. No. FAA-2006-26722, 73 FR 63880, Oct. 28, 2008]

Subpart K - Instrument and Equipment Requirements

Source:

Docket No. 6258, 29 FR 19205, Dec. 31, 1964, unless otherwise noted.

§ 121.301 Applicability.

This subpart prescribes instrument and equipment requirements for all certificate holders.

§ 121.303 Airplane instruments and equipment.

(a) Unless otherwise specified, the instrument and equipment requirements of this subpart apply to all operations under this part.

(b) Instruments and equipment required by §§ 121.305 through 121.359 and 121.803 must be approved and installed in accordance with the airworthiness requirements applicable to them.

(c) Each airspeed indicator must be calibrated in knots, and each airspeed limitation and item of related information in the Airplane Flight Manual and pertinent placards must be expressed in knots.

(d) Except as provided in §§ 121.627(b) and 121.628, no person may take off any airplane unless the following instruments and equipment are in operable condition:

(1) Instruments and equipment required to comply with airworthiness requirements under which the airplane is type certificated and as required by §§ 121.213 through 121.283 and 121.289.

(2) Instruments and equipment specified in §§ 121.305 through 121.321, 121.359, 121.360, and 121.803 for all

operations, and the instruments and equipment specified in §§ 121.323 through 121.351 for the kind of operation indicated, wherever these items are not already required by paragraph (d) (1) of this section.

[Doc. No. 6258, 29 FR 19202, Dec. 31, 1964, as amended by Amdt. 121-44, 33 FR 14406, Sept. 25, 1968; Amdt. 121-65, 35 FR 12709, Aug. 11, 1970; Amdt. 121-114, 39 FR 44440, Dec. 24, 1974; Amdt. 121-126, 40 FR 55314, Nov. 28, 1975; Amdt. 121-222, 56 FR 12310, Mar. 22, 1991; Amdt. 121-253, 61 FR 2611, Jan. 26, 1996; Amdt. 121-281, 66 FR 19043, Apr. 12, 2001]

§ 121.305 Flight and navigational equipment.

No person may operate an airplane unless it is equipped with the following flight and navigational instruments and equipment:

(a) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.

(b) A sensitive altimeter.

(c) A sweep-second hand clock (or approved equivalent).

(d) A free-air temperature indicator.

(e) A gyroscopic bank and pitch indicator (artificial horizon).

(f) A gyroscopic rate-of-turn indicator combined with an integral slip-skid indicator (turn-and-bank indicator) except that only a slip-skid indicator is required when a third attitude instrument system usable through flight attitudes of 360° of pitch and roll is installed in accordance with paragraph (k) of this section.

(g) A gyroscopic direction indicator (directional gyro or equivalent).

(h) A magnetic compass.

(i) A vertical speed indicator (rate-of-climb indicator).

(j) On the airplane described in this paragraph, in addition to two gyroscopic bank and pitch indicators (artificial horizons) for use at the pilot stations, a third such instrument is installed in accordance with paragraph (k) of this section:

(1) On each turbojet powered airplane.

(2) On each turbopropeller powered airplane having a passenger-seat configuration of more than 30 seats, excluding each crewmember seat, or a payload capacity of more than 7,500 pounds.

(3) On each turbopropeller powered airplane having a passenger-seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pounds or less that is manufactured on or after March 20, 1997.

(4) After December 20, 2010, on each turbopropeller powered airplane having a passenger seat configuration of 10-30 seats and a payload capacity of 7,500 pounds or less that was manufactured before March 20, 1997.

(k) When required by paragraph (j) of this section, a third gyroscopic bank-and-pitch indicator (artificial horizon) that:

(1) Is powered from a source independent of the electrical generating system;

(2) Continues reliable operation for a minimum of 30 minutes after total failure of the electrical generating system;

(3) Operates independently of any other attitude indicating system;

(4) Is operative without selection after total failure of the electrical generating system;

(5) Is located on the instrument panel in a position acceptable to the Administrator that will make it plainly visible to and usable by each pilot at his or her station; and

(6) Is appropriately lighted during all phases of operation.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-57, 35 FR 304, Jan. 8, 1970; Amdt. 121-60, 35 FR 7108, May 6, 1970; Amdt. 121-81, 36 FR 23050, Dec. 3, 1971; Amdt. 121-130, 41 FR 47229, Oct. 28, 1976; Amdt. 121-230, 58 FR 12158, Mar. 3, 1993; Amdt. 121-251, 60 FR 65929, Dec. 20, 1995; Amdt. 121-262, 62 FR 13256, Mar. 19, 1997]

§ 121.306 Portable electronic devices.

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any U.S.-registered civil aircraft operating under this part.

(b) Paragraph (a) of this section does not apply to -

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers;

(5) Portable oxygen concentrators that comply with the requirements in § 121.574; or

(6) Any other portable electronic device that the part 119 certificate holder has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) The determination required by paragraph (b)(6) of this section shall be made by that part 119 certificate holder operating the particular device to be used.

[Doc. No. FAA-1998-4954, 64 FR 1080, Jan. 7, 1999, as amended by Docket FAA-2014-0554, Amdt. 121-374, 81 FR 33118, May 24, 2016]

§ 121.307 Engine instruments.

Unless the Administrator allows or requires different instrumentation for turbine engine powered airplanes to provide equivalent safety, no person may conduct any operation under this part without the following engine instruments:

(a) A carburetor air temperature indicator for each engine.

(b) A cylinder head temperature indicator for each air-cooled engine.

(c) A fuel pressure indicator for each engine.

(d) A fuel flowmeter or fuel mixture indicator for each engine not equipped with an automatic altitude mixture control.

(e) A means for indicating fuel quantity in each fuel tank to be used.

(f) A manifold pressure indicator for each engine.

(g) An oil pressure indicator for each engine.

(h) An oil quantity indicator for each oil tank when a transfer or separate oil reserve supply is used.

(i) An oil-in temperature indicator for each engine.

(j) A tachometer for each engine.

(k) An independent fuel pressure warning device for each engine or a master warning device for all engines with a means for isolating the individual warning circuits from the master warning device.

(l) A device for each reversible propeller, to indicate to the pilot when the propeller is in reverse pitch, that complies with the following:

(1) The device may be actuated at any point in the reversing cycle between the normal low pitch stop position and full reverse pitch, but it may not give an indication at or above the normal low pitch stop position.

(2) The source of indication must be actuated by the propeller blade angle or be directly responsive to it.

§ 121.308 Lavatory fire protection.

(a) Except as provided in paragraphs (c) and (d) of this section, no person may operate a passenger-carrying airplane unless each lavatory in the airplane is equipped with a smoke detector system or equivalent that provides a warning light in the cockpit or provides a warning light or audio warning in the passenger cabin which would be readily detected by a flight attendant, taking into consideration the positioning of flight attendants throughout the passenger compartment during various phases of flight.

(b) Except as provided in paragraph (c) of this section, no person may operate a passenger-carrying airplane unless each lavatory in the airplane is equipped with a built-in fire extinguisher for each disposal receptacle for towels, paper, or waste located within the lavatory. The built-in fire extinguisher must be designed to discharge automatically into each disposal receptacle upon occurrence of a fire in the receptacle.

(c) Until December 22, 1997, a certificate holder described in § 121.2(a) (1) or (2) may operate an airplane with a passenger seat configuration of 30 or fewer seats that does not comply with the smoke detector system requirements described in paragraph (a) of this section and the fire extinguisher requirements described in paragraph (b) of this section.

(d) After December 22, 1997, no person may operate a nontransport category airplane type certificated after December 31, 1964, with a passenger seat configuration of 10-19 seats unless that airplane complies with the smoke detector system requirements described in paragraph (a) of this section, except that the smoke detector system or equivalent must provide a warning light in the cockpit or an audio warning that would be readily detected by the flightcrew.

[Doc. No. 28154, 60 FR 65929, Dec. 20, 1995]

§ 121.309 Emergency equipment.

(a) *General:* No person may operate an airplane unless it is equipped with the emergency equipment listed in this section and in § 121.310.

(b) Each item of emergency and flotation equipment listed in this section and in §§ 121.310, 121.339, and 121.340 -

(1) Must be inspected regularly in accordance with inspection periods established in the operations specifications to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes;

(2) Must be readily accessible to the crew and, with regard to equipment located in the passenger compartment, to passengers;

(3) Must be clearly identified and clearly marked to indicate its method of operation; and

(4) When carried in a compartment or container, must be carried in a compartment or container marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.

(c) *Hand fire extinguishers for crew, passenger, cargo, and galley compartments.* Hand fire extinguishers of an approved type must be provided for use in crew, passenger, cargo, and galley compartments in accordance with the following:

(1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the

compartment where the extinguisher is intended to be used and, for passenger compartments, must be designed to minimize the hazard of toxic gas concentrations.

(2) *Cargo compartments.* At least one hand fire extinguisher must be conveniently located for use in each class E cargo compartment that is accessible to crewmembers during flight.

(3) *Galley compartments.* At least one hand fire extinguisher must be conveniently located for use in each galley located in a compartment other than a passenger, cargo, or crew compartment.

(4) *Flightcrew compartment.* At least one hand fire extinguisher must be conveniently located on the flight deck for use by the flightcrew.

(5) *Passenger compartments.* Hand fire extinguishers for use in passenger compartments must be conveniently located and, when two or more are required, uniformly distributed throughout each compartment. Hand fire extinguishers shall be provided in passenger compartments as follows:

(i) For airplanes having passenger seats accommodating more than 6 but fewer than 31 passengers, at least one.

(ii) For airplanes having passenger seats accommodating more than 30 but fewer than 61 passengers, at least two.

(iii) For airplanes having passenger seats accommodating more than 60 passengers, there must be at least the following number of hand fire extinguishers:

Minimum Number of Hand Fire Extinguishers

| | |
|-----------------------------------|---|
| Passenger seating accommodations: | |
| 61 through 200 | 3 |
| 201 through 300 | 4 |
| 301 through 400 | 5 |
| 401 through 500 | 6 |
| 501 through 600 | 7 |
| 601 or more | 8 |

(6) Notwithstanding the requirement for uniform distribution of hand fire extinguishers as prescribed in paragraph (c)(5) of this section, for those cases where a galley is located in a passenger compartment, at least one hand fire extinguisher must be conveniently located and easily accessible for use in the galley.

(7) At least two of the required hand fire extinguisher installed in passenger-carrying airplanes must contain Halon 1211 (bromochlorofluoromethane) or equivalent as the extinguishing agent. At least one hand fire extinguisher in the passenger compartment must contain Halon 1211 or equivalent.

(d) [Reserved]

(e) *Crash ax.* Except for nontransport category airplanes type certificated after December 31, 1964, each airplane must be equipped with a crash ax.

(f) *Megaphones.* Each passenger-carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:

(1) One megaphone on each airplane with a seating capacity of more than 60 and less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Administrator may grant a deviation from the requirements of this subparagraph if he finds that a different location would be more useful for evacuation of persons during an emergency.

(2) Two megaphones in the passenger cabin on each airplane with a seating capacity of more than 99 passengers, one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal flight attendant seat.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964]

Editorial Note:

For Federal Register citations affecting § 121.309, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.310 Additional emergency equipment.

Link to an amendment published at 81 FR 96701, Dec. 30, 2016.

(a) *Means for emergency evacuation.* Each passenger-carrying landplane emergency exit (other than over-the-wing) that is more than 6 feet from the ground with the airplane on the ground and the landing gear extended, must have an approved means to assist the occupants in descending to the ground. The assisting means for a floor-level emergency exit must meet the requirements of § 25.809(f)(1) of this chapter in effect on April 30, 1972, except that, for any airplane for which the application for the type certificate was filed after that date, it must meet the requirements under which the airplane was type certificated. An assisting means that deploys automatically must be armed during taxiing, takeoffs, and landings. However, if the Administrator finds that the design of the exit makes compliance impractical, he may grant a deviation from the requirement of automatic deployment if the assisting means automatically erects upon deployment and, with respect to required emergency exits, if an emergency evacuation demonstration is conducted in accordance with § 121.291(a). This paragraph does not apply to the rear window emergency exit of DC-3 airplanes operated with less than 36 occupants, including crewmembers and less than five exits authorized for passenger use.

(b) *Interior emergency exit marking.* The following must be complied with for each passenger-carrying airplane:

(1) Each passenger emergency exit, its means of access, and its means of opening must be conspicuously marked. The identity and location of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin. The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle. There must be a locating sign -

(i) Above the aisle near each over-the-wing passenger emergency exit, or at another ceiling location if it is more practical because of low headroom;

(ii) Next to each floor level passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from that sign; and

(iii) On each bulkhead or divider that prevents fore and aft vision along the passenger cabin, to indicate emergency exits beyond and obscured by it, except that if this is not possible the sign may be placed at another appropriate location.

(2) Each passenger emergency exit marking and each locating sign must meet the following:

(i) Except as provided in paragraph (b)(2)(iii) of this section, for an airplane for which the application for the type

certificate was filed prior to May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the requirements of § 25.812(b) of this chapter in effect on April 30, 1972. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts. The colors may be reversed if it increases the emergency illumination of the passenger compartment. However, the Administrator may authorize deviation from the 2-inch background requirements if he finds that special circumstances exist that make compliance impractical and that the proposed deviation provides an equivalent level of safety.

(ii) For a transport category airplane for which the application for the type certificate was filed on or after May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the interior emergency exit marking requirements under which the airplane was type certificated. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 250 microlamberts.

(iii) For a nontransport category turbopropeller powered airplane type certificated after December 31, 1964, each passenger emergency exit marking and each locating sign must be manufactured to meet the requirements of § 23.811(b) of this chapter. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts.

(c) *Lighting for interior emergency exit markings.* Except for nontransport category airplanes type certificated after December 31, 1964, each passenger-carrying airplane must have an emergency lighting system, independent of the main lighting system. However, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system.

The emergency lighting system must -

(1) Illuminate each passenger exit marking and locating sign;

(2) Provide enough general lighting in the passenger cabin so that the average illumination when measured at 40-inch intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.05 foot-candles; and

(3) For airplanes type certificated after January 1, 1958, after November 26, 1986, include floor proximity emergency escape path marking which meets the requirements of § 25.812(e) of this chapter in effect on November 26, 1984.

(d) *Emergency light operation.* Except for lights forming part of emergency lighting subsystems provided in compliance with § 25.812(h) of this chapter (as prescribed in paragraph (h) of this section) that serve no more than one assist means, are independent of the airplane's main emergency lighting systems, and are automatically activated when the assist means is deployed, each light required by paragraphs (c) and (h) of this section must comply with the following:

(1) Each light must -

(i) Be operable manually both from the flightcrew station and, for airplanes on which a flight attendant is required, from a point in the passenger compartment that is readily accessible to a normal flight attendant seat;

(ii) Have a means to prevent inadvertent operation of the manual controls; and

(iii) When armed or turned on at either station, remain lighted or become lighted upon interruption of the airplane's normal electric power.

(2) Each light must be armed or turned on during taxiing, takeoff, and landing. In showing compliance with this paragraph a transverse vertical separation of the fuselage need not be considered.

(3) Each light must provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing.

(4) Each light must have a cockpit control device that has an "on," "off," and "armed" position.

(e) *Emergency exit operating handles.* (1) For a passenger-carrying airplane for which the application for the type certificate was filed prior to May 1, 1972, the location of each passenger emergency exit operating handle, and instructions for opening the exit, must be shown by a marking on or near the exit that is readable from a distance of 30 inches. In addition, for each Type I and Type II emergency exit with a locking mechanism released by rotary motion of the handle, the instructions for opening must be shown by -

(i) A red arrow with a shaft at least three-fourths inch wide and a head twice the width of the shaft, extending along at least 70° of arc at a radius approximately equal to three-fourths of the handle length; and

(ii) The word "open" in red letters 1 inch high placed horizontally near the head of the arrow.

(2) For a passenger-carrying airplane for which the application for the type certificate was filed on or after May 1, 1972, the location of each passenger emergency exit operating handle and instructions for opening the exit must be shown in accordance with the requirements under which the airplane was type certificated. On these airplanes, no operating handle or operating handle cover may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts.

(f) *Emergency exit access.* Access to emergency exits must be provided as follows for each passenger-carrying transport category airplane:

(1) Each passage way between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 20 inches wide.

(2) For each Type I or Type II emergency exit equipped with an assist means, there must be enough space next to the exit to allow a crewmember to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in paragraph (f)(1) of this section. In addition, all airplanes manufactured on or after

November 26, 2008 must comply with the provisions of §§ 25.813(b)(1), (b)(2), (b)(3) and (b)(4) in effect on November 26, 2004. However, a deviation from this requirement may be authorized for an airplane certificated under the provisions of part 4b of the Civil Air Regulations in effect before December 20, 1951, if the Administrator finds that special circumstances exist that provide an equivalent level of safety.

(3) There must be access from the main aisle to each Type III and Type IV exit. The access from the aisle to these exits must not be obstructed by seats, berths, or other protrusions in a manner that would reduce the effectiveness of the exit. In addition -

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the access must meet the requirements of § 25.813(c) of this chapter in effect on April 30, 1972; and

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the access must meet the emergency exit access requirements under which the airplane was type certificated; except that,

(iii) After December 3, 1992, the access for an airplane type certificated after January 1, 1958, must meet the requirements of § 25.813(c) of this chapter, effective June 3, 1992.

(iv) Contrary provisions of this section notwithstanding, the Manager of the Transport Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, may authorize deviation from the requirements of paragraph (f)(3)(iii) of this section if it is determined that special circumstances make compliance impractical. Such special circumstances include, but are not limited to, the following conditions when they preclude achieving compliance with § 25.813(c)(1)(i) or (ii) without a reduction in the total number of passenger seats: emergency exits located in close proximity to each other; fixed installations such as lavatories, galleys, etc.; permanently mounted bulkheads; an insufficient number of rows ahead of or behind the exit to enable compliance without a reduction in the seat row pitch of more than one inch; or an insufficient number of such rows to enable compliance without a reduction in the seat row pitch to less than 30 inches. A request for such grant of deviation must include credible reasons as to why literal compliance with § 25.813(c)(1)(i) or (ii) is impractical and a description of the steps taken to achieve a level of safety as close to that intended by § 25.813(c)(1)(i) or (ii) as is practical.

(v) The Manager of the Transport Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, may also authorize a compliance date later than December 3, 1992, if it is determined that special circumstances make compliance by that date impractical. A request for such grant of deviation must outline the airplanes for which compliance will be achieved by December 3, 1992, and include a proposed schedule for incremental compliance of the remaining airplanes in the operator's fleet. In addition, the request must include credible reasons why compliance cannot be achieved earlier.

(4) If it is necessary to pass through a passageway between passenger compartments to reach any required emergency exit from any seat in the passenger cabin, the passageway must not be obstructed. However, curtains may be used if they allow free entry through the passageway.

(5) No door may be installed in any partition between passenger compartments.

(6) No person may operate an airplane manufactured after November 27, 2006, that incorporates a door installed between any passenger seat occupiable for takeoff and landing and any passenger emergency exit, such that the door crosses any egress path (including aisles, crossaisles and passageways).

(7) If it is necessary to pass through a doorway separating the passenger cabin from other areas to reach required emergency exit from any passenger seat, the door must have a means to latch it in open position, and the door must be latched open during each takeoff and landing. The latching means must be able to withstand the loads imposed upon it when the door is subjected to the ultimate inertia forces, relative to the surrounding structure, listed in § 25.561(b) of this chapter.

(g) *Exterior exit markings.* Each passenger emergency exit and the means of opening that exit from the outside must be marked on the outside of the airplane. There must be a 2-inch colored band outlining each passenger emergency exit on the side of the fuselage. Each outside marking, including the band, must be readily distinguishable from the surrounding fuselage area by contrast in color. The markings must comply with the following:

(1) If the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent.

(2) If the reflectance of the darker color is greater than 15 percent, at least a 30 percent difference between its reflectance and the reflectance of the lighter color must be provided.

(3) Exits that are not in the side of the fuselage must have the external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background color, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side. *Reflectance* is the ratio of the luminous flux reflected by a body to the luminous flux it receives.

(h) *Exterior emergency lighting and escape route.* (1) Except for nontransport category airplanes certificated after December 31, 1964, each passenger-carrying airplane must be equipped with exterior lighting that meets the following requirements:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the requirements of § 25.812 (f) and (g) of this chapter in effect on April 30, 1972.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the exterior emergency lighting requirements under which the airplane was type certificated.

(2) Each passenger-carrying airplane must be equipped with a slip-resistant escape route that meets the following requirements:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the requirements of § 25.803(e) of this chapter in effect on April 30, 1972.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the slip-resistant escape route requirements under which the airplane was type certificated.

(i) *Floor level exits.* Each floor level door or exit in the side of the fuselage (other than those leading into a cargo or baggage compartment that is not accessible from the passenger cabin) that is 44 or more inches high and 20 or more inches wide, but not wider than 46 inches, each passenger ventral exit (except the ventral exits on M-404 and CV-240 airplanes), and each tail cone exit, must meet the requirements of this section for floor level emergency exits. However, the Administrator may grant a deviation from this paragraph if he finds that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.

(j) *Additional emergency exits.* Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits must meet all of the applicable provisions of this section except paragraphs (f) (1), (2), and (3) of this section and must be readily accessible.

(k) On each large passenger-carrying turbojet-powered airplane, each ventral exit and tailcone exit must be -

(1) Designed and constructed so that it cannot be opened during flight; and

(2) Marked with a placard readable from a distance of 30 inches and installed at a conspicuous location near the means of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.

(l) *Emergency exit features.* (1) Each transport category airplane manufactured after November 26, 2007 must comply with the provisions of § 25.809(i) and

(2) After November 26, 2007 each transport category airplane must comply with the provisions of § 25.813(b)(6)(ii) in effect on November 26, 2007.

(m) Except for an airplane used in operations under this part on October 16, 1987, and having an emergency exit configuration installed and authorized for operation prior to October 16, 1987, for an airplane that is required to have more than one passenger emergency exit for each side of the fuselage, no passenger emergency exit shall be more than 60 feet from any adjacent passenger emergency exit on the same side of the same deck of the fuselage, as measured parallel to the airplane's longitudinal axis between the nearest exit edges.

(n) *Portable lights.* No person may operate a passenger-carrying airplane unless it is equipped with flashlight stowage provisions accessible from each flight attendant seat.

[Doc. No. 2033, 30 FR 3205, Mar. 9, 1965]

Editorial Note:

For Federal Register citations affecting § 121.310, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.311 Seats, safety belts, and shoulder harnesses.

(a) No person may operate an airplane unless there are available during the takeoff, en route flight, and landing -

(1) An approved seat or berth for each person on board the airplane who has reached his second birthday; and

(2) An approved safety belt for separate use by each person on board the airplane who has reached his second birthday, except that two persons occupying a berth may share one approved safety belt and two persons occupying a multiple lounge or divan seat may share one approved safety belt during en route flight only.

(b) Except as provided in this paragraph, each person on board an airplane operated under this part shall occupy an approved seat or berth with a separate safety belt properly secured about him or her during movement on the surface, takeoff, and landing. A safety belt provided for the occupant of a seat may not be used by more than one person who has reached his or her second birthday. Notwithstanding the preceding requirements, a child may:

(1) Be held by an adult who is occupying an approved seat or berth, provided the child has not reached his or her second birthday and the child does not occupy or use any restraining device; or

(2) Notwithstanding any other requirement of this chapter, occupy an approved child restraint system furnished by the certificate holder or one of the persons described in paragraph (b)(2)(i) of this section, provided:

(i) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to attend to the safety of the child during the flight;

(ii) Except as provided in paragraph (b)(2)(ii)(D) of this section, the approved child restraint system bears one or more labels as follows:

(A) Seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: "This child restraint system conforms to all applicable Federal motor vehicle safety standards."

(B) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels:

(1) "This child restraint system conforms to all applicable Federal motor vehicle safety standards"; and

(2) "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT" in red lettering;

(C) Seats that do not qualify under paragraphs (B)(2)(ii)(A) and (b)(2)(ii)(B) of this section must bear a label or markings showing:

(1) That the seat was approved by a foreign government;

(2) That the seat was manufactured under the standards of the United Nations;

(3) That the seat or child restraint device furnished by the certificate holder was approved by the FAA through Type Certificate or Supplemental Type Certificate; or

(4) That the seat or child restraint device furnished by the certificate holder, or one of the persons described in paragraph (b)(2)(i) of this section, was approved by the FAA in accordance with § 21.8(d) of this chapter or Technical Standard Order C-100b, or a later version. The child restraint device manufactured by AmSafe, Inc. (CARES, Part No. 4082) and approved by the FAA in accordance with § 21.305(d) (2010 ed.) of this chapter may continue to bear a label or markings showing FAA approval in accordance with § 21.305(d) (2010 ed.) of this chapter.

(D) Except as provided in § 121.311(b)(2)(ii)(C)(3) and § 121.311(b)(2)(ii)(C)(4), booster-type child restraint systems (as defined in Federal Motor Vehicle Safety Standard No. 213 (49 CFR 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft; and

(iii) The certificate holder complies with the following requirements:

(A) The restraint system must be properly secured to an approved forward-facing seat or berth;

(B) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system; and

(C) The restraint system must bear the appropriate label(s).

(c) Except as provided in paragraph (c)(3) of this section, the following prohibitions apply to certificate holders:

(1) Except as provided in § 121.311(b)(2)(ii)(C)(3) and § 121.311(b)(2)(ii)(C)(4), no certificate holder may permit a child, in an aircraft, to occupy a booster-type child restraint system, a vest-type child restraint system, a harness-type child restraint system, or a lap held child restraint system during take off, landing, and movement on the surface.

(2) Except as required in paragraph (c)(1) of this section, no certificate holder may prohibit a child, if requested by the child's parent, guardian, or designated attendant, from occupying a child restraint system furnished by the child's parent, guardian, or designated attendant provided -

(i) The child holds a ticket for an approved seat or berth or such seat or berth is otherwise made available by the certificate holder for the child's use;

(ii) The requirements of paragraph (b)(2)(i) of this section are met;

(iii) The requirements of paragraph (b)(2)(iii) of this section are met; and

(iv) The child restraint system has one or more of the labels described in paragraphs (b)(2)(ii)(A) through (b)(2)(ii)(C) of this section.

(3) This section does not prohibit the certificate holder from providing child restraint systems authorized by this section or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.

(d) Each sideward facing seat must comply with the applicable requirements of § 25.785(c) of this chapter.

(e) Except as provided in paragraphs (e)(1) through (e)(3) of this section, no certificate holder may take off or land an airplane unless each passenger seat back is in the upright position. Each passenger shall comply with instructions given by a crewmember in compliance with this paragraph.

(1) This paragraph does not apply to seat backs placed in other than the upright position in compliance with § 121.310(f)(3).

(2) This paragraph does not apply to seats on which cargo or persons who are unable to sit erect for a medical reason are carried in accordance with procedures in the certificate holder's manual if the seat back does not obstruct any passenger's access to the aisle or to any emergency exit.

(3) On airplanes with no flight attendant, the certificate holder may take off or land as long as the flightcrew instructs each passenger to place his or her seat back in the upright position for takeoff and landing.

(f) No person may operate a transport category airplane that was type certificated after January 1, 1958, or a nontransport category airplane manufactured after March 20, 1997, unless it is equipped at each flight deck station with a combined safety belt and shoulder harness that meets the applicable requirements specified in § 25.785 of this chapter, effective March 6, 1980, except that -

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used; and

(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

(g) Each flight attendant must have a seat for takeoff and landing in the passenger compartment that meets the requirements of § 25.785 of this chapter, effective March 6, 1980, except that -

(1) Combined safety belt and shoulder harnesses that were approved and installed before March, 6, 1980, may continue to be used; and

(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

(3) The requirements of § 25.785(h) do not apply to passenger seats occupied by flight attendants not required by § 121.391.

(h) Each occupant of a seat equipped with a shoulder harness or with a combined safety belt and shoulder harness must have the shoulder harness or combined safety belt and shoulder harness properly secured about that occupant during takeoff and landing, except that a shoulder harness that is not combined with a safety belt may be unfastened if the occupant cannot perform the required duties with the shoulder harness fastened.

(i) At each unoccupied seat, the safety belt and shoulder harness, if installed, must be secured so as not to interfere with

crewmembers in the performance of their duties or with the rapid egress of occupants in an emergency.

(j) After October 27, 2009, no person may operate a transport category airplane type certificated after January 1, 1958 and manufactured on or after October 27, 2009 in passenger-carrying operations under this part unless all passenger and flight attendant seats on the airplane meet the requirements of § 25.562 in effect on or after June 16, 1988.

(k) *Seat dimension disclosure.* (1) Each air carrier that conducts operations under this part and that has a Web site must make available on its Web site the width of the narrowest and widest passenger seats in each class of service for each airplane make, model and series operated by that air carrier in passenger-carrying operations.

(2) For purposes of paragraph (k)(1) of this section, the width of a passenger seat means the distance between the inside of the armrests for that seat.

[Doc. No. 7522, 32 FR 13267, Sept. 20, 1967]

Editorial Note:

For Federal Register citations affecting § 121.311, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.312 Materials for compartment interiors.

(a) *All interior materials; transport category airplanes and nontransport category airplanes type certificated before January 1, 1965.* Except for the materials covered by paragraph (b) of this section, all materials in each compartment of a transport category airplane, or a nontransport category airplane type certificated before January 1, 1965, used by the crewmembers and passengers, must meet the requirements of § 25.853 of this chapter in effect as follows, or later amendment thereto:

(1) *Airplane with passenger seating capacity of 20 or more -* (i) *Manufactured after August 19, 1988, but prior to August 20, 1990.* Except as provided in paragraph (a)(3)(ii) of this section, each airplane with a passenger capacity of 20 or more and manufactured after August 19, 1988, but prior to August 20, 1990, must comply with the heat release rate testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986) (see App. L of this part), except that the total heat release over the first 2 minutes of sample exposure must not exceed 100 kilowatt minutes per square meter and the peak heat release rate must not exceed 100 kilowatts per square meter.

(ii) *Manufactured after August 19, 1990.* Each airplane with a passenger capacity of 20 or more and manufactured after August 19, 1990, must comply with the heat release rate and smoke testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1)(see app. L of this part) in effect on September 26, 1988).

(2) *Substantially complete replacement of the cabin interior on or after May 1, 1972 -* (i) *Airplane for which the application for type certificate was filed prior to May 1,*

1972. Except as provided in paragraph (a)(3)(i) or (a)(3)(ii) of this section, each airplane for which the application for type certificate was filed prior to May 1, 1972, must comply with the provisions of § 25.853 in effect on April 30, 1972, regardless of passenger capacity, if there is a substantially complete replacement of the cabin interior after April 30, 1972.

(ii) *Airplane for which the application for type certificate was filed on or after May 1, 1972.* Except as provided in paragraph (a)(3)(i) or (a)(3)(ii) of this section, each airplane for which the application for type certificate was filed on or after May 1, 1972, must comply with the material requirements under which the airplane was type certificated, regardless of passenger capacity, if there is a substantially complete replacement of the cabin interior on or after that date.

(3) *Airplane type certificated after January 1, 1958, with passenger capacity of 20 or more - (i) Substantially complete replacement of the cabin interior on or after March 6, 1995.* Except as provided in paragraph (a)(3)(ii) of this section, each airplane that was type certificated after January 1, 1958, and has a passenger capacity of 20 or more, must comply with the heat release rate testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986)(see app. L of this part), if there is a substantially complete replacement of the cabin interior components identified in § 25.853(d), on or after that date, except that the total heat release over the first 2 minutes of sample exposure shall not exceed 100 kilowatt-minutes per square meter and the peak heat release rate must not exceed 100 kilowatts per square meter.

(ii) *Substantially complete replacement of the cabin interior on or after August 20, 1990.* Each airplane that was type certificated after January 1, 1958, and has a passenger capacity of 20 or more, must comply with the heat release rate and smoke testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on September 26, 1988) (see app. L of this part), if there is a substantially complete replacement of the cabin interior components identified in § 25.853(d), on or after August 20, 1990.

(4) Contrary provisions of this section notwithstanding, the Manager of the Transport Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, may authorize deviation from the requirements of paragraph (a)(1)(i), (a)(1)(ii), (a)(3)(i), or (a)(3)(ii) of this section for specific components of the cabin interior that do not meet applicable flammability and smoke emission requirements, if the determination is made that special circumstances exist that make compliance impractical. Such grants of deviation will be limited to those airplanes manufactured within 1 year after the applicable date specified in this section and those airplanes in which the interior is replaced within 1 year of that date. A request for such grant of deviation must include a thorough and accurate analysis of each component subject to § 25.853(a-1), the steps being taken to achieve compliance, and, for the few components for which timely compliance will not be achieved, credible reasons for such noncompliance.

(5) Contrary provisions of this section notwithstanding, galley carts and galley standard containers that do not meet the flammability and smoke emission requirements of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1)) (see app. L of this part) may be used in airplanes that must meet the requirements of paragraphs (a)(1)(i), (a)(1)(ii), (a)(3)(i), or (a)(3)(ii) of this section, provided the galley carts or standard containers were manufactured prior to March 6, 1995.

(b) *Seat cushions.* Seat cushions, except those on flight crewmember seats, in each compartment occupied by crew or passengers, must comply with the requirements pertaining to seat cushions in § 25.853(c) effective on November 26, 1984, on each airplane as follows:

(1) Each transport category airplane type certificated after January 1, 1958; and

(2) On or after December 20, 2010, each nontransport category airplane type certificated after December 31, 1964.

(c) *All interior materials; airplanes type certificated in accordance with SFAR No. 41 of 14 CFR part 21.* No person may operate an airplane that conforms to an amended or supplemental type certificate issued in accordance with SFAR No. 41 of 14 CFR part 21 for a maximum certificated takeoff weight in excess of 12,500 pounds unless the airplane meets the compartment interior requirements set forth in § 25.853(a) in effect March 6, 1995 (formerly § 25.853(a), (b), (b-1), (b-2), and (b-3) of this chapter in effect on September 26, 1978)(see app. L of this part).

(d) *All interior materials; other airplanes.* For each material or seat cushion to which a requirement in paragraphs (a), (b), or (c) of this section does not apply, the material and seat cushion in each compartment used by the crewmembers and passengers must meet the applicable requirement under which the airplane was type certificated.

(e) *Thermal/acoustic insulation materials.* For transport category airplanes type certificated after January 1, 1958:

(1) For airplanes manufactured before September 2, 2005, when thermal/acoustic insulation is installed in the fuselage as replacements after September 2, 2005, the insulation must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003, if it is:

(i) Of a blanket construction or

(ii) Installed around air ducting.

(2) For airplanes manufactured after September 2, 2005, thermal/acoustic insulation materials installed in the fuselage must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003.

(3) For airplanes with a passenger capacity of 20 or greater, manufactured after September 2, 2009, thermal/acoustic insulation materials installed in the lower half of the fuselage must meet the flame penetration resistance requirements of § 25.856 of this chapter, effective September 2, 2003.

[Doc. No. 28154, 60 FR 65930, Dec. 20, 1995, as amended by Amdt. 121-301, 68 FR 45083, July 31, 2003; Amdt. 121-320, 70

FR 77752, Dec. 30, 2005; Amdt. 121-330, 72 FR 1442, Jan. 12, 2007]

§ 121.313 Miscellaneous equipment.

No person may conduct any operation unless the following equipment is installed in the airplane:

(a) If protective fuses are installed on an airplane, the number of spare fuses approved for that airplane and appropriately described in the certificate holder's manual.

(b) A windshield wiper or equivalent for each pilot station.

(c) A power supply and distribution system that meets the requirements of §§ 25.1309, 25.1331, 25.1351(a) and (b)(1) through (4), 25.1353, 25.1355, and 25.1431(b) or that is able to produce and distribute the load for the required instruments and equipment, with use of an external power supply if any one power source or component of the power distribution system fails. The use of common elements in the system may be approved if the Administrator finds that they are designed to be reasonably protected against malfunctioning. Engine-driven sources of energy, when used, must be on separate engines.

(d) A means for indicating the adequacy of the power being supplied to required flight instruments.

(e) Two independent static pressure systems, vented to the outside atmospheric pressure so that they will be least affected by air flow variation or moisture or other foreign matter, and installed so as to be airtight except for the vent. When a means is provided for transferring an instrument from its primary operating system to an alternate system, the means must include a positive positioning control and must be marked to indicate clearly which system is being used.

(f) A door between the passenger and pilot compartments (i.e., flightdeck door), with a locking means to prevent passengers from opening it without the pilot's permission, except that nontransport category airplanes certificated after December 31, 1964, are not required to comply with this paragraph. For airplanes equipped with a crew rest area having separate entries from the flightdeck and the passenger compartment, a door with such a locking means must be provided between the crew rest area and the passenger compartment.

(g) A key for each door that separates a passenger compartment from another compartment that has emergency exit provisions. Except for flightdeck doors, a key must be readily available for each crewmember. Except as provided below, no person other than a person who is assigned to perform duty on the flightdeck may have a key to the flightdeck door. Before April 22, 2003, any crewmember may have a key to the flightdeck door but only if the flightdeck door has an internal flightdeck locking device installed, operative, and in use. Such "internal flightdeck locking device" has to be designed so that it can only be unlocked from inside the flightdeck.

(h) A placard on each door that is the means of access to a required passenger emergency exit, to indicate that it must be open during takeoff and landing.

(i) A means for the crew, in an emergency to unlock each door that leads to a compartment that is normally accessible to passengers and that can be locked by passengers.

(j) After April 9, 2003, for airplanes required by paragraph (f) of this section to have a door between the passenger and pilot or crew rest compartments, and for transport category, all-cargo airplanes that have a door installed between the pilot compartment and any other occupied compartment on January 15, 2002;

(1) After April 9, 2003, for airplanes required by paragraph (f) of this section to have a door between the passenger and pilot or crew rest compartments,

(i) Each such door must meet the requirements of § 25.795(a)(1) and (2) in effect on January 15, 2002; and

(ii) Each operator must establish methods to enable a flight attendant to enter the pilot compartment in the event that a flightcrew member becomes incapacitated. Any associated signal or confirmation system must be operable by each flightcrew member from that flightcrew member's duty station.

(2) After October 1, 2003, for transport category, all-cargo airplanes that had a door installed between the pilot compartment and any other occupied compartment on or after January 15, 2002, each such door must meet the requirements of § 25.795(a)(1) and (2) in effect on January 15, 2002; or the operator must implement a security program approved by the Transportation Security Administration (TSA) for the operation of all airplanes in that operator's fleet.

(k) Except for all-cargo operations as defined in § 110.2 of this chapter, for all passenger-carrying airplanes that require a lockable flightdeck door in accordance with paragraph (f) of this section, a means to monitor from the flightdeck side of the door the area outside the flightdeck door to identify persons requesting entry and to detect suspicious behavior and potential threats.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-5, 30 FR 6113, Apr. 30, 1965; Amdt. 121-251, 60 FR 65931, Dec. 20, 1995; Amdt. 121-288, 67 FR 2127, Jan. 15, 2002; Amdt. 121-299, 68 FR 42881, July 18, 2003; Amdt. 121-334, 72 FR 45635, Aug. 15, 2007; Amdt. 121-353, 76 FR 7488, Feb. 10, 2011]

§ 121.314 Cargo and baggage compartments.

For each transport category airplane type certificated after January 1, 1958:

(a) Each Class C or Class D compartment, as defined in § 25.857 of this Chapter in effect on June 16, 1986 (see Appendix L to this part), that is greater than 200 cubic feet in volume must have ceiling and sidewall liner panels which are constructed of:

(1) Glass fiber reinforced resin;

(2) Materials which meet the test requirements of part 25, appendix F, part III of this chapter; or

(3) In the case of liner installations approved prior to March 20, 1989, aluminum.

(b) For compliance with paragraph (a) of this section, the term “liner” includes any design feature, such as a joint or fastener, which would affect the capability of the liner to safely contain a fire.

(c) After March 19, 2001, each Class D compartment, regardless of volume, must meet the standards of §§ 25.857(c) and 25.858 of this Chapter for a Class C compartment unless the operation is an all-cargo operation in which case each Class D compartment may meet the standards in § 25.857(e) for a Class E compartment.

(d) *Reports of conversions and retrofits.* (1) Until such time as all Class D compartments in aircraft operated under this part by the certificate have been converted or retrofitted with appropriate detection and suppression systems, each certificate holder must submit written progress reports to the FAA that contain the information specified below.

(i) The serial number of each airplane listed in the operations specifications issued to the certificate holder for operation under this part in which all Class D compartments have been converted to Class C or Class E compartments;

(ii) The serial number of each airplane listed in the operations specification issued to the certificate holder for operation under this part, in which all Class D compartments have been retrofitted to meet the fire detection and suppression requirements for Class C or the fire detection requirements for Class E; and

(iii) The serial number of each airplane listed in the operations specifications issued to the certificate holder for operation under this part that has at least one Class D compartment that has not been converted or retrofitted.

(2) The written report must be submitted to the Certificate Holding District Office by July 1, 1998, and at each three-month interval thereafter.

[Doc. No. 28937, 63 FR 8049, Feb. 17, 1998]

§ 121.315 Cockpit check procedure.

(a) Each certificate holder shall provide an approved cockpit check procedure for each type of aircraft.

(b) The approved procedures must include each item necessary for flight crewmembers to check for safety before starting engines, taking off, or landing, and in engine and systems emergencies. The procedures must be designed so that a flight crewmember will not need to rely upon his memory for items to be checked.

(c) The approved procedures must be readily usable in the cockpit of each aircraft and the flight crew shall follow them when operating the aircraft.

§ 121.316 Fuel tanks.

Each turbine powered transport category airplane operated after October 30, 1991, must meet the requirements of § 25.963(e) of this chapter in effect on October 30, 1989.

[Doc. No. 25614, 54 FR 40354, Sept. 29, 1989]

§ 121.317 Passenger information requirements, smoking prohibitions, and additional seat belt requirements.

(a) Except as provided in paragraph (l) of this section, no person may operate an airplane unless it is equipped with passenger information signs that meet the requirements of § 25.791 of this chapter. Except as provided in paragraph (l) of this section, the signs must be constructed so that the crewmembers can turn them on and off.

(b) Except as provided in paragraph (l) of this section, the “Fasten Seat Belt” sign shall be turned on during any movement on the surface, for each takeoff, for each landing, and at any other time considered necessary by the pilot in command.

(c) No person may operate an airplane on a flight on which smoking is prohibited by part 252 of this title unless either the “No Smoking” passenger information signs are lighted during the entire flight, or one or more “No Smoking” placards meeting the requirements of § 25.1541 of this chapter are posted during the entire flight segment. If both the lighted signs and the placards are used, the signs must remain lighted during the entire flight segment.

(d) No person may operate a passenger-carrying airplane under this part unless at least one legible sign or placard that reads “Fasten Seat Belt While Seated” is visible from each passenger seat. These signs or placards need not meet the requirements of paragraph (a) of this section.

(e) No person may operate an airplane unless there is installed in each lavatory a sign or placard that reads: “Federal law provides for a penalty of up to \$2,000 for tampering with the smoke detector installed in this lavatory.” These signs or placards need not meet the requirements of paragraph (a) of this section.

(f) Each passenger required by § 121.311(b) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while the “Fasten Seat Belt” sign is lighted.

(g) No person may smoke while a “No Smoking” sign is lighted or while “No Smoking” placards are posted, except as follows:

(1) *Supplemental operations.* The pilot in command of an airplane engaged in a supplemental operation may authorize smoking on the flight deck (if it is physically separated from any passenger compartment), but not in any of the following situations:

(i) During airplane movement on the surface or during takeoff or landing;

(ii) During scheduled passenger-carrying public charter operations conducted under part 380 of this title; or

(iii) During any operation where smoking is prohibited by part 252 of this title or by international agreement.

(2) *Certain intrastate domestic operations.* Except during airplane movement on the surface or during takeoff or landing, a pilot in command of an airplane engaged in a domestic

operation may authorize smoking on the flight deck (if it is physically separated from the passenger compartment) if -

(i) Smoking on the flight deck is not otherwise prohibited by part 252 of this title;

(ii) The flight is conducted entirely within the same State of the United States (a flight from one place in Hawaii to another place in Hawaii through the airspace over a place outside of Hawaii is not entirely within the same State); and

(iii) The airplane is either not turbojet-powered or the airplane is not capable of carrying at least 30 passengers.

(h) No person may smoke in any airplane lavatory.

(i) No person may tamper with, disable, or destroy any smoke detector installed in any airplane lavatory.

(j) On flight segments other than those described in paragraph (c) of this section, the "No Smoking" sign must be turned on during any movement on the surface, for each takeoff, for each landing, and at any other time considered necessary by the pilot in command.

(k) Each passenger shall comply with instructions given him or her by a crewmember regarding compliance with paragraphs (f), (g), (h), and (l) of this section.

(l) A certificate holder may operate a nontransport category airplane type certificated after December 31, 1964, that is manufactured before December 20, 1997, if it is equipped with at least one placard that is legible to each person seated in the cabin that states "Fasten Seat Belt," and if, during any movement on the surface, for each takeoff, for each landing, and at any other time considered necessary by the pilot in command, a crewmember orally instructs the passengers to fasten their seat belts.

[Doc. No. 25590, 53 FR 12361, Apr. 13, 1988, as amended by Amdt. 121-196, 53 FR 44182, Nov. 2, 1988; Amdt. 121-213, 55 FR 8367, Mar. 7, 1990; Amdt. 121-230, 57 FR 42673, Sept. 15, 1992; Amdt. 121-251, 60 FR 65931, Dec. 20, 1995; Amdt. 121-256, 61 FR 30434, June 14, 1996; Amdt. 121-277, 65 FR 36779, June 9, 2000]

§ 121.318 Public address system.

No person may operate an airplane with a seating capacity of more than 19 passengers unless it is equipped with a public address system which -

(a) Is capable of operation independent of the crewmember interphone system required by § 121.319, except for handsets, headsets, microphones, selector switches, and signaling devices;

(b) Is approved in accordance with § 21.305 of this chapter;

(c) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;

(d) For each required floor-level passenger emergency exit which has an adjacent flight attendant seat, has a microphone which is readily accessible to the seated flight attendant, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants;

(e) Is capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible;

(f) Is audible at all passenger seats, lavatories, and flight attendant seats and work stations; and

(g) For transport category airplanes manufactured on or after November 27, 1990, meets the requirements of § 25.1423 of this chapter.

[Doc. No. 24995, 54 FR 43926, Oct. 27, 1989]

§ 121.319 Crewmember interphone system.

(a) No person may operate an airplane with a seating capacity of more than 19 passengers unless the airplane is equipped with a crewmember interphone system that:

(1) [Reserved]

(2) Is capable of operation independent of the public address system required by § 121.318(a) except for handsets, headsets, microphones, selector switches, and signaling devices; and

(3) Meets the requirements of paragraph (b) of this section.

(b) The crewmember interphone system required by paragraph (a) of this section must be approved in accordance with § 21.305 of this chapter and meet the following requirements:

(1) It must provide a means of two-way communication between the pilot compartment and -

(i) Each passenger compartment; and

(ii) Each galley located on other than the main passenger deck level.

(2) It must be accessible for immediate use from each of two flight crewmember stations in the pilot compartment;

(3) It must be accessible for use from at least one normal flight attendant station in each passenger compartment;

(4) It must be capable of operation within 10 seconds by a flight attendant at those stations in each passenger compartment from which its use is accessible; and

(5) For large turbojet-powered airplanes:

(i) It must be accessible for use at enough flight attendant stations so that all floor-level emergency exits (or entryways to those exits in the case of exits located within galleys) in each passenger compartment are observable from one or more of those stations so equipped;

(ii) It must have an alerting system incorporating aural or visual signals for use by flight crewmembers to alert flight attendants and for use by flight attendants to alert flight crewmembers;

(iii) The alerting system required by paragraph (b)(5)(ii) of this section must have a means for the recipient of a call to determine whether it is a normal call or an emergency call; and

(iv) When the airplane is on the ground, it must provide a means of two-way communication between ground personnel and either of at least two flight crewmembers in the pilot compartment. The interphone system station for use by ground personnel must be so located that personnel using the system may avoid visible detection from within the airplane.

[Doc. No. 10865, 38 FR 21494, Aug. 9, 1973, as amended by Amdt. 121-121, 40 FR 42186, Sept. 11, 1975; Amdt. 121-149, 43 FR 50602, Oct. 30, 1978; Amdt. 121-178, 47 FR 13316, Mar. 29, 1982; Amdt. 121-253, 61 FR 2611, Jan. 26, 1996]

§ 121.321 Operations in icing.

After October 21, 2013, no person may operate an airplane with a certificated maximum takeoff weight less than 60,000 pounds in conditions conducive to airframe icing unless it complies with this section. As used in this section, the phrase “conditions conducive to airframe icing” means visible moisture at or below a static air temperature of 5 °C or a total air temperature of 10 °C, unless the approved Airplane Flight Manual provides another definition.

(a) When operating in conditions conducive to airframe icing, compliance must be shown with paragraph (a)(1), or (2), or (3) of this section.

(1) The airplane must be equipped with a certificated primary airframe ice detection system.

(i) The airframe ice protection system must be activated automatically, or manually by the flightcrew, when the primary ice detection system indicates activation is necessary.

(ii) When the airframe ice protection system is activated, any other procedures in the Airplane Flight Manual for operating in icing conditions must be initiated.

(2) Visual cues of the first sign of ice formation anywhere on the airplane and a certificated advisory airframe ice detection system must be provided.

(i) The airframe ice protection system must be activated when any of the visual cues are observed or when the advisory airframe ice detection system indicates activation is necessary, whichever occurs first.

(ii) When the airframe ice protection system is activated, any other procedures in the Airplane Flight Manual for operating in icing conditions must be initiated.

(3) If the airplane is not equipped to comply with the provisions of paragraph (a)(1) or (2) of this section, then the following apply:

(i) When operating in conditions conducive to airframe icing, the airframe ice protection system must be activated prior to, and operated during, the following phases of flight:

(A) Takeoff climb after second segment,

(B) En route climb,

(C) Go-around climb,

(D) Holding,

(E) Maneuvering for approach and landing, and

(F) Any other operation at approach or holding airspeeds.

(ii) During any other phase of flight, the airframe ice protection system must be activated and operated at the first sign of ice formation anywhere on the airplane, unless the Airplane Flight Manual specifies that the airframe ice protection system should not be used or provides other operational instructions.

(iii) Any additional procedures for operation in conditions conducive to icing specified in the Airplane Flight Manual or in the manual required by § 121.133 must be initiated.

(b) If the procedures specified in paragraph (a)(3)(i) of this section are specifically prohibited in the Airplane Flight Manual, compliance must be shown with the requirements of paragraph (a)(1) or (2) of this section.

(c) Procedures necessary for safe operation of the airframe ice protection system must be established and documented in:

(1) The Airplane Flight Manual for airplanes that comply with paragraph (a)(1) or (2) of this section, or

(2) The Airplane Flight Manual or in the manual required by § 121.133 for airplanes that comply with paragraph (a)(3) of this section.

(d) Procedures for operation of the airframe ice protection system must include initial activation, operation after initial activation, and deactivation. Procedures for operation after initial activation of the ice protection system must address -

(1) Continuous operation,

(2) Automatic cycling,

(3) Manual cycling if the airplane is equipped with an ice detection system that alerts the flightcrew each time the ice protection system must be cycled, or

(4) Manual cycling based on a time interval if the airplane type is not equipped with features necessary to implement (d) (1)-(3) of this section.

(e) System installations used to comply with paragraph (a)(1) or (a)(2) of this section must be approved through an amended or supplemental type certificate in accordance with part 21 of this chapter.

[Doc. No. FAA-2009-0675, 78 FR 15876, Mar. 13, 2013]

§ 121.323 Instruments and equipment for operations at night.

No person may operate an airplane at night under this part unless it is equipped with the following instruments and equipment in addition to those required by §§ 121.305 through 121.321 and 121.803:

(a) Position lights.

(b) An anti-collision light.

(c) Two landing lights, except that only one landing light is required for nontransport category airplanes type certificated after December 31, 1964.

(d) Instrument lights providing enough light to make each required instrument, switch, or similar instrument, easily readable and installed so that the direct rays are shielded from the flight crewmembers' eyes and that no objectionable reflections are visible to them. There must be a means of controlling the intensity of illumination unless it is shown that nondimming instrument lights are satisfactory.

(e) An airspeed-indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.

(f) A sensitive altimeter.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65932, Dec. 20, 1995; Amdt. 121-281, 66 FR 19043, Apr. 12, 2001]

§ 121.325 Instruments and equipment for operations under IFR or over-the-top.

No person may operate an airplane under IFR or over-the-top conditions under this part unless it is equipped with the following instruments and equipment, in addition to those required by §§ 121.305 through 121.321 and 121.803:

(a) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.

(b) A sensitive altimeter.

(c) Instrument lights providing enough light to make each required instrument, switch, or similar instrument, easily readable and so installed that the direct rays are shielded from the flight crewmembers' eyes and that no objectionable reflections are visible to them, and a means of controlling the intensity of illumination unless it is shown that nondimming instrument lights are satisfactory.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-281, 66 FR 19043, Apr. 12, 2001]

§ 121.327 Supplemental oxygen: Reciprocating engine powered airplanes.

(a) *General.* Except where supplemental oxygen is provided in accordance with § 121.331, no person may operate an airplane unless supplemental oxygen is furnished and used as set forth in paragraphs (b) and (c) of this section. The amount of supplemental oxygen required for a particular operation is determined on the basis of flight altitudes and flight duration, consistent with the operation procedures established for each operation and route.

(b) *Crewmembers.* (1) At cabin pressure altitudes above 10,000 feet up to and including 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers, for that part of the flight at those altitudes that is of more than 30 minutes duration.

(2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers, during the entire flight time at those altitudes.

(3) When a flight crewmember is required to use oxygen, he must use it continuously, except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight deck duty. If a standby crewmember is not on call and will not be on flight deck duty during the remainder of the flight, he is considered to be a passenger for the purposes of supplemental oxygen requirements.

(c) *Passengers.* Each certificate holder shall provide a supply of oxygen, approved for passenger safety, in accordance with the following:

(1) For flights of more than 30 minutes duration at cabin pressure altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.

(2) For flights at cabin pressure altitudes above 14,000 feet up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.

(3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.

(d) For the purposes of this subpart *cabin pressure altitude* means the pressure altitude corresponding with the pressure in the cabin of the airplane, and *flight altitude* means the altitude above sea level at which the airplane is operated. For airplanes without pressurized cabins, "cabin pressure altitude" and "flight altitude" mean the same thing.

§ 121.329 Supplemental oxygen for sustenance: Turbine engine powered airplanes.

(a) *General.* When operating a turbine engine powered airplane, each certificate holder shall equip the airplane with sustaining oxygen and dispensing equipment for use as set forth in this section:

(1) The amount of oxygen provided must be at least the quantity necessary to comply with paragraphs (b) and (c) of this section.

(2) The amount of sustaining and first-aid oxygen required for a particular operation to comply with the rules in this part is determined on the basis of cabin pressure altitudes and flight duration, consistent with the operating procedures established for each operation and route.

(3) The requirements for airplanes with pressurized cabins are determined on the basis of cabin pressure altitude and the assumption that a cabin pressurization failure will occur at the altitude or point of flight that is most critical from the standpoint of oxygen need, and that after the failure the airplane will descend in accordance with the emergency procedures specified in the Airplane Flight Manual, without exceeding its operating limitations, to a flight altitude that will allow successful termination of the flight.

(4) Following the failure, the cabin pressure altitude is considered to be the same as the flight altitude unless it is shown that no probable failure of the cabin or pressurization equipment will result in a cabin pressure altitude equal to the flight altitude. Under those circumstances, the maximum cabin pressure altitude attained may be used as a basis for certification or determination of oxygen supply, or both.

(b) *Crewmembers.* Each certificate holder shall provide a supply of oxygen for crewmembers in accordance with the following:

(1) At cabin pressure altitudes above 10,000 feet, up to and including 12,000 feet, oxygen must be provided for and used

by each member of the flight crew on flight deck duty and must be provided for other crewmembers for that part of the flight at those altitudes that is of more than 30 minutes duration.

(2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers during the entire flight at those altitudes.

(3) When a flight crewmember is required to use oxygen, he must use it continuously except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight duty. If a standby crewmember is not on call and will not be on flight deck duty during the remainder of the flight, he is considered to be a passenger for the purposes of supplemental oxygen requirements.

(c) *Passengers.* Each certificate holder shall provide a supply of oxygen for passengers in accordance with the following:

(1) For flights at cabin pressure altitudes above 10,000 feet, up to and including 14,000 feet, enough oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration, for 10 percent of the passengers.

(2) For flights at cabin pressure altitudes above 14,000 feet, up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.

(3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.

§ 121.331 Supplemental oxygen requirements for pressurized cabin airplanes: Reciprocating engine powered airplanes.

(a) When operating a reciprocating engine powered airplane pressurized cabin, each certificate holder shall equip the airplane to comply with paragraphs (b) through (d) of this section in the event of cabin pressurization failure.

(b) *For crewmembers.* When operating at flight altitudes above 10,000 feet, the certificate holder shall provide enough oxygen for each crewmember for the entire flight at those altitudes and not less than a two-hour supply for each flight crewmember on flight deck duty. The required two hours supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 feet in ten minutes and followed by 110 minutes at 10,000 feet. The oxygen required by § 121.337 may be considered in determining the supplemental breathing supply required for flight crewmembers on flight deck duty in the event of cabin pressurization failure.

(c) *For passengers.* When operating at flight altitudes above 8,000 feet, the certificate holder shall provide oxygen as follows:

(1) When an airplane is not flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers, if at any point along the route to be flown the airplane can safely descend to a flight altitude of 14,000 feet or less within four minutes.

(2) If the airplane cannot descend to a flight altitude of 14,000 feet or less within four minutes, the following supply of oxygen must be provided:

(i) For that part of the flight that is more than four minutes duration at flight altitudes above 15,000 feet, the supply required by § 121.327(c)(3).

(ii) For that part of the flight at flight altitudes above 14,000 feet, up to and including 15,000 feet, the supply required by § 121.327(c)(2).

(iii) For flight at flight altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.

(3) When an airplane is flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers for the entire flight (including emergency descent) above 8,000 feet, up to and including 14,000 feet, and to comply with § 121.327(c) (2) and (3) for flight above 14,000 feet.

(d) For the purposes of this section it is assumed that the cabin pressurization failure occurs at a time during flight that is critical from the standpoint of oxygen need and that after the failure the airplane will descend, without exceeding its normal operating limitations, to flight altitudes allowing safe flight with respect to terrain clearance.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-132, 41 FR 55475, Dec. 20, 1976]

§ 121.333 Supplemental oxygen for emergency descent and for first aid; turbine engine powered airplanes with pressurized cabins.

(a) *General.* When operating a turbine engine powered airplane with a pressurized cabin, the certificate holder shall furnish oxygen and dispensing equipment to comply with paragraphs (b) through (e) of this section in the event of cabin pressurization failure.

(b) *Crewmembers.* When operating at flight altitudes above 10,000 feet, the certificate holder shall supply enough oxygen to comply with § 121.329, but not less than a two-hour supply for each flight crewmember on flight deck duty. The required two hours supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 feet in ten minutes and followed by 110 minutes at 10,000 feet. The oxygen required in the event of cabin pressurization failure by § 121.337 may be included in determining the supply required for flight crewmembers on flight deck duty.

(c) *Use of oxygen masks by flight crewmembers.* (1) When operating at flight altitudes above flight level 250, each flight crewmember on flight deck duty must be provided with an

oxygen mask so designed that it can be rapidly placed on his face from its ready position, properly secured, sealed, and supplying oxygen upon demand; and so designed that after being placed on the face it does not prevent immediate communication between the flight crewmember and other crewmembers over the airplane intercommunication system. When it is not being used at flight altitudes above flight level 250, the oxygen mask must be kept in condition for ready use and located so as to be within the immediate reach of the flight crewmember while at his duty station.

(2) When operating at flight altitudes above flight level 250, one pilot at the controls of the airplane shall at all times wear and use an oxygen mask secured, sealed, and supplying oxygen, in accordance with the following:

(i) The one pilot need not wear and use an oxygen mask at or below the following flight levels if each flight crewmember on flight deck duty has a quick-donning type of oxygen mask that the certificate holder has shown can be placed on the face from its ready position, properly secured, sealed, and supplying oxygen upon demand, with one hand and within five seconds:

(A) For airplanes having a passenger seat configuration of more than 30 seats, excluding any required crewmember seat, or a payload capacity of more than 7,500 pounds, at or below flight level 410.

(B) For airplanes having a passenger seat configuration of less than 31 seats, excluding any required crewmember seat, and a payload capacity of 7,500 pounds or less, at or below flight level 350.

(ii) Whenever a quick-donning type of oxygen mask is to be used under this section, the certificate holder shall also show that the mask can be put on without disturbing eye glasses and without delaying the flight crewmember from proceeding with his assigned emergency duties. The oxygen mask after being put on must not prevent immediate communication between the flight crewmember and other crewmembers over the airplane intercommunication system.

(3) Notwithstanding paragraph (c)(2) of this section, if for any reason at any time it is necessary for one pilot to leave his station at the controls of the airplane when operating at flight altitudes above flight level 250, the remaining pilot at the controls shall put on and use his oxygen mask until the other pilot has returned to his duty station.

(4) Before the takeoff of a flight, each flight crewmember shall personally preflight his oxygen equipment to insure that the oxygen mask is functioning, fitted properly, and connected to appropriate supply terminals, and that the oxygen supply and pressure are adequate for use.

(d) *Use of portable oxygen equipment by cabin attendants.* After November 28, 2005 each mask used for portable oxygen equipment must be connected to its oxygen supply. Above flight level 250, one of the following is required:

(1) Each attendant shall carry portable oxygen equipment with a 15 minute supply of oxygen; or

(2) There must be sufficient portable oxygen equipment (including masks and spare outlets) distributed throughout the cabin so that such equipment is immediately available to each attendant, regardless of their location in the cabin; or

(3) There are sufficient spare outlets and masks distributed throughout the cabin to ensure immediate availability of oxygen to each cabin attendant, regardless of their location in the cabin.

(e) *Passenger cabin occupants.* When the airplane is operating at flight altitudes above 10,000 feet, the following supply of oxygen must be provided for the use of passenger cabin occupants:

(1) When an airplane certificated to operate at flight altitudes up to and including flight level 250, can at any point along the route to be flown, descend safely to a flight altitude of 14,000 feet or less within four minutes, oxygen must be available at the rate prescribed by this part for a 30-minute period for at least 10 percent of the passenger cabin occupants.

(2) When an airplane is operated at flight altitudes up to and including flight level 250 and cannot descend safely to a flight altitude of 14,000 feet within four minutes, or when an airplane is operated at flight altitudes above flight level 250, oxygen must be available at the rate prescribed by this part for not less than 10 percent of the passenger cabin occupants for the entire flight after cabin depressurization, at cabin pressure altitudes above 10,000 feet up to and including 14,000 feet and, as applicable, to allow compliance with § 121.329(c) (2) and (3), except that there must be not less than a 10-minute supply for the passenger cabin occupants.

(3) For first-aid treatment of occupants who for physiological reasons might require undiluted oxygen following descent from cabin pressure altitudes above flight level 250, a supply of oxygen in accordance with the requirements of § 25.1443(d) must be provided for two percent of the occupants for the entire flight after cabin depressurization at cabin pressure altitudes above 8,000 feet, but in no case to less than one person. An appropriate number of acceptable dispensing units, but in no case less than two, must be provided, with a means for the cabin attendants to use this supply.

(f) *Passenger briefing.* Before flight is conducted above flight level 250, a crewmember shall instruct the passengers on the necessity of using oxygen in the event of cabin depressurization and shall point out to them the location and demonstrate the use of the oxygen-dispensing equipment.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-11, 30 FR 12466, Sept. 30, 1965; Amdt. 121-132, 41 FR 55475, Dec. 20, 1976; Amdt. 121-262, 62 FR 13256, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997; Amdt. 121-306, 69 FR 62789, Oct. 27, 2004]

§ 121.335 Equipment standards.

(a) *Reciprocating engine powered airplanes.* The oxygen apparatus, the minimum rates of oxygen flow, and the supply of oxygen necessary to comply with § 121.327 must meet

the standards established in section 4b.651 of the Civil Air Regulations as in effect on July 20, 1950, except that if the certificate holder shows full compliance with those standards to be impracticable, the Administrator may authorize any change in those standards that he finds will provide an equivalent level of safety.

(b) *Turbine engine powered airplanes.* The oxygen apparatus, the minimum rate of oxygen flow, and the supply of oxygen necessary to comply with §§ 121.329 and 121.333 must meet the standards established in section 4b.651 of the Civil Air Regulations as in effect on September 1, 1958, except that if the certificate holder shows full compliance with those standards to be impracticable, the Administrator may authorize any changes in those standards that he finds will provide an equivalent level of safety.

§ 121.337 Protective breathing equipment.

(a) The certificate holder shall furnish approved protective breathing equipment (PBE) meeting the equipment, breathing gas, and communication requirements contained in paragraph (b) of this section.

(b) *Pressurized and nonpressurized cabin airplanes.* Except as provided in paragraph (f) of this section, no person may operate an airplane unless protective breathing equipment meeting the requirements of this section is provided as follows:

(1) *General.* The equipment must protect the flightcrew from the effects of smoke, carbon dioxide or other harmful gases or an oxygen deficient environment caused by other than an airplane depressurization while on flight deck duty and must protect crewmembers from the above effects while combatting fires on board the airplane.

(2) The equipment must be inspected regularly in accordance with inspection guidelines and the inspection periods established by the equipment manufacturer to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes. The inspection periods may be changed upon a showing by the certificate holder that the changes would provide an equivalent level of safety.

(3) That part of the equipment protecting the eyes must not impair the wearer's vision to the extent that a crewmember's duties cannot be accomplished and must allow corrective glasses to be worn without impairment of vision or loss of the protection required by paragraph (b)(1) of this section.

(4) The equipment, while in use, must allow the flightcrew to communicate using the airplane radio equipment and to communicate by interphone with each other while at their assigned duty stations. The equipment, while in use, must also allow crewmember interphone communications between each of two flight crewmember stations in the pilot compartment and at least one normal flight attendant station in each passenger compartment.

(5) The equipment, while in use, must allow any crewmember to use the airplane interphone system at any of

the flight attendant stations referred to in paragraph (b)(4) of this section.

(6) The equipment may also be used to meet the supplemental oxygen requirements of this part provided it meets the oxygen equipment standards of § 121.335 of this part.

(7) Protective breathing gas duration and supply system equipment requirements are as follows:

(i) The equipment must supply breathing gas for 15 minutes at a pressure altitude of 8,000 feet for the following:

(A) Flight crewmembers while performing flight deck duties; and

(B) Crewmembers while combatting an in-flight fire.

(ii) The breathing gas system must be free from hazards in itself, in its method of operation, and in its effect upon other components.

(iii) For breathing gas systems other than chemical oxygen generators, there must be a means to allow the crew to readily determine, during the equipment preflight described in paragraph (c) of this section, that the gas supply is fully charged.

(iv) For each chemical oxygen generator, the supply system equipment must meet the requirements of § 25.1450 (b) and (c) of this chapter.

(8) *Smoke and fume protection.* Protective breathing equipment with a fixed or portable breathing gas supply meeting the requirements of this section must be conveniently located on the flight deck and be easily accessible for immediate use by each required flight crewmember at his or her assigned duty station.

(9) *Fire combatting.* Except for nontransport category airplanes type certificated after December 31, 1964, protective breathing equipment with a portable breathing gas supply meeting the requirements of this section must be easily accessible and conveniently located for immediate use by crewmembers in combatting fires as follows:

(i) One PBE is required for each hand fire extinguisher located for use in a galley other than a galley located in a passenger, cargo, or crew compartment.

(ii) One on the flight deck, except that the Administrator may authorize another location for this PBE if special circumstances exist that make compliance impractical and the proposed deviation would provide an equivalent level of safety.

(iii) In each passenger compartment, one for each hand fire extinguisher required by § 121.309 of this part, to be located within 3 feet of each required hand fire extinguisher, except that the Administrator may authorize a deviation allowing locations of PBE more than 3 feet from required hand fire extinguisher locations if special circumstances exist that make compliance impractical and if the proposed deviation provides an equivalent level of safety.

(c) *Equipment preflight.* (1) Before each flight, each item of PBE at flight crewmember duty stations must be checked by

the flight crewmember who will use the equipment to ensure that the equipment -

(i) For other than chemical oxygen generator systems, is functioning, is serviceable, fits properly (unless a universal-fit type), and is connected to supply terminals and that the breathing gas supply and pressure are adequate for use; and

(ii) For chemical oxygen generator systems, is serviceable and fits properly (unless a universal-fit type).

(2) Each item of PBE located at other than a flight crewmember duty station must be checked by a designated crewmember to ensure that each is properly stowed and serviceable, and, for other than chemical oxygen generator systems, the breathing gas supply is fully charged. Each certificate holder, in its operations manual, must designate at least one crewmember to perform those checks before he or she takes off in that airplane for his or her first flight of the day.

[Doc. No. 24792, 52 FR 20957, June 3, 1987, as amended by Amdt. 121-204, 54 FR 22271, May 22, 1989; Amdt. 121-212, 55 FR 5551, Feb. 15, 1990; Amdt. 121-218, 55 FR 31565, Aug. 2, 1990; Amdt. 121-230, 57 FR 42674, Sept. 15, 1992; Amdt. 121-251, 60 FR 65932, Dec. 20, 1995; Amdt. 121-261, 61 FR 43921, Aug. 26, 1996]

§ 121.339 Emergency equipment for extended over-water operations.

(a) Except where the Administrator, by amending the operations specifications of the certificate holder, requires the carriage of all or any specific items of the equipment listed below for any overwater operation, or upon application of the certificate holder, the Administrator allows deviation for a particular extended overwater operation, no person may operate an airplane in extended overwater operations without having on the airplane the following equipment:

(1) A life preserver equipped with an approved survivor locator light, for each occupant of the airplane.

(2) Enough life rafts (each equipped with an approved survivor locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane. Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity beyond the rated capacity of the rafts must accommodate all occupants of the airplane in the event of a loss of one raft of the largest rated capacity.

(3) At least one pyrotechnic signaling device for each life raft.

(4) An approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than 1 cumulative hour, or when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to

batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

(b) The required life rafts, life preservers, and survival type emergency locator transmitter must be easily accessible in the event of a ditching without appreciable time for preparatory procedures. This equipment must be installed in conspicuously marked, approved locations.

(c) A survival kit, appropriately equipped for the route to be flown, must be attached to each required life raft.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-53, 34 FR 15244, Sept. 30, 1969; Amdt. 121-79, 36 FR 18724, Sept. 21, 1971; Amdt. 121-93, 37 FR 14294, June 19, 1972; Amdt. 121-106, 38 FR 22378, Aug. 20, 1973; Amdt. 121-149, 43 FR 50603, Oct. 30, 1978; Amdt. 121-158, 45 FR 38348, June 9, 1980; Amdt. 121-239, 59 FR 32057, June 21, 1994]

§ 121.340 Emergency flotation means.

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane in any overwater operation unless it is equipped with life preservers in accordance with § 121.339(a)(1) or with an approved flotation means for each occupant. This means must be within easy reach of each seated occupant and must be readily removable from the airplane.

(b) Upon application by the air carrier or commercial operator, the Administrator may approve the operation of an airplane over water without the life preservers or flotation means required by paragraph (a) of this section, if the air carrier or commercial operator shows that the water over which the airplane is to be operated is not of such size and depth that life preservers or flotation means would be required for the survival of its occupants in the event the flight terminates in that water.

[Doc. No. 6713, 31 FR 1147, Jan. 28, 1966, as amended by Amdt. 121-25, 32 FR 3223, Feb. 24, 1967; Amdt. 121-251, 60 FR 65932, Dec. 20, 1995]

§ 121.341 Equipment for operations in icing conditions.

(a) Except as permitted in paragraph (c)(2) of this section, unless an airplane is type certificated under the transport category airworthiness requirements relating to ice protection, or unless an airplane is a non-transport category airplane type certificated after December 31, 1964, that has the ice protection provisions that meet section 34 of appendix A of part 135 of this chapter, no person may operate an airplane in icing conditions unless it is equipped with means for the prevention or removal of ice on windshields, wings, empennage, propellers, and other parts of the airplane where ice formation will adversely affect the safety of the airplane.

(b) No person may operate an airplane in icing conditions at night unless means are provided for illuminating or otherwise determining the formation of ice on the parts of the wings that are critical from the standpoint of ice accumulation. Any illuminating that is used must be of a type that will not cause

glare or reflection that would handicap crewmembers in the performance of their duties.

(c) *Non-transport category airplanes type certificated after December 31, 1964.* Except for an airplane that has ice protection provisions that meet section 34 of appendix A of part 135 of this chapter, or those for transport category airplane type certification, no person may operate -

(1) Under IFR into known or forecast light or moderate icing conditions;

(2) Under VFR into known light or moderate icing conditions; unless the airplane has functioning deicing anti-icing equipment protecting each propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system; or

(3) Into known or forecast severe icing conditions.

(d) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing condition that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraph (c) of this section based on forecast conditions do not apply.

[Doc. No. 6258, 29 FR 18205, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65929, Dec. 20, 1995]

§ 121.342 Pitot heat indication systems.

No person may operate a transport category airplane or, after December 20, 1999, a nontransport category airplane type certificated after December 31, 1964, that is equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot heat indication system that complies § 25.1326 of this chapter in effect on April 12, 1978.

[Doc. No. 28154, 60 FR 65932, Dec. 20, 1995]

§ 121.343 Flight data recorders.

(a) Except as provided in paragraphs (b), (c), (d), (e), and (f) of this section, no person may operate a large airplane that is certificated for operations above 25,000 feet altitude or is turbine-engine powered unless it is equipped with one or more approved flight recorders that record data from which the following may be determined within the ranges, accuracies, and recording intervals specified in appendix B of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading; and

(6) Time of each radio transmission either to or from air traffic control.

(b) No person may operate a large airplane type certificated up to and including September 30, 1969, for operations above 25,000 feet altitude, or a turbine-engine powered airplane certificated before the same date, unless it is equipped before May 26, 1989 with one or more approved flight recorders that utilize a digital method of recording and storing

data and a method of readily retrieving that data from the storage medium. The following information must be able to be determined within the ranges, accuracies, and recording intervals specified in appendix B of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading; and
- (6) Time of each radio transmission either to or from air traffic control.

(c) Except as provided in paragraph (l) of this section, no person may operate an airplane specified in paragraph (b) of this section unless it is equipped, before May 26, 1995, with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The following information must be able to be determined within the ranges, accuracies and recording intervals specified in appendix B of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading;
- (6) Time of each radio transmission either to or from air traffic control;
- (7) Pitch attitude;
- (8) Roll attitude;
- (9) Longitudinal acceleration;
- (10) Control column or pitch control surface position; and
- (11) Thrust of each engine.

(d) No person may operate an airplane specified in paragraph (b) of this section that is manufactured after May 26, 1989, as well as airplanes specified in paragraph (a) of this section that have been type certificated after September 30, 1969, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The following information must be able to be determined within the ranges, accuracies, and recording intervals specified in appendix B of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading;
- (6) Time of each radio transmission either to or from air traffic control;
- (7) Pitch attitude;
- (8) Roll attitude;
- (9) Longitudinal acceleration;
- (10) Pitch trim position;
- (11) Control column or pitch control surface position;
- (12) Control wheel or lateral control surface position;

- (13) Rudder pedal or yaw control surface position;
- (14) Thrust of each engine;
- (15) Position of each thrust reverser;
- (16) Trailing edge flap or cockpit flap control position; and
- (17) Leading edge flap or cockpit flap control position.

For the purpose of this section, *manufactured* means the point in time at which the airplane inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data.

(e) After October 11, 1991, no person may operate a large airplane equipped with a digital data bus and ARINC 717 digital flight data acquisition unit (DFDAU) or equivalent unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. Any parameters specified in appendix B of this part that are available on the digital data bus must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified.

(f) After October 11, 1991, no person may operate an airplane specified in paragraph (b) of this section that is manufactured after October 11, 1991, nor an airplane specified in paragraph (a) of this section that has been type certificated after September 30, 1969, and manufactured after October 11, 1991, unless it is equipped with one or more flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The parameters specified in appendix B of this part must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified.

(g) Whenever a flight recorder required by this section is installed, it must be operated continuously from the instant the airplane begins the takeoff roll until it has completed the landing roll at an airport.

(h) Except as provided in paragraph (i) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed in paragraph (a), (b), (c), or (d) of this section, as appropriate, until the airplane has been operated for at least 25 hours of the operating time specified in § 121.359(a). A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (i) of this section, no record need be kept more than 60 days.

(i) In the event of an accident or occurrence that requires immediate notification of the National Transportation Safety Board under part 830 of its regulations and that results in termination of the flight, the certificate holder shall remove the recording media from the airplane and keep the recorded data required by paragraph (a), (b), (c), or (d) of this section, as appropriate, for at least 60 days or for a longer period upon the request of the Board or the Administrator.

(j) Each flight recorder required by this section must be installed in accordance with the requirements of § 25.1459 of this chapter in effect on August 31, 1977. The correlation required by § 25.1459(c) of this chapter need be established only on one airplane of any group of airplanes -

- (1) That are of the same type;
- (2) On which the model flight recorder and its installation are the same; and
- (3) On which there is no difference in the type design with respect to the installation of those first pilot's instruments associated with the flight recorder. The most recent instrument calibration, including the recording medium from which this calibration is derived, and the recorder correlation must be retained by the certificate holder.

(k) Each flight recorder required by this section that records the data specified in paragraph (a), (b), (c), or (d) of this section, as appropriate, must have an approved device to assist in locating that recorder under water.

(l) No person may operate an airplane specified in paragraph (b) of this section that meets the Stage 2 noise levels of part 36 of this chapter and is subject to § 91.801(c) of this chapter unless it is equipped with one or more approved flight data recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The information specified in paragraphs (c)(1) through (c)(11) of this section must be able to be determined within the ranges, accuracies and recording intervals specified in appendix B of this part. In addition -

(1) This flight data recorder must be installed at the next heavy maintenance check after May 26, 1994, but no later than May 26, 1995. A heavy maintenance check is considered to be any time an aircraft is scheduled to be out of service for 4 or more days.

(2) By June 23, 1994, each carrier must submit to the FAA Flight Standards Service, Air Transportation Division (AFS-200), documentation listing those airplanes covered under this paragraph and evidence that it has ordered a sufficient number of flight data recorders to meet the May 26, 1995, compliance date for all aircraft on that list.

(3) After May 26, 1994, any aircraft that is modified to meet Stage 3 noise levels must have the flight data recorder described in paragraph (c) of this section installed before operating under this part.

(m) After August 20, 2001, this section applies only to the airplane models listed in § 121.344(1)(2). All other airplanes must comply with the requirements of § 121.344, as applicable.

[Doc. No. 24418, 52 FR 9636, Mar. 25, 1987, as amended by Amdt. 121-197, 53 FR 26147, July 11, 1988; Amdt. 121-238, 59 FR 26900, May 24, 1994; Amdt. 121-338, 73 FR 12565, Mar. 7, 2008]

§ 121.344 Digital flight data recorders for transport category airplanes.

(a) Except as provided in paragraph (l) of this section, no person may operate under this part a turbine-engine-powered transport category airplane unless it is equipped with one or more approved flight recorders that use a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The operational parameters required to be recorded by digital flight data recorders required by this section are as follows: The phrase “when an information source is installed” following a parameter indicates that recording of that parameter is not intended to require a change in installed equipment:

- (1) Time;
- (2) Pressure altitude;
- (3) Indicated airspeed;
- (4) Heading - primary flight crew reference (if selectable, record discrete, true or magnetic);
- (5) Normal acceleration (Vertical);
- (6) Pitch attitude;
- (7) Roll attitude;
- (8) Manual radio transmitter keying, or CVR/DFDR synchronization reference;
- (9) Thrust/power of each engine - primary flight crew reference;
- (10) Autopilot engagement status;
- (11) Longitudinal acceleration;
- (12) Pitch control input;
- (13) Lateral control input;
- (14) Rudder pedal input;
- (15) Primary pitch control surface position;
- (16) Primary lateral control surface position;
- (17) Primary yaw control surface position;
- (18) Lateral acceleration;
- (19) Pitch trim surface position or parameters of paragraph (a)(82) of this section if currently recorded;
- (20) Trailing edge flap or cockpit flap control selection (except when parameters of paragraph (a)(85) of this section apply);
- (21) Leading edge flap or cockpit flap control selection (except when parameters of paragraph (a)(86) of this section apply);
- (22) Each Thrust reverser position (or equivalent for propeller airplane);
- (23) Ground spoiler position or speed brake selection (except when parameters of paragraph (a)(87) of this section apply);
- (24) Outside or total air temperature;
- (25) Automatic Flight Control System (AFCS) modes and engagement status, including autothrottle;
- (26) Radio altitude (when an information source is installed);
- (27) Localizer deviation, MLS Azimuth;
- (28) Glideslope deviation, MLS Elevation;

- (29) Marker beacon passage;
- (30) Master warning;
- (31) Air/ground sensor (primary airplane system reference nose or main gear);
- (32) Angle of attack (when information source is installed);
- (33) Hydraulic pressure low (each system);
- (34) Ground speed (when an information source is installed);
- (35) Ground proximity warning system;
- (36) Landing gear position or landing gear cockpit control selection;
- (37) Drift angle (when an information source is installed);
- (38) Wind speed and direction (when an information source is installed);
- (39) Latitude and longitude (when an information source is installed);
- (40) Stick shaker/pusher (when an information source is installed);
- (41) Windshear (when an information source is installed);
- (42) Throttle/power lever position;
- (43) Additional engine parameters (as designated in Appendix M of this part);
- (44) Traffic alert and collision avoidance system;
- (45) DME 1 and 2 distances;
- (46) Nav 1 and 2 selected frequency;
- (47) Selected barometric setting (when an information source is installed);
- (48) Selected altitude (when an information source is installed);
- (49) Selected speed (when an information source is installed);
- (50) Selected mach (when an information source is installed);
- (51) Selected vertical speed (when an information source is installed);
- (52) Selected heading (when an information source is installed);
- (53) Selected flight path (when an information source is installed);
- (54) Selected decision height (when an information source is installed);
- (55) EFIS display format;
- (56) Multi-function/engine/alerts display format;
- (57) Thrust command (when an information source is installed);
- (58) Thrust target (when an information source is installed);
- (59) Fuel quantity in CG trim tank (when an information source is installed);
- (60) Primary Navigation System Reference;
- (61) Icing (when an information source is installed);
- (62) Engine warning each engine vibration (when an information source is installed);
- (63) Engine warning each engine over temp. (when an information source is installed);

(64) Engine warning each engine oil pressure low (when an information source is installed);

(65) Engine warning each engine over speed (when an information source is installed);

(66) Yaw trim surface position;

(67) Roll trim surface position;

(68) Brake pressure (selected system);

(69) Brake pedal application (left and right);

(70) Yaw or sideslip angle (when an information source is installed);

(71) Engine bleed valve position (when an information source is installed);

(72) De-icing or anti-icing system selection (when an information source is installed);

(73) Computed center of gravity (when an information source is installed);

(74) AC electrical bus status;

(75) DC electrical bus status;

(76) APU bleed valve position (when an information source is installed);

(77) Hydraulic pressure (each system);

(78) Loss of cabin pressure;

(79) Computer failure;

(80) Heads-up display (when an information source is installed);

(81) Para-visual display (when an information source is installed);

(82) Cockpit trim control input position - pitch;

(83) Cockpit trim control input position - roll;

(84) Cockpit trim control input position - yaw;

(85) Trailing edge flap and cockpit flap control position;

(86) Leading edge flap and cockpit flap control position;

(87) Ground spoiler position and speed brake selection;

(88) All cockpit flight control input forces (control wheel, control column, rudder pedal);

(89) Yaw damper status;

(90) Yaw damper command; and

(91) Standby rudder valve status.

(b) For all turbine-engine powered transport category airplanes manufactured on or before October 11, 1991, by August 20, 2001.

(1) For airplanes not equipped as of July 16, 1996, with a flight data acquisition unit (FDAU), the parameters listed in paragraphs (a)(1) through (a)(18) of this section must be recorded within the ranges and accuracies specified in Appendix B of this part, and -

(i) For airplanes with more than two engines, the parameter described in paragraph (a)(18) is not required unless sufficient capacity is available on the existing recorder to record that parameter;

(ii) Parameters listed in paragraphs (a)(12) through (a)(17) each may be recorded from a single source.

(2) For airplanes that were equipped as of July 16, 1996, with a flight data acquisition unit (FDAU), the parameters listed in paragraphs (a)(1) through (a)(22) of this section

must be recorded within the ranges, accuracies, and recording intervals specified in Appendix M of this part. Parameters listed in paragraphs (a)(12) through (a)(17) each may be recorded from a single source.

(3) The approved flight recorder required by this section must be installed at the earliest time practicable, but no later than the next heavy maintenance check after August 18, 1999 and no later than August 20, 2001. A heavy maintenance check is considered to be any time an airplane is scheduled to be out of service for 4 or more days and is scheduled to include access to major structural components.

(c) For all turbine-engine powered transport category airplanes manufactured on or before October 11, 1991 -

(1) That were equipped as of July 16, 1996, with one or more digital data bus(es) and an ARINC 717 digital flight data acquisition unit (DFDAU) or equivalent, the parameters specified in paragraphs (a)(1) through (a)(22) of this section must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix M of this part by August 20, 2001. Parameters listed in paragraphs (a)(12) through (a)(14) each may be recorded from a single source.

(2) Commensurate with the capacity of the recording system (DFDAU or equivalent and the DFDR), all additional parameters for which information sources are installed and which are connected to the recording system must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix M of this part by August 20, 2001.

(3) That were subject to § 121.343(e) of this part, all conditions of § 121.343(e) must continue to be met until compliance with paragraph (c)(1) of this section is accomplished.

(d) For all turbine-engine-powered transport category airplanes that were manufactured after October 11, 1991 -

(1) The parameters listed in paragraph (a)(1) through (a)(34) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix M of this part by August 20, 2001. Parameters listed in paragraphs (a)(12) through (a)(14) each may be recorded from a single source.

(2) Commensurate with the capacity of the recording system, all additional parameters for which information sources are installed and which are connected to the recording system must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix M of this part by August 20, 2001.

(e) For all turbine-engine-powered transport category airplanes that are manufactured after August 18, 2000 -

(1) The parameters listed in paragraph (a)(1) through (57) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix M of this part.

(2) Commensurate with the capacity of the recording system, all additional parameters for which information sources are installed and which are connected to the recording

system, must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix M of this part.

(3) In addition to the requirements of paragraphs (e)(1) and (e)(2) of this section, all Boeing 737 model airplanes must also comply with the requirements of paragraph (n) of this section, as applicable.

(f) For all turbine-engine-powered transport category airplanes manufactured after August 19, 2002 -

(1) The parameters listed in paragraphs (a)(1) through (a)(88) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in appendix M to this part.

(2) In addition to the requirements of paragraphs (f)(1) of this section, all Boeing 737 model airplanes must also comply with the requirements of paragraph (n) of this section.

(g) Whenever a flight data recorder required by this section is installed, it must be operated continuously from the instant the airplane begins its takeoff roll until it has completed its landing roll.

(h) Except as provided in paragraph (i) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed by this section, as appropriate, until the airplane has been operated for at least 25 hours of the operating time specified in § 121.359(a) of this part. A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (i) of this section, no record need be kept more than 60 days.

(i) In the event of an accident or occurrence that requires immediate notification of the National Transportation Safety Board under 49 CFR 830 of its regulations and that results in termination of the flight, the certificate holder shall remove the recorder from the airplane and keep the recorder data prescribed by this section, as appropriate, for at least 60 days or for a longer period upon the request of the Board or the Administrator.

(j) Each flight data recorder system required by this section must be installed in accordance with the requirements of § 25.1459(a) (except paragraphs (a)(3)(ii) and (a)(7)), (b), (d) and (e) of this chapter. A correlation must be established between the values recorded by the flight data recorder and the corresponding values being measured. The correlation must contain a sufficient number of correlation points to accurately establish the conversion from the recorded values to engineering units or discrete state over the full operating range of the parameter. Except for airplanes having separate altitude and airspeed sensors that are an integral part of the flight data recorder system, a single correlation may be established for any group of airplanes -

(1) That are of the same type;

(2) On which the flight recorder system and its installation are the same; and

(3) On which there is no difference in the type design with respect to the installation of those sensors associated with the flight data recorder system. Documentation sufficient to convert recorded data into the engineering units and discrete values specified in the applicable appendix must be maintained by the certificate holder.

(k) Each flight data recorder required by this section must have an approved device to assist in locating that recorder under water.

(l) The following airplanes that were manufactured before August 18, 1997 need not comply with this section, but must continue to comply with applicable paragraphs of § 121.343 of this chapter, as appropriate:

(1) Airplanes that meet the State 2 noise levels of part 36 of this chapter and are subject to § 91.801(c) of this chapter, until January 1, 2000. On and after January 1, 2000, any Stage 2 airplane otherwise allowed to be operated under Part 91 of this chapter must comply with the applicable flight data recorder requirements of this section for that airplane.

(2) British Aerospace 1-11, General Dynamics Convair 580, General Dynamics Convair 600, General Dynamics Convair 640, deHavilland Aircraft Company Ltd. DHC-7, Fairchild Industries FH 227, Fokker F-27 (except Mark 50), F-28 Mark 1000 and Mark 4000, Gulfstream Aerospace G-159, Jetstream 4100 Series, Lockheed Aircraft Corporation Electra 10-A, Lockheed Aircraft Corporation Electra 10-B, Lockheed Aircraft Corporation Electra 10-E, Lockheed Aircraft Corporation Electra L-188, Lockheed Martin Model 382 (L-100) Hercules, Maryland Air Industries, Inc. F27, Mitsubishi Heavy Industries, Ltd. YS-11, Short Bros. Limited SD3-30, Short Bros. Limited SD3-60.

(m) All aircraft subject to the requirements of this section that are manufactured on or after April 7, 2010, must have a digital flight data recorder installed that also -

(1) Meets the requirements of § 25.1459(a)(3), (a)(7), and (a)(8) of this chapter; and

(2) Retains the 25 hours of recorded information required in paragraph (h) of this section using a recorder that meets the standards of TSO-C124a, or later revision.

(n) In addition to all other applicable requirements of this section, all Boeing 737 model airplanes manufactured after August 18, 2000 must record the parameters listed in paragraphs (a)(88) through (a)(91) of this section within the ranges, accuracies, resolutions, and recording intervals specified in Appendix M to this part. Compliance with this paragraph is required no later than February 2, 2011.

[Doc. No. 28109, 62 FR 38378, July 17, 1997; 62 FR 48135, Sept. 12, 1997, as amended by Amdt. 121-300, 68 FR 42936, July 18, 2003; 68 FR 50069, Aug. 20, 2003; Amdt. 121-338, 73 FR 12565, Mar. 7, 2008; Amdt. 121-342, 73 FR 73178, Dec. 2, 2008; Amdt. 121-338, 74 FR 32800, July 9, 2009]

§ 121.344a Digital flight data recorders for 10-19 seat airplanes.

(a) Except as provided in paragraph (f) of this section, no person may operate under this part a turbine-engine-powered airplane having a passenger seating configuration, excluding any required crewmember seat, of 10 to 19 seats, that was brought onto the U.S. register after, or was registered outside the United States and added to the operator's U.S. operations specifications after, October 11, 1991, unless it is equipped with one or more approved flight recorders that use a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. On or before August 20, 2001, airplanes brought onto the U.S. register after October 11, 1991, must comply with either the requirements in this section or the applicable paragraphs in § 135.152 of this chapter. In addition, by August 20, 2001.

(1) The parameters listed in §§ 121.344(a)(1) through 121.344(a)(18) of this part must be recorded with the ranges, accuracies, and resolutions specified in Appendix B of part 135 of this chapter, except that -

(i) Either the parameter listed in § 121.344 (a)(12) or (a) (15) of this part must be recorded; either the parameters listed in § 121.344(a)(13) or (a)(16) of this part must be recorded; and either the parameter listed in § 121.344(a)(14) or (a)(17) of this part must be recorded.

(ii) For airplanes with more than two engines, the parameter described in § 121.344(a)(18) of this part must also be recorded if sufficient capacity is available on the existing recorder to record that parameter;

(iii) Parameters listed in §§ 121.344(a)(12) through 121.344(a)(17) of this part each may be recorded from a single source;

(iv) Any parameter for which no value is contained in Appendix B of part 135 of this chapter must be recorded within the ranges, accuracies, and resolutions specified in Appendix M of this part.

(2) Commensurate with the capacity of the recording system (FDAU or equivalent and the DFDR), the parameters listed in §§ 121.344(a)(19) through 121.344(a)(22) of this part also must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix B of part 135 of this chapter.

(3) The approved flight recorder required by this section must be installed as soon as practicable, but no later than the next heavy maintenance check or equivalent after August 18, 1999. A heavy maintenance check is considered to be any time an airplane is scheduled to be out of service for 4 more days and is scheduled to include access to major structural components.

(b) For a turbine-engine-powered airplanes having a passenger seating configuration, excluding any required crewmember seat, of 10 to 19 seats, that are manufactured after August 18, 2000.

(1) The parameters listed in §§ 121.344(a)(1) through 121.344(a)(57) of this part, must be recorded within the ranges,

accuracies, resolutions, and recording intervals specified in Appendix M of this part.

(2) Commensurate with the capacity of the recording system, all additional parameters listed in § 121.344(a) of this part for which information sources are installed and which are connected to the recording system, must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix M of this part by August 20, 2001.

(c) For all turbine-engine-powered airplanes having a passenger seating configuration, excluding any required crewmember seats, of 10 to 19 seats, that are manufactured after August 19, 2002, the parameters listed in § 121.344(a)(1) through (a)(88) of this part must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix M of this part.

(d) Each flight data recorder system required by this section must be installed in accordance with the requirements of § 23.1459(a) (except paragraphs (a)(3)(ii) and (6)), (b), (d) and (e) of this chapter. A correlation must be established between the values recorded by the flight data recorder and the corresponding values being measured. The correlation must contain a sufficient number of correlation points to accurately establish the conversion from the recorded values to engineering units or discrete state over the full operating range of the parameter. A single correlation may be established for any group of airplanes -

(1) That are of the same type;

(2) On which the flight recorder system and its installation are the same; and

(3) On which there is no difference in the type design with respect to the installation of those sensors associated with the flight data recorder system. Correlation documentation must be maintained by the certificate holder.

(e) All airplanes subject to this section are also subject to the requirements and exceptions stated in § 121.344(g) through (k) and § 121.346.

(f) For airplanes that were manufactured before August 18, 1997, the following airplane types need not comply with this section, but must continue to comply with applicable paragraphs of § 135.152 of this chapter, as appropriate: Beech Aircraft-99 Series, Beech Aircraft 1300, Beech Aircraft 1900C, Construcciones Aeronauticas, S.A. (CASA) C-212, deHavilland DHC-6, Dornier 228, HS-748, Embraer EMB 110, Jetstream 3101, Jetstream 3201, Fairchild Aircraft SA-226, Fairchild Metro SA-227.

(g) All airplanes subject to the requirements of this section that are manufactured on or after April 7, 2010, must have a digital flight data recorder installed that also -

(1) Meets the requirements in § 23.1459(a)(3), (a)(6), and (a)(7) or § 25.1459(a)(3), (a)(7), and (a)(8) of this chapter, as applicable; and

(2) Retains the 25 hours of recorded information required in § 121.344(g) using a recorder that meets the standards of TSO-C124a, or later revision.

[Doc. No. 28109, 62 FR 38380, July 17, 1997; 62 FR 48135, Sept. 12, 1997; 62 FR 65202, Dec. 11, 1997, as amended by Amdt. 121-300, 68 FR 42936, July 18, 2003; Amdt. 121-338, 73 FR 12566, Mar. 7, 2008; Amdt. 121-338, 74 FR 32801, July 9, 2009; Amdt. 121-347, 75 FR 7356, Feb. 19, 2010]

§ 121.345 Radio equipment.

(a) No person may operate an airplane unless it is equipped with radio equipment required for the kind of operation being conducted.

(b) Where two independent (separate and complete) radio systems are required by §§ 121.347 and 121.349, each system must have an independent antenna installation except that, where rigidly supported nonwire antennas or other antenna installations of equivalent reliability are used, only one antenna is required.

(c) ATC transponder equipment installed within the time periods indicated below must meet the performance and environmental requirements of the following TSO's:

(1) *Through January 1, 1992:* (i) Any class of TSO-C74b or any class of TSO-C74c as appropriate, provided that the equipment was manufactured before January 1, 1990; or

(ii) The appropriate class of TSO-C112 (Mode S).

(2) *After January 1, 1992:* The appropriate class of TSO-C112 (Mode S). For purposes of paragraph (c) (2) of this section, "installation" does not include -

(i) Temporary installation of TSO-C74b or TSO-C74c substitute equipment, as appropriate, during maintenance of the permanent equipment;

(ii) Reinstallation of equipment after temporary removal for maintenance; or

(iii) For fleet operations, installation of equipment in a fleet aircraft after removal of the equipment for maintenance from another aircraft in the same operator's fleet.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-101, 37 FR 28499, Dec. 27, 1972; Amdt. 121-190, 52 FR 3391, Feb. 3, 1987]

§ 121.346 Flight data recorders: filtered data.

(a) A flight data signal is filtered when an original sensor signal has been changed in any way, other than changes necessary to:

(1) Accomplish analog to digital conversion of the signal;

(2) Format a digital signal to be DFDR compatible; or

(3) Eliminate a high frequency component of a signal that is outside the operational bandwidth of the sensor.

(b) An original sensor signal for any flight recorder parameter required to be recorded under § 121.344 may be filtered only if the recorded signal value continues to meet the requirements of Appendix B or M of this part, as applicable.

(c) For a parameter described in § 121.344(a) (12) through (17), (42), or (88), or the corresponding parameter in Appendix B of this part, if the recorded signal value is filtered and does not meet the requirements of Appendix B or M of this part, as applicable, the certificate holder must:

(1) Remove the filtering and ensure that the recorded signal value meets the requirements of Appendix B or M of this part, as applicable; or

(2) Demonstrate by test and analysis that the original sensor signal value can be reconstructed from the recorded data. This demonstration requires that:

(i) The FAA determine that the procedure and the test results submitted by the certificate holder as its compliance with paragraph (c)(2) of this section are repeatable; and

(ii) The certificate holder maintains documentation of the procedure required to reconstruct the original sensor signal value. This documentation is also subject to the requirements of § 121.344(i).

(d) *Compliance.* Compliance is required as follows:

(1) No later than October 20, 2011, each operator must determine, for each airplane on its operations specifications, whether the airplane's DFDR system is filtering any of the parameters listed in paragraph (c) of this section. The operator must create a record of this determination for each airplane it operates, and maintain it as part of the correlation documentation required by § 121.344(j)(3) of this part.

(2) For airplanes that are not filtering any listed parameter, no further action is required unless the airplane's DFDR system is modified in a manner that would cause it to meet the definition of filtering on any listed parameter.

(3) For airplanes found to be filtering a parameter listed in paragraph (c) of this section, the operator must either:

(i) No later than April 21, 2014, remove the filtering; or

(ii) No later than April 22, 2013, submit the necessary procedure and test results required by paragraph (c)(2) of this section.

(4) After April 21, 2014, no aircraft flight data recording system may filter any parameter listed in paragraph (c) of this section that does not meet the requirements of Appendix B or M of this part, unless the certificate holder possesses test and analysis procedures and the test results that have been approved by the FAA. All records of tests, analysis and procedures used to comply with this section must be maintained as part of the correlation documentation required by § 121.344(j)(3) of this part.

[Doc. No. FAA-2006-26135, 75 FR 7356, Feb. 19, 2010]

§ 121.347 Communication and navigation equipment for operations under VFR over routes navigated by pilotage.

(a) No person may operate an airplane under VFR over routes that can be navigated by pilotage unless the airplane is equipped with the radio communication equipment necessary under normal operating conditions to fulfill the following:

(1) Communicate with at least one appropriate station from any point on the route;

(2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D

airspace, or within a Class E surface area designated for an airport in which flights are intended; and

(3) Receive meteorological information from any point en route by either of two independent systems. One of the means provided to comply with this subparagraph may be used to comply with paragraphs (a)(1) and (2) of this section.

(b) No person may operate an airplane at night under VFR over routes that can be navigated by pilotage unless that airplane is equipped with -

(1) Radio communication equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section; and

(2) Navigation equipment suitable for the route to be flown.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-226, 56 FR 65663, Dec. 17, 1991; Amdt. 121-333, 72 FR 31681, June 7, 2007]

§ 121.349 Communication and navigation equipment for operations under VFR over routes not navigated by pilotage or for operations under IFR or over the top.

(a) *Navigation equipment requirements - General.* No person may conduct operations under VFR over routes that cannot be navigated by pilotage, or operations conducted under IFR or over the top, unless -

(1) The en route navigation aids necessary for navigating the airplane along the route (e.g., ATS routes, arrival and departure routes, and instrument approach procedures, including missed approach procedures if a missed approach routing is specified in the procedure) are available and suitable for use by the aircraft navigation systems required by this section;

(2) The airplane used in those operations is equipped with at least -

(i) Except as provided in paragraph (c) of this section, two approved independent navigation systems suitable for navigating the airplane along the route to be flown within the degree of accuracy required for ATC;

(ii) One marker beacon receiver providing visual and aural signals; and

(iii) One ILS receiver; and

(3) Any RNAV system used to meet the navigation equipment requirements of this section is authorized in the certificate holder's operations specifications.

(b) *Communication equipment requirements.* No person may operate an airplane under VFR over routes that cannot be navigated by pilotage, and no person may operate an airplane under IFR or over the top, unless the airplane is equipped with -

(1) At least two independent communication systems necessary under normal operating conditions to fulfill the functions specified in § 121.347 (a); and

(2) At least one of the communication systems required by paragraph (b)(1) of this section must have two-way voice communication capability.

(c) *Use of a single independent navigation system for operations under VFR over routes that cannot be navigated by pilotage, or operations conducted under IFR or over the top.* Notwithstanding the requirements of paragraph (a)(2)(i) of this section, the airplane may be equipped with a single independent navigation system suitable for navigating the airplane along the route to be flown within the degree of accuracy required for ATC if:

(1) It can be shown that the airplane is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single independent navigation system permitted by this paragraph at any point along the route, for proceeding safely to a suitable airport and completing an instrument approach; and

(2) The airplane has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(d) *Use of VOR navigation equipment.* If VOR navigation equipment is used to comply with paragraph (a) or (c) of this section, no person may operate an airplane unless it is equipped with at least one approved DME or suitable RNAV system.

(e) *Additional communication system equipment requirements for operators subject to § 121.2.* In addition to the requirements in paragraph (b) of this section, no person may operate an airplane having a passenger seat configuration of 10 to 30 seats, excluding each crewmember seat, and a maximum payload capacity of 7,500 pounds or less, under IFR, over the top, or in extended over-water operations unless it is equipped with at least -

(1) Two microphones; and

(2) Two headsets, or one headset and one speaker.

[Doc. No. FAA-2002-14002, 72 FR 31681, June 7, 2007]

§ 121.351 Communication and navigation equipment for extended over-water operations and for certain other operations.

(a) Except as provided in paragraph (c) of this section, no person may conduct an extended over-water operation unless the airplane is equipped with at least two independent long-range navigation systems and at least two independent long-range communication systems necessary under normal operating conditions to fulfill the following functions -

(1) Communicate with at least one appropriate station from any point on the route;

(2) Receive meteorological information from any point on the route by either of two independent communication systems. One of the communication systems used to comply with this paragraph may be used to comply with paragraphs (a)(1) and (a)(3) of this section; and

(3) At least one of the communication systems must have two-way voice communication capability.

(b) No certificate holder conducting a flag or supplemental operation or a domestic operation within the State of Alaska

may conduct an operation without the equipment specified in paragraph (a) of this section, if the Administrator finds that equipment to be necessary for search and rescue operations because of the nature of the terrain to be flown over.

(c) Notwithstanding the requirements of paragraph (a) of this section, installation and use of a single LRNS and a single LRCS may be authorized by the Administrator and approved in the certificate holder's operations specifications for operations and routes in certain geographic areas. The following are among the operational factors the Administrator may consider in granting an authorization:

- (1) The ability of the flightcrew to navigate the airplane along the route within the degree of accuracy required for ATC,
- (2) The length of the route being flown, and
- (3) The duration of the very high frequency communications gap.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2611, Jan. 26, 1996; Amdt. 121-254, 61 FR 7191, Feb. 26, 1996; Amdt. 121-333, 72 FR 31682, June 7, 2007]

§ 121.353 Emergency equipment for operations over uninhabited terrain areas: Flag, supplemental, and certain domestic operations.

Unless the airplane has the following equipment, no person may conduct a flag or supplemental operation or a domestic operation within the States of Alaska or Hawaii over an uninhabited area or any other area that (in its operations specifications) the Administrator specifies required equipment for search and rescue in case of an emergency:

- (a) Suitable pyrotechnic signaling devices.
- (b) An approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than 1 cumulative hour, or when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.
- (c) Enough survival kits, appropriately equipped for the route to be flown for the number of occupants of the airplane.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-79, 36 FR 18724, Sept. 21, 1971; Amdt. 121-106, 38 FR 22378 Aug. 20, 1973; Amdt. 121-158, 45 FR 38348, June 9, 1980; Amdt. 121-239, 59 FR 32057, June 21, 1994; Amdt. 121-251, 60 FR 65932, Dec. 20, 1995]

§ 121.354 Terrain awareness and warning system.

(a) *Airplanes manufactured after March 29, 2002.* No person may operate a turbine-powered airplane unless that airplane is equipped with an approved terrain awareness and warning system that meets the requirements for Class A equipment in Technical Standard Order (TSO)-C151. The airplane must also include an approved terrain situational awareness display.

(b) *Airplanes manufactured on or before March 29, 2002.* No person may operate a turbine-powered airplane after March 29, 2005, unless that airplane is equipped with an approved terrain awareness and warning system that meets the requirements for Class A equipment in Technical Standard Order (TSO)-C151. The airplane must also include an approved terrain situational awareness display.

(Approved by the Office of Management and Budget under control number 2120-0631)

(c) *Airplane Flight Manual.* The Airplane Flight Manual shall contain appropriate procedures for -

- (1) The use of the terrain awareness and warning system; and
- (2) Proper flight crew reaction in response to the terrain awareness and warning system audio and visual warnings.

[Doc. No. 29312, 65 FR 16755, Mar. 29, 2000]

§ 121.355 Equipment for operations on which specialized means of navigation are used.

- (a) No certificate holder may conduct an operation -
 - (1) Using Doppler Radar or an Inertial Navigation System outside the 48 contiguous States and the District of Columbia, unless such systems have been approved in accordance with appendix G to this part; or
 - (2) Using Doppler Radar or an Inertial Navigation System within the 48 contiguous States and the District of Columbia, or any other specialized means of navigation, unless it shows that an adequate airborne system is provided for the specialized navigation authorized for the particular operation.

(b) Notwithstanding paragraph (a) of this section, Doppler Radar and Inertial Navigation Systems, and the training programs, maintenance programs, relevant operations manual material, and minimum equipment lists prepared in accordance therewith, approved before April 29, 1972, are not required to be approved in accordance with that paragraph.

[Doc. No. 10204, 37 FR 6464, Mar. 30, 1972]

§ 121.356 Collision avoidance system.

Effective January 1, 2005, any airplane you operate under this part must be equipped and operated according to the following table:

Collision Avoidance Systems

| If you operate any - | Then you must operate that airplane with - |
|--|---|
| (a) Turbine-powered airplane of more than 33,000 pounds maximum certificated takeoff weight | <p>(1) An appropriate class of Mode S transponder that meets Technical Standard Order (TSO) C-112, or a later version, and one of the following approved units:</p> <p>(i) TCAS II that meets TSO C-119b (version 7.0), or takeoff weight a later version.</p> <p>(ii) TCAS II that meets TSO C-119a (version 6.04A Enhanced) that was installed in that airplane before May 1, 2003. If that TCAS II version 6.04A Enhanced no longer can be repaired to TSO C-119a standards, it must be replaced with a TCAS II that meets TSO C-119b (version 7.0), or a later version.</p> <p>(iii) A collision avoidance system equivalent to TSO C-119b (version 7.0), or a later version, capable of coordinating with units that meet TSO C-119a (version 6.04A Enhanced), or a later version.</p> |
| (b) Passenger or combination cargo/passenger (combi) airplane that has a passenger seat configuration of 10-30 seats | <p>(1) TCAS I that meets TSO C-118, or a later version, or</p> <p>(2) A collision avoidance system equivalent to has a TSO C-118, or a later version, or</p> <p>(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section.</p> |
| (c) Piston-powered airplane of more than 33,000 pounds maximum certificated takeoff weight | <p>(1) TCAS I that meets TSO C-118, or a later version, or</p> <p>(2) A collision avoidance system equivalent to maximum TSO C-118, or a later version, or</p> <p>(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section.</p> |

[Doc. No. FAA-2001-10910, 68 FR 15902, Apr. 1, 2003]

§ 121.357 Airborne weather radar equipment requirements.

(a) No person may operate any transport category airplane (except C-46 type airplanes) or a nontransport category airplane certificated after December 31, 1964, unless approved airborne weather radar equipment has been installed in the airplane.

(b) [Reserved]

(c) Each person operating an airplane required to have approved airborne weather radar equipment installed shall, when using it under this part, operate it in accordance with the following:

(1) *Dispatch.* No person may dispatch an airplane (or begin the flight of an airplane in the case of a certificate holder, that does not use a dispatch system) under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment is in satisfactory operating condition.

(2) If the airborne weather radar becomes inoperative en route, the airplane must be operated in accordance with the approved instructions and procedures specified in the operations manual for such an event.

(d) This section does not apply to airplanes used solely within the State of Hawaii or within the State of Alaska and that part of Canada west of longitude 130 degrees W, between latitude 70 degrees N, and latitude 53 degrees N, or during any training, test, or ferry flight.

(e) Notwithstanding any other provision of this chapter, an alternate electrical power supply is not required for airborne weather radar equipment.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964, as amended by Amdt. 121-18, 31 FR 5825, Apr. 15, 1966; Amdt. 121-130, 41 FR 47229, Oct. 28, 1976; Amdt. 121-251, 60 FR 65932, Dec. 20, 1995]

§ 121.358 Low-altitude windshear system equipment requirements.

(a) *Airplanes manufactured after January 2, 1991.* No person may operate a turbine-powered airplane manufactured after January 2, 1991, unless it is equipped with either an approved airborne windshear warning and flight guidance

system, an approved airborne detection and avoidance system, or an approved combination of these systems.

(b) *Airplanes manufactured before January 3, 1991.* Except as provided in paragraph (c) of this section, after January 2, 1991, no person may operate a turbine-powered airplane manufactured before January 3, 1991 unless it meets one of the following requirements as applicable.

(1) The makes/models/series listed below must be equipped with either an approved airborne windshear warning and flight guidance system, an approved airborne detection and avoidance system, or an approved combination of these systems:

- (i) A-300-600;
- (ii) A-310 - all series;
- (iii) A-320 - all series;
- (iv) B-737-300, 400, and 500 series;
- (v) B-747-400;
- (vi) B-757 - all series;
- (vii) B-767 - all series;
- (viii) F-100 - all series;
- (ix) MD-11 - all series; and

(x) MD-80 series equipped with an EFIS and Honeywell-970 digital flight guidance computer.

(2) All other turbine-powered airplanes not listed above must be equipped with as a minimum requirement, an approved airborne windshear warning system. These airplanes may be equipped with an approved airborne windshear detection and avoidance system, or an approved combination of these systems.

(c) *Extension of the compliance date.* A certificate holder may obtain an extension of the compliance date in paragraph (b) of this section if it obtains FAA approval of a retrofit schedule. To obtain approval of a retrofit schedule and show continued compliance with that schedule, a certificate holder must do the following:

(1) Submit a request for approval of a retrofit schedule by June 1, 1990, to the Flight Standards Division Manager in the region of the certificate holding district office.

(2) Show that all of the certificate holder's airplanes required to be equipped in accordance with this section will be equipped by the final compliance date established for TCAS II retrofit.

(3) Comply with its retrofit schedule and submit status reports containing information acceptable to the Administrator. The initial report must be submitted by January 2, 1991, and subsequent reports must be submitted every six months thereafter until completion of the schedule. The reports must be submitted to the certificate holder's assigned Principal Avionics Inspector.

(d) *Definitions.* For the purposes of this section the following definitions apply -

(1) *Turbine-powered airplane* includes, e.g., turbofan-, turbojet-, propfan-, and ultra-high bypass fan-powered airplanes. The definition specifically excludes turbopropeller-powered airplanes.

(2) An airplane is considered manufactured on the date the inspection acceptance records reflect that the airplane is complete and meets the FAA Approved Type Design data.

[Doc. No. 25954, 55 FR 13242, Apr. 9, 1990]

§ 121.359 Cockpit voice recorders.

(a) No certificate holder may operate a large turbine engine powered airplane or a large pressurized airplane with four reciprocating engines unless an approved cockpit voice recorder is installed in that airplane and is operated continuously from the start of the use of the checklist (before starting engines for the purpose of flight), to completion of the final checklist at the termination of the flight.

(b) [Reserved]

(c) The cockpit voice recorder required by paragraph (a) of this section must meet the following application standards:

(1) The requirements of part 25 of this chapter in effect on August 31, 1977.

(2) After September 1, 1980, each recorder container must -

(i) Be either bright orange or bright yellow;

(ii) Have reflective tape affixed to the external surface to facilitate its location under water; and

(iii) Have an approved underwater locating device on or adjacent to the container which is secured in such a manner that they are not likely to be separated during crash impact, unless the cockpit voice recorder, and the flight recorder required by § 121.343, are installed adjacent to each other in such a manner that they are not likely to be separated during crash impact.

(d) No person may operate a multiengine, turbine-powered airplane having a passenger seat configuration of 10-19 seats unless it is equipped with an approved cockpit voice recorder that:

(1) Is installed in compliance with § 23.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g); or § 25.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g) of this chapter, as applicable; and

(2) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(e) No person may operate a multiengine, turbine-powered airplane having a passenger seat configuration of 20 to 30 seats unless it is equipped with an approved cockpit voice recorder that -

(1) Is installed in accordance with the requirements of § 23.1457 (except paragraphs (a)(6), (d)(1)(ii), (4), and (5)) or § 25.1457 (except paragraphs (a)(6), (d)(1)(ii), (4), and (5)) of this chapter, as applicable; and

(2) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(f) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that at any time during the operation of the recorder, information recorded more than 30 minutes earlier may be erased or otherwise obliterated.

(g) For those aircraft equipped to record the uninterrupted audio signals received by a boom or a mask microphone, the flight crewmembers are required to use the boom microphone below 18,000 feet mean sea level. No person may operate a large turbine engine powered airplane or a large pressurized airplane with four reciprocating engines manufactured after October 11, 1991, or on which a cockpit voice recorder has been installed after October 11, 1991, unless it is equipped to record the uninterrupted audio signal received by a boom or mask microphone in accordance with § 25.1457(c)(5) of this chapter.

(h) In the event of an accident or occurrence requiring immediate notification of the National Transportation Safety Board under part 830 of its regulations, which results in the termination of the flight, the certificate holder shall keep the recorded information for at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with investigations under part 830. The Administrator does not use the record in any civil penalty or certificate action.

(i) By April 7, 2012, all turbine engine-powered airplanes subject to this section that are manufactured before April 7, 2010, must have a cockpit voice recorder installed that also -

(1) Meets the requirements of § 23.1457(d)(6) or § 25.1457(d)(6) of this chapter, as applicable;

(2) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision; and

(3) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(4) If transport category, meets the requirements in § 25.1457(a)(3), (a)(4), and (a)(5) of this chapter.

(j) All turbine engine-powered airplanes subject to this section that are manufactured on or after April 7, 2010, must have a cockpit voice recorder installed that also -

(1) Is installed in accordance with the requirements of § 23.1457 (except for paragraph (a)(6) or § 25.1457 (except for paragraph (a)(6)) of this chapter, as applicable;

(2) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision; and

(3) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(4) For all airplanes manufactured on or after December 6, 2010, also meets the requirements of § 23.1457(a)(6) or § 25.1457(a)(6) of this chapter, as applicable.

(k) All airplanes required by this part to have a cockpit voice recorder and a flight data recorder, that install datalink communication equipment on or after December 6, 2010, must record all datalink messages as required by the certification rule applicable to the airplane.

[Doc. No. 6258, 29 FR 19205, Dec. 31, 1964]

Editorial Note:

For Federal Register citations affecting § 121.359, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.360 [Reserved]

Subpart L - Maintenance, Preventive Maintenance, and Alterations

Source:

Docket No. 6258, 29 FR 19210, Dec. 31, 1964, unless otherwise noted.

§ 121.361 Applicability.

(a) Except as provided by paragraph (b) of this section, this subpart prescribes requirements for maintenance, preventive maintenance, and alterations for all certificate holders.

(b) The Administrator may amend a certificate holder's operations specifications to permit deviation from those provisions of this subpart that would prevent the return to service and use of airframe components, powerplants, appliances, and spare parts thereof because those items have been maintained, altered, or inspected by persons employed outside the United States who do not hold U.S. airman certificates. Each certificate holder who uses parts under this deviation must provide for surveillance of facilities and practices to assure that all work performed on these parts is accomplished in accordance with the certificate holder's manual.

[Doc. No. 8754, 33 FR 14406, Sept. 25, 1968]

§ 121.363 Responsibility for airworthiness.

(a) Each certificate holder is primarily responsible for -

(1) The airworthiness of its aircraft, including airframes, aircraft engines, propellers, appliances, and parts thereof; and

(2) The performance of the maintenance, preventive maintenance, and alteration of its aircraft, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof, in accordance with its manual and the regulations of this chapter.

(b) A certificate holder may make arrangements with another person for the performance of any maintenance, preventive maintenance, or alterations. However, this does not relieve the certificate holder of the responsibility specified in paragraph (a) of this section.

[Doc. No. 6258, 29 FR 19210, Dec. 31, 1964, as amended by Amdt. 121-106, 38 FR 22378, Aug. 20, 1973]

§ 121.365 Maintenance, preventive maintenance, and alteration organization.

(a) Each certificate holder that performs any of its maintenance (other than required inspections), preventive maintenance, or alterations, and each person with whom it arranges for the performance of that work must have an organization adequate to perform the work.

(b) Each certificate holder that performs any inspections required by its manual in accordance with § 121.369(b)(2) or (3) (in this subpart referred to as *required inspections*) and each person with whom it arranges for the performance of that work must have an organization adequate to perform that work.

(c) Each person performing required inspections in addition to other maintenance, preventive maintenance, or alterations, shall organize the performance of those functions so as to separate the required inspection functions from the other maintenance, preventive maintenance, and alteration functions. The separation shall be below the level of administrative control at which overall responsibility for the required inspection functions and other maintenance, preventive maintenance, and alteration functions are exercised.

[Doc. No. 6258, 29 FR 19210, Dec. 31, 1964, as amended by Amdt. 121-3, 30 FR 3639, Mar. 19, 1965]

§ 121.367 Maintenance, preventive maintenance, and alterations programs.

Each certificate holder shall have an inspection program and a program covering other maintenance, preventive maintenance, and alterations that ensures that -

(a) Maintenance, preventive maintenance, and alterations performed by it, or by other persons, are performed in accordance with the certificate holder's manual;

(b) Competent personnel and adequate facilities and equipment are provided for the proper performance of maintenance, preventive maintenance, and alterations; and

(c) Each aircraft released to service is airworthy and has been properly maintained for operation under this part.

[Doc. No. 6258, 29 FR 19210, Dec. 31, 1964, as amended by Amdt. 121-100, 37 FR 28053, Dec. 20, 1972]

§ 121.368 Contract maintenance.

(a) A certificate holder may arrange with another person for the performance of maintenance, preventive maintenance, and alterations as authorized in § 121.379(a) only if the certificate holder has met all the requirements in this section. For purposes of this section -

(1) A *maintenance provider* is any person who performs maintenance, preventive maintenance, or an alteration for a certificate holder other than a person who is trained by and employed directly by that certificate holder.

(2) *Covered work* means any of the following:

(i) Essential maintenance that could result in a failure, malfunction, or defect endangering the safe operation of an

aircraft if not performed properly or if improper parts or materials are used;

(ii) Regularly scheduled maintenance; or

(iii) A required inspection item on an aircraft.

(3) *Directly in charge* means having responsibility for covered work performed by a maintenance provider. A representative of the certificate holder directly in charge of covered work does not need to physically observe and direct each maintenance provider constantly, but must be available for consultation on matters requiring instruction or decision.

(b) Each certificate holder must be directly in charge of all covered work done for it by a maintenance provider.

(c) Each maintenance provider must perform all covered work in accordance with the certificate holder's maintenance manual.

(d) No maintenance provider may perform covered work unless that work is carried out under the supervision and control of the certificate holder.

(e) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must develop and implement policies, procedures, methods, and instructions for the accomplishment of all contracted maintenance, preventive maintenance, and alterations. These policies, procedures, methods, and instructions must provide for the maintenance, preventive maintenance, and alterations to be performed in accordance with the certificate holder's maintenance program and maintenance manual.

(f) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must ensure that its system for the continuing analysis and surveillance of the maintenance, preventive maintenance, and alterations carried out by the maintenance provider, as required by § 121.373(a), contains procedures for oversight of all contracted covered work.

(g) The policies, procedures, methods, and instructions required by paragraphs (e) and (f) of this section must be acceptable to the FAA and included in the certificate holder's maintenance manual as required by § 121.369(b)(10).

(h) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must provide to its FAA Certificate Holding District Office, in a format acceptable to the FAA, a list that includes the name and physical (street) address, or addresses, where the work is carried out for each maintenance provider that performs work for the certificate holder, and a description of the type of maintenance, preventive maintenance, or alteration that is to be performed at each location. The list must be updated with any changes, including additions or deletions, and the updated list provided to the FAA in a format acceptable to the FAA by the last day of each calendar month.

[Docket FAA-2011-1136, Amdt. 121-371, 80 FR 11546, Mar. 4, 2015]

§ 121.369 Manual requirements.

(a) The certificate holder shall put in its manual a chart or description of the certificate holder's organization required by § 121.365 and a list of persons with whom it has arranged for the performance of any of its required inspections, other maintenance, preventive maintenance, or alterations, including a general description of that work.

(b) The certificate holder's manual must contain the programs required by § 121.367 that must be followed in performing maintenance, preventive maintenance, and alterations of that certificate holder's airplanes, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof, and must include at least the following:

(1) The method of performing routine and nonroutine maintenance (other than required inspections), preventive maintenance, and alterations.

(2) A designation of the items of maintenance and alteration that must be inspected (required inspections), including at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or if improper parts or materials are used.

(3) The method of performing required inspections and a designation by occupational title of personnel authorized to perform each required inspection.

(4) Procedures for the reinspection of work performed pursuant to previous required inspection findings (*buy-back procedures*).

(5) Procedures, standards, and limits necessary for required inspections and acceptance or rejection of the items required to be inspected and for periodic inspection and calibration of precision tools, measuring devices, and test equipment.

(6) Procedures to ensure that all required inspections are performed.

(7) Instructions to prevent any person who performs any item of work from performing any required inspection of that work.

(8) Instructions and procedures to prevent any decision of an inspector, regarding any required inspection from being countermanded by persons other than supervisory personnel of the inspection unit, or a person at that level of administrative control that has overall responsibility for the management of both the required inspection functions and the other maintenance, preventive maintenance, and alterations functions.

(9) Procedures to ensure that required inspections, other maintenance, preventive maintenance, and alterations that are not completed as a result of shift changes or similar work interruptions are properly completed before the aircraft is released to service.

(10) Policies, procedures, methods, and instructions for the accomplishment of all maintenance, preventive maintenance, and alterations carried out by a maintenance provider. These

policies, procedures, methods, and instructions must be acceptable to the FAA and provide for the maintenance, preventive maintenance, and alterations to be performed in accordance with the certificate holder's maintenance program and maintenance manual.

(c) The certificate holder must set forth in its manual a suitable system (which may include a coded system) that provides for preservation and retrieval of information in a manner acceptable to the Administrator and that provides -

(1) A description (or reference to data acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the certificate holder; and

(3) The name or other positive identification of the individual approving the work.

[Doc. No. 6258, 29 FR 19210, Dec. 31, 1964, as amended by Amdt. 121-94, 37 FR 15983, Aug. 9, 1972; Amdt. 121-106, 38 FR 22378, Aug. 20, 1973; Docket FAA-2011-1136, Amdt. 121-371, 80 FR 11546, Mar. 4, 2015]

§§ 121.370-121.370a [Reserved]**§ 121.371 Required inspection personnel.**

(a) No person may use any person to perform required inspections unless the person performing the inspection is appropriately certificated, properly trained, qualified, and authorized to do so.

(b) No person may allow any person to perform a required inspection unless, at that time, the person performing that inspection is under the supervision and control of an inspection unit.

(c) No person may perform a required inspection if he performed the item of work required to be inspected.

(d) Each certificate holder shall maintain, or shall determine that each person with whom it arranges to perform its required inspections maintains, a current listing of persons who have been trained, qualified, and authorized to conduct required inspections. The persons must be identified by name, occupational title, and the inspections that they are authorized to perform. The certificate holder (or person with whom it arranges to perform its required inspections) shall give written information to each person so authorized describing the extent of his responsibilities, authorities, and inspectional limitations. The list shall be made available for inspection by the Administrator upon request.

§ 121.373 Continuing analysis and surveillance.

(a) Each certificate holder shall establish and maintain a system for the continuing analysis and surveillance of the performance and effectiveness of its inspection program and the program covering other maintenance, preventive maintenance, and alterations and for the correction of any deficiency in those programs, regardless of whether those

programs are carried out by the certificate holder or by another person.

(b) Whenever the Administrator finds that either or both of the programs described in paragraph (a) of this section does not contain adequate procedures and standards to meet the requirements of this part, the certificate holder shall, after notification by the Administrator, make any changes in those programs that are necessary to meet those requirements.

(c) A certificate holder may petition the Administrator to reconsider the notice to make a change in a program. The petition must be filed with the FAA certificate-holding district office charged with the overall inspection of the certificate holder's operations within 30 days after the certificate holder receives the notice. Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

[Doc. No. 6258, 29 FR 19210, Dec. 31, 1964, as amended by Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Amdt. 121-253, 61 FR 2611, Jan. 26, 1996]

§ 121.374 Continuous airworthiness maintenance program (CAMP) for two-engine ETOPS.

In order to conduct an ETOPS flight using a two-engine airplane, each certificate holder must develop and comply with the ETOPS continuous airworthiness maintenance program, as authorized in the certificate holder's operations specifications, for each airplane-engine combination used in ETOPS. The certificate holder must develop this ETOPS CAMP by supplementing the manufacturer's maintenance program or the CAMP currently approved for the certificate holder. This ETOPS CAMP must include the following elements:

(a) *ETOPS maintenance document.* The certificate holder must have an ETOPS maintenance document for use by each person involved in ETOPS.

(1) The document must -

(i) List each ETOPS significant system,

(ii) Refer to or include all of the ETOPS maintenance elements in this section,

(iii) Refer to or include all supportive programs and procedures,

(iv) Refer to or include all duties and responsibilities, and

(v) Clearly state where referenced material is located in the certificate holder's document system.

(b) *ETOPS pre-departure service check.* Except as provided in Appendix P of this part, the certificate holder must develop a pre-departure check tailored to their specific operation.

(1) The certificate holder must complete a pre-departure service check immediately before each ETOPS flight.

(2) At a minimum, this check must -

(i) Verify the condition of all ETOPS Significant Systems;

(ii) Verify the overall status of the airplane by reviewing applicable maintenance records; and

(iii) Include an interior and exterior inspection to include a determination of engine and APU oil levels and consumption rates.

(3) An appropriately trained maintenance person, who is ETOPS qualified, must accomplish and certify by signature ETOPS specific tasks. Before an ETOPS flight may commence, an ETOPS pre-departure service check (PDSC) Signatory Person, who has been authorized by the certificate holder, must certify by signature, that the ETOPS PDSC has been completed.

(4) For the purposes of this paragraph (b) only, the following definitions apply:

(i) *ETOPS qualified person:* A person is ETOPS qualified when that person satisfactorily completes the operator's ETOPS training program and is authorized by the certificate holder.

(ii) *ETOPS PDSC Signatory Person:* A person is an ETOPS PDSC Signatory Person when that person is ETOPS qualified and that person:

(A) When certifying the completion of the ETOPS PDSC in the United States:

(1) Works for an operator authorized to engage in part 121 operation or works for a part 145 repair station; and

(2) Holds a U.S. Mechanic's Certificate with airframe and powerplant ratings.

(B) When certifying the completion of the ETOPS PDSC outside of the U.S. holds a certificate in accordance with § 43.17(c)(1) of this chapter; or

(C) When certifying the completion of the ETOPS PDSC outside the U.S. holds the certificates needed or has the requisite experience or training to return aircraft to service on behalf of an ETOPS maintenance entity.

(iii) *ETOPS maintenance entity:* An entity authorized to perform ETOPS maintenance and complete ETOPS PDSC and that entity is:

(A) Certificated to engage in part 121 operations;

(B) Repair station certificated under part 145 of this chapter; or

(C) Entity authorized pursuant to § 43.17(c)(2) of this chapter.

(c) *Limitations on dual maintenance.* (1) Except as specified in paragraph (c)(2), the certificate holder may not perform scheduled or unscheduled dual maintenance during the same maintenance visit on the same or a substantially similar ETOPS Significant System listed in the ETOPS maintenance document, if the improper maintenance could result in the failure of an ETOPS Significant System.

(2) In the event dual maintenance as defined in paragraph (c)(1) of this section cannot be avoided, the certificate holder may perform maintenance provided:

(i) The maintenance action on each affected ETOPS Significant System is performed by a different technician, or

(ii) The maintenance action on each affected ETOPS Significant System is performed by the same technician under the direct supervision of a second qualified individual; and

(iii) For either paragraph (c)(2)(i) or (ii) of this section, a qualified individual conducts a ground verification test and any in-flight verification test required under the program developed pursuant to paragraph (d) of this section.

(d) *Verification program.* The certificate holder must develop and maintain a program for the resolution of discrepancies that will ensure the effectiveness of maintenance actions taken on ETOPS Significant Systems. The verification program must identify potential problems and verify satisfactory corrective action. The verification program must include ground verification and in-flight verification policy and procedures. The certificate holder must establish procedures to indicate clearly who is going to initiate the verification action and what action is necessary. The verification action may be performed on an ETOPS revenue flight provided the verification action is documented as satisfactorily completed upon reaching the ETOPS Entry Point.

(e) *Task identification.* The certificate holder must identify all ETOPS-specific tasks. An appropriately trained mechanic who is ETOPS qualified must accomplish and certify by signature that the ETOPS-specific task has been completed.

(f) *Centralized maintenance control procedures.* The certificate holder must develop and maintain procedures for centralized maintenance control for ETOPS.

(g) *Parts control program.* The certificate holder must develop an ETOPS parts control program to ensure the proper identification of parts used to maintain the configuration of airplanes used in ETOPS.

(h) *Reliability program.* The certificate holder must have an ETOPS reliability program. This program must be the certificate holder's existing reliability program or its Continuing Analysis and Surveillance System (CASS) supplemented for ETOPS. This program must be event-oriented and include procedures to report the events listed below, as follows:

(1) The certificate holder must report the following events within 96 hours of the occurrence to its certificate holding district office (CHDO):

(i) IFSDs, except planned IFSDs performed for flight training.

(ii) Diversions and turnbacks for failures, malfunctions, or defects associated with any airplane or engine system.

(iii) Uncommanded power or thrust changes or surges.

(iv) Inability to control the engine or obtain desired power or thrust.

(v) Inadvertent fuel loss or unavailability, or uncorrectable fuel imbalance in flight.

(vi) Failures, malfunctions or defects associated with ETOPS Significant Systems.

(vii) Any event that would jeopardize the safe flight and landing of the airplane on an ETOPS flight.

(2) The certificate holder must investigate the cause of each event listed in paragraph (h)(1) of this section and submit findings and a description of corrective action to its

CHDO. The report must include the information specified in § 121.703(e). The corrective action must be acceptable to its CHDO.

(i) *Propulsion system monitoring.* (1) If the IFSD rate (computed on a 12-month rolling average) for an engine installed as part of an airplane-engine combination exceeds the following values, the certificate holder must do a comprehensive review of its operations to identify any common cause effects and systemic errors. The IFSD rate must be computed using all engines of that type in the certificate holder's entire fleet of airplanes approved for ETOPS.

(i) A rate of 0.05 per 1,000 engine hours for ETOPS up to and including 120 minutes.

(ii) A rate of 0.03 per 1,000 engine hours for ETOPS beyond 120-minutes up to and including 207 minutes in the North Pacific Area of Operation and up to and including 180 minutes elsewhere.

(iii) A rate of 0.02 per 1,000 engine hours for ETOPS beyond 207 minutes in the North Pacific Area of Operation and beyond 180 minutes elsewhere.

(2) Within 30 days of exceeding the rates above, the certificate holder must submit a report of investigation and any necessary corrective action taken to its CHDO.

(j) *Engine condition monitoring.* (1) The certificate holder must have an engine condition monitoring program to detect deterioration at an early stage and to allow for corrective action before safe operation is affected.

(2) This program must describe the parameters to be monitored, the method of data collection, the method of analyzing data, and the process for taking corrective action.

(3) The program must ensure that engine-limit margins are maintained so that a prolonged engine-inoperative diversion may be conducted at approved power levels and in all expected environmental conditions without exceeding approved engine limits. This includes approved limits for items such as rotor speeds and exhaust gas temperatures.

(k) *Oil-consumption monitoring.* The certificate holder must have an engine oil consumption monitoring program to ensure that there is enough oil to complete each ETOPS flight. APU oil consumption must be included if an APU is required for ETOPS. The operator's oil consumption limit may not exceed the manufacturer's recommendation. Monitoring must be continuous and include oil added at each ETOPS departure point. The program must compare the amount of oil added at each ETOPS departure point with the running average consumption to identify sudden increases.

(l) *APU in-flight start program.* If the airplane type certificate requires an APU but does not require the APU to run during the ETOPS portion of the flight, the certificate holder must develop and maintain a program acceptable to the FAA for cold soak in-flight start-and-run reliability.

(m) *Maintenance training.* For each airplane-engine combination, the certificate holder must develop a maintenance training program that provides training adequate to support ETOPS. It must include ETOPS specific training for

all persons involved in ETOPS maintenance that focuses on the special nature of ETOPS. This training must be in addition to the operator's maintenance training program used to qualify individuals to perform work on specific airplanes and engines.

(n) *Configuration, maintenance, and procedures (CMP) document.* If an airplane-engine combination has a CMP document, the certificate holder must use a system that ensures compliance with the applicable FAA-approved document.

(o) *Procedural changes.* Each substantial change to the maintenance or training procedures that were used to qualify the certificate holder for ETOPS, must be submitted to the CHDO for review. The certificate holder cannot implement a change until its CHDO notifies the certificate holder that the review is complete.

[Doc. No. FAA-2002-6717, 72 FR 1880, Jan. 16, 2007, as amended by Amdt. 121-329, 72 FR 7348, Feb. 15, 2007; Amdt. 121-329, 72 FR 26541, May 10, 2007; Amdt. 121-339, 73 FR 33881, June 16, 2008]

§ 121.375 Maintenance and preventive maintenance training program.

Each certificate holder or person performing maintenance or preventive maintenance functions for it shall have a training program to ensure that each person (including inspection personnel) who determines the adequacy of work done is fully informed about procedures and techniques and new equipment in use and is competent to perform his duties.

§ 121.377 Maintenance and preventive maintenance personnel duty time limitations.

Within the United States, each certificate holder (or person performing maintenance or preventive maintenance functions for it) shall relieve each person performing maintenance or preventive maintenance from duty for a period of at least 24 consecutive hours during any seven consecutive days, or the equivalent thereof within any one calendar month.

§ 121.378 Certificate requirements.

(a) Except for maintenance, preventive maintenance, alterations, and required inspections performed by a certificated repair station that is located outside the United States, each person who is directly in charge of maintenance, preventive maintenance, or alterations, and each person performing required inspections must hold an appropriate airman certificate.

(b) For the purposes of this section, a person *directly in charge* is each person assigned to a position in which he is responsible for the work of a shop or station that performs maintenance, preventive maintenance, alterations, or other functions affecting aircraft airworthiness. A person who is *directly in charge* need not physically observe and direct each worker constantly but must be available for consultation and decision on matters requiring instruction or decision from higher authority than that of the persons performing the work.

[Doc. No. 6258, 29 FR 19210, Dec. 31, 1964, as amended by Amdt. 121-21, 31 FR 10618, Aug. 9, 1966; Amdt. 121-286, 66 FR 41116, Aug. 6, 2001]

§ 121.379 Authority to perform and approve maintenance, preventive maintenance, and alterations.

(a) A certificate holder may perform, or it may make arrangements with other persons to perform, maintenance, preventive maintenance, and alterations as provided in its continuous airworthiness maintenance program and its maintenance manual. In addition, a certificate holder may perform these functions for another certificate holder as provided in the continuous airworthiness maintenance program and maintenance manual of the other certificate holder.

(b) A certificate holder may approve any aircraft, airframe, aircraft engine, propeller, or appliance for return to service after maintenance, preventive maintenance, or alterations that are performed under paragraph (a) of this section. However, in the case of a major repair or major alteration, the work must have been done in accordance with technical data approved by the Administrator.

[Doc. No. 10289, 35 FR 16793, Oct. 30, 1970]

§ 121.380 Maintenance recording requirements.

(a) Each certificate holder shall keep (using the system specified in the manual required in § 121.369) the following records for the periods specified in paragraph (c) of this section:

(1) All the records necessary to show that all requirements for the issuance of an airworthiness release under § 121.709 have been met.

(2) Records containing the following information:

(i) The total time in service of the airframe.

(ii) Except as provided in paragraph (b) of this section, the total time in service of each engine and propeller.

(iii) The current status of life-limited parts of each airframe, engine, propeller, and appliance.

(iv) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(v) The identification of the current inspection status of the aircraft, including the times since the last inspections required by the inspection program under which the aircraft and its appliances are maintained.

(vi) The current status of applicable airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required.

(vii) A list of current major alterations to each airframe, engine, propeller, and appliance.

(b) A certificate holder need not record the total time in service of an engine or propeller on a transport category cargo airplane, a transport category airplane that has a passenger seat

configuration of more than 30 seats, or a nontransport category airplane type certificated before January 1, 1958, until the following, whichever occurs first:

- (1) March 20, 1997; or
- (2) The date of the first overhaul of the engine or propeller, as applicable, after January 19, 1996.
- (c) Each certificate holder shall retain the records required to be kept by this section for the following periods:
 - (1) Except for the records of the last complete overhaul of each airframe, engine, propeller, and appliance, the records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for one year after the work is performed.
 - (2) The records of the last complete overhaul of each airframe, engine, propeller, and appliance shall be retained until the work is superseded by work of equivalent scope and detail.
 - (3) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.
 - (d) The certificate holder shall make all maintenance records required to be kept by this section available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

[Doc. No. 10658, 37 FR 15983, Aug. 9, 1972, as amended by Amdt. 121-251, 60 FR 65933, Dec. 20, 1995; Amdt. 121-321, 71 FR 536, Jan. 4, 2006]

§ 121.380a Transfer of maintenance records.

Each certificate holder who sells a U.S. registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Administrator:

- (a) The record specified in § 121.380(a)(2).
- (b) The records specified in § 121.380(a)(1) which are not included in the records covered by paragraph (a) of this section, except that the purchaser may permit the seller to keep physical custody of such records. However, custody of records in the seller does not relieve the purchaser of his responsibility under § 121.380(c) to make the records available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

[Doc. No. 10658, 37 FR 15984, Aug. 9, 1972]

Subpart M - Airman and Crewmember Requirements

Source:

Docket No. 6258, 29 FR 19212, Dec. 31, 1964, unless otherwise noted.

§ 121.381 Applicability.

This subpart prescribes airman and crewmember requirements for all certificate holders.

§ 121.383 Airman: Limitations on use of services.

- (a) No certificate holder may use any person as an airman nor may any person serve as an airman unless that person -
 - (1) Holds an appropriate current airman certificate issued by the FAA;
 - (2) Has any required appropriate current airman and medical certificates in his possession while engaged in operations under this part; and
 - (3) Is otherwise qualified for the operation for which he is to be used.
- (b) Each airman covered by paragraph (a)(2) of this section shall present either or both certificates for inspection upon the request of the Administrator.
- (c) [Reserved]
- (d) No certificate holder may use the services of any person as a pilot on an airplane engaged in operations under this part if that person has reached his or her 65th birthday.
- (e) No pilot may serve as a pilot in operations under this part if that person has reached his or her 65th birthday.

[Doc. No. 6258, 29 FR 19212, Dec. 31, 1964, as amended by Amdt. 121-144, 43 FR 22646, May 25, 1978; Amdt. 121-344, 74 FR 34234, July 15, 2009; Amdt. 121-372, 80 FR 33401, June 12, 2015]

§ 121.385 Composition of flight crew.

- (a) No certificate holder may operate an airplane with less than the minimum flight crew in the airworthiness certificate or the airplane Flight Manual approved for that type airplane and required by this part for the kind of operation being conducted.
- (b) In any case in which this part requires the performance of two or more functions for which an airman certificate is necessary, that requirement is not satisfied by the performance of multiple functions at the same time by one airman.
- (c) The minimum pilot crew is two pilots and the certificate holder shall designate one pilot as pilot in command and the other second in command.

(d) On each flight requiring a flight engineer at least one flight crewmember, other than the flight engineer, must be qualified to provide emergency performance of the flight engineer's functions for the safe completion of the flight if the flight engineer becomes ill or is otherwise incapacitated. A pilot need not hold a flight engineer's certificate to perform the flight engineer's functions in such a situation.

[Doc. No. 6258, 29 FR 19212, Dec. 31, 1964, as amended by Amdt. 121-178, 47 FR 13316, Mar. 29, 1982; Amdt. 121-256, 61 FR 30434, June 14, 1996]

§ 121.387 Flight engineer.

No certificate holder may operate an airplane for which a type certificate was issued before January 2, 1964, having

a maximum certificated takeoff weight of more than 80,000 pounds without a flight crewmember holding a current flight engineer certificate. For each airplane type certificated after January 1, 1964, the requirement for a flight engineer is determined under the type certification requirements of § 25.1523.

[Doc. No. 5025, 30 FR 6067, Apr. 29, 1965]

§ 121.389 Flight navigator and specialized navigation equipment.

(a) No certificate holder may operate an airplane outside the 48 contiguous States and the District of Columbia, when its position cannot be reliably fixed for a period of more than 1 hour, without -

(1) A flight crewmember who holds a current flight navigator certificate; or

(2) Specialized means of navigation approved in accordance with § 121.355 which enables a reliable determination to be made of the position of the airplane by each pilot seated at his duty station.

(b) Notwithstanding paragraph (a) of this section, the Administrator may also require a flight navigator or special navigation equipment, or both, when specialized means of navigation are necessary for 1 hour or less. In making this determination, the Administrator considers -

(1) The speed of the airplane;

(2) Normal weather conditions en route;

(3) Extent of air traffic control;

(4) Traffic congestion;

(5) Area of navigational radio coverage at destination;

(6) Fuel requirements;

(7) Fuel available for return to point of departure or alternates;

(8) Predication of flight upon operation beyond the point of no return; and

(9) Any other factors he determines are relevant in the interest of safety.

(c) Operations where a flight navigator or special navigation equipment, or both, are required are specified in the operations specifications of the air carrier or commercial operator.

[Doc. No. 10204, 37 FR 6464, Mar. 30, 1972, as amended by Amdt. 121-178, 47 FR 13316, Mar. 29, 1982]

§ 121.391 Flight attendants.

(a) Except as specified in § 121.393 and § 121.394, each certificate holder must provide at least the following flight attendants on board each passenger-carrying airplane when passengers are on board:

(1) For airplanes having a maximum payload capacity of more than 7,500 pounds and having a seating capacity of more than 9 but less than 51 passengers - one flight attendant.

(2) For airplanes having a maximum payload capacity of 7,500 pounds or less and having a seating capacity of more than 19 but less than 51 passengers - one flight attendant.

(3) For airplanes having a seating capacity of more than 50 but less than 101 passengers - two flight attendants.

(4) For airplanes having a seating capacity of more than 100 passengers - two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passenger seats above a seating capacity of 100 passengers.

(b) If, in conducting the emergency evacuation demonstration required under § 121.291 (a) or (b), the certificate holder used more flight attendants than is required under paragraph (a) of this section for the maximum seating capacity of the airplane used in the demonstration, he may not, thereafter, take off that airplane -

(1) In its maximum seating capacity configuration with fewer flight attendants than the number used during the emergency evacuation demonstration; or

(2) In any reduced seating capacity configuration with fewer flight attendants than the number required by paragraph (a) of this section for that seating capacity plus the number of flight attendants used during the emergency evacuation demonstration that were in excess of those required under paragraph (a) of this section.

(c) The number of flight attendants approved under paragraphs (a) and (b) of this section are set forth in the certificate holder's operations specifications.

(d) During takeoff and landing, flight attendants required by this section shall be located as near as practicable to required floor level exists and shall be uniformly distributed throughout the airplane in order to provide the most effective egress of passengers in event of an emergency evacuation. During taxi, flight attendants required by this section must remain at their duty stations with safety belts and shoulder harnesses fastened except to perform duties related to the safety of the airplane and its occupants.

[Doc. No. 2033, 30 FR 3206, Mar. 9, 1965]

Editorial Note:

For Federal Register citations affecting § 121.391, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.392 Personnel identified as flight attendants.

(a) Any person identified by the certificate holder as a flight attendant on an aircraft in operations under this part must be trained and qualified in accordance with subparts N and O of this part. This includes:

(1) Flight attendants provided by the certificate holder in excess of the number required by § 121.391(a); and

(2) Flight attendants provided by the certificate holder when flight attendants are not required by § 121.391(a).

(b) A qualifying flight attendant who is receiving operating experience on an aircraft in operations under subpart O of this part must be identified to passengers as a qualifying flight attendant.

[Doc. No. FAA-2008-0677, 78 FR 67836, Nov. 12, 2013]

§ 121.393 Crewmember requirements at stops where passengers remain on board.

At stops where passengers remain on board, the certificate holder must meet the following requirements:

(a) On each airplane for which a flight attendant is not required by § 121.391(a), the certificate holder must ensure that a person who is qualified in the emergency evacuation procedures for the airplane, as required in § 121.417, and who is identified to the passengers, remains:

(1) On board the airplane; or
(2) Nearby the airplane, in a position to adequately monitor passenger safety, and:

(i) The airplane engines are shut down; and
(ii) At least one floor level exit remains open to provide for the deplaning of passengers.

(b) On each airplane for which flight attendants are required by § 121.391(a), but the number of flight attendants remaining on board is fewer than required by § 121.391(a), the certificate holder must meet the following requirements:

(1) The certificate holder shall ensure that:
(i) The airplane engines are shut down;
(ii) At least one floor level exit remains open to provide for the deplaning of passengers; and
(iii) the number of flight attendants on board is at least half the number required by § 121.391(a), rounded down to the next lower number in the case of fractions, but never fewer than one.

(2) The certificate holder may substitute for the required flight attendants other persons qualified in the emergency evacuation procedures for that aircraft as required in § 121.417, if these persons are identified to the passengers.

(3) If only one flight attendant or other qualified person is on board during a stop, that flight attendant or other qualified person shall be located in accordance with the certificate holder's FAA-approved operating procedures. If more than one flight attendant or other qualified person is on board, the flight attendants or other qualified persons shall be spaced throughout the cabin to provide the most effective assistance for the evacuation in case of an emergency.

[Doc. No. 28154, 60 FR 65934, Dec. 20, 1995]

§ 121.394 Flight attendant requirements during passenger boarding and deplaning.

(a) During passenger boarding, on each airplane for which more than one flight attendant is required by § 121.391, the certificate holder may:

(1) Reduce the number of required flight attendants by one, provided that:

(i) The flight attendant that leaves the aircraft remains within the immediate vicinity of the door through which passengers are boarding;

(ii) The flight attendant that leaves the aircraft only conducts safety duties related to the flight being boarded;

(iii) The airplane engines are shut down; and

(iv) At least one floor level exit remains open to provide for passenger egress; or

(2) Substitute a pilot or flight engineer employed by the certificate holder and trained and qualified on that type airplane for one flight attendant, provided the certificate holder -

(i) Describes in the manual required by § 121.133:

(A) The necessary functions to be performed by the substitute pilot or flight engineer in an emergency, to include a situation requiring an emergency evacuation. The certificate holder must show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency; and

(B) How other regulatory functions performed by a flight attendant will be accomplished by the substitute pilot or flight engineer on the airplane.

(ii) Ensures that the following requirements are met:

(A) The substitute pilot or flight engineer is not assigned to operate the flight for which that person is substituting for a required flight attendant.

(B) The substitute pilot or flight engineer is trained in all assigned flight attendant duties regarding passenger handling.

(C) The substitute pilot or flight engineer meets the emergency training requirements for flight attendants in evacuation management and evacuation commands, as appropriate, and frequency of performance drills regarding operation of exits in the normal and emergency modes on that type aircraft.

(D) The substitute pilot or flight engineer is in possession of all items required for duty.

(E) The substitute pilot or flight engineer is located in the passenger cabin.

(F) The substitute pilot or flight engineer is identified to the passengers.

(G) The substitution of a pilot or flight engineer for a required flight attendant does not interfere with the safe operation of the flight.

(H) The airplane engines are shut down.

(I) At least one floor-level exit remains open to provide for passenger egress.

(b) During passenger deplaning, on each airplane for which more than one flight attendant is required by § 121.391, the certificate holder may reduce the number of flight attendants required by that paragraph provided:

(1) The airplane engines are shut down;

(2) At least one floor level exit remains open to provide for passenger egress; and

(3) The number of flight attendants on board is at least half the number required by § 121.391, rounded down to the next lower number in the case of fractions, but never fewer than one.

(c) If only one flight attendant is on the airplane during passenger boarding or deplaning, that flight attendant must be located in accordance with the certificate holder's FAA-approved operating procedures. If more than one flight

attendant is on the airplane during passenger boarding or deplaning, the flight attendants must be evenly distributed throughout the airplane cabin, in the vicinity of the floor-level exits, to provide the most effective assistance in the event of an emergency.

(d) The time spent by any crewmember conducting passenger boarding or deplaning duties is considered duty time.

[Doc. No. FAA-2009-0022, 75 FR 68198, Nov. 5, 2010]

§ 121.395 Aircraft dispatcher: Domestic and flag operations.

Each certificate holder conducting domestic or flag operations shall provide enough qualified aircraft dispatchers at each dispatch center to ensure proper operational control of each flight.

[Doc. No. 28154, 61 FR 2611, Jan. 26, 1996]

§ 121.397 Emergency and emergency evacuation duties.

(a) Each certificate holder shall, for each type and model of airplane, assigned to each category of required crewmember, as appropriate, the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The certificate holder shall show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency including the possible incapacitation of individual crewmembers or their inability to reach the passenger cabin because of shifting cargo in combination cargo-passenger airplanes.

(b) The certificate holder shall describe in its manual the functions of each category of required crewmembers under paragraph (a) of this section.

[Doc. No. 2033, 30 FR 3206, Mar. 9, 1965, as amended by Amdt. 121-7, 30 FR 6727, May 18, 1965]

Subpart N - Training Program

Source:

Docket No. 9509, 35 FR 90, Jan. 3, 1970, unless otherwise noted.

§ 121.400 Applicability and terms used.

(a) This subpart prescribes the requirements applicable to each certificate holder for establishing and maintaining a training program for crewmembers, aircraft dispatchers, and other operations personnel, and for the approval and use of training devices in the conduct of the program.

(b) For the purpose of this subpart, airplane groups are as follows:

- (1) *Group I.* Propeller driven, including -
 - (i) Reciprocating powered; and
 - (ii) Turbopropeller powered.
- (2) *Group II.* Turbojet powered.

(c) For the purpose of this subpart, the following terms and definitions apply:

(1) *Initial training.* The training required for crewmembers and dispatchers who have not qualified and served in the same capacity on another airplane of the same group.

(2) *Transition training.* The training required for crewmembers and dispatchers who have qualified and served in the same capacity on another airplane of the same group.

(3) *Upgrade training.* The training required for crewmembers who have qualified and served as second in command or flight engineer on a particular airplane type, before they serve as pilot in command or second in command, respectively, on that airplane.

(4) *Differences training.* The training required for crewmembers and dispatchers who have qualified and served on a particular type airplane, when the Administrator finds differences training is necessary before a crewmember serves in the same capacity on a particular variation of that airplane.

(5) *Programmed hours.* The hours of training prescribed in this subpart which may be reduced by the Administrator upon a showing by the certificate holder that circumstances justify a lesser amount.

(6) *Inflight.* Refers to maneuvers, procedures, or functions that must be conducted in the airplane.

(7) *Training center.* An organization governed by the applicable requirements of part 142 of this chapter that provides training, testing, and checking under contract or other arrangement to certificate holders subject to the requirements of this part.

(8) *Requalification training.* The training required for crewmembers previously trained and qualified, but who have become unqualified due to not having met within the required period the recurrent training requirements of § 121.427 or the proficiency check requirements of § 121.441.

(9) *Related aircraft.* Any two or more aircraft of the same make with either the same or different type certificates that have been demonstrated and determined by the Administrator to have commonality to the extent that credit between those aircraft may be applied for flightcrew member training, checking, recent experience, operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills.

(10) *Related aircraft differences training.* The flightcrew member training required for aircraft with different type certificates that have been designated as related by the Administrator.

(11) *Base aircraft.* An aircraft identified by a certificate holder for use as a reference to compare differences with another aircraft.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970; 35 FR 2819, Feb. 11, 1970, as amended by Amdt. 121-104, 38 FR 14915, June 7, 1973; Amdt. 121-259, 61 FR 34560, July 2, 1996; Amdt. 121-366, 78 FR 67836, Nov. 12, 2013]

§ 121.401 Training program: General.

(a) Each certificate holder shall:

(1) Establish and implement a training program that satisfies the requirements of this subpart and appendices E and F of this part and that ensures that each crewmember, aircraft dispatcher, flight instructor and check airman is adequately trained to perform his or her assigned duties. Prior to implementation, the certificate holder must obtain initial and final FAA approval of the training program.

(2) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart;

(3) Provide and keep current with respect to each airplane type and, if applicable, the particular variations within that airplane type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this part; and

(4) Provide enough flight instructors, simulator instructors, and approved check airmen to conduct required flight training and flight checks, and simulator training courses permitted under this part.

(b) Whenever a crewmember or aircraft dispatcher who is required to take recurrent training, a flight check, or a competence check, takes the check or completes the training in the calendar month before or after the calendar month in which that training or check is required, he is considered to have taken or completed it in the calendar month in which it was required.

(c) Each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this part shall certify as to the proficiency and knowledge of the crewmember, aircraft dispatcher, flight instructor, or check airman concerned upon completion of that training or check. That certification shall be made a part of the crewmember's or dispatcher's record. When the certification required by this paragraph is made by an entry in a computerized recordkeeping system, the certifying instructor, supervisor, or check airman must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman is not required for computerized entries.

(d) Training subjects that are applicable to more than one airplane or crewmember position and that have been satisfactorily completed in connection with prior training for another airplane or another crewmember position, need not be repeated during subsequent training other than recurrent training.

(e) A person who progresses successfully through flight training, is recommended by his instructor or a check airman, and successfully completes the appropriate flight check for a check airman or the Administrator, need not complete the programmed hours of flight training for the particular airplane. However, whenever the Administrator finds that 20 percent of the flight checks given at a particular training base during the

previous 6 months under this paragraph are unsuccessful, this paragraph may not be used by the certificate holder at that base until the Administrator finds that the effectiveness of the flight training there has improved.

In the case of a certificate holder using a course of training permitted in § 121.409(c), the Administrator may require the programmed hours of inflight training in whole or in part, until he finds the effectiveness of the flight training has improved as provided in paragraph (e) of this section.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-104, 38 FR 14915, June 7, 1973; Amdt. 121-108, 38 FR 35446, Dec. 28, 1973; Amdt. 121-143, 43 FR 22642, May 25, 1978; Amdt. 121-316, 70 FR 58823, Oct. 7, 2005]

§ 121.402 Training program: Special rules.

(a) Other than the certificate holder, only another certificate holder certificated under this part or a flight training center certificated under part 142 of this chapter is eligible under this subpart to provide flight training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this subpart.

(b) A certificate holder may contract with, or otherwise arrange to use the services of, a training center certificated under part 142 of this chapter to provide training, testing, and checking required by this part only if the training center -

(1) Holds applicable training specifications issued under part 142 of this chapter;

(2) Has facilities, training equipment, and courseware meeting the applicable requirements of part 142 of this chapter;

(3) Has approved curriculums, curriculum segments, and portions of curriculum segments applicable for use in training courses required by this subpart; and

(4) Has sufficient instructor and check airmen qualified under the applicable requirements of §§ 121.411 or 121.413 to provide training, testing, and checking to persons subject to the requirements of this subpart.

[Doc. No. 26933, 61 FR 34560, July 2, 1996, as amended by Amdt. 121-263, 62 FR 13791, Mar. 21, 1997]

§ 121.403 Training program: Curriculum.

(a) Each certificate holder must prepare and keep current a written training program curriculum for each type of airplane with respect to dispatchers and each crewmember required for that type airplane. The curriculum must include ground and flight training required by this subpart.

(b) Each training program curriculum must include:

(1) A list of principal ground training subjects, including emergency training subjects, that are provided.

(2) A list of all the training device mockups, systems trainers, procedures trainers, or other training aids that the certificate holder will use. No later than March 12, 2019, a list of all the training equipment approved under § 121.408 as well as other training aids that the certificate holder will use.

(3) Detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the inflight portions of flight training and flight checks.

(4) A list of airplane simulators or other training devices approved under § 121.407, including approvals for particular maneuvers, procedures, or functions.

(5) The programmed hours of training that will be applied to each phase of training.

(6) A copy of each statement issued by the Administrator under § 121.405(d) for reduction of programmed hours of training.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-366, 78 FR 67836, Nov. 12, 2013]

§ 121.404 Compliance dates: Crew and dispatcher resource management training.

After March 19, 1998, no certificate holder may use a person as a flight crewmember, and after March 19, 1999, no certificate holder may use a person as a flight attendant or aircraft dispatcher unless that person has completed approved crew resource management (CRM) or dispatcher resource management (DRM) initial training, as applicable, with that certificate holder or with another certificate holder.

[Doc. No. 28154, 61 FR 30435, June 14, 1996]

§ 121.405 Training program and revision: Initial and final approval.

(a) To obtain initial and final approval of a training program, or a revision to an approved training program, each certificate holder must submit to the Administrator -

(1) An outline of the proposed program or revision, including an outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revised training program; and

(2) Additional relevant information as may be requested by the Administrator.

(b) If the proposed training program or revision complies with this subpart the Administrator grants initial approval in writing after which the certificate holder may conduct the training in accordance with that program. The Administrator then evaluates the effectiveness of the training program and advises the certificate holder of deficiencies, if any, that must be corrected.

(c) The Administrator grants final approval of the training program or revision if the certificate holder shows that the training conducted under the initial approval set forth in paragraph (b) of this section ensures that each person that successfully completes the training is adequately trained to perform his assigned duties.

(d) In granting initial and final approval of training programs or revisions, including reductions in programmed

hours specified in this subpart, the Administrator considers the training aids, devices, methods, and procedures listed in the certificate holder's curriculum as set forth in § 121.403 that increase the quality and effectiveness of the teaching-learning process.

If approval of reduced programmed hours of training is granted, the Administrator provides the certificate holder with a statement of the basis for the approval.

(e) Whenever the Administrator finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, the certificate holder shall, after notification by the Administrator, make any changes in the program that are found necessary by the Administrator. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the certificate-holding district office. The filing of a petition to reconsider stays the notice pending a decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety in air transportation, he may, upon a statement of the reasons, require a change effective without stay.

(f) Each certificate holder described in § 135.3 (b) and (c) of this chapter must include the material required by § 121.403 in the manual required by § 135.21 of this chapter.

(g) The Administrator may grant a deviation to certificate holders described in § 135.3 (b) and (c) of this chapter to allow reduced programmed hours of ground training required by § 121.419 if it is found that a reduction is warranted based on the certificate holder's operations and the complexity of the make, model, and series of the aircraft used.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Amdt. 121-250, 60 FR 65948, Dec. 20, 1995; Amdt. 121-253, 61 FR 2612, Jan. 26, 1996]

§ 121.406 Credit for previous CRM/DRM training.

(a) For flightcrew members, the Administrator may credit CRM training received before March 19, 1998 toward all or part of the initial ground CRM training required by § 121.419.

(b) For flight attendants, the Administrator may credit CRM training received before March 19, 1999 toward all or part of the initial ground CRM training required by § 121.421.

(c) For aircraft dispatchers, the Administrator may credit CRM training received before March 19, 1999 toward all or part of the initial ground CRM training required by § 121.422.

(d) In granting credit for initial ground CRM or DRM training, the Administrator considers training aids, devices, methods, and procedures used by the certificate holder in a voluntary CRM or DRM program or in an AQP program that effectively meets the quality of an approved CRM or DRM initial ground training program under section 121.419, 121.421, or 121.422 as appropriate.

[Doc. No. 27993, 60 FR 65949, Dec. 20, 1995]

§ 121.407 Training program: Approval of airplane simulators and other training devices.

(a) Each airplane simulator and other training device used to satisfy a training requirement of this part in an approved training program, must meet all of the following requirements:

(1) Be specifically approved by the Administrator for -

(i) Use in the certificate holder's approved training program;

(ii) The type airplane and, if applicable, the particular variation within type, for which the training or check is being conducted; and

(iii) The particular maneuver, procedure, or flightcrew member function involved.

(2) Maintain the performance, function, and other characteristics that are required for qualification in accordance with part 60 of this chapter or a previously qualified device, as permitted in accordance with § 60.17 of this chapter.

(3) Be modified in accordance with part 60 of this chapter to conform with any modification to the airplane being simulated that results in changes to performance, function, or other characteristics required for qualification.

(4) Be given a daily functional preflight check before being used.

(5) Have a daily discrepancy log kept with each discrepancy entered in that log by the appropriate instructor or check airman at the end of each training or check flight.

(b) A particular airplane simulator or other training device may be approved for use by more than one certificate holder.

(c) An airplane simulator may be used instead of the airplane to satisfy the in-flight requirements of §§ 121.439 and 121.441 and appendices E and F of this part, if the simulator -

(1) Is approved under this section and meets the appropriate simulator requirements of appendix H of this part; and

(2) Is used as part of an approved program that meets the training requirements of § 121.424 (a) and (c) and appendix H of this part.

(d) An airplane simulator approved under this section must be used instead of the airplane to satisfy the pilot flight training requirements prescribed in the certificate holder's approved low-altitude windshear flight training program set forth in § 121.409(d) of this part.

(e) An airplane simulator approved under this section must be used instead of the airplane to satisfy the pilot flight training requirements prescribed in the extended envelope training set forth in § 121.423 of this part. Compliance with this paragraph is required no later than March 12, 2019.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-161, 45 FR 44183, June 30, 1980; Amdt. 121-199, 53 FR 37696, Sept. 27, 1988; Amdt. 121-366, 78 FR 67836, Nov. 12, 2013]

§ 121.408 Training equipment other than flight simulation training devices.

(a) The Administrator must approve training equipment used in a training program approved under this part and that functionally replicates aircraft equipment for the certificate holder and the crewmember duty or procedure. Training equipment does not include FSTDs qualified under part 60 of this chapter.

(b) The certificate holder must demonstrate that the training equipment described in paragraph (a) of this section, used to meet the training requirements of this subpart, meets all of the following:

(1) The form, fit, function, and weight, as appropriate, of the aircraft equipment.

(2) Replicates the normal operation (and abnormal and emergency operation, if appropriate) of the aircraft equipment including the following:

(i) The required force, actions and travel of the aircraft equipment.

(ii) Variations in aircraft equipment operated by the certificate holder, if applicable.

(3) Replicates the operation of the aircraft equipment under adverse conditions, if appropriate.

(c) Training equipment must be modified to ensure that it maintains the performance and function of the aircraft type or aircraft equipment replicated.

(d) All training equipment must have a record of discrepancies. The documenting system must be readily available for review by each instructor, check airman or supervisor, prior to conducting training or checking with that equipment.

(1) Each instructor, check airman or supervisor conducting training or checking, and each person conducting an inspection of the equipment who discovers a discrepancy, including any missing, malfunctioning or inoperative components, must record a description of that discrepancy and the date that the discrepancy was identified.

(2) All corrections to discrepancies must be recorded when the corrections are made. This record must include the date of the correction.

(3) A record of a discrepancy must be maintained for at least 60 days.

(e) No person may use, allow the use of, or offer the use of training equipment with a missing, malfunctioning, or inoperative component to meet the crewmember training or checking requirements of this chapter for tasks that require the use of the correctly operating component.

(f) Compliance with this section is required no later than March 12, 2019.

[Doc. No. FAA-2008-0677, 78 FR 67837, Nov. 12, 2013]

§ 121.409 Training courses using airplane simulators and other training devices.

(a) Training courses utilizing airplane simulators and other training devices may be included in the certificate holder's approved training program for use as provided in this section.

(b) Except for the airline transport pilot certification training program approved to satisfy the requirements of § 61.156 of this chapter, a course of training in an airplane simulator may be included for use as provided in § 121.441 if that course -

(1) Provides at least 4 hours of training at the pilot controls of an airplane simulator as well as a proper briefing before and after the training.

(2) Provides training in at least the following:

(i) The procedures and maneuvers set forth in appendix F to this part; or

(ii) Line-oriented flight training (LOFT) that -

(A) Before March 12, 2019,

(1) Utilizes a complete flight crew;

(2) Includes at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations; and

(3) Is representative of the flight segment appropriate to the operations being conducted by the certificate holder.

(B) Beginning on March 12, 2019 -

(1) Utilizes a complete flight crew;

(2) Includes at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations;

(3) Includes scenario-based or maneuver-based stall prevention training before, during or after the LOFT scenario for each pilot;

(4) Is representative of two flight segments appropriate to the operations being conducted by the certificate holder; and

(5) Provides an opportunity to demonstrate workload management and pilot monitoring skills.

(3) Is given by an instructor who meets the applicable requirements of § 121.412.

The satisfactory completion of the course of training must be certified by either the Administrator or a qualified check airman.

(c) The programmed hours of flight training set forth in this subpart do not apply if the training program for the airplane type includes -

(1) A course of pilot training in an airplane simulator as provided in § 121.424(d); or

(2) A course of flight engineer training in an airplane simulator or other training device as provided in § 121.425(c).

(d) Each certificate holder required to comply with § 121.358 of this part must use an approved simulator for each airplane type in each of its pilot training courses that provides training in at least the procedures and maneuvers set forth in the certificate holder's approved low-altitude windshear flight training program. The approved low-altitude windshear flight

training, if applicable, must be included in each of the pilot flight training courses prescribed in §§ 121.409(b), 121.418, 121.424, and 121.427 of this part.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-130, 41 FR 47229, Oct. 28, 1976; Amdt. 121-144, 43 FR 22646, May 25, 1978; Amdt. 121-199, 53 FR 37696, Sept. 27, 1988; Amdt. 121-264, 62 FR 23120, Apr. 28, 1997; Amdt. 121-365, 78 FR 42377, July 15, 2013; Amdt. 121-366, 78 FR 67837, Nov. 12, 2013]

§ 121.410 Airline transport pilot certification training program.

(a) A certificate holder may obtain approval to establish and implement a training program to satisfy the requirements of § 61.156 of this chapter. The training program must be separate from the air carrier training program required by this part.

(b) No certificate holder may use a person nor may any person serve as an instructor in a training program approved to meet the requirements of § 61.156 of this chapter unless the instructor:

(1) Holds an airline transport pilot certificate with an airplane category multiengine class rating;

(2) Has at least 2 years of experience as a pilot in command in operations conducted under § 91.1053(a)(2)(i) or § 135.243(a)(1) of this chapter, or as a pilot in command or second in command in any operation conducted under this part;

(3) Except for the holder of a flight instructor certificate, receives initial training on the following topics:

(i) The fundamental principles of the learning process;

(ii) Elements of effective teaching, instruction methods, and techniques;

(iii) Instructor duties, privileges, responsibilities, and limitations;

(iv) Training policies and procedures; and

(v) Evaluation.

(4) If providing training in a flight simulation training device, hold an aircraft type rating for the aircraft represented by the flight simulation training device utilized in the training program and have received training within the preceding 12 months from the certificate holder on:

(i) Proper operation of flight simulator and flight training device controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation;

(iv) Minimum equipment requirements for each curriculum; and

(v) The maneuvers that will be demonstrated in the flight simulation training device.

(c) A certificate holder may not issue a graduation certificate to a student unless that student has completed all the curriculum requirements of the course.

(d) A certificate holder must conduct evaluations to ensure that training techniques, procedures, and standards are acceptable to the Administrator.

[Doc. No. FAA-2010-0100, 78 FR 42377, July 15, 2013]

§ 121.411 Qualifications: Check airmen (airplane) and check airmen (simulator).

(a) For the purposes of this section and § 121.413:

(1) A check airman (airplane) is a person who is qualified, and permitted, to conduct flight checks or instruction in an airplane, in a flight simulator, or in a flight training device for a particular type airplane.

(2) A check airman (simulator) is a person who is qualified to conduct flight checks or instruction, but only in a flight simulator or in a flight training device for a particular type airplane.

(3) Check airmen (airplane) and check airmen (simulator) are those check airmen who perform the functions described in § 121.401(a)(4).

(b) No certificate holder may use a person, nor may any person serve as a check airman (airplane) in a training program established under this subpart unless, with respect to the airplane type involved, that person -

(1) Holds the airman certificates and ratings required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the airplane, including recurrent training, that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or flight checks that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of § 121.413 including in-flight training and practice for initial and transition training;

(5) Holds at least a Class III medical certificate unless serving as a required crewmember, in which case holds a Class I or Class II medical certificate as appropriate;

(6) Has satisfied the recency of experience requirements of § 121.439 of this part, as applicable; and

(7) Has been approved by the Administrator for the check airman duties involved.

(c) No certificate holder may use a person nor may any person serve as a check airman (simulator) in a training program established under this subpart unless, with respect to the airplane type involved, that person meets the provisions of paragraph (b) of this section, or -

(1) Holds the airman certificates and ratings, except medical certificate, required to serve as a pilot in command or a flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the airplane, including recurrent training, that are

required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or flight checks that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of § 121.413; and

(5) Has been approved by the Administrator for the check airman (simulator) duties involved.

(d) Completion of the requirements in paragraphs (b) (2), (3), and (4) or (c) (2), (3), and (4) of this section, as applicable, shall be entered in the individual's training record maintained by the certificate holder.

(e) Check airmen who have reached their 65th birthday or who do not hold an appropriate medical certificate may function as check airmen, but may not serve as pilot flightcrew members in operations under this part.

(f) A check airman (simulator) must accomplish the following -

(1) Fly at least two flight segments as a required crewmember for the type airplane involved within the 12-month period preceding the performance of any check airman duty in a flight simulator; or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program and that must precede the performance of any check airman duty in a flight simulator.

(g) The flight segments or line-observation program required in paragraph (f) of this section are considered to be completed in the month required if completed in the calendar month before or in the calendar month after the month in which it is due.

[Doc. No. 28471, 61 FR 30741, June 17, 1996, as amended by Amdt. 121-344, 74 FR 34235, July 15, 2009; Amdt. 121-366, 78 FR 67837, Nov. 12, 2013]

§ 121.412 Qualifications: Flight instructors (airplane) and flight instructors (simulator).

(a) For the purposes of this section and § 121.414:

(1) A flight instructor (airplane) is a person who is qualified to instruct in an airplane, in a flight simulator, or in a flight training device for a particular type airplane.

(2) A flight instructor (simulator) is a person who is qualified to instruct, but only in a flight simulator, in a flight training device, or both, for a particular type airplane.

(3) Flight instructors (airplane) and flight instructors (simulator) are those instructors who perform the functions described in § 121.401(a)(4).

(b) No certificate holder may use a person nor may any person serve as a flight instructor (airplane) in a training program established under this subpart unless, with respect to the airplane type involved, that person -

(1) Holds the airman certificates and rating required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the airplane, including recurrent training, that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or flight checks that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of § 121.414, including in-flight training and practice for initial and transition training;

(5) Holds at least a Class III medical certificate unless serving as a required crewmember, in which case holds a Class I or a Class II medical certificate as appropriate; and

(6) Has satisfied the recency of experience requirements of § 121.439 of this part, as applicable.

(c) No certificate holder may use a person, nor may any person serve as a flight instructor (simulator) in a training program established under this subpart, unless, with respect to the airplane type involved, that person meets the provisions of paragraph (b) of this section, or -

(1) Holds the airman certificates and ratings, except medical certificate, required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the airplane, including recurrent training, that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or flight checks that are required to serve as a pilot in command or flight engineer, as applicable, in operations under this part; and

(4) Has satisfactorily completed the applicable training requirements of § 121.414.

(d) Completion of the requirements in paragraphs (b) (2), (3), and (4) or (c) (2), (3), and (4) of this section as applicable shall be entered in the individual's training record maintained by the certificate holder.

(e) Flight instructors who have reached their 65th birthday or who do not hold an appropriate medical certificate may function as flight instructors, but may not serve as pilot flightcrew members in operations under this part.

(f) A flight instructor (simulator) must accomplish the following -

(1) Fly at least two flight segments as a required crewmember for the type of airplane within the 12-month period preceding the performance of any flight instructor duty in a flight simulator (and must hold a Class I or Class II medical certificate as appropriate); or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program

preceding the performance of any flight instructor duty in a flight simulator.

(g) The flight segments or line-observation program required in paragraph (f) of this section is considered completed in the month required if completed in the calendar month before, or the calendar month after the month in which it is due.

[Doc. No. 28471, 61 FR 30742, June 17, 1996; 61 FR 34927, July 3, 1996; 62 FR 3739, Jan. 24, 1997; Amdt. 121-264, 62 FR 23120, Apr. 28, 1997; Amdt. 121-344, 74 FR 34235, July 15, 2009; Amdt. 121-355, 76 FR 35104, June 16, 2011; Amdt. 121-366, 78 FR 67837, Nov. 12, 2013]

§ 121.413 Initial, transition and recurrent training and checking requirements: Check airmen (airplane), check airmen (simulator).

(a) No certificate holder may use a person nor may any person serve as a check airman unless -

(1) That person has satisfactorily completed initial or transition check airman training; and

(2) Within the preceding 24 calendar months that person satisfactorily conducts a check or supervises operating experience under the observation of an FAA inspector or an aircrew designated examiner employed by the operator. The observation check may be accomplished in part or in full in an airplane, in a flight simulator, or in a flight training device.

(b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the calendar month before, or the calendar month after, the month in which it is due.

(c) The initial ground training for check airmen must include the following:

(1) Check airman duties, functions, and responsibilities.

(2) The applicable Code of Federal Regulations and the certificate holder's policies and procedures.

(3) The appropriate methods, procedures, and techniques for conducting the required checks.

(4) Proper evaluation of student performance including the detection of -

(i) Improper and insufficient training; and

(ii) Personal characteristics of an applicant that could adversely affect safety.

(5) The appropriate corrective action in the case of unsatisfactory checks.

(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the airplane.

(7) For check airmen who conduct training or checking in a flight simulator or a flight training device, the following subjects specific to the device(s) for the airplane type:

(i) Proper operation of the controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation; and

(iv) The minimum airplane simulator equipment required by this part or part 60 of this chapter, for each maneuver and

procedure completed in a flight simulator or a flight training device.

(d) The transition ground training for check airmen must include the following:

(1) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the airplane to which the check airman is transitioning.

(2) For check airmen who conduct training or checking in a flight simulator or a flight training device, the following subjects specific to the device(s) for the airplane type to which the check airman is transitioning:

- (i) Proper operation of the controls and systems;
- (ii) Proper operation of environmental and fault panels;
- (iii) Data and motion limitations of simulation; and

(iv) The minimum airplane simulator equipment required by this part or part 60 of this chapter, for each maneuver and procedure completed in a flight simulator or a flight training device.

(e) The initial and transition flight training for check airmen (airplane) must include the following:

(1) The safety measures for emergency situations that are likely to develop during a check.

(2) The potential results of improper, untimely, or non-execution of safety measures during a check.

(3) For pilot check airman (airplane) -

(i) Training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence to conduct the pilot flight checks required by this part; and

(ii) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during a check.

(4) For flight engineer check airmen (airplane), training to ensure competence to perform assigned duties.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(g) The initial and transition flight training for check airmen who conduct training or checking in a flight simulator or a flight training device must include the following:

(1) Training and practice in conducting flight checks in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight checks required by this part. This training and practice must be accomplished in a flight simulator or in a flight training device.

(2) Training in the operation of flight simulators or flight training devices, or both, to ensure competence to conduct the flight checks required by this part.

(h) Recurrent ground training for check airmen who conduct training or checking in a flight simulator or a flight training device must be completed every 12 calendar months and must include the subjects required in paragraph (c)(7) of this section.

(i) Compliance with paragraphs (c)(7), (d)(2), and (h) of this section is required no later than March 12, 2019.

[Doc. No. 28471, 61 FR 30743, June 17, 1996; 62 FR 3739, Jan. 24, 1997; Amdt. 121-264, 62 FR 23120, Apr. 28, 1997; Amdt. 121-366, 78 FR 67838, Nov. 12, 2013]

§ 121.414 Initial, transition and recurrent training and checking requirements: flight instructors (airplane), flight instructors (simulator).

(a) No certificate holder may use a person nor may any person serve as a flight instructor unless -

(1) That person has satisfactorily completed initial or transition flight instructor training; and

(2) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an FAA inspector, an operator check airman, or an aircrew designated examiner employed by the operator. The observation check may be accomplished in part or in full in an airplane, in a flight simulator, or in a flight training device.

(b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the calendar month before, or the calendar month after, the month in which it is due.

(c) The initial ground training for flight instructors must include the following:

(1) Flight instructor duties, functions, and responsibilities.

(2) The applicable Code of Federal Regulations and the certificate holder's policies and procedures.

(3) The appropriate methods, procedures, and techniques for conducting flight instruction.

(4) Proper evaluation of student performance including the detection of -

(i) Improper and insufficient training; and

(ii) Personal characteristics of an applicant that could adversely affect safety.

(5) The corrective action in the case of unsatisfactory training progress.

(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the airplane.

(7) Except for holders of a flight instructor certificate -

(i) The fundamental principles of the teaching-learning process;

(ii) Teaching methods and procedures; and

(iii) The instructor-student relationship.

(8) For flight instructors who conduct training in a flight simulator or a flight training device, the following subjects specific to the device(s) for the airplane type:

(i) Proper operation of the controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation; and

(iv) The minimum airplane simulator equipment required by this part or part 60 of this chapter, for each maneuver and procedure completed in a flight simulator or a flight training device.

(d) The transition ground training for flight instructors must include the following:

(1) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the airplane to which the flight instructor is transitioning.

(2) For flight instructors who conduct training in a flight simulator or a flight training device, the following subjects specific to the device(s) for the airplane type to which the flight instructor is transitioning:

- (i) Proper operation of the controls and systems;
- (ii) Proper operation of environmental and fault panels;
- (iii) Data and motion limitations of simulation; and

(iv) The minimum airplane simulator equipment required by this part or part 60 of this chapter, for each maneuver and procedure completed in a flight simulator or a flight training device.

(e) The initial and transition flight training for flight instructors (airplane) must include the following:

(1) The safety measures for emergency situations that are likely to develop during instruction.

(2) The potential results of improper, untimely, or non-execution of safety measures during instruction.

(3) For pilot flight instructor (airplane) -

(i) In-flight training and practice in conducting flight instruction from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence as an instructor; and

(ii) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during instruction.

(4) For flight engineer instructors (airplane), inflight training to ensure competence to perform assigned duties.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(g) The initial and transition flight training for flight instructors who conduct training in a flight simulator or a flight training device must include the following:

(1) Training and practice in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight instruction required by this part. This training and practice must be accomplished in full or in part in a flight simulator or in a flight training device.

(2) Training in the operation of flight simulators or flight training devices, or both, to ensure competence to conduct the flight instruction required by this part.

(h) Recurrent flight instructor ground training for flight instructors who conduct training in a flight simulator or a flight training device must be completed every 12 calendar months and must include the subjects required in paragraph (c)(8) of this section.

(i) Compliance with paragraphs (c)(8), (d)(2), and (h) of this section is required no later than March 12, 2019.

[Doc. No. 28471, 61 FR 30743, June 17, 1996; 62 FR 3739, Jan. 24, 1997, as amended by Amdt. 121-366, 78 FR 67838, Nov. 12, 2013]

§ 121.415 Crewmember and dispatcher training program requirements.

(a) Each training program must provide the following ground training as appropriate to the particular assignment of the crewmember or dispatcher:

(1) Basic indoctrination ground training for newly hired crewmembers or dispatchers including 40 programmed hours of instruction, unless reduced under § 121.405 or as specified in § 121.401(d), in at least the following -

(i) Duties and responsibilities of crewmembers or dispatchers, as applicable;

(ii) Appropriate provisions of the Federal Aviation Regulations;

(iii) Contents of the certificate holder's operating certificate and operations specifications (not required for flight attendants); and

(iv) Appropriate portions of the certificate holder's operating manual.

(2) The initial and transition ground training specified in §§ 121.419, 121.421 and 121.422, as applicable.

(3) For crewmembers, emergency training as specified in §§ 121.417 and 121.805.

(4) After February 15, 2008, training for crewmembers and dispatchers in their roles and responsibilities in the certificate holder's passenger recovery plan, if applicable.

(b) Each training program must provide the flight training specified in §§ 121.424 through 121.425, as applicable.

(c) Each training program must provide recurrent ground and flight training as provided in § 121.427.

(d) Each training program must provide the differences training specified in § 121.418(a) if the Administrator finds that, due to differences between airplanes of the same type operated by the certificate holder, additional training is necessary to insure that each crewmember and dispatcher is adequately trained to perform their assigned duties.

(e) Upgrade training as specified in §§ 121.419 and 121.424 for a particular type airplane may be included in the training program for crewmembers who have qualified and served as second in command pilot or flight engineer on that airplane.

(f) Particular subjects, maneuvers, procedures, or parts thereof specified in §§ 121.419, 121.421, 121.422, 121.424, and 121.425 for transition or upgrade training, as applicable, may be omitted, or the programmed hours of ground instruction or inflight training may be reduced, as provided in § 121.405.

(g) In addition to initial, transition, upgrade, recurrent and differences training, each training program must also provide ground and flight training, instruction, and practice as necessary to insure that each crewmember and dispatcher -

(1) Remains adequately trained and currently proficient with respect to each airplane, crewmember position, and type of operation in which he serves; and

(2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to airplanes.

(h) Each training program must include a process to provide for the regular analysis of individual pilot performance to identify pilots with performance deficiencies during training and checking and multiple failures during checking.

(i) Each training program must include methods for remedial training and tracking of pilots identified in the analysis performed in accordance with paragraph (h) of this section.

(j) Compliance with paragraphs (h) and (i) of this section is required no later than March 12, 2019.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-130, 41 FR 47229, Oct. 28, 1976; Amdt. 121-281, 66 FR 19043, Apr. 12, 2001; Amdt. 121-329, 72 FR 1881, Jan. 16, 2007; Amdt. 121-366, 78 FR 67839, Nov. 12, 2013]

§ 121.417 Crewmember emergency training.

(a) Each training program must provide the emergency training set forth in this section with respect to each airplane type, model, and configuration, each required crewmember, and each kind of operation conducted, insofar as appropriate for each crewmember and the certificate holder.

(b) Emergency training must provide the following:

(1) Instruction in emergency assignments and procedures, including coordination among crewmembers.

(2) Individual instruction in the location, function, and operation of emergency equipment including -

(i) Equipment used in ditching and evacuation;

(ii) [Reserved]

(iii) Portable fire extinguishers, with emphasis on type of extinguisher to be used on different classes of fires; and

(iv) Emergency exits in the emergency mode with the evacuation slide/raft pack attached (if applicable), with training emphasis on the operation of the exits under adverse conditions.

(3) Instruction in the handling of emergency situations including -

(i) Rapid decompression;

(ii) Fire in flight or on the surface, and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas including all galleys, service centers, lifts, lavatories and movie screens;

(iii) Ditching and other evacuation, including the evacuation of persons and their attendants, if any, who may need the assistance of another person to move expeditiously to an exit in the event of an emergency.

(iv) [Reserved]

(v) Hijacking and other unusual situations.

(4) Review and discussion of previous aircraft accidents and incidents pertaining to actual emergency situations.

(c) Each crewmember must accomplish the following emergency training during the specified training periods, using those items of installed emergency equipment for each type of airplane in which he or she is to serve (Alternate recurrent training required by § 121.433(c) of this part may be accomplished by approved pictorial presentation or demonstration):

(1) One-time emergency drill requirements to be accomplished during initial training. Each crewmember must perform -

(i) At least one approved protective breathing equipment (PBE) drill in which the crewmember combats an actual or simulated fire using at least one type of installed hand fire extinguisher or approved fire extinguisher that is appropriate for the type of actual fire or simulated fire to be fought while using the type of installed PBE required by § 121.337 or approved PBE simulation device as defined by paragraph (d) of this section for combatting fires aboard airplanes;

(ii) At least one approved firefighting drill in which the crewmember combats an actual fire using at least one type of installed hand fire extinguisher or approved fire extinguisher that is appropriate for the type of fire to be fought. This firefighting drill is not required if the crewmember performs the PBE drill of paragraph (c)(1)(i) by combating an actual fire; and

(iii) An emergency evacuation drill with each person egressing the airplane or approved training device using at least one type of installed emergency evacuation slide. The crewmember may either observe the airplane exits being opened in the emergency mode and the associated exit slide/raft pack being deployed and inflated, or perform the tasks resulting in the accomplishment of these actions.

(2) Additional emergency drill requirements to be accomplished during initial training and once each 24 calendar months during recurrent training. Each crewmember must -

(i) Perform the following emergency drills and operate the following equipment:

(A) Each type of emergency exit in the normal and emergency modes, including the actions and forces required in the deployment of the emergency evacuation slides;

(B) Each type of installed hand fire extinguisher;

(C) Each type of emergency oxygen system to include protective breathing equipment;

(D) Donning, use, and inflation of individual flotation means, if applicable; and

(E) Ditching, if applicable, including but not limited to, as appropriate:

(1) Cockpit preparation and procedures;

(2) Crew coordination;

(3) Passenger briefing and cabin preparation;

(4) Donning and inflation of life preservers;

(5) Use of life-lines; and

(6) Boarding of passengers and crew into raft or a slide/raft pack.

(ii) Observe the following drills:

(A) Removal from the airplane (or training device) and inflation of each type of life raft, if applicable;

(B) Transfer of each type of slide/raft pack from one door to another;

(C) Deployment, inflation, and detachment from the airplane (or training device) of each type of slide/raft pack; and

(D) Emergency evacuation including the use of a slide.

(d) After September 1, 1993, no crewmember may serve in operations under this part unless that crewmember has performed the PBE drill and the firefighting drill described by paragraphs (c)(1)(i) and (c)(1)(ii) of this section, as part of a one-time training requirement of paragraphs (c)(1) or (c)(2) of this section as appropriate. Any crewmember who performs the PBE drill and the firefighting drill prescribed in paragraphs (c)(1)(i) and (c)(1)(ii) of this section after May 26, 1987, is deemed to be in compliance with this regulation upon presentation of information or documentation, in a form and manner acceptable to the Director, Flight Standards Service, showing that the appropriate drills have been accomplished.

(e) Crewmembers who serve in operations above 25,000 feet must receive instruction in the following:

(1) Respiration.

(2) Hypoxia.

(3) Duration of consciousness without supplemental oxygen at altitude.

(4) Gas expansion.

(5) Gas bubble formation.

(6) Physical phenomena and incidents of decompression.

(f) For the purposes of this section the following definitions apply:

(1) *Actual fire* means an ignited combustible material, in controlled conditions, of sufficient magnitude and duration to accomplish the training objectives outlined in paragraphs (c)(1)(i) and (c)(1)(ii) of this section.

(2) *Approved fire extinguisher* means a training device that has been approved by the Administrator for use in meeting the training requirements of § 121.417(c).

(3) *Approved PBE simulation device* means a training device that has been approved by the Administrator for use in meeting the training requirements of § 121.417(c).

(4) *Combats*, in this context, means to properly fight an actual or simulated fire using an appropriate type of fire extinguisher until that fire is extinguished.

(5) *Observe* means to watch without participating actively in the drill.

(6) *PBE drill* means an emergency drill in which a crewmember demonstrates the proper use of protective breathing equipment while fighting an actual or simulated fire.

(7) *Perform* means to satisfactorily accomplish a prescribed emergency drill using established procedures that stress the skill of the persons involved in the drill.

(8) *Simulated fire* means an artificial duplication of smoke or flame used to create various aircraft firefighting scenarios, such as lavatory, galley oven, and aircraft seat fires.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970]

Editorial Note:

For Federal Register citations affecting § 121.417, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.418 Differences training and related aircraft differences training.

(a) *Differences training.* (1) Differences training for crewmembers and dispatchers must consist of at least the following as applicable to their assigned duties and responsibilities:

(i) Instruction in each appropriate subject or part thereof required for initial ground training in the airplane unless the Administrator finds that particular subjects are not necessary.

(ii) Flight training in each appropriate maneuver or procedure required for initial flight training in the airplane unless the Administrator finds that particular maneuvers or procedures are not necessary.

(iii) The number of programmed hours of ground and flight training determined by the Administrator to be necessary for the airplane, the operation, and the crewmember or aircraft dispatcher involved.

(2) Differences training for all variations of a particular type airplane may be included in initial, transition, upgrade, and recurrent training for the airplane.

(b) *Related aircraft differences training.* (1) In order to seek approval of related aircraft differences training for flightcrew members, a certificate holder must submit a request for related aircraft designation to the Administrator, and obtain approval of that request.

(2) If the Administrator determines under paragraph (b)(1) of this section that a certificate holder is operating related aircraft, the certificate holder may submit to the Administrator a request for approval of a training program that includes related aircraft differences training.

(3) A request for approval of a training program that includes related aircraft differences training must include at least the following:

(i) Each appropriate subject required for the ground training for the related aircraft.

(ii) Each appropriate maneuver or procedure required for the flight training and crewmember emergency training for the related aircraft.

(iii) The number of programmed hours of ground training, flight training and crewmember emergency training necessary based on review of the related aircraft and the duty position.

(c) *Approved related aircraft differences training.* Approved related aircraft differences training for flightcrew members may be included in initial, transition, upgrade and recurrent training for the base aircraft. If the certificate holder's approved training program includes related aircraft differences training in accordance with paragraph (b) of this

section, the training required by §§ 121.419, 121.424, 121.425, and 121.427, as applicable to flightcrew members, may be modified for the related aircraft.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-366, 78 FR 67839, Nov. 12, 2013]

§ 121.419 Pilots and flight engineers: Initial, transition, and upgrade ground training.

(a) Except as provided in paragraph (b) of this section, initial, transition, and upgrade ground training for pilots and flight engineers must include instruction in at least the following as applicable to their assigned duties:

- (1) General subjects -
 - (i) The certificate holder's dispatch or flight release procedures;
 - (ii) Principles and methods for determining weight and balance, and runway limitations for takeoff and landing;
 - (iii) Enough meteorology to insure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, and high altitude weather situations;
 - (iv) Air traffic control systems, procedures, and phraseology;
 - (v) Navigation and the use of navigation aids, including instrument approach procedures;
 - (vi) Normal and emergency communication procedures;
 - (vii) Visual cues prior to and during descent below DA/DH or MDA;
 - (viii) Approved crew resource management initial training; and
 - (ix) Other instructions as necessary to ensure pilot and flight engineer competence.
- (2) For each airplane type -
 - (i) A general description;
 - (ii) Performance characteristics;
 - (iii) Engines and propellers;
 - (iv) Major components;
 - (v) Major airplane systems (e.g., flight controls, electrical, hydraulic); other systems as appropriate; principles of normal, abnormal, and emergency operations; appropriate procedures and limitations;
 - (vi) Procedures for -
 - (A) Recognizing and avoiding severe weather situations;
 - (B) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear, and
 - (C) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions;
 - (vii) Operating limitations;
 - (viii) Fuel consumption and cruise control;
 - (ix) Flight planning;
 - (x) Each normal and emergency procedure;

(xi) For pilots, stall prevention and recovery in clean configuration, takeoff and maneuvering configuration, and landing configuration.

- (xii) For pilots, upset prevention and recovery; and
 - (xiii) The approved Airplane Flight Manual.
- (b) Initial ground training for pilots who have completed the airline transport pilot certification training program in § 61.156 must include instruction in at least the following as applicable to their assigned duties:
- (1) Ground training specific to the certificate holder's -
 - (i) Dispatch or flight release procedures;
 - (ii) Method for determining weight and balance and runway limitations for takeoff and landing;
 - (iii) Meteorology hazards applicable to the certificate holder's areas of operation;
 - (iv) Approved departure, arrival, and approach procedures;
 - (v) Normal and emergency communication procedures; and
 - (vi) Approved crew resource management training.
 - (2) The training required by paragraph (a)(2) of this section for the airplane type.
 - (c) Initial ground training for pilots and flight engineers must consist of at least the following programmed hours of instruction in the required subjects specified in paragraph (a) of this section and in § 121.415(a) unless reduced under § 121.405:
 - (1) Group I airplanes -
 - (i) Reciprocating powered, 64 hours; and
 - (ii) Turbopropeller powered, 80 hours.
 - (2) Group II airplanes, 120 hours.
 - (d) Initial ground training for pilots who have completed the airline transport pilot certification training program in § 61.156 must consist of at least the following programmed hours of instruction in the required subjects specified in paragraph (b) of this section and in § 121.415(a) unless reduced under § 121.405:
 - (1) Group I airplanes -
 - (i) Reciprocating powered, 54 hours; and
 - (ii) Turbopropeller powered, 70 hours.
 - (2) Group II airplanes, 110 hours.
 - (e) *Compliance and pilot programmed hours.* (1) Compliance with the requirements identified in paragraphs (a) (2)(xi) and (a)(2)(xii) of this section is required no later than March 12, 2019.
 - (2) Beginning March 12, 2019, initial programmed hours applicable to pilots as specified in paragraphs (c) and (d) of this section must include 2 additional hours.

[Doc. No. FAA-2010-0100, 78 FR 42377, July 15, 2013, as amended by Amdt. 121-366, 78 FR 67839, Nov. 12, 2013]

§ 121.420 [Reserved]**§ 121.421 Flight attendants: Initial and transition ground training.**

(a) Initial and transition ground training for flight attendants must include instruction in at least the following:

(1) General subjects -

(i) The authority of the pilot in command;

(ii) Passenger handling, including the procedures to be followed in the case of deranged persons or other persons whose conduct might jeopardize safety; and

(iii) Approved crew resource management initial training.

(2) For each airplane type -

(i) A general description of the airplane emphasizing physical characteristics that may have a bearing on ditching, evacuation, and inflight emergency procedures and on other related duties;

(ii) The use of both the public address system and the means of communicating with other flight crewmembers, including emergency means in the case of attempted hijacking or other unusual situations; and

(iii) Proper use of electrical galley equipment and the controls for cabin heat and ventilation.

(b) Initial and transition ground training for flight attendants must include a competence check to determine ability to perform assigned duties and responsibilities.

(c) Initial ground training for flight attendants must consist of at least the following programmed hours of instruction in the subjects specified in paragraph (a) of this section and in § 121.415(a) unless reduced under § 121.405.

(1) Group I airplanes -

(i) Reciprocating powered, 8 hours; and

(ii) Turbopropeller powered, 8 hours.

(2) Group II airplanes, 16 hours.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-250, 60 FR 65949, Dec. 20, 1995]

§ 121.422 Aircraft dispatchers: Initial and transition ground training.

(a) Initial and transition ground training for aircraft dispatchers must include instruction in at least the following:

(1) General subjects -

(i) Use of communications systems including the characteristics of those systems and the appropriate normal and emergency procedures;

(ii) Meteorology, including various types of meteorological information and forecasts, interpretation of weather data (including forecasting of en route and terminal temperatures and other weather conditions), frontal systems, wind conditions, and use of actual and prognostic weather charts for various altitudes;

(iii) The NOTAM system;

(iv) Navigational aids and publications;

(v) Joint dispatcher-pilot responsibilities;

(vi) Characteristics of appropriate airports;

(vii) Prevailing weather phenomena and the available sources of weather information;

(viii) Air traffic control and instrument approach procedures; and

(ix) Approved dispatcher resource management (DRM) initial training.

(2) For each airplane -

(i) A general description of the airplane emphasizing operating and performance characteristics, navigation equipment, instrument approach and communication equipment, emergency equipment and procedures, and other subjects having a bearing on dispatcher duties and responsibilities;

(ii) Flight operation procedures including procedures specified in § 121.419(a)(2)(vi);

(iii) Weight and balance computations;

(iv) Basic airplane performance dispatch requirements and procedures;

(v) Flight planning including track selection, flight time analysis, and fuel requirements; and

(vi) Emergency procedures.

(3) Emergency procedures must be emphasized, including the alerting of proper governmental, company, and private agencies during emergencies to give maximum help to an airplane in distress.

(b) Initial and transition ground training for aircraft dispatchers must include a competence check given by an appropriate supervisor or ground instructor that demonstrates knowledge and ability with the subjects set forth in paragraph (a) of this section.

(c) Initial ground training for aircraft dispatchers must consist of at least the following programmed hours of instruction in the subjects specified in paragraph (a) of this section and in § 121.415(a) unless reduced under § 121.405:

(1) Group I airplanes -

(i) Reciprocating powered, 30 hours; and

(ii) Turbopropeller powered, 40 hours.

(2) Group II airplanes, 40 hours.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-250, 60 FR 65949, Dec. 20, 1995]

§ 121.423 Pilot: Extended Envelope Training.

(a) Each certificate holder must include in its approved training program, the extended envelope training set forth in this section with respect to each airplane type for each pilot. The extended envelope training required by this section must be performed in a Level C or higher full flight simulator, approved by the Administrator in accordance with § 121.407 of this part.

(b) Extended envelope training must include the following maneuvers and procedures:

(1) Manually controlled slow flight;

(2) Manually controlled loss of reliable airspeed;

(3) Manually controlled instrument departure and arrival;

- (4) Upset recovery maneuvers; and
- (5) Recovery from bounced landing.

(c) Extended envelope training must include instructor-guided hands on experience of recovery from full stall and stick pusher activation, if equipped.

(d) Recurrent training: Within 24 calendar months preceding service as a pilot, each person must satisfactorily complete the extended envelope training described in paragraphs (b)(1) through (4) and (c) of this section. Within 36 calendar months preceding service as a pilot, each person must satisfactorily complete the extended envelope training described in paragraph (b)(5) of this section.

(e) Deviation from use of Level C or higher full flight simulator:

(1) A certificate holder may submit a request to the Administrator for approval of a deviation from the requirements of paragraph (a) of this section to conduct the extended envelope training using an alternative method to meet the learning objectives of this section.

(2) A request for deviation from paragraph (a) of this section must include the following information:

(i) A simulator availability assessment, including hours by specific simulator and location of the simulator, and a simulator shortfall analysis that includes the training that cannot be completed in a Level C or higher full flight simulator; and

(ii) Alternative methods for achieving the learning objectives of this section.

(3) A certificate holder may request an extension of a deviation issued under this section.

(4) Deviations or extensions to deviations will be issued for a period not to exceed 12 months.

(f) Compliance with this section is required no later than March 12, 2019. For the recurrent training required in paragraph (d) of this section, each pilot qualified to serve as second in command or pilot in command in operations under this part on March 12, 2019 must complete the recurrent extended envelope training within 12 calendar months after March 12, 2019.

[Doc. No. FAA-2008-0677, 78 FR 67839, Nov. 12, 2013]

§ 121.424 Pilots: Initial, transition, and upgrade flight training.

(a) Initial, transition, and upgrade training for pilots must include the following:

(1) Flight training and practice in the maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program and in appendix E to this part, as applicable; and

(2) Extended envelope training set forth in § 121.423.

(b) The training required by paragraph (a) of this section must be performed inflight except -

(1) That windshear maneuvers and procedures must be performed in a simulator in which the maneuvers and procedures are specifically authorized to be accomplished;

(2) That the extended envelope training required by § 121.423 must be performed in a Level C or higher full flight simulator unless the Administrator has issued to the certificate holder a deviation in accordance with § 121.423(e); and

(3) To the extent that certain other maneuvers and procedures may be performed in an airplane simulator, an appropriate training device, or a static airplane as permitted in appendix E to this part.

(c) Except as permitted in paragraph (d) of this section, the initial flight training required by paragraph (a)(1) of this section must include at least the following programmed hours of inflight training and practice unless reduced under § 121.405;

(1) Group I airplanes -

(i) *Reciprocating powered*. Pilot in command, 10 hours; second in command, 6 hours; and

(ii) *Turbopropeller powered*. Pilot in command, 15 hours; second in command, 7 hours.

(2) *Group II airplanes*. Pilot in command, 20 hours; second in command, 10 hours.

(d) If the certificate holder's approved training program includes a course of training utilizing an airplane simulator under § 121.409 (c) and (d) of this part, each pilot must successfully complete -

(1) With respect to § 121.409(c) of this part -

(i) Training and practice in the simulator in at least all of the maneuvers and procedures set forth in appendix E to this part for initial flight training that are capable of being performed in an airplane simulator without a visual system; and

(ii) A flight check in the simulator or the airplane to the level of proficiency of a pilot in command or second in command, as applicable, in at least the maneuvers and procedures set forth in appendix F to this part that are capable of being performed in an airplane simulator without a visual system.

(2) With respect to § 121.409(d) of this part, training and practice in at least the maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program that are capable of being performed in an airplane simulator in which the maneuvers and procedures are specifically authorized.

(e) Compliance with paragraphs (a)(2) and (b)(2) of this section is required no later than March 12, 2019.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-199, 53 FR 37697, Sept. 27, 1988; Amdt. 121-366, 78 FR 67840, Nov. 12, 2013]

§ 121.425 Flight engineers: Initial and transition flight training.

(a) Initial and transition flight training for flight engineers must include at least the following:

(1) Training and practice in procedures related to the carrying out of flight engineer duties and functions. This training and practice may be accomplished either inflight, in an airplane simulator, or in a training device.

(2) A flight check that includes -

(i) Preflight inspection;

(ii) Inflight performance of assigned duties accomplished from the flight engineer station during taxi, runup, takeoff, climb, cruise, descent, approach, and landing;

(iii) Accomplishment of other functions, such as fuel management and preparation of fuel consumption records, and normal and emergency or alternate operation of all airplane flight systems, performed either inflight, in an airplane simulator, or in a training device.

Flight engineers possessing a commercial pilot certificate with an instrument, category and class rating, or pilots already qualified as second in command and reverting to flight engineer, may complete the entire flight check in an approved airplane simulator.

(b) Except as permitted in paragraph (c) of this section, the initial flight training required by paragraph (a) of this section must include at least the same number of programmed hours of flight training and practice that are specified for a second in command pilot under § 121.424(c) unless reduced under § 121.405.

(c) If the certificate holder's approved training program includes a course of training utilizing an airplane simulator or other training device under § 121.409(c), each flight engineer must successfully complete in the simulator or other training device -

(1) Training and practice in at least all of the assigned duties, procedures, and functions required by paragraph (a) of this section; and

(2) A flight check to a flight engineer level of proficiency in the assigned duties, procedures, and functions.

[Doc. No. 9509, 35 FR 90, Jan. 3, 1970, as amended by Amdt. 121-144, 43 FR 22647, May 25, 1978]

§ 121.426 [Reserved]

§ 121.427 Recurrent training.

(a) Recurrent training must ensure that each crew member or dispatcher is adequately trained and currently proficient with respect to the type airplane (including differences training, if applicable) and crewmember position involved.

(b) Recurrent ground training for crewmembers and dispatchers must include at least the following:

(1) A quiz or other review to determine the state of the crewmember's or dispatcher's knowledge with respect to the airplane and position involved.

(2) Instruction as necessary in the subjects required for initial ground training by §§ 121.415(a) and 121.805, as appropriate, including emergency training (not required for aircraft dispatchers).

(3) For flight attendants and dispatchers, a competence check as required by §§ 121.421(b) and 121.422(b), respectively.

(4) CRM and DRM training. For flightcrew members, CRM training or portions thereof may be accomplished during an approved simulator line operational flight training (LOFT) session. The recurrent CRM or DRM training requirements do not apply until a person has completed the applicable initial CRM or DRM training required by §§ 121.419, 121.421, or 121.422.

(c) Recurrent ground training for crewmembers and dispatchers must consist of at least the following programmed hours unless reduced under § 121.405:

(1) For pilots and flight engineers -

(i) Group I, reciprocating powered airplanes, 16 hours;

(ii) Group I turbopropeller powered airplanes, 20 hours; and

(iii) Group II airplanes, 25 hours.

(2) For flight attendants -

(i) Group I reciprocating powered airplanes, 4 hours;

(ii) Group I turbopropeller powered airplanes, 5 hours; and

(iii) Group II airplanes, 12 hours.

(3) For aircraft dispatchers -

(i) Group I reciprocating powered airplanes, 8 hours;

(ii) Group I turbopropeller powered airplanes, 10 hours; and

(iii) Group II airplanes, 20 hours.

(d) Recurrent flight training for flightcrew members must include at least the following:

(1) For pilots -

(i) Extended envelope training as required by § 121.423 of this part; and

(ii) Flight training in an approved simulator in maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program and flight training in maneuvers and procedures set forth in appendix F to this part, or in a flight training program approved by the Administrator, except as follows -

(A) The number of programmed inflight hours is not specified; and

(B) Satisfactory completion of a proficiency check may be substituted for recurrent flight training as permitted in § 121.433(c) and (e) of this part.

(2) For flight engineers, flight training as provided by § 121.425(a) except as follows -

(i) The specified number of inflight hours is not required; and

(ii) The flight check, other than the preflight inspection, may be conducted in an airplane simulator or other training device. The preflight inspection may be conducted in an airplane, or by using an approved pictorial means that realistically portrays the location and detail or preflight inspection items and provides for the portrayal of abnormal conditions. Satisfactory completion of an approved line-

oriented simulator training program may be substituted for the flight check.

(e) Compliance and pilot programmed hours:

(1) Compliance with the requirements identified in paragraphs (d)(1)(i) of this section is required no later than March 12, 2019.

(2) After March 12, 2019, recurrent programmed hours applicable to pilots as specified in paragraph (c)(1) of this section must include 30 additional minutes.

[Doc. No. 9509, 35 FR 90, Jan. 30, 1970, as amended by Amdt. 121-80, 36 FR 19362, Oct. 5, 1971; Amdt. 121-144, 43 FR 22647, May 25, 1978; Amdt. 121-199, 53 FR 37697, Sept. 27, 1988; Amdt. 121-250, 60 FR 65949, Dec. 20, 1995; Amdt. 121-281, 66 FR 19043, Apr. 12, 2001; Amdt. 121-366, 78 FR 67840, Nov. 12, 2013]

§ 121.429 [Reserved]

Subpart O - Crewmember Qualifications

§ 121.431 Applicability.

(a) This subpart:

(1) Prescribes crewmember qualifications for all certificate holders except where otherwise specified. The qualification requirements of this subpart also apply to each certificate holder that conducts commuter operations under part 135 of this chapter with airplanes for which two pilots are required by the aircraft type certification rules of this chapter. The Administrator may authorize any other certificate holder that conducts operations under part 135 of this chapter to comply with the training and qualification requirements of this subpart instead of subparts E, G, and H of part 135 of this chapter, except that these certificate holders may choose to comply with the operating experience requirements of § 135.244 of this chapter, instead of the requirements of § 121.434. Notwithstanding the requirements of this subpart, a pilot serving under part 135 of this chapter as second in command may meet the requirements of § 135.245 instead of the requirements of § 121.436; and

(2) Permits training center personnel authorized under part 142 of this chapter who meet the requirements of §§ 121.411 through 121.414 to provide training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this subpart.

(b) For the purpose of this subpart, the airplane groups and terms and definitions prescribed in § 121.400 and the following definitions apply:

Consolidation is the process by which a person through practice and practical experience increases proficiency in newly acquired knowledge and skills.

Line operating flight time is flight time performed in operations under this part.

Operating cycle is a complete flight segment consisting of a takeoff, climb, enroute portion, descent, and a landing.

[Doc. No. 10171, 36 FR 12284, June 30, 1971, as amended by Amdt. 121-250, 60 FR 65949, Dec. 20, 1995; Amdt. 121-248, 60 FR 20869, Apr. 27, 1995; Amdt. 121-250, 60 FR 65949, Dec. 20, 1995; Amdt. 121-259, 61 FR 34561, July 2, 1996; Amdt. 121-263, 62 FR 13791, Mar. 21, 1997; Docket FAA-2010-0100, Amdt. 121-365B, 81 FR 2, Jan. 4, 2016]

§ 121.432 General.

(a) Except in the case of operating experience under § 121.434, a pilot who serves as second in command of an operation that requires three or more pilots must be fully qualified to act as pilot in command of that operation.

(b) No certificate holder may conduct a check or any training in operations under this part, except for the following checks and training required by this part or the certificate holder:

(1) Line checks for pilots.

(2) Flight engineer checks (except for emergency procedures), if the person being checked is qualified and current in accordance with § 121.453(a).

(3) Flight attendant training and competence checks.

(c) Except for pilot line checks and flight engineer flight checks, the person being trained or checked may not be used as a required crewmember.

[Doc. No. 9509, 35 FR 95, Jan. 3, 1970, as amended by Amdt. 121-130, 41 FR 47229, Oct. 28, 1976; Amdt. 121-366, 78 FR 67840, Nov. 12, 2013]

§ 121.433 Training required.

(a) *Initial training.* No certificate holder may use any person nor may any person serve as a required crewmember on an airplane unless that person has satisfactorily completed, in a training program approved under subpart N of this part, initial ground and flight training for that type airplane and for the particular crewmember position, except as follows:

(1) Crewmembers who have qualified and served as a crewmember on another type airplane of the same group may serve in the same crewmember capacity upon completion of transition training as provided in § 121.415.

(2) Crewmembers who have qualified and served as second in command or flight engineer on a particular type airplane may serve as pilot in command or second in command, respectively, upon completion of upgrade training for that airplane as provided in § 121.415.

(b) *Differences training.* No certificate holder may use any person nor may any person serve as a required crewmember on an airplane of a type for which differences training is included in the certificate holder's approved training program unless that person has satisfactorily completed, with respect to both the crewmember position and the particular variation of the airplane in which the person serves, either initial or transition ground and flight training, or differences training, as provided in § 121.415.

(c) *Recurrent training.* (1) No certificate holder may use any person nor may any person serve as a required

crewmember on an airplane unless, within the preceding 12 calendar months -

(i) For flight crewmembers, the person has satisfactorily completed recurrent ground and flight training for that airplane and crewmember position and a flight check as applicable;

(ii) For flight attendants and dispatchers, the person has satisfactorily completed recurrent ground training and a competence check; and

(iii) In addition, for pilots in command the person has satisfactorily completed, within the preceding 6 calendar months, recurrent flight training in addition to the recurrent flight training required in paragraph (c)(1)(i) of this section, in an airplane in which the person serves as pilot in command in operations under this part.

(2) For pilots, a proficiency check as provided in § 121.441 of this part may be substituted for the recurrent flight training required by this paragraph and the approved simulator course of training under § 121.409(b) of this part may be substituted for alternate periods of recurrent flight training required in that airplane, except as provided in paragraphs (d) and (e) of this section.

(d) For each airplane in which a pilot serves as pilot in command, the person must satisfactorily complete either recurrent flight training or a proficiency check within the preceding 12 calendar months. The requirement in this paragraph expires on March 12, 2019. After that date, the requirement in § 121.441(a)(1)(ii) of this part applies.

(e) Notwithstanding paragraphs (c)(2) and (d) of this section, a proficiency check as provided in § 121.441 of this part may not be substituted for the extended envelope training required by § 121.423 or training in those maneuvers and procedures set forth in a certificate holder's approved low-altitude windshear flight training program when that program is included in a recurrent flight training course as required by § 121.409(d) of this part.

[Doc. No. 9509, 35 FR 95, Jan. 3, 1970, as amended by Amdt. 121-91, 37 FR 10729, May 27, 1972; Amdt. 121-199, 53 FR 37697, Sept. 27, 1988; Amdt. 121-366, 78 FR 67840, Nov. 12, 2013]

§ 121.434 Operating experience, operating cycles, and consolidation of knowledge and skills.

(a) No certificate holder may use a person nor may any person serve as a required crewmember of an airplane unless the person has satisfactorily completed, on that type airplane and in that crewmember position, the operating experience, operating cycles, and the line operating flight time for consolidation of knowledge and skills, required by this section, except as follows:

(1) Crewmembers other than pilots in command may serve as provided herein for the purpose of meeting the requirements of this section.

(2) Pilots who are meeting the pilot in command requirements may serve as second in command.

(3) Separate operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills are not required for variations within the same type airplane.

(4) Deviation based upon designation of related aircraft in accordance with § 121.418(b).

(i) The Administrator may authorize a deviation from the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills required by this section based upon a designation of related aircraft in accordance with § 121.418(b) of this part and a determination that the certificate holder can demonstrate an equivalent level of safety.

(ii) A request for deviation from the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills required by this section based upon a designation of related aircraft must be submitted to the Administrator. The request must include the following:

(A) Identification of aircraft operated by the certificate holder designated as related aircraft.

(B) Hours of operating experience and number of operating cycles necessary based on review of the related aircraft, the operation, and the duty position.

(C) Consolidation hours necessary based on review of the related aircraft, the operation, and the duty position.

(iii) The administrator may, at any time, terminate a grant of deviation authority issued under this paragraph (a)(4).

(b) In acquiring the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills, crewmembers must comply with the following:

(1) In the case of a flight crewmember, the person must hold the appropriate certificates and ratings for the crewmember position and the airplane, except that a pilot who is meeting the pilot in command requirements must hold the appropriate certificates and ratings for a pilot in command in the airplane.

(2) The operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills must be acquired after satisfactory completion of the appropriate ground and flight training for the particular airplane type and crewmember position.

(3) The experience must be acquired in flight during operations under this part. However, in the case of an aircraft not previously used by the certificate holder in operations under this part, operating experience acquired in the aircraft during proving flights or ferry flights may be used to meet this requirement.

(c) Pilot crewmembers must acquire operating experience and operating cycles as follows:

(1) A pilot in command must -

(i) Perform the duties of a pilot in command under the supervision of a check pilot; and

(ii) In addition, if a qualifying pilot in command is completing initial or upgrade training specified in § 121.424, be observed in the performance of prescribed duties by an

FAA inspector during at least one flight leg which includes a takeoff and landing. During the time that a qualifying pilot in command is acquiring the operating experience in paragraphs (c)(1) (i) and (ii) of this section, a check pilot who is also serving as the pilot in command must occupy a pilot station. However, in the case of a transitioning pilot in command the check pilot serving as pilot in command may occupy the observer's seat, if the transitioning pilot has made at least two takeoffs and landings in the type airplane used, and has satisfactorily demonstrated to the check pilot that he is qualified to perform the duties of a pilot in command of that type of airplane.

(2) A second in command pilot must perform the duties of a second in command under the supervision of an appropriately qualified check pilot.

(3) The hours of operating experience and operating cycles for all pilots are as follows:

(i) For initial training, 15 hours in Group I reciprocating powered airplanes, 20 hours in Group I turbopropeller powered airplanes, and 25 hours in Group II airplanes. Operating experience in both airplane groups must include at least 4 operating cycles (at least 2 as the pilot flying the airplane).

(ii) For transition training, except as provided in paragraph (c)(3)(iii) of this section, 10 hours in Group I reciprocating powered airplanes, 12 hours in Group I turbopropeller powered airplanes, 25 hours for pilots in command in Group II airplanes, and 15 hours for second in command pilots in Group II airplanes. Operating experience in both airplane groups must include at least 4 operating cycles (at least 2 as the pilot flying the airplane).

(iii) In the case of transition training where the certificate holder's approved training program includes a course of training in an airplane simulator under § 121.409(c), each pilot in command must comply with the requirements prescribed in paragraph (c)(3)(i) of this section for initial training.

(d) A flight engineer must perform the duties of a flight engineer under the supervision of a check airman or a qualified flight engineer for at least the following number of hours:

- (1) Group I reciprocating powered airplanes, 8 hours.
- (2) Group I turbopropeller powered airplanes, 10 hours.
- (3) Group II airplanes, 12 hours.

(e) A flight attendant must, for at least 5 hours, perform the assigned duties of a flight attendant under the supervision of a flight attendant supervisor qualified under this part who personally observes the performance of these duties. However, operating experience is not required for a flight attendant who has previously acquired such experience on any large passenger carrying airplane of the same group, if the certificate holder shows that the flight attendant has received sufficient ground training for the airplane in which the flight attendant is to serve. Flight attendants receiving operating experience may not be assigned as a required crewmember. Flight attendants who have satisfactorily completed training time acquired in an approved training program conducted in a full-scale (except

for length) cabin training device of the type airplane in which they are to serve may substitute this time for 50 percent of the hours required by this paragraph.

(f) Flight crewmembers may substitute one additional takeoff and landing for each hour of flight to meet the operating experience requirements of this section, up to a maximum reduction of 50% of flight hours, except those in Group II initial training, and second in command pilots in Group II transition training.

(g) Except as provided in paragraph (h) of this section, pilot in command and second in command crewmembers must each acquire at least 100 hours of line operating flight time for consolidation of knowledge and skills (including operating experience required under paragraph (c) of this section) within 120 days after the satisfactory completion of:

(1) Any part of the flight maneuvers and procedures portion of either an airline transport pilot certificate with type rating practical test or an additional type rating practical test, or

(2) A § 121.441 proficiency check.

(h) The following exceptions apply to the consolidation requirement of paragraph (g) of this section:

(1) Pilots who have qualified and served as pilot in command or second in command on a particular type airplane in operations under this part before August 25, 1995 are not required to complete line operating flight time for consolidation of knowledge and skills.

(2) Pilots who have completed the line operating flight time requirement for consolidation of knowledge and skills while serving as second in command on a particular type airplane in operations under this part after August 25, 1995 are not required to repeat the line operating flight time before serving as pilot in command on the same type airplane.

(3) If, before completing the required 100 hours of line operating flight time, a pilot serves as a pilot in another airplane type operated by the certificate holder, the pilot may not serve as a pilot in the airplane for which the pilot has newly qualified unless the pilot satisfactorily completes refresher training as provided in the certificate holder's approved training program and that training is conducted by an appropriately qualified instructor or check pilot.

(4) If the required 100 hours of line operating flight time are not completed within 120 days, the certificate holder may extend the 120-day period to no more than 150 days if -

(i) The pilot continues to meet all other applicable requirements of subpart O of this part; and

(ii) On or before the 120th day the pilot satisfactorily completes refresher training conducted by an appropriately qualified instructor or check pilot as provided in the certificate holder's approved training program, or a check pilot determines that the pilot has retained an adequate level of proficiency after observing that pilot in a supervised line operating flight.

(5) The Administrator, upon application by the certificate holder, may authorize deviations from the requirements of paragraph (g) of this section, by an appropriate amendment to

the operations specifications, to the extent warranted by any of the following circumstances:

(i) A newly certificated certificate holder does not employ any pilots who meet the minimum requirements of paragraph (g) of this section.

(ii) An existing certificate holder adds to its fleet an airplane type not before proven for use in its operations.

(iii) A certificate holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the airplanes operated from that domicile.

(i) Notwithstanding the reductions in programmed hours permitted under §§ 121.405 and 121.409 of subpart N of this part, the hours of operating experience for crewmembers are not subject to reduction other than as provided in accordance with a deviation authorized under paragraph (a) of this section or as provided in paragraphs (e) and (f) of this section.

[Doc. No. 9509, 35 FR 95, Jan. 3, 1970, as amended by Amdt. 121-74, 36 FR 12284, June 30, 1971; Amdt. 121-91, 37 FR 10729, May 27, 1972; Amdt. 121-140, 43 FR 9599, Mar. 9, 1978; Amdt. 121-144, 43 FR 22647, May 25, 1978; Amdt. 121-159, 45 FR 41593, June 19, 1980; Amdt. 121-248, 60 FR 20870, Apr. 27, 1995; Amdt. 121-366, 78 FR 67840, Nov. 12, 2013]

§ 121.435 [Reserved]

§ 121.436 Pilot Qualification: Certificates and experience requirements.

(a) No certificate holder may use nor may any pilot act as pilot in command of an aircraft (or as second in command of an aircraft in a flag or supplemental operation that requires three or more pilots) unless the pilot:

(1) Holds an airline transport pilot certificate not subject to the limitations in § 61.167 of this chapter;

(2) Holds an appropriate aircraft type rating for the aircraft being flown; and

(3) If serving as pilot in command in part 121 operations, has 1,000 hours as second in command in operations under this part, pilot in command in operations under § 91.1053(a)(2)(i) of this chapter, pilot in command in operations under § 135.243(a)(1) of this chapter, or any combination thereof. For those pilots who are employed as pilot in command in part 121 operations on July 31, 2013, compliance with the requirements of this paragraph (a)(3) is not required.

(b) No certificate holder may use nor may any pilot act as second in command unless the pilot holds an airline transport pilot certificate and an appropriate aircraft type rating for the aircraft being flown. A second-in-command type rating obtained under § 61.55 does not satisfy the requirements of this section.

(c) For the purpose of satisfying the flight hour requirement in paragraph (a)(3) of this section, a pilot may credit 500 hours of military flight time obtained as pilot in command of a multiengine turbine-powered, fixed-wing airplane in an operation requiring more than one pilot.

(d) Compliance with the requirements of this section is required by August 1, 2013. However, for those pilots who are employed as second in command in part 121 operations on July 31, 2013, compliance with the type rating requirement in paragraph (b) of this section is not required until January 1, 2016.

[Doc. No. FAA-2010-0100, 78 FR 42378, July 15, 2013, as amended by Amdt. 121-365A, 78 FR 77574, Dec. 24, 2013]

§ 121.438 Pilot operating limitations and pairing requirements.

(a) If the second in command has fewer than 100 hours of flight time as second in command in operations under this part in the type airplane being flown, and the pilot in command is not an appropriately qualified check pilot, the pilot in command must make all takeoffs and landings in the following situations:

(1) At special airports designated by the Administrator or at special airports designated by the certificate holder; and

(2) In any of the following conditions:

(i) The prevailing visibility value in the latest weather report for the airport is at or below mile.

(ii) The runway visual range for the runway to be used is at or below 4,000 feet.

(iii) The runway to be used has water, snow, slush or similar conditions that may adversely affect airplane performance.

(iv) The braking action on the runway to be used is reported to be less than "good".

(v) The crosswind component for the runway to be used is in excess of 15 knots.

(vi) Windshear is reported in the vicinity of the airport.

(vii) Any other condition in which the PIC determines it to be prudent to exercise the PIC's prerogative.

(b) No person may conduct operations under this part unless, for that type airplane, either the pilot in command or the second in command has at least 75 hours of line operating flight time, either as pilot in command or second in command. The Administrator may, upon application by the certificate holder, authorize deviations from the requirements of this paragraph (b) by an appropriate amendment to the operations specifications in any of the following circumstances:

(1) A newly certificated certificate holder does not employ any pilots who meet the minimum requirements of this paragraph.

(2) An existing certificate holder adds to its fleet a type airplane not before proven for use in its operations.

(3) An existing certificate holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the airplanes operated from that domicile.

[Doc. No. 27210, 60 FR 20870, Apr. 27, 1995]

§ 121.439 Pilot qualification: Recent experience.

(a) No certificate holder may use any person nor may any person serve as a required pilot flight crewmember, unless

within the preceding 90 days, that person has made at least three takeoffs and landings in the type airplane in which that person is to serve. The takeoffs and landings required by this paragraph may be performed in a visual simulator approved under § 121.407 to include takeoff and landing maneuvers. In addition, any person who fails to make the three required takeoffs and landings within any consecutive 90-day period must reestablish recency of experience as provided in paragraph (b) of this section.

(b) In addition to meeting all applicable training and checking requirements of this part, a required pilot flight crewmember who has not met the requirements of paragraph (a) of this section must reestablish recency of experience as follows:

(1) Under the supervision of a check airman, make at least three takeoffs and landings in the type airplane in which that person is to serve or in an advanced simulator or visual simulator. When a visual simulator is used, the requirements of paragraph (c) of this section must be met.

(2) The takeoffs and landings required in paragraph (b)(1) of this section must include -

(i) At least one takeoff with a simulated failure of the most critical powerplant;

(ii) At least one landing from an ILS approach to the lowest ILS minimum authorized for the certificate holder; and

(iii) At least one landing to a full stop.

(c) A required pilot flight crewmember who performs the maneuvers prescribed in paragraph (b) of this section in a visual simulator must -

(1) Have previously logged 100 hours of flight time in the same type airplane in which he is to serve;

(2) Be observed on the first two landings made in operations under this part by an approved check airman who acts as pilot in command and occupies a pilot seat. The landings must be made in weather minimums that are not less than those contained in the certificate holder's operations specifications for Category I Operations, and must be made within 45 days following completion of simulator training.

(d) When using a simulator to accomplish any of the requirements of paragraph (a) or (b) of this section, each required flight crewmember position must be occupied by an appropriately qualified person and the simulator must be operated as if in a normal in-flight environment without use of the repositioning features of the simulator.

(e) A check airman who observes the takeoffs and landings prescribed in paragraphs (b)(1) and (c) of this section shall certify that the person being observed is proficient and qualified to perform flight duty in operations under this part and may require any additional maneuvers that are determined necessary to make this certifying statement.

(f) Deviation authority based upon designation of related aircraft in accordance with § 121.418(b).

(1) The Administrator may authorize a deviation from the requirements of paragraph (a) of this section based upon a designation of related aircraft in accordance with § 121.418(b)

of this part and a determination that the certificate holder can demonstrate an equivalent level of safety.

(2) A request for deviation from paragraph (a) of this section must be submitted to the Administrator. The request must include the following:

(i) Identification of aircraft operated by the certificate holder designated as related aircraft.

(ii) The number of takeoffs, landings, maneuvers, and procedures necessary to maintain or reestablish recency based on review of the related aircraft, the operation, and the duty position.

(3) The administrator may, at any time, terminate a grant of deviation authority issued under this paragraph (f).

[Doc. No. 16383, 43 FR 22648, May 25, 1978, as amended by Amdt. 121-148, 43 FR 46235, Oct. 5, 1978; Amdt. 121-179, 47 FR 33390, Aug. 2, 1982; Amdt. 121-366, 78 FR 67841, Nov. 12, 2013]

§ 121.440 Line checks.

(a) No certificate holder may use any person nor may any person serve as pilot in command of an airplane unless, within the preceding 12 calendar months, that person has passed a line check in which he satisfactorily performs the duties and responsibilities of a pilot in command in one of the types of airplanes he is to fly.

(b) A pilot in command line check for domestic and flag operations must -

(1) Be given by a pilot check airman who is currently qualified on both the route and the airplane; and

(2) Consist of at least one flight over a typical part of the certificate holder's route, or over a foreign or Federal airway, or over a direct route.

(c) A pilot in command line check for supplemental operations must -

(1) Be given by a pilot check airman who is currently qualified on the airplane; and

(2) Consist of at least one flight over a part of a Federal airway, foreign airway, or advisory route over which the pilot may be assigned.

[Doc. No. 9509, 35 FR 96, Jan. 3, 1970, as amended by Amdt. 121-143, 43 FR 22642, May 25, 1978; Amdt. 121-253, 61 FR 2612, Jan. 26, 1996; Amdt. 121-344, 74 FR 34235, July 15, 2009; Amdt. 121-359, 77 FR 34785, June 12, 2012]

§ 121.441 Proficiency checks.

(a) No certificate holder may use any person nor may any person serve as a required pilot flight crewmember unless that person has satisfactorily completed either a proficiency check, or an approved simulator course of training under § 121.409, as follows:

(1) For a pilot in command -

(i) Before March 12, 2019,

(A) A proficiency check within the preceding 12 calendar months and,

(B) In addition, within the preceding 6 calendar months, either a proficiency check or the approved simulator course of training.

(ii) Beginning on March 12, 2019,

(A) A proficiency check within the preceding 12 calendar months in the aircraft type in which the person is to serve and,

(B) In addition, within the preceding 6 calendar months, either a proficiency check or the approved simulator course of training.

(2) For all other pilots -

(i) Within the preceding 24 calendar months either a proficiency check or the line-oriented simulator training course under § 121.409; and

(ii) Within the preceding 12 calendar months, either a proficiency check or any simulator training course under § 121.409.

(b) Except as provided in paragraphs (c) and (d) of this section, a proficiency check must meet the following requirements:

(1) It must include at least the procedures and maneuvers set forth in appendix F to this part unless otherwise specifically provided in that appendix.

(2) It must be given by the Administrator or a pilot check airman.

(c) An approved airplane simulator or other appropriate training device may be used in the conduct of a proficiency check as provided in appendix F to this part.

(d) A person giving a proficiency check may, in his discretion, waive any of the maneuvers or procedures for which a specific waiver authority is set forth in appendix F to this part if -

(1) The Administrator has not specifically required the particular maneuver or procedure to be performed;

(2) The pilot being checked is, at the time of the check, employed by a certificate holder as a pilot; and

(3) The pilot being checked is currently qualified for operations under this part in the particular type airplane and flight crewmember position or has, within the preceding six calendar months, satisfactorily completed an approved training program for the particular type airplane.

(e) If the pilot being checked fails any of the required maneuvers, the person giving the proficiency check may give additional training to the pilot during the course of the proficiency check. In addition to repeating the maneuvers failed, the person giving the proficiency check may require the pilot being checked to repeat any other maneuvers he finds are necessary to determine the pilot's proficiency. If the pilot being checked is unable to demonstrate satisfactory performance to the person conducting the check, the certificate holder may not use him nor may he serve in operations under this part until he has satisfactorily completed a proficiency check.

However, the entire proficiency check (other than the initial second-in-command proficiency check) required by this section may be conducted in an approved visual simulator if the pilot being checked accomplishes at least two landings

in the appropriate airplane during a line check or other check conducted by a pilot check airman (a pilot-in-command may observe and certify the satisfactory accomplishment of these landings by a second-in-command). If a pilot proficiency check is conducted in accordance with this paragraph, the next required proficiency check for that pilot must be conducted in the same manner, or in accordance with appendix F of this part, or a course of training in an airplane visual simulator under § 121.409 may be substituted therefor.

(f) Deviation authority based upon designation of related aircraft in accordance with § 121.418(b) of this part.

(1) The Administrator may authorize a deviation from the proficiency check requirements of paragraphs (a), (b)(1), and (c) of this section based upon a designation of related aircraft in accordance with § 121.418(b) of this part and a determination that the certificate holder can demonstrate an equivalent level of safety.

(2) A request for deviation from paragraphs (a), (b)(1), and (c) of this section must be submitted to the Administrator. The request must include the following:

(i) Identification of aircraft operated by the certificate holder designated as related aircraft.

(ii) Based on review of the related aircraft, the operation, and the duty position:

(A) For recurrent proficiency checks, the frequency of the related aircraft proficiency check, the maneuvers and procedures to be included in the related aircraft proficiency check, and the level of FSTD to be used for each maneuver and procedure.

(B) For qualification proficiency checks, the maneuvers and procedures to be included in the related aircraft proficiency check and the level of FSTD to be used for each maneuver and procedure.

(iii) For qualification proficiency checks, the maneuvers and procedures to be included in the related aircraft proficiency check based on review of the related aircraft, the operation, and the duty position.

(3) The administrator may, at any time, terminate a grant of deviation authority issued under this paragraph (f).

[Doc. No. 9509, 35 FR 96, Jan. 3, 1970, as amended by Amdt. 121-103, 38 FR 12203, May 10, 1973, Amdt. 121-108, 38 FR 35446, Dec. 28, 1973; Amdt. 121-144, 43 FR 22648, May 25, 1978; Amdt. 121-263, 62 FR 13791, Mar. 21, 1997; Amdt. 121-366, 78 FR 67841, Nov. 12, 2013; Docket FAA-2016-9526, Amdt. 121-377, 81 FR 90983, Dec. 16, 2016; Amdt. 121-377A, 81 FR 95860, Dec. 29, 2016]

§ 121.443 Pilot in command qualification: Route and airports.

(a) Each certificate holder shall provide a system acceptable to the Administrator for disseminating the information required by paragraph (b) of this section to the pilot in command and appropriate flight operation personnel. The system must also provide an acceptable means for showing compliance with § 121.445.

(b) No certificate holder may use any person, nor may any person serve, as pilot in command unless the certificate holder has provided that person current information concerning the following subjects pertinent to the areas over which that person is to serve, and to each airport and terminal area into which that person is to operate, and ensures that that person has adequate knowledge of, and the ability to use, the information:

- (1) Weather characteristics appropriate to the season.
- (2) Navigation facilities.
- (3) Communication procedures, including airport visual aids.
- (4) Kinds of terrain and obstructions.
- (5) Minimum safe flight levels.
- (6) En route and terminal area arrival and departure procedures, holding procedures and authorized instrument approach procedures for the airports involved.
- (7) Congested areas and physical layout of each airport in the terminal area in which the pilot will operate.
- (8) Notices to Airmen.

[Doc. No. 17897, 45 FR 41594, June 19, 1980; Amdt. 121-159, 45 FR 43154, June 26, 1980]

§ 121.445 Pilot in command airport qualification: Special areas and airports.

(a) The Administrator may determine that certain airports (due to items such as surrounding terrain, obstructions, or complex approach or departure procedures) are special airports requiring special airport qualifications and that certain areas or routes, or both, require a special type of navigation qualification.

(b) Except as provided in paragraph (c) of this section, no certificate holder may use any person, nor may any person serve, as pilot in command to or from an airport determined to require special airport qualifications unless, within the preceding 12 calendar months:

- (1) The pilot in command or second in command has made an entry to that airport (including a takeoff and landing) while serving as a pilot flight crewmember; or
- (2) The pilot in command has qualified by using pictorial means acceptable to the Administrator for that airport.

(c) Paragraph (b) of this section does not apply when an entry to that airport (including a takeoff or a landing) is being made if the ceiling at that airport is at least 1,000 feet above the lowest MEA or MOCA, or initial approach altitude prescribed for the instrument approach procedure for that airport, and the visibility at that airport is at least 3 miles.

(d) No certificate holder may use any person, nor may any person serve, as pilot in command between terminals over a route or area that requires a special type of navigation qualification unless, within the preceding 12 calendar months, that person has demonstrated qualification on the applicable navigation system in a manner acceptable to the Administrator, by one of the following methods:

- (1) By flying over a route or area as pilot in command using the applicable special type of navigation system.

(2) By flying over a route or area as pilot in command under the supervision of a check airman using the special type of navigation system.

(3) By completing the training program requirements of appendix G of this part.

[Doc. No. 17897, 45 FR 41594, June 19, 1980]

§ 121.447 [Reserved]

§ 121.453 Flight engineer qualifications.

(a) No certificate holder may use any person nor may any person serve as a flight engineer on an airplane unless, within the preceding 6 calendar months, he has had at least 50 hours of flight time as a flight engineer on that type airplane or the certificate holder or the Administrator has checked him on that type airplane and determined that he is familiar and competent with all essential current information and operating procedures.

(b) A flight check given in accordance with § 121.425(a) (2) satisfies the requirements of paragraph (a) of this section.

[Doc. No. 9509, 35 FR 96, Jan. 3, 1970]

§§ 121.455-121.459 [Reserved]

Subpart P - Aircraft Dispatcher Qualifications and Duty Time

Limitations: Domestic and Flag Operations; Flight Attendant Duty Period Limitations and Rest Requirements: Domestic, Flag, and Supplemental Operations

§ 121.461 Applicability.

This subpart prescribes -

(a) Qualifications and duty time limitations for aircraft dispatchers for certificate holders conducting domestic flag operations; and

(b) Duty period limitations and rest requirements for flight attendants used by certificate holders conducting domestic, flag, or supplemental operations.

[Doc. No. 28154, 61 FR 2612, Jan. 26, 1996]

§ 121.463 Aircraft dispatcher qualifications.

(a) No certificate holder conducting domestic or flag operations may use any person, nor may any person serve, as an aircraft dispatcher for a particular airplane group unless that person has, with respect to an airplane of that group, satisfactorily completed the following:

(1) Initial dispatcher training, except that a person who has satisfactorily completed such training for another type airplane of the same group need only complete the appropriate transition training.

(2) Operating familiarization consisting of at least 5 hours observing operations under this part from the flight deck or, for airplanes without an observer seat on the flight deck, from a forward passenger seat with headset or speaker. This requirement may be reduced to a minimum of 2 hours by the substitution of one additional takeoff and landing for an hour of flight. A person may serve as an aircraft dispatcher without meeting the requirement of this paragraph (a) for 90 days after initial introduction of the airplane into operations under this part.

(b) No certificate holder conducting domestic or flag operations may use any person, nor may any person serve, as an aircraft dispatcher for a particular type airplane unless that person has, with respect to that airplane, satisfactorily completed differences training, if applicable.

(c) No certificate holder conducting domestic or flag operations may use any person, nor may any person serve, as an aircraft dispatcher unless within the preceding 12 calendar months the aircraft dispatcher has satisfactorily completed operating familiarization consisting of at least 5 hours observing operations under this part, in one of the types of airplanes in each group to be dispatched. This observation shall be made from the flight deck or, for airplanes without an observer seat on the flight deck, from a forward passenger seat with headset or speaker. The requirement of paragraph (a) of this section may be reduced to a minimum of 2 hours by the substitution of one additional takeoff and landing for an hour of flight. The requirement of this paragraph may be satisfied by observation of 5 hours of simulator training for each airplane group in one of the simulators approved under § 121.407 for the group. However, if the requirement of paragraph (a) is met by the use of a simulator, no reduction in hours is permitted.

(d) No certificate holder conducting domestic or flag operations may use any person, nor may any person serve as an aircraft dispatcher to dispatch airplanes in operations under this part unless the certificate holder has determined that he is familiar with all essential operating procedures for that segment of the operation over which he exercises dispatch jurisdiction. However, a dispatcher who is qualified to dispatch airplanes through one segment of an operation may dispatch airplanes through other segments of the operation after coordinating with dispatchers who are qualified to dispatch airplanes through those other segments.

(e) For the purposes of this section, the airplane groups, terms, and definitions in § 121.400 apply.

[Doc. No. 7325, 37 FR 5607, Mar. 17, 1972, as amended by Amdt. 121-251, 60 FR 65934, Dec. 20, 1995]

§ 121.465 Aircraft dispatcher duty time limitations: Domestic and flag operations.

(a) Each certificate holder conducting domestic or flag operations shall establish the daily duty period for a dispatcher so that it begins at a time that allows him or her to become thoroughly familiar with existing and anticipated weather conditions along the route before he or she dispatches any

airplane. He or she shall remain on duty until each airplane dispatched by him or her has completed its flight, or has gone beyond his or her jurisdiction, or until he or she is relieved by another qualified dispatcher.

(b) Except in cases where circumstances or emergency conditions beyond the control of the certificate holder require otherwise -

(1) No certificate holder conducting domestic or flag operations may schedule a dispatcher for more than 10 consecutive hours of duty;

(2) If a dispatcher is scheduled for more than 10 hours of duty in 24 consecutive hours, the certificate holder shall provide him or her a rest period of at least eight hours at or before the end of 10 hours of duty.

(3) Each dispatcher must be relieved of all duty with the certificate holder for at least 24 consecutive hours during any seven consecutive days or the equivalent thereof within any calendar month.

(c) Notwithstanding paragraphs (a) and (b) of this section, a certificate holder conducting flag operations may, if authorized by the Administrator, schedule an aircraft dispatcher at a duty station outside of the 48 contiguous States and the District of Columbia, for more than 10 consecutive hours of duty in a 24-hour period if that aircraft dispatcher is relieved of all duty with the certificate holder for at least eight hours during each 24-hour period.

[Doc. No. 28154, 61 FR 2612, Jan. 26, 1996]

§ 121.467 Flight attendant duty period limitations and rest requirements: Domestic, flag, and supplemental operations.

(a) For purposes of this section -

Calendar day means the period of elapsed time, using Coordinated Universal Time or local time, that begins at midnight and ends 24 hours later at the next midnight.

Duty period means the period of elapsed time between reporting for an assignment involving flight time and release from that assignment by the certificate holder conducting domestic, flag, or supplemental operations. The time is calculated using either Coordinated Universal Time or local time to reflect the total elapsed time.

Flight attendant means an individual, other than a flight crewmember, who is assigned by a certificate holder conducting domestic, flag, or supplemental operations, in accordance with the required minimum crew complement under the certificate holder's operations specifications or in addition to that minimum complement, to duty in an aircraft during flight time and whose duties include but are not necessarily limited to cabin-safety-related responsibilities.

Rest period means the period free of all restraint or duty for a certificate holder conducting domestic, flag, or supplemental operations and free of all responsibility for work or duty should the occasion arise.

(b) Except as provided in paragraph (c) of this section, a certificate holder conducting domestic, flag, or supplemental operations may assign a duty period to a flight attendant only when the applicable duty period limitations and rest requirements of this paragraph are met.

(1) Except as provided in paragraphs (b)(4), (b)(5), and (b)(6) of this section, no certificate holder conducting domestic, flag, or supplemental operations may assign a flight attendant to a scheduled duty period of more than 14 hours.

(2) Except as provided in paragraph (b)(3) of this section, a flight attendant scheduled to a duty period of 14 hours or less as provided under paragraph (b)(1) of this section must be given a scheduled rest period of at least 9 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(3) The rest period required under paragraph (b)(2) of this section may be scheduled or reduced to 8 consecutive hours if the flight attendant is provided a subsequent rest period of at least 10 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(4) A certificate holder conducting domestic, flag, or supplemental operations may assign a flight attendant to a scheduled duty period of more than 14 hours, but no more than 16 hours, if the certificate holder has assigned to the flight or flights in that duty period at least one flight attendant in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(5) A certificate holder conducting domestic, flag, or supplemental operations may assign a flight attendant to a scheduled duty period of more than 16 hours, but no more than 18 hours, if the certificate holder has assigned to the flight or flights in that duty period at least two flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(6) A certificate holder conducting domestic, flag, or supplemental operations may assign a flight attendant to a scheduled duty period of more than 18 hours, but no more than 20 hours, if the scheduled duty period includes one or more flights that land or take off outside the 48 contiguous states and the District of Columbia, and if the certificate holder has assigned to the flight or flights in that duty period at least three flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the domestic certificate holder's operations specifications.

(7) Except as provided in paragraph (b)(8) of this section, a flight attendant scheduled to a duty period of more than 14 hours but no more than 20 hours, as provided in paragraphs (b)(4), (b)(5), and (b)(6) of this section, must be given a scheduled

rest period of at least 12 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(8) The rest period required under paragraph (b)(7) of this section may be scheduled or reduced to 10 consecutive hours if the flight attendant is provided a subsequent rest period of at least 14 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(9) Notwithstanding paragraphs (b)(4), (b)(5), and (b)(6) of this section, if a certificate holder conducting domestic, flag, or supplemental operations elects to reduce the rest period to 10 hours as authorized by paragraph (b)(8) of this section, the certificate holder may not schedule a flight attendant for a duty period of more than 14 hours during the 24-hour period commencing after the beginning of the reduced rest period.

(10) No certificate holder conducting domestic, flag, or supplemental operations may assign a flight attendant any duty period with the certificate holder unless the flight attendant has had at least the minimum rest required under this section.

(11) No certificate holder conducting domestic, flag, or supplemental operations may assign a flight attendant to perform any duty with the certificate holder during any required rest period.

(12) Time spent in transportation, not local in character, that a certificate holder conducting domestic, flag, or supplemental operations requires of a flight attendant and provides to transport the flight attendant to an airport at which that flight attendant is to serve on a flight as a crewmember, or from an airport at which the flight attendant was relieved from duty to return to the flight attendant's home station, is not considered part of a rest period.

(13) Each certificate holder conducting domestic, flag, or supplemental operations must relieve each flight attendant engaged in air transportation and each commercial operator must relieve each flight attendant engaged in air commerce from all further duty for at least 24 consecutive hours during any 7 consecutive calendar days.

(14) A flight attendant is not considered to be scheduled for duty in excess of duty period limitations if the flights to which the flight attendant is assigned are scheduled and normally terminate within the limitations but due to circumstances beyond the control of the certificate holder conducting domestic, flag, or supplemental operations (such as adverse weather conditions) are not at the time of departure expected to reach their destination within the scheduled time.

(c) Notwithstanding paragraph (b) of this section, a certificate holder conducting domestic, flag, or supplemental operations may apply the flightcrew member flight time and duty limitations and rest requirements of part 117 of this chapter to flight attendants for all operations conducted under this part provided that -

(1) The certificate holder establishes written procedures that -

(i) Apply to all flight attendants used in the certificate holder's operation;

(ii) Include the flightcrew member requirements contained in part 117, as appropriate to the operation being conducted, except that rest facilities on board the aircraft are not required;

(iii) Include provisions to add one flight attendant to the minimum flight attendant complement for each flightcrew member who is in excess of the minimum number required in the aircraft type certificate data sheet and who is assigned to the aircraft under the provisions of part 117, as applicable, of this part;

(iv) Are approved by the Administrator and are described or referenced in the certificate holder's operations specifications; and

(2) Whenever the Administrator finds that revisions are necessary for the continued adequacy of the written procedures that are required by paragraph (c)(1) of this section and that had been granted final approval, the certificate holder must, after notification by the Administrator, make any changes in the procedures that are found necessary by the Administrator. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the certificate-holding district office. The filing of a petition to reconsider stays the notice, pending decision by the Administrator. However, if the Administrator finds that an emergency requires immediate action in the interest of safety, the Administrator may, upon a statement of the reasons, require a change effective without stay.

[Amdt. 121-241, 59 FR 42991, Aug. 19, 1994, as amended by Amdt. 121-253, 61 FR 2612, Jan. 26, 1996; Amdt. 121-357, 77 FR 402, Jan. 4, 2012; Amdt. 121-357A, 77 FR 28764, May 16, 2012]

Subpart Q - Flight Time Limitations and Rest Requirements: Domestic Operations

Source:

Docket No. 23634, 50 FR 29319, July 18, 1985, unless otherwise noted.

§ 121.470 Applicability.

This subpart prescribes flight time limitations and rest requirements for domestic all-cargo operations, except that:

(a) Certificate holders conducting operations with airplanes having a passenger seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pounds or less, may comply with the applicable requirements of §§ 135.261 through 135.273 of this chapter.

(b) Certificate holders conducting scheduled operations entirely within the States of Alaska or Hawaii with airplanes having a passenger seat configuration of more than 30 seats,

excluding each crewmember seat, or a payload capacity of more than 7,500 pounds, may comply with the requirements of this subpart or subpart R of this part for those operations.

(c) A certificate holder may apply the flightcrew member flight time and duty limitations and requirements of part 117 of this chapter. A certificate holder may choose to apply part 117 to its -

(1) Cargo operations conducted under contract to a U.S. government agency.

(2) All-cargo operations not conducted under contract to a U.S. Government agency,

(3) A certificate holder may elect to treat operations in paragraphs (c)(1) and (c)(2) of this section differently but, once having decided to conduct those operations under part 117, may not segregate those operations between this subpart and part 117.

[Doc. No. FAA-2009-1093, 77 FR 402, Jan. 4, 2012; Amdt. 121-357, 78 FR 69288, Nov. 19, 2013]

§ 121.471 Flight time limitations and rest requirements: All flight crewmembers.

(a) No certificate holder conducting domestic operations may schedule any flight crewmember and no flight crewmember may accept an assignment for flight time in scheduled air transportation or in other commercial flying if that crewmember's total flight time in all commercial flying will exceed -

(1) 1,000 hours in any calendar year;

(2) 100 hours in any calendar month;

(3) 30 hours in any 7 consecutive days;

(4) 8 hours between required rest periods.

(b) Except as provided in paragraph (c) of this section, no certificate holder conducting domestic operations may schedule a flight crewmember and no flight crewmember may accept an assignment for flight time during the 24 consecutive hours preceding the scheduled completion of any flight segment without a scheduled rest period during that 24 hours of at least the following:

(1) 9 consecutive hours of rest for less than 8 hours of scheduled flight time.

(2) 10 consecutive hours of rest for 8 or more but less than 9 hours of scheduled flight time.

(3) 11 consecutive hours of rest for 9 or more hours of scheduled flight time.

(c) A certificate holder may schedule a flight crewmember for less than the rest required in paragraph (b) of this section or may reduce a scheduled rest under the following conditions:

(1) A rest required under paragraph (b)(1) of this section may be scheduled for or reduced to a minimum of 8 hours if the flight crewmember is given a rest period of at least 10 hours that must begin no later than 24 hours after the commencement of the reduced rest period.

(2) A rest required under paragraph (b)(2) of this section may be scheduled for or reduced to a minimum of 8 hours if the flight crewmember is given a rest period of at least 11 hours

that must begin no later than 24 hours after the commencement of the reduced rest period.

(3) A rest required under paragraph (b)(3) of this section may be scheduled for or reduced to a minimum of 9 hours if the flight crewmember is given a rest period of at least 12 hours that must begin no later than 24 hours after the commencement of the reduced rest period.

(4) No certificate holder may assign, nor may any flight crewmember perform any flight time with the certificate holder unless the flight crewmember has had at least the minimum rest required under this paragraph.

(d) Each certificate holder conducting domestic operations shall relieve each flight crewmember engaged in scheduled air transportation from all further duty for at least 24 consecutive hours during any 7 consecutive days.

(e) No certificate holder conducting domestic operations may assign any flight crewmember and no flight crewmember may accept assignment to any duty with the air carrier during any required rest period.

(f) Time spent in transportation, not local in character, that a certificate holder requires of a flight crewmember and provides to transport the crewmember to an airport at which he is to serve on a flight as a crewmember, or from an airport at which he was relieved from duty to return to his home station, is not considered part of a rest period.

(g) A flight crewmember is not considered to be scheduled for flight time in excess of flight time limitations if the flights to which he is assigned are scheduled and normally terminate within the limitations, but due to circumstances beyond the control of the certificate holder (such as adverse weather conditions), are not at the time of departure expected to reach their destination within the scheduled time.

[Doc. No. 23634, 50 FR 29319, July 18, 1985, as amended by Amdt. 121-253, 61 FR 2612, Jan. 26, 1996]

§ 121.473 Fatigue risk management system.

(a) No certificate holder may exceed any provision of this subpart unless approved by the FAA under a Fatigue Risk Management System.

(b) The Fatigue Risk Management System must include:

- (1) A fatigue risk management policy.
- (2) An education and awareness training program.
- (3) A fatigue reporting system.
- (4) A system for monitoring flightcrew fatigue.
- (5) An incident reporting process.
- (6) A performance evaluation.

[Doc. No. FAA-2009-1093, 77 FR 403, Jan. 4, 2012]

Subpart R - Flight Time Limitations: Flag Operations

Source:

Docket No. 6258, 29 FR 19217, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, unless otherwise noted.

§ 121.480 Applicability.

This subpart prescribes flight time limitations and rest requirements for flag all-cargo operations, except that:

(a) Certificate holders conducting operations with airplanes having a passenger seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pounds or less, may comply with the applicable requirements of §§ 135.261 through 135.273 of this chapter.

(b) A certificate holder may apply the flightcrew member flight time and duty limitations and requirements of part 117 of this chapter. A certificate holder may choose to apply part 117 to its -

(1) All-cargo operations conducted under contract to a U.S. government agency.

(2) All-cargo operations not conducted under contract to a U.S. Government agency,

(3) A certificate holder may elect to treat operations in paragraphs (b)(1) and (b) (2) of this section differently but, once having decided to conduct those operations under part 117, may not segregate those operations between this subpart and part 117.

[Doc. No. FAA-2009-1093, 77 FR 403, Jan. 4, 2012]

§ 121.481 Flight time limitations: One or two pilot crews.

(a) A certificate holder conducting flag operations may schedule a pilot to fly in an airplane that has a crew of one or two pilots for eight hours or less during any 24 consecutive hours without a rest period during these eight hours.

(b) If a certificate holder conducting flag operations schedules a pilot to fly more than eight hours during any 24 consecutive hours, it shall give him an intervening rest period, at or before the end of eight scheduled hours of flight duty. This rest period must be at least twice the number of hours flown since the preceding rest period, but not less than eight hours. The certificate holder shall relieve that pilot of all duty with it during that rest period.

(c) Each pilot who has flown more than eight hours during 24 consecutive hours must be given at least 18 hours of rest before being assigned to any duty with the certificate holder.

(d) No pilot may fly more than 32 hours during any seven consecutive days, and each pilot must be relieved from all duty for at least 24 consecutive hours at least once during any seven consecutive days.

(e) No pilot may fly as a member of a crew more than 100 hours during any one calendar month.

(f) No pilot may fly as a member of a crew more than 1,000 hours during any 12-calendar-month period.

[Doc. No. 6258, 29 FR 19217, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2612, Jan. 26, 1996]

§ 121.483 Flight time limitations: Two pilots and one additional flight crewmember.

(a) No certificate holder conducting flag operations may schedule a pilot to fly, in an airplane that has a crew of two pilots and at least one additional flight crewmember, for a total of more than 12 hours during any 24 consecutive hours.

(b) If a pilot has flown 20 or more hours during any 48 consecutive hours or 24 or more hours during any 72 consecutive hours, he must be given at least 18 hours of rest before being assigned to any duty with the air carrier. In any case, he must be given at least 24 consecutive hours of rest during any seven consecutive days.

(c) No pilot may fly as a flight crewmember more than -

- (1) 120 hours during any 30 consecutive days;
- (2) 300 hours during any 90 consecutive days; or
- (3) 1,000 hours during any 12-calendar-month period.

[Doc. No. 6258, 29 FR 19217, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2612, Jan. 26, 1996]

§ 121.485 Flight time limitations: Three or more pilots and an additional flight crewmember.

(a) Each certificate holder conducting flag operations shall schedule its flight hours to provide adequate rest periods on the ground for each pilot who is away from his base and who is a pilot on an airplane that has a crew of three or more pilots and an additional flight crewmember. It shall also provide adequate sleeping quarters on the airplane whenever a pilot is scheduled to fly more than 12 hours during any 24 consecutive hours.

(b) The certificate holder conducting flag operations shall give each pilot, upon return to his base from any flight or series of flights, a rest period that is at least twice the total number of hours he flew since the last rest period at his base. During the rest period required by this paragraph, the air carrier may not require him to perform any duty for it. If the required rest period is more than seven days, that part of the rest period in excess of seven days may be given at any time before the pilot is again scheduled for flight duty on any route.

(c) No pilot may fly as a flight crewmember more than -

- (1) 350 hours during any 90 consecutive days; or
- (2) 1,000 hours during any 12-calendar-month period.

[Doc. No. 6258, 29 FR 19217, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2612, Jan. 26, 1996]

§ 121.487 Flight time limitations: Pilots not regularly assigned.

(a) Except as provided in paragraphs (b) through (e) of this section, a pilot who is not regularly assigned as a flight crewmember for an entire calendar month under § 121.483 or 121.485 may not fly more than 100 hours in any 30 consecutive days.

(b) The monthly flight time limitations for a pilot who is scheduled for duty aloft for more than 20 hours in two-pilot crews in any calendar month, or whose assignment in such a crew is interrupted more than once in that calendar month by assignment to a crew consisting of two or more pilots and an additional flight crewmember, are those set forth in § 121.481.

(c) Except for a pilot covered by paragraph (b) of this section, the monthly and quarterly flight time limitations for a pilot who is scheduled for duty aloft for more than 20 hours in two-pilot and additional flight crewmember crews in any calendar month, or whose assignment in such a crew is interrupted more than once in that calendar month by assignment to a crew consisting of three pilots and additional flight crewmember, are those set forth in § 121.483.

(d) The quarterly flight time limitations for a pilot to whom paragraphs (b) and (c) of this section do not apply and who is scheduled for duty aloft for a total of not more than 20 hours within any calendar month in two-pilot crews (with or without additional flight crewmembers) are those set forth in § 121.485.

(e) The monthly and quarterly flight time limitations for a pilot assigned to each of two-pilot, two-pilot and additional flight crewmember, and three-pilot and additional flight crewmember crews in a given calendar month, and who is not subject to paragraph (b), (c), or (d) of this section, are those set forth in § 121.483.

[Doc. No. 6258, 29 FR 19217, Dec. 31, 1964; Amdt. 121-3, 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-137, 42 FR 43973, Sept. 1, 1977]

§ 121.489 Flight time limitations: Other commercial flying.

No pilot that is employed as a pilot by a certificate holder conducting flag operations may do any other commercial flying if that commercial flying plus his flying in air transportation will exceed any flight time limitation in this part.

[Doc. No. 28154, 61 FR 2612, Jan. 26, 1996]

§ 121.491 Flight time limitations: Deadhead transportation.

Time spent in deadhead transportation to or from duty assignment is not considered to be a part of a rest period.

§ 121.493 Flight time limitations: Flight engineers and flight navigators.

(a) In any operation in which one flight engineer or flight navigator is required, the flight time limitations in § 121.483 apply to that flight engineer or flight navigator.

(b) In any operation in which more than one flight engineer or flight navigator is required, the flight time limitations in § 121.485 apply to those flight engineers or flight navigators.

§ 121.495 Fatigue risk management system.

(a) No certificate holder may exceed any provision of this subpart unless approved by the FAA under a Fatigue Risk Management System.

(b) The Fatigue Risk Management System must include:

- (1) A fatigue risk management policy.
- (2) An education and awareness training program.
- (3) A fatigue reporting system.
- (4) A system for monitoring flightcrew fatigue.
- (5) An incident reporting process.
- (6) A performance evaluation.

[Doc. No. FAA-2009-1093, 77 FR 403, Jan. 4, 2012]

Subpart S - Flight Time Limitations: Supplemental Operations

Source:

Docket No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, unless otherwise noted.

§ 121.500 Applicability.

This subpart prescribes flight time limitations and rest requirements for supplemental all-cargo operations, except that:

(a) Certificate holders conducting operations with airplanes having a passenger seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pound or less, may comply with the applicable requirements of §§ 135.261 through 135.273 of this chapter.

(b) A certificate holder may apply the flightcrew member flight time and duty limitations and requirements of part 117 of this chapter. A certificate holder may choose to apply part 117 to its -

- (1) All-cargo operations conducted under contract to a U.S. Government agency.
- (2) All-cargo operations not conducted under contract to a U.S. Government agency,

(3) A certificate holder may elect to treat operations in paragraphs (b)(1) and (b)(2) of this section differently but, once having decided to conduct those operations under part 117, may not segregate those operations between this subpart and part 117.

[Doc. No. FAA-2009-1093, 77 FR 403, Jan. 4, 2012]

§ 121.503 Flight time limitations: Pilots: airplanes.

(a) A certificate holder conducting supplemental operations may schedule a pilot to fly in an airplane for eight hours or less during any 24 consecutive hours without a rest period during those eight hours.

(b) Each pilot who has flown more than eight hours during any 24 consecutive hours must be given at least 16 hours of rest before being assigned to any duty with the certificate holder.

(c) Each certificate holder conducting supplemental operations shall relieve each pilot from all duty for at least 24 consecutive hours at least once during any seven consecutive days.

(d) No pilot may fly as a crewmember in air transportation more than 100 hours during any 30 consecutive days.

(e) No pilot may fly as a crewmember in air transportation more than 1,000 hours during any calendar year.

(f) Notwithstanding paragraph (a) of this section, the certificate holder may, in conducting a transcontinental nonstop flight, schedule a flight crewmember for more than eight but not more than 10 hours of continuous duty aloft without an intervening rest period, if -

(1) The flight is in an airplane with a pressurization system that is operative at the beginning of the flight;

(2) The flight crew consists of at least two pilots and a flight engineer; and

(3) The certificate holder uses, in conducting the operation, an air/ground communication service that is independent of systems operated by the United States, and a dispatch organization, both of which are approved by the Administrator as adequate to serve the terminal points concerned.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.505 Flight time limitations: Two pilot crews: airplanes.

(a) If a certificate holder conducting supplemental operations schedules a pilot to fly more than eight hours during any 24 consecutive hours, it shall give him an intervening rest period at or before the end of eight scheduled hours of flight duty. This rest period must be at least twice the number of hours flown since the preceding rest period, but not less than eight hours. The certificate holder conducting supplemental operations shall relieve that pilot of all duty with it during that rest period.

(b) No pilot of an airplane that has a crew of two pilots may be on duty for more than 16 hours during any 24 consecutive hours.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.507 Flight time limitations: Three pilot crews: airplanes.

(a) No certificate holder conducting supplemental operations may schedule a pilot -

(1) For flight deck duty in an airplane that has a crew of three pilots for more than eight hours in any 24 consecutive hours; or

(2) To be aloft in an airplane that has a crew of three pilot for more than 12 hours in any 24 consecutive hours.

(b) No pilot of an airplane that has a crew of three pilots may be on duty for more than 18 hours in any 24 consecutive hours.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.509 Flight time limitations: Four pilot crews: airplanes.

(a) No certificate holder conducting supplemental operations may schedule a pilot -

(1) For flight deck duty in an airplane that has a crew of four pilots for more than eight hours in any 24 consecutive hours; or

(2) To be aloft in an airplane that has a crew of four pilots for more than 16 hours in any 24 consecutive hours.

(b) No pilot of an airplane that has a crew of four pilots may be on duty for more than 20 hours in any 24 consecutive hours.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.511 Flight time limitations: Flight engineers: airplanes.

(a) In any operation in which one flight engineer is serving the flight time limitations in §§ 121.503 and 121.505 apply to that flight engineer.

(b) In any operation in which more than one flight engineer is serving and the flight crew contains more than two pilots the flight time limitations in § 121.509 apply in place of those in § 121.505.

§ 121.513 Flight time limitations: Overseas and international operations: airplanes.

In place of the flight time limitations in §§ 121.503 through 121.511, a certificate holder conducting supplemental operations may elect to comply with the flight time limitations of §§ 121.515 and 121.521 through 121.525 for operations conducted -

(a) Between a place in the 48 contiguous States and the District of Columbia, or Alaska, and any place outside thereof;

(b) Between any two places outside the 48 contiguous States, the District of Columbia, and Alaska; or

(c) Between two places within the State of Alaska or the State of Hawaii.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.515 Flight time limitations: All airmen: airplanes.

No airman may be aloft as a flight crewmember more than 1,000 hours in any 12-calendar-month period.

§ 121.517 Flight time limitations: Other commercial flying: airplanes.

No airman who is employed by a certificate holder conducting supplemental operations may do any other commercial flying, if that commercial flying plus his flying in operations under this part will exceed any flight time limitation in this part.

[Doc. No. 28154, 61 FR 2613, Jan. 26, 1996]

§ 121.519 Flight time limitations: Deadhead transportation: airplanes.

Time spent by an airman in deadhead transportation to or from a duty assignment is not considered to be part of any rest period.

§ 121.521 Flight time limitations: Crew of two pilots and one additional airman as required.

(a) No certificate holder conducting supplemental operations may schedule an airman to be aloft as a member of the flight crew in an airplane that has a crew of two pilots and at least one additional flight crewmember for more than 12 hours during any 24 consecutive hours.

(b) If an airman has been aloft as a member of a flight crew for 20 or more hours during any 48 consecutive hours or 24 or more hours during any 72 consecutive hours, he must be given at least 18 hours of rest before being assigned to any duty with the certificate holder. In any case, he must be relieved of all duty for at least 24 consecutive hours during any seven consecutive days.

(c) No airman may be aloft as a flight crewmember more than -

(1) 120 hours during any 30 consecutive days; or

(2) 300 hours during any 90 consecutive days.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964, as amended by Amdt. 121-17, 31 FR 1147, Jan. 28, 1966; Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.523 Flight time limitations: Crew of three or more pilots and additional airmen as required.

(a) No certificate holder conducting supplemental operations may schedule an airman for flight deck duty as a flight engineer, or navigator in a crew of three or more pilots and additional airmen for a total of more than 12 hours during any 24 consecutive hours.

(b) Each certificate holder conducting supplemental operations shall schedule its flight hours to provide adequate

rest periods on the ground for each airman who is away from his principal operations base. It shall also provide adequate sleeping quarters on the airplane whenever an airman is scheduled to be aloft as a flight crewmember for more than 12 hours during any 24 consecutive hours.

(c) No certificate holder conducting supplemental operations may schedule any flight crewmember to be on continuous duty for more than 30 hours. Such a crewmember is considered to be on continuous duty from the time he reports for duty until the time he is released from duty for a rest period of at least 10 hours on the ground. If a flight crewmember is on continuous duty for more than 24 hours (whether scheduled or not) duty any scheduled duty period, he must be given at least 16 hours for rest on the ground after completing the last flight scheduled for that scheduled duty period before being assigned any further flight duty.

(d) If a flight crewmember is required to engage in deadhead transportation for more than four hours before beginning flight duty, one half of the time spent in deadhead transportation must be treated as duty time for the purpose of complying with duty time limitations, unless he is given at least 10 hours of rest on the ground before being assigned to flight duty.

(e) Each certificate holder conducting supplemental operations shall give each airman, upon return to his operations base from any flight or series of flights, a rest period that is at least twice the total number of hours he was aloft as a flight crewmember since the last rest period at his base, before assigning him to any further duty. If the required rest period is more than seven days, that part of the rest period that is more than seven days may be given at any time before the pilot is again scheduled for flight duty.

(f) No airman may be aloft as a flight crewmember for more than 350 hours in any 90 consecutive days.

[Doc. No. 6258, 29 FR 19218, Dec. 31, 1964; 30 FR 3639, Mar. 19, 1965, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.525 Flight time limitations: Pilots serving in more than one kind of flight crew.

(a) This section applies to each pilot assigned during any 30 consecutive days to more than one type of flight crew.

(b) The flight time limitations for a pilot who is scheduled for duty aloft for more than 20 hours in two-pilot crews in 30 consecutive days, or whose assignment in such a crew is interrupted more than once in any 30 consecutive days by assignment to a crew of two or more pilots and an additional flight crewmember, are those listed in §§ 121.503 through 121.509, as appropriate.

(c) Except for a pilot covered by paragraph (b) of this section, the flight time limitations for a pilot scheduled for duty aloft for more than 20 hours in two-pilot and additional flight crewmember crews in 30 consecutive days or whose assignment in such a crew is interrupted more than once in any 30 consecutive days by assignment to a crew consisting

of three pilots and an additional flight crewmember, are those set forth in § 121.521.

(d) The flight time limitations for a pilot to whom paragraphs (b) and (c) of this section do not apply, and who is scheduled for duty aloft for a total of not more than 20 hours within 30 consecutive days in two-pilot crews (with or without additional flight crewmembers) are those set forth in § 121.523.

(e) The flight time limitations for a pilot assigned to each of two-pilot, two-pilot and additional flight crewmember, and three-pilot and additional flight crewmember crews in 30 consecutive days, and who is not subject to paragraph (b), (c), or (d) of this section, are those listed in § 121.523.

§ 121.527 Fatigue risk management system.

(a) No certificate holder may exceed any provision of this subpart unless approved by the FAA under a Fatigue Risk Management System.

(b) The Fatigue Risk Management System must include:

- (1) A fatigue risk management policy.
- (2) An education and awareness training program.
- (3) A fatigue reporting system.
- (4) A system for monitoring flightcrew fatigue.
- (5) An incident reporting process.
- (6) A performance evaluation.

[Doc. No. FAA-2009-1093, 77 FR 403, Jan. 4, 2012]

Subpart T - Flight Operations

Source:

Docket No. 6258, 29 FR 19219, Dec. 31, 1964, unless otherwise noted.

§ 121.531 Applicability.

This subpart prescribes requirements for flight operations applicable to all certificate holders, except where otherwise specified.

§ 121.533 Responsibility for operational control: Domestic operations.

(a) Each certificate holder conducting domestic operations is responsible for operational control.

(b) The pilot in command and the aircraft dispatcher are jointly responsible for the preflight planning, delay, and dispatch release of a flight in compliance with this chapter and operations specifications.

(c) The aircraft dispatcher is responsible for -

- (1) Monitoring the progress of each flight;
- (2) Issuing necessary information for the safety of the flight; and
- (3) Cancelling or redispersing a flight if, in his opinion or the opinion of the pilot in command, the flight cannot operate or continue to operate safely as planned or released.

(d) Each pilot in command of an aircraft is, during flight time, in command of the aircraft and crew and is responsible for the safety of the passengers, crewmembers, cargo, and airplane.

(e) Each pilot in command has full control and authority in the operation of the aircraft, without limitation, over other crewmembers and their duties during flight time, whether or not he holds valid certificates authorizing him to perform the duties of those crewmembers.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.535 Responsibility for operational control: Flag operations.

(a) Each certificate holder conducting flag operations is responsible for operational control.

(b) The pilot in command and the aircraft dispatcher are jointly responsible for the preflight planning, delay, and dispatch release of a flight in compliance with this chapter and operations specifications.

(c) The aircraft dispatcher is responsible for -

(1) Monitoring the progress of each flight;
(2) Issuing necessary instructions and information for the safety of the flight; and

(3) Cancelling or redispaching a flight if, in his opinion or the opinion of the pilot in command, the flight cannot operate or continue to operate safely as planned or released.

(d) Each pilot in command of an aircraft is, during flight time, in command of the aircraft and crew and is responsible for the safety of the passengers, crewmembers, cargo, and airplane.

(e) Each pilot in command has full control and authority in the operation of the aircraft, without limitation, over other crewmembers and their duties during flight time, whether or not he holds valid certificates authorizing him to perform the duties of those crewmembers.

(f) No pilot may operate an aircraft in a careless or reckless manner so as to endanger life or property.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.537 Responsibility for operational control: Supplemental operations.

(a) Each certificate holder conducting supplemental operations -

(1) Is responsible for operational control; and
(2) Shall list each person authorized by it to exercise operational control in its operator's manual.

(b) The pilot in command and the director of operations are jointly responsible for the initiation, continuation, diversion, and termination of a flight in compliance with this chapter and the operations specifications. The director of operations may delegate the functions for the initiation, continuation, diversion, and termination of a flight but he may not delegate the responsibility for those functions.

(c) The director of operations is responsible for cancelling, diverting, or delaying a flight if in his opinion or the opinion of the pilot in command the flight cannot operate or continue to operate safely as planned or released. The director of operations is responsible for assuring that each flight is monitored with respect to at least the following:

(1) Departure of the flight from the place of origin and arrival at the place of destination, including intermediate stops and any diversions therefrom.

(2) Maintenance and mechanical delays encountered at places of origin and destination and intermediate stops.

(3) Any known conditions that may adversely affect the safety of flight.

(d) Each pilot in command of an aircraft is, during flight time, in command of the aircraft and crew and is responsible for the safety of the passengers, crewmembers, cargo, and aircraft. The pilot in command has full control and authority in the operation of the aircraft, without limitation, over other crewmembers and their duties during flight time, whether or not he holds valid certificates authorizing him to perform the duties of those crewmembers.

(e) Each pilot in command of an aircraft is responsible for the preflight planning and the operation of the flight in compliance with this chapter and the operations specifications.

(f) No pilot may operate an aircraft, in a careless or reckless manner, so as to endanger life or property.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

§ 121.538 Aircraft security.

Certificate holders conducting operations under this part must comply with the applicable security requirements in 49 CFR chapter XII.

[67 FR 8350, Feb. 22, 2002]

§ 121.539 Operations notices.

Each certificate holder shall notify its appropriate operations personnel of each change in equipment and operating procedures, including each known change in the use of navigation aids, airports, air traffic control procedures and regulations, local airport traffic control rules, and known hazards to flight, including icing and other potentially hazardous meteorological conditions and irregularities in ground and navigation facilities.

§ 121.541 Operations schedules: Domestic and flag operations.

In establishing flight operations schedules, each certificate holder conducting domestic or flag operations shall allow enough time for the proper servicing of aircraft at intermediate stops, and shall consider the prevailing winds en route and the cruising speed of the type of aircraft used. This cruising speed may not be more than that resulting from the specified cruising output of the engines.

[Doc. No. 28154, 61 FR 2613, Jan. 26, 1996]

§ 121.542 Flight crewmember duties.

(a) No certificate holder shall require, nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft. Duties such as company required calls made for such nonsafety related purposes as ordering galley supplies and confirming passenger connections, announcements made to passengers promoting the air carrier or pointing out sights of interest, and filling out company payroll and related records are not required for the safe operation of the aircraft.

(b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft.

(c) For the purposes of this section, critical phases of flight includes all ground operations involving taxi, takeoff and landing, and all other flight operations conducted below 10,000 feet, except cruise flight.

Note:

Taxi is defined as "movement of an airplane under its own power on the surface of an airport."

(d) During all flight time as defined in 14 CFR 1.1, no flight crewmember may use, nor may any pilot in command permit the use of, a personal wireless communications device (as defined in 49 U.S.C. 44732(d)) or laptop computer while at a flight crewmember duty station unless the purpose is directly related to operation of the aircraft, or for emergency, safety-related, or employment-related communications, in accordance with air carrier procedures approved by the Administrator.

[Doc. No. 20661, 46 FR 5502, Jan. 19, 1981, as amended by Amdt. 121-369, 79 FR 8263, Feb. 12, 2014]

§ 121.543 Flight crewmembers at controls.

(a) Except as provided in paragraph (b) of this section, each required flight crewmember on flight deck duty must remain at the assigned duty station with seat belt fastened while the aircraft is taking off or landing, and while it is en route.

(b) A required flight crewmember may leave the assigned duty station -

(1) If the crewmember's absence is necessary for the performance of duties in connection with the operation of the aircraft;

(2) If the crewmember's absence is in connection with physiological needs; or

(3) If the crewmember is taking a rest period, and relief is provided -

(i) In the case of the assigned pilot in command during the en route cruise portion of the flight, by a pilot who holds an airline transport pilot certificate not subject to the limitations in § 61.167 of this chapter and an appropriate type rating, is currently qualified as pilot in command or second in command, and is qualified as pilot in command of that aircraft during the en route cruise portion of the flight. A second in command qualified to act as a pilot in command en route need not have completed the following pilot in command requirements: The 6-month recurrent flight training required by § 121.433(c) (1)(iii); the operating experience required by § 121.434; the takeoffs and landings required by § 121.439; the line check required by § 121.440; and the 6-month proficiency check or simulator training required by § 121.441(a)(1); and

(ii) In the case of the assigned second in command, by a pilot qualified to act as second in command of that aircraft during en route operations. However, the relief pilot need not meet the recent experience requirements of § 121.439(b).

[Doc. No. 16383, 43 FR 22648, May 25, 1978, as amended by Amdt. 121-179, 47 FR 33390, Aug. 2, 1982; Amdt. 121-365, 78 FR 42378, July 15, 2013]

§ 121.544 Pilot monitoring.

Each pilot who is seated at the pilot controls of the aircraft, while not flying the aircraft, must accomplish pilot monitoring duties as appropriate in accordance with the certificate holder's procedures contained in the manual required by § 121.133 of this part. Compliance with this section is required no later than March 12, 2019.

[Doc. No. FAA-2008-0677, 78 FR 67841, Nov. 12, 2013]

§ 121.545 Manipulation of controls.

No pilot in command may allow any person to manipulate the controls of an aircraft during flight nor may any person manipulate the controls during flight unless that person is -

(a) A qualified pilot of the certificate holder operating that aircraft.

(b) An authorized pilot safety representative of the Administrator or of the National Transportation Safety Board who has the permission of the pilot in command, is qualified in the aircraft, and is checking flight operations; or

(c) A pilot of another certificate holder who has the permission of the pilot in command, is qualified in the aircraft, and is authorized by the certificate holder operating the aircraft.

[Doc. No. 6258, 29 FR 19220, Dec. 31, 1964, as amended by Doc. No. 8084, 32 FR 5769, Apr. 11, 1967; Amdt. 121-144, 43 FR 22648, May 25, 1978]

§ 121.547 Admission to flight deck.

(a) No person may admit any person to the flight deck of an aircraft unless the person being admitted is -

(1) A crewmember;

(2) An FAA air carrier inspector, a DOD commercial air carrier evaluator, or an authorized representative of the

National Transportation Safety Board, who is performing official duties;

(3) Any person who -

(i) Has permission of the pilot in command, an appropriate management official of the part 119 certificate holder, and the Administrator; and

(ii) Is an employee of -

(A) The United States, or

(B) A part 119 certificate holder and whose duties are such that admission to the flightdeck is necessary or advantageous for safe operation; or

(C) An aeronautical enterprise certificated by the Administrator and whose duties are such that admission to the flightdeck is necessary or advantageous for safe operation.

(4) Any person who has the permission of the pilot in command, an appropriate management official of the part 119 certificate holder and the Administrator. Paragraph (a)(2) of this section does not limit the emergency authority of the pilot in command to exclude any person from the flightdeck in the interests of safety.

(b) For the purposes of paragraph (a)(3) of this section, employees of the United States who deal responsibly with matters relating to safety and employees of the certificate holder whose efficiency would be increased by familiarity with flight conditions, may be admitted by the certificate holder. However, the certificate holder may not admit employees of traffic, sales, or other departments that are not directly related to flight operations, unless they are eligible under paragraph (a)(4) of this section.

(c) No person may admit any person to the flight deck unless there is a seat available for his use in the passenger compartment, except -

(1) An FAA air carrier inspector, a DOD commercial air carrier evaluator, or authorized representative of the Administrator or National Transportation Safety Board who is checking or observing flight operations;

(2) An air traffic controller who is authorized by the Administrator to observe ATC procedures;

(3) A certificated airman employed by the certificate holder whose duties require an airman certificate;

(4) A certificated airman employed by another part 119 certificate holder whose duties with that part 119 certificate holder require an airman certificate and who is authorized by the part 119 certificate holder operating the aircraft to make specific trips over a route;

(5) An employee of the part 119 certificate holder operating the aircraft whose duty is directly related to the conduct or planning of flight operations or the in-flight monitoring of aircraft equipment or operating procedures, if his presence on the flightdeck is necessary to perform his duties and he has been authorized in writing by a responsible supervisor, listed in the Operations Manual as having that authority; and

(6) A technical representative of the manufacturer of the aircraft or its components whose duties are directly related to the in-flight monitoring of aircraft equipment or operating

procedures, if his presence on the flightdeck is necessary to perform his duties and he has been authorized in writing by the Administrator and by a responsible supervisor of the operations department of the part 119 certificate holder, listed in the Operations Manual as having that authority.

[Doc. No. 6258, 29 FR 19220, Dec. 31, 1964, as amended by Doc. No. 8084, 32 FR 5769, Apr. 11, 1967; Amdt. 121-253, 61 FR 2613, Jan. 26, 1996; Amdt. 121-288, 67 FR 2127, Jan. 15, 2002; Amdt. 121-298, 68 FR 41217, July 10, 2003]

§ 121.548 Aviation safety inspector's credentials:

Admission to pilot's compartment.

Whenever, in performing the duties of conducting an inspection, an inspector of the Federal Aviation Administration presents form FAA 110A, "Aviation Safety Inspector's Credential," to the pilot in command of an aircraft operated by a certificate holder, the inspector must be given free and uninterrupted access to the pilot's compartment of that aircraft.

[Doc. No. 28154, 61 FR 2613, Jan. 26, 1996]

§ 121.548a DOD Commercial Air Carrier Evaluator's Credential.

Whenever, in performing the duties of conducting an evaluation, a DOD commercial air carrier evaluator presents S&A Form 110B, "DOD Commercial Air Carrier Evaluator's Credential," to the pilot in command of an airplane operated by the certificate holder, the evaluator must be given free and uninterrupted access to the pilot's compartment of that airplane.

[Doc. No. FAA-2003-15571, 68 FR 41217, July 10, 2003]

§ 121.549 Flying equipment.

(a) The pilot in command shall ensure that appropriate aeronautical charts containing adequate information concerning navigation aids and instrument approach procedures are aboard the aircraft for each flight.

(b) Each crewmember shall, on each flight, have readily available for his use a flashlight that is in good working order.

§ 121.550 Secret Service Agents: Admission to flight deck.

Whenever an Agent of the Secret Service who is assigned the duty of protecting a person aboard an aircraft operated by a certificate holder considers it necessary in the performance of his duty to ride on the flight deck of the aircraft, he must, upon request and presentation of his Secret Service credentials to the pilot in command of the aircraft, be admitted to the flight deck and permitted to occupy an observer seat thereon.

[Doc. No. 9031, 35 FR 12061, July 28, 1970, as amended by Amdt. 121-253, 61 FR 2613, Jan. 26, 1996]

**§ 121.551 Restriction or suspension of operation:
Domestic and flag operations.**

When a certificate holder conducting domestic or flag operations knows of conditions, including airport and runway conditions, that are a hazard to safe operations, it shall restrict or suspend operations until those conditions are corrected.

[Doc. No. 28154, 61 FR 2613, Jan. 26, 1996]

**§ 121.553 Restriction or suspension of operation:
Supplemental operations.**

When a certificate holder conducting supplemental operations or pilot in command knows of conditions, including airport and runway conditions, that are a hazard to safe operations, the certificate holder or pilot in command, as the case may be, shall restrict or suspend operations until those conditions are corrected.

[Doc. No. 28154, 61 FR 2613, Jan. 26, 1996]

§ 121.555 Compliance with approved routes and limitations: Domestic and flag operations.

No pilot may operate an airplane in scheduled air transportation -

(a) Over any route or route segment unless it is specified in the certificate holder's operations specifications; or

(b) Other than in accordance with the limitations in the operations specifications.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.557 Emergencies: Domestic and flag operations.

(a) In an emergency situation that requires immediate decision and action the pilot in command may take any action that he considers necessary under the circumstances. In such a case he may deviate from prescribed operations procedures and methods, weather minimums, and this chapter, to the extent required in the interests of safety.

(b) In an emergency situation arising during flight that requires immediate decision and action by an aircraft dispatcher, and that is known to him, the aircraft dispatcher shall advise the pilot in command of the emergency, shall ascertain the decision of the pilot in command, and shall have the decision recorded. If the aircraft dispatcher cannot communicate with the pilot, he shall declare an emergency and take any action that he considers necessary under the circumstances.

(c) Whenever a pilot in command or dispatcher exercises emergency authority, he shall keep the appropriate ATC facility and dispatch centers fully informed of the progress of the flight. The person declaring the emergency shall send a written report of any deviation through the certificate holder's operations manager, to the Administrator. A dispatcher shall send his report within 10 days after the date of the emergency,

and a pilot in command shall send his report within 10 days after returning to his home base.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.559 Emergencies: Supplemental operations.

(a) In an emergency situation that requires immediate decision and action, the pilot in command may take any action that he considers necessary under the circumstances. In such a case, he may deviate from prescribed operations, procedures and methods, weather minimums, and this chapter, to the extent required in the interests of safety.

(b) In an emergency situation arising during flight that requires immediate decision and action by appropriate management personnel in the case of operations conducted with a flight following service and which is known to them, those personnel shall advise the pilot in command of the emergency, shall ascertain the decision of the pilot in command, and shall have the decision recorded. If they cannot communicate with the pilot, they shall declare an emergency and take any action that they consider necessary under the circumstances.

(c) Whenever emergency authority is exercised, the pilot in command or the appropriate management personnel shall keep the appropriate communication facility fully informed of the progress of the flight. The person declaring the emergency shall send a written report of any deviation, through the certificate holder's director of operations, to the Administrator within 10 days after the flight is completed or, in the case of operations outside the United States, upon return to the home base.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996; Amdt. 121-333, 72 FR 31682, June 7, 2007]

§ 121.561 Reporting potentially hazardous meteorological conditions and irregularities of ground facilities or navigation aids.

(a) Whenever he encounters a meteorological condition or an irregularity in a ground facility or navigation aid, in flight, the knowledge of which he considers essential to the safety of other flights, the pilot in command shall notify an appropriate ground station as soon as practicable.

(b) The ground radio station that is notified under paragraph (a) of this section shall report the information to the agency directly responsible for operating the facility.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-333, 72 FR 31682, June 7, 2007]

§ 121.563 Reporting mechanical irregularities.

The pilot in command shall ensure that all mechanical irregularities occurring during flight time are entered in the maintenance log of the airplane at the end of that flight time. Before each flight the pilot in command shall ascertain the

status of each irregularity entered in the log at the end of the preceding flight.

[Doc. No. 17897, 45 FR 41594, June 19, 1980, as amended by Amdt. 121-179, 47 FR 33390, Aug. 2, 1982]

§ 121.565 Engine inoperative: Landing; reporting.

(a) Except as provided in paragraph (b) of this section, whenever an airplane engine fails or whenever an engine is shutdown to prevent possible damage, the pilot in command must land the airplane at the nearest suitable airport, in point of time, at which a safe landing can be made.

(b) If not more than one engine of an airplane that has three or more engines fails or is shut down to prevent possible damage, the pilot-in-command may proceed to an airport that the pilot selects if, after considering the following, the pilot makes a reasonable decision that proceeding to that airport is as safe as landing at the nearest suitable airport:

(1) The nature of the malfunction and the possible mechanical difficulties that may occur if flight is continued.

(2) The altitude, weight, and useable fuel at the time that the engine is shutdown.

(3) The weather conditions en route and at possible landing points.

(4) The air traffic congestion.

(5) The kind of terrain.

(6) His familiarity with the airport to be used.

(c) The pilot-in-command must report each engine shutdown in flight to the appropriate communication facility as soon as practicable and must keep that facility fully informed of the progress of the flight.

(d) If the pilot in command lands at an airport other than the nearest suitable airport, in point of time, he or she shall (upon completing the trip) send a written report, in duplicate, to his or her director of operations stating the reasons for determining that the selection of an airport, other than the nearest airport, was as safe a course of action as landing at the nearest suitable airport. The director of operations shall, within 10 days after the pilot returns to his or her home base, send a copy of this report with the director of operation's comments to the certificate-holding district office.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996; Amdt. 121-329, 72 FR 1881, Jan. 16, 2007; Amdt. 121-333, 72 FR 31682, June 7, 2007]

§ 121.567 Instrument approach procedures and IFR landing minimums.

No person may make an instrument approach at an airport except in accordance with IFR weather minimums and instrument approach procedures set forth in the certificate holder's operations specifications.

§ 121.569 Equipment interchange: Domestic and flag operations.

(a) Before operating under an interchange agreement, each certificate holder conducting domestic or flag operations shall show that -

(1) The procedures for the interchange operation conform with this chapter and with safe operating practices;

(2) Required crewmembers and dispatchers meet approved training requirements for the airplanes and equipment to be used and are familiar with the communications and dispatch procedures to be used;

(3) Maintenance personnel meet training requirements for the airplanes and equipment, and are familiar with the maintenance procedures to be used;

(4) Flight crewmembers and dispatchers meet appropriate route and airport qualifications; and

(5) The airplanes to be operated are essentially similar to the airplanes of the certificate holder with whom the interchange is effected with respect to the arrangement of flight instruments and the arrangement and motion of controls that are critical to safety unless the Administrator determines that the certificate holder has adequate training programs to insure that any potentially hazardous dissimilarities are safely overcome by flight crew familiarization.

(b) Each certificate holder conducting domestic or flag operations shall include the pertinent provisions and procedures involved in the equipment interchange agreement in its manuals.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.570 Airplane evacuation capability.

(a) No person may cause an airplane carrying passengers to be moved on the surface, take off, or land unless each automatically deployable emergency evacuation assisting means, installed pursuant to § 121.310(a), is ready for evacuation.

(b) Each certificate holder shall ensure that, at all times passengers are on board prior to airplane movement on the surface, at least one floor-level exit provides for the egress of passengers through normal or emergency means.

[Doc. No. 26142, 57 FR 42674, Sept. 15, 1992]

§ 121.571 Briefing passengers before takeoff.

(a) Each certificate holder operating a passenger-carrying airplane shall insure that all passengers are orally briefed by the appropriate crewmember as follows:

(1) Before each takeoff, on each of the following:

(i) *Smoking.* Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited including, but not limited to, any applicable requirements of part 252 of this title). This briefing shall include a statement that the Federal Aviation Regulations require passenger compliance with the lighted passenger information

signs, posted placards, areas designated for safety purposes as no smoking areas, and crewmember instructions with regard to these items. The briefing shall also include a statement that Federal law prohibits tampering with, disabling, or destroying any smoke detector in an airplane lavatory; smoking in lavatories; and, when applicable, smoking in passenger compartments.

(ii) The location of emergency exits.

(iii) The use of safety belts, including instructions on how to fasten and unfasten the safety belts. Each passenger shall be briefed on when, where, and under what conditions the safety belt must be fastened about that passenger. This briefing shall include a statement that the Federal Aviation Regulations require passenger compliance with lighted passenger information signs and crewmember instructions concerning the use of safety belts.

(iv) The location and use of any required emergency flotation means.

(v) On operations that do not use a flight attendant, the following additional information:

(A) The placement of seat backs in an upright position before takeoff and landing.

(B) Location of survival equipment.

(C) If the flight involves operations above 12,000 MSL, the normal and emergency use of oxygen.

(D) Location and operation of fire extinguisher.

(2) After each takeoff, immediately before or immediately after turning the seat belt sign off, an announcement shall be made that passengers should keep their seat belts fastened, while seated, even when the seat belt sign is off.

(3) Except as provided in paragraph (a)(4) of this section, before each takeoff a required crewmember assigned to the flight shall conduct an individual briefing of each person who may need the assistance of another person to move expeditiously to an exit in the event of an emergency. In the briefing the required crewmember shall -

(i) Brief the person and his attendant, if any, on the routes to each appropriate exit and on the most appropriate time to begin moving to an exit in the event of an emergency; and

(ii) Inquire of the person and his attendant, if any, as to the most appropriate manner of assisting the person so as to prevent pain and further injury.

(4) The requirements of paragraph (a)(3) of this section do not apply to a person who has been given a briefing before a previous leg of a flight in the same aircraft when the crewmembers on duty have been advised as to the most appropriate manner of assisting the person so as to prevent pain and further injury.

(b) Each certificate holder must carry on each passenger-carrying airplane, in convenient locations for use of each passenger, printed cards supplementing the oral briefing. Each card must contain information pertinent only to the type and model of airplane used for that flight, including -

(1) Diagrams of, and methods of operating, the emergency exits;

(2) Other instructions necessary for use of emergency equipment; and

(3) No later than June 12, 2005, for Domestic and Flag scheduled passenger-carrying flights, the sentence, "Final assembly of this airplane was completed in [INSERT NAME OF COUNTRY]."

(c) The certificate holder shall describe in its manual the procedure to be followed in the briefing required by paragraph (a) of this section.

[Doc. No. 2033, 30 FR 3206, Mar. 9, 1965]

Editorial Note:

For Federal Register citations affecting § 121.571, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 121.573 Briefing passengers: Extended overwater operations.

(a) In addition to the oral briefing required by § 121.571(a), each certificate holder operating an airplane in extended overwater operations shall ensure that all passengers are orally briefed by the appropriate crewmember on the location and operation of life preservers, liferafts, and other flotation means, including a demonstration of the method of donning and inflating a life preserver.

(b) The certificate holder shall describe in its manual the procedure to be followed in the briefing required by paragraph (a) of this section.

(c) If the airplane proceeds directly over water after takeoff, the briefing required by paragraph (a) of this section must be done before takeoff.

(d) If the airplane does not proceed directly over water after takeoff, no part of the briefing required by paragraph (a) of this section has to be given before takeoff, but the entire briefing must be given before reaching the overwater part of the flight.

[Doc. No. 2033, 30 FR 3206, Mar. 9, 1965, as amended by Amdt. 121-144, 43 FR 22648, May 25, 1978; Amdt. 121-146, 43 FR 28403, June 29, 1978]

§ 121.574 Oxygen and portable oxygen concentrators for medical use by passengers.

(a) A certificate holder may allow a passenger to carry and operate equipment for the storage, generation, or dispensing of oxygen when all of the conditions in paragraphs (a) through (d) of this section are satisfied. Beginning August 22, 2016, a certificate holder may allow a passenger to carry and operate a portable oxygen concentrator when the conditions in paragraphs (b) and (e) of this section are satisfied.

(1) The equipment is -

(i) Furnished by the certificate holder;

(ii) Of an approved type or is in conformity with the manufacturing, packaging, marking, labeling, and maintenance requirements of 49 CFR parts 171, 172, and 173, except § 173.24(a)(1);

(iii) Maintained by the certificate holder in accordance with an approved maintenance program;

(iv) Free of flammable contaminants on all exterior surfaces;

(v) Capable of providing a minimum mass flow of oxygen to the user of four liters per minute;

(vi) Constructed so that all valves, fittings, and gauges are protected from damage; and

(vii) Appropriately secured.

(2) When the oxygen is stored in the form of a liquid, the equipment has been under the certificate holder's approved maintenance program since its purchase new or since the storage container was last purged.

(3) When the oxygen is stored in the form of a compressed gas as defined in 49 CFR 173.115(b) -

(i) The equipment has been under the certificate holder's approved maintenance program since its purchase new or since the last hydrostatic test of the storage cylinder; and

(ii) The pressure in any oxygen cylinder does not exceed the rated cylinder pressure.

(4) Each person using the equipment has a medical need to use it evidenced by a written statement to be kept in that person's possession, signed by a licensed physician which specifies the maximum quantity of oxygen needed each hour and the maximum flow rate needed for the pressure altitude corresponding to the pressure in the cabin of the airplane under normal operating conditions. This paragraph does not apply to the carriage of oxygen in an airplane in which the only passengers carried are persons who may have a medical need for oxygen during flight, no more than one relative or other interested person for each of those persons, and medical attendants.

(5) When a physician's statement is required by paragraph (a)(4) of this section, the total quantity of oxygen carried is equal to the maximum quantity of oxygen needed each hour, as specified in the physician's statement, multiplied by the number of hours used to compute the amount of airplane fuel required by this part.

(6) The pilot in command is advised when the equipment is on board, and when it is intended to be used.

(7) The equipment is stowed, and each person using the equipment is seated, so as not to restrict access to or use of any required emergency, or regular exit or of the aisle in the passenger compartment.

(b) No person may smoke or create an open flame and no certificate holder may allow any person to smoke or create an open flame within 10 feet of oxygen storage and dispensing equipment carried in accordance with paragraph (a) of this section or a portable oxygen concentrator carried and operated in accordance with paragraph (e) of this section.

(c) No certificate holder may allow any person to connect or disconnect oxygen dispensing equipment, to or from a gaseous oxygen cylinder while any passenger is aboard the airplane.

(d) The requirements of this section do not apply to the carriage of supplemental or first-aid oxygen and related equipment required by this chapter.

(e) *Portable oxygen concentrators* - (1) *Acceptance criteria*. A passenger may carry or operate a portable oxygen concentrator for personal use on board an aircraft and a certificate holder may allow a passenger to carry or operate a portable oxygen concentrator on board an aircraft operated under this part during all phases of flight if the portable oxygen concentrator satisfies all of the requirements in this paragraph (e):

(i) Is legally marketed in the United States in accordance with Food and Drug Administration requirements in title 21 of the CFR;

(ii) Does not radiate radio frequency emissions that interfere with aircraft systems;

(iii) Generates a maximum oxygen pressure of less than 200 kPa gauge (29.0 psig/43.8 psia) at 20 °C (68 °F);

(iv) Does not contain any hazardous materials subject to the Hazardous Materials Regulations (49 CFR parts 171 through 180) except as provided in 49 CFR 175.10 for batteries used to power portable electronic devices and that do not require aircraft operator approval; and

(v) Bears a label on the exterior of the device applied in a manner that ensures the label will remain affixed for the life of the device and containing the following certification statement in red lettering: "The manufacturer of this POC has determined this device conforms to all applicable FAA acceptance criteria for POC carriage and use on board aircraft." The label requirements in this paragraph (e)(1)(v) do not apply to the following portable oxygen concentrators approved by the FAA for use on board aircraft prior to May 24, 2016:

(A) AirSep Focus;

(B) AirSep FreeStyle;

(C) AirSep FreeStyle 5;

(D) AirSep LifeStyle;

(E) Delphi RS-00400;

(F) DeVilbiss Healthcare iGo;

(G) Inogen One;

(H) Inogen One G2;

(I) Inogen One G3;

(J) Inova Labs LifeChoice;

(K) Inova Labs LifeChoice Activox;

(L) International Biophysics LifeChoice;

(M) Invacare Solo2;

(N) Invacare XPO2;

(O) Oxlife Independence Oxygen Concentrator;

(P) Oxus RS-00400;

(Q) Precision Medical EasyPulse;

(R) Respironics EverGo;

(S) Respironics SimplyGo;

(T) SeQual Eclipse;

(U) SeQual eQuinox Oxygen System (model 4000);

(V) SeQual Oxywell Oxygen System (model 4000);

(W) SeQual SAROS; and

(X) VBox Trooper Oxygen Concentrator.

(2) *Operating requirements.* Portable oxygen concentrators that satisfy the acceptance criteria identified in paragraph (e)(1) of this section may be carried or operated by a passenger on an aircraft provided the aircraft operator ensures that all of the conditions in this paragraph (e)(2) are satisfied:

(i) *Exit seats.* No person operating a portable oxygen concentrator is permitted to occupy an exit seat.

(ii) *Stowage of device.* During movement on the surface, takeoff and landing, the device must be stowed under the seat in front of the user, or in another approved stowage location so that it does not block the aisle way or the entryway to the row. If the device is to be operated by the user, it must be operated only at a seat location that does not restrict any passenger's access to, or use of, any required emergency or regular exit, or the aisle(s) in the passenger compartment.

[Doc. No. 12169, 39 FR 42677, Dec. 6, 1974, as amended by Amdt. 121-159, 45 FR 41594, June 19, 1980; Docket FAA-2014-0554, Amdt. 121-374, 81 FR 33118, May 24, 2016]

§ 121.575 Alcoholic beverages.

(a) No person may drink any alcoholic beverage aboard an aircraft unless the certificate holder operating the aircraft has served that beverage to him.

(b) No certificate holder may serve any alcoholic beverage to any person aboard any of its aircraft who -

(1) Appears to be intoxicated;

(2) Is escorting a person or being escorted in accordance with 49 CFR 1544.221; or

(3) Has a deadly or dangerous weapon accessible to him while aboard the aircraft in accordance with 49 CFR 1544.219, 1544.221, or 1544.223.

(c) No certificate holder may allow any person to board any of its aircraft if that person appears to be intoxicated.

(d) Each certificate holder shall, within five days after the incident, report to the Administrator the refusal of any person to comply with paragraph (a) of this section, or of any disturbance caused by a person who appears to be intoxicated aboard any of its aircraft.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-118, 40 FR 17552, Apr. 21, 1975; Amdt. 121-178, 47 FR 13316, Mar. 29, 1982; Amdt. 121-275, 67 FR 31932, May 10, 2002]

§ 121.576 Retention of items of mass in passenger and crew compartments.

The certificate holder must provide and use means to prevent each item of galley equipment and each serving cart, when not in use, and each item of crew baggage, which is carried in a passenger or crew compartment from becoming a hazard by shifting under the appropriate load factors corresponding to the emergency landing conditions under which the airplane was type certificated.

[Doc. No. 16383, 43 FR 22648, May 25, 1978]

§ 121.577 Stowage of food, beverage, and passenger service equipment during airplane movement on the surface, takeoff, and landing.

(a) No certificate holder may move an airplane on the surface, take off, or land when any food, beverage, or tableware furnished by the certificate holder is located at any passenger seat.

(b) No certificate holder may move an airplane on the surface, take off, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.

(c) No certificate holder may permit an airplane to move on the surface, take off, or land unless each passenger serving cart is secured in its stowed position.

(d) No certificate holder may permit an airplane to move on the surface, take off, or land unless each movie screen that extends into an aisle is stowed.

(e) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

[Doc. No. 26142, 57 FR 42674, Sept. 15, 1992]

§ 121.578 Cabin ozone concentration.

(a) For the purpose of this section, the following definitions apply:

(1) *Flight segment* means scheduled nonstop flight time between two airports.

(2) *Sea level equivalent* refers to conditions of 25 °C and 760 millimeters of mercury pressure.

(b) Except as provided in paragraphs (d) and (e) of this section, no certificate holder may operate an airplane above the following flight levels unless it is successfully demonstrated to the Administrator that the concentration of ozone inside the cabin will not exceed -

(1) For flight above flight level 320, 0.25 parts per million by volume, sea level equivalent, at any time above that flight level; and

(2) For flight above flight level 270, 0.1 parts per million by volume, sea level equivalent, time-weighted average for each flight segment that exceeds 4 hours and includes flight above that flight level. (For this purpose, the amount of ozone below flight level 180 is considered to be zero.)

(c) Compliance with this section must be shown by analysis or tests, based on either airplane operational procedures and performance limitations or the certificate holder's operations. The analysis or tests must show either of the following:

(1) Atmospheric ozone statistics indicate, with a statistical confidence of at least 84%, that at the altitudes and locations at which the airplane will be operated cabin ozone concentrations will not exceed the limits prescribed by paragraph (b) of this section.

(2) The airplane ventilation system including any ozone control equipment, will maintain cabin ozone concentrations at or below the limits prescribed by paragraph (b) of this section.

(d) A certificate holder may obtain an authorization to deviate from the requirements of paragraph (b) of this section, by an amendment to its operations specifications, if -

(1) It shows that due to circumstances beyond its control or to unreasonable economic burden it cannot comply for a specified period of time; and

(2) It has submitted a plan acceptable to the Administrator to effect compliance to the extent possible.

(e) A certificate holder need not comply with the requirements of paragraph (b) of this section for an aircraft -

(1) When the only persons carried are flight crewmembers and persons listed in § 121.583;

(2) If the aircraft is scheduled for retirement before January 1, 1985; or

(3) If the aircraft is scheduled for re-engining under the provisions of subpart E of part 91, until it is re-engined.

[Doc. No. 121-154, 45 FR 3883, Jan. 21, 1980. Redesignated by Amdt. 121-162, 45 FR 46739, July 10, 1980, and amended by Amdt. 121-181, 47 FR 58489, Dec. 30, 1982; Amdt. 121-251, 60 FR 65935, Dec. 20, 1995]

§ 121.579 Minimum altitudes for use of autopilot.

(a) *Definitions.* For purpose of this section -

(1) Altitudes for takeoff/initial climb and go-around/missed approach are defined as above the airport elevation.

(2) Altitudes for enroute operations are defined as above terrain elevation.

(3) Altitudes for approach are defined as above the touchdown zone elevation (TDZE), unless the altitude is specifically in reference to DA (H) or MDA, in which case the altitude is defined by reference to the DA(H) or MDA itself.

(b) *Takeoff and initial climb.* No person may use an autopilot for takeoff or initial climb below the higher of 500 feet or an altitude that is no lower than twice the altitude loss specified in the Airplane Flight Manual (AFM), except as follows -

(1) At a minimum engagement altitude specified in the AFM; or

(2) At an altitude specified by the Administrator, whichever is greater.

(c) *Enroute.* No person may use an autopilot enroute, including climb and descent, below the following -

(1) 500 feet;

(2) At an altitude that is no lower than twice the altitude loss specified in the AFM for an autopilot malfunction in cruise conditions; or

(3) At an altitude specified by the Administrator, whichever is greater.

(d) *Approach.* No person may use an autopilot at an altitude lower than 50 feet below the DA(H) or MDA for the instrument procedure being flown, except as follows -

(1) For autopilots with an AFM specified altitude loss for approach operations -

(i) An altitude no lower than twice the specified altitude loss if higher than 50 feet below the MDA or DA(H);

(ii) An altitude no lower than 50 feet higher than the altitude loss specified in the AFM, when the following conditions are met -

(A) Reported weather conditions are less than the basic VFR weather conditions in § 91.155 of this chapter;

(B) Suitable visual references specified in § 91.175 of this chapter have been established on the instrument approach procedure; and

(C) The autopilot is coupled and receiving both lateral and vertical path references;

(iii) An altitude no lower than the higher of the altitude loss specified in the AFM or 50 feet above the TDZE, when the following conditions are met -

(A) Reported weather conditions are equal to or better than the basic VFR weather conditions in § 91.155 of this chapter; and

(B) The autopilot is coupled and receiving both lateral and vertical path references; or

(iv) A greater altitude specified by the Administrator.

(2) For autopilots with AFM specified approach altitude limitations, the greater of -

(i) The minimum use altitude specified for the coupled approach mode selected;

(ii) 50 feet; or

(iii) An altitude specified by Administrator.

(3) For autopilots with an AFM specified negligible or zero altitude loss for an autopilot approach mode malfunction, the greater of -

(i) 50 feet; or

(ii) An altitude specified by Administrator.

(4) If executing an autopilot coupled go-around or missed approach using a certificated and functioning autopilot in accordance with paragraph (e) in this section.

(e) *Go-Around/Missed Approach.* No person may engage an autopilot during a go-around or missed approach below the minimum engagement altitude specified for takeoff and initial climb in paragraph (b) in this section. An autopilot minimum use altitude does not apply to a go-around/missed approach initiated with an engaged autopilot. Performing a go-around or missed approach with an engaged autopilot must not adversely affect safe obstacle clearance.

(f) *Landing.* Notwithstanding paragraph (d) of this section, autopilot minimum use altitudes do not apply to autopilot operations when an approved automatic landing system mode is being used for landing. Automatic landing systems must be authorized in an operations specification issued to the operator.

[Doc. No. FAA-2012-1059, 79 FR 6086, Feb. 3, 2014]

§ 121.580 Prohibition on interference with crewmembers.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated under this part.

[Doc. No. FAA-1998-4954, 64 FR 1080, Jan. 7, 1999]

§ 121.581 Observer's seat: En route inspections.

(a) Except as provided in paragraph (c) of this section, each certificate holder shall make available a seat on the flight deck of each airplane, used by it in air commerce, for occupancy by the Administrator while conducting en route inspections. The location and equipment of the seat, with respect to its suitability for use in conducting en route inspections, is determined by the Administrator.

(b) In each airplane that has more than one observer's seat, in addition to the seats required for the crew complement for which the airplane was certificated, the forward observer's seat or the observer's seat selected by the Administrator must be made available when complying with paragraph (a) of this section.

(c) For any airplane type certificated before December 20, 1995, for not more than 30 passengers that does not have an observer seat on the flightdeck, the certificate holder must provide a forward passenger seat with headset or speaker for occupancy by the Administrator while conducting en route inspections.

[Doc. No. 6258, 29 FR 19219, Dec. 31, 1964, as amended by Amdt. 121-144, 43 FR 22648, May 25, 1978; Amdt. 121-251, 60 FR 65935, Dec. 20, 1995; Amdt. 121-288, 67 FR 2128, Jan. 15, 2002]

§ 121.582 Means to discreetly notify a flightcrew.

Except for all-cargo operations as defined in § 110.2 of this chapter, after October 15, 2007, for all passenger carrying airplanes that require a lockable flightdeck door in accordance with § 121.313(f), the certificate holder must have an approved means by which the cabin crew can discreetly notify the flightcrew in the event of suspicious activity or security breaches in the cabin.

[Doc. No. FAA-2005-22449, 72 FR 45635, Aug. 15, 2007, as amended by Amdt. 121-353, 76 FR 7488, Feb. 10, 2011]

§ 121.583 Carriage of persons without compliance with the passenger-carrying requirements of this part.

(a) When authorized by the certificate holder, the following persons, but no others, may be carried aboard an airplane without complying with the passenger-carrying airplane requirements in §§ 121.309(f), 121.310, 121.391, 121.571, and 121.587; the passenger-carrying operation requirements in part 117 and §§ 121.157(c) and 121.291; the requirements pertaining to passengers in §§ 121.285, 121.313(f), 121.317, 121.547, and 121.573; and the information disclosure requirements in § 121.311(k):

- (1) A crewmember.
- (2) A company employee.

(3) An FAA air carrier inspector, a DOD commercial air carrier evaluator, or an authorized representative of the National Transportation Safety Board, who is performing official duties.

- (4) A person necessary for -
 - (i) The safety of the flight;
 - (ii) The safe handling of animals;
 - (iii) The safe handling of hazardous materials whose carriage is governed by regulations in 49 CFR part 175;
 - (iv) The security of valuable or confidential cargo;
 - (v) The preservation of fragile or perishable cargo;
 - (vi) Experiments on, or testing of, cargo containers or cargo handling devices;
 - (vii) The operation of special equipment for loading or unloading cargo; and
 - (viii) The loading or unloading of outsize cargo.

(5) A person described in paragraph (a)(4) of this section, when traveling to or from his assignment.

(6) A person performing duty as an honor guard accompanying a shipment made by or under the authority of the United States.

(7) A military courier, military route supervisor, military cargo contract coordinator, or a flight crewmember of another military cargo contract air carrier or commercial operator, carried by a military cargo contract air carrier or commercial operator in operations under a military cargo contract, if that carriage is specifically authorized by the appropriate armed forces.

(8) A dependent of an employee of the certificate holder when traveling with the employee on company business to or from outlying stations not served by adequate regular passenger flights.

(b) No certificate holder may operate an airplane carrying a person covered by paragraph (a) of this section unless -

- (1) Each person has unobstructed access from his seat to the pilot compartment or to a regular or emergency exit;
- (2) The pilot in command has a means of notifying each person when smoking is prohibited and when safety belts must be fastened; and
- (3) The airplane has an approved seat with an approved safety belt for each person. The seat must be located so that the occupant is not in any position to interfere with the flight crewmembers performing their duties.

(c) Before each takeoff, each certificate holder operating an airplane carrying persons covered by paragraph (a) of this section shall ensure that all such persons have been orally briefed by the appropriate crewmember on -

- (1) Smoking;
- (2) The use of seat belts;
- (3) The location and operation of emergency exits;
- (4) The use of oxygen and emergency oxygen equipment; and

(5) For extended overwater operations, the location of life rafts, and the location and operation of life preservers including a demonstration of the method of donning and inflating a life preserver.

(d) Each certificate holder operating an airplane carrying persons covered by paragraph (a) of this section shall

incorporate procedures for the safe carriage of such persons into the certificate holder's operations manual.

(e) The pilot in command may authorize a person covered by paragraph (a) of this section to be admitted to the crew compartment of the airplane.

[Doc. No. 10580, 35 FR 14612, Sept. 18, 1970, as amended by Amdt. 121-96, 37 FR 19608, Sept. 21, 1972; Amdt. 121-159, 45 FR 41594, June 19, 1980; Amdt. 121-232, 57 FR 48663, Oct. 27, 1992; Amdt. 121-251, 60 FR 65935, Dec. 20, 1995; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996; Amdt. 121-298, 68 FR 41217, July 10, 2003; Amdt. 121-357, 77 FR 403, Jan. 4, 2012; Amdt. 121-373, 80 FR 58586, Sept. 30, 2015]

§ 121.584 Requirement to view the area outside the flightdeck door.

From the time the airplane moves in order to initiate a flight segment through the end of that flight segment, no person may unlock or open the flightdeck door unless:

(a) A person authorized to be on the flightdeck uses an approved audio procedure and an approved visual device to verify that:

(1) The area outside the flightdeck door is secure, and;
 (2) If someone outside the flightdeck is seeking to have the flightdeck door opened, that person is not under duress, and;

(b) After the requirements of paragraph (a) of this section have been satisfactorily accomplished, the crewmember in charge on the flightdeck authorizes the door to be unlocked and open.

[Amdt. 121-334, 72 FR 45635, Aug. 15, 2007]

§ 121.585 Exit seating.

(a)(1) Each certificate holder shall determine, to the extent necessary to perform the applicable functions of paragraph (d) of this section, the suitability of each person it permits to occupy an exit seat, in accordance with this section. For the purpose of this section -

(i) *Exit seat* means -

(A) Each seat having direct access to an exit; and,

(B) Each seat in a row of seats through which passengers would have to pass to gain access to an exit, from the first seat inboard of the exit to the first aisle inboard of the exit.

(ii) A passenger seat having "direct access" means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.

(2) Each certificate holder shall make the passenger exit seating determinations required by this paragraph in a non-discriminatory manner consistent with the requirements of this section, by persons designated in the certificate holder's required operations manual.

(3) Each certificate holder shall designate the exit seats for each passenger seating configuration in its fleet in accordance with the definitions in this paragraph and submit those designations for approval as part of the procedures required to be submitted for approval under paragraphs (n) and (p) of this section.

(b) No certificate holder may seat a person in a seat affected by this section if the certificate holder determines that it is likely that the person would be unable to perform one or more of the applicable functions listed in paragraph (d) of this section because -

(1) The person lacks sufficient mobility, strength, or dexterity in both arms and hands, and both legs:

(i) To reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanisms;

(ii) To grasp and push, pull, turn, or otherwise manipulate those mechanisms;

(iii) To push, shove, pull, or otherwise open emergency exits;

(iv) To lift out, hold, deposit on nearby seats, or maneuver over the seatbacks to the next row objects the size and weight of over-wing window exit doors;

(v) To remove obstructions similar in size and weight to over-wing exit doors;

(vi) To reach the emergency exit expeditiously;

(vii) To maintain balance while removing obstructions;

(viii) To exit expeditiously;

(ix) To stabilize an escape slide after deployment; or

(x) To assist others in getting off an escape slide;

(2) The person is less than 15 years of age or lacks the capacity to perform one or more of the applicable functions listed in paragraph (d) of this section without the assistance of an adult companion, parent, or other relative;

(3) The person lacks the ability to read and understand instructions required by this section and related to emergency evacuation provided by the certificate holder in printed or graphic form or the ability to understand oral crew commands.

(4) The person lacks sufficient visual capacity to perform one or more of the applicable functions in paragraph (d) of this section without the assistance of visual aids beyond contact lenses or eyeglasses;

(5) The person lacks sufficient aural capacity to hear and understand instructions shouted by flight attendants, without assistance beyond a hearing aid;

(6) The person lacks the ability adequately to impart information orally to other passengers; or,

(7) The person has:

(i) A condition or responsibilities, such as caring for small children, that might prevent the person from performing one or more of the applicable functions listed in paragraph (d) of this section; or

(ii) A condition that might cause the person harm if he or she performs one or more of the applicable functions listed in paragraph (d) of this section.

(c) Each passenger shall comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section.

(d) Each certificate holder shall include on passenger information cards, presented in the language in which briefings

and oral commands are given by the crew, at each exit seat affected by this section, information that, in the event of an emergency in which a crewmember is not available to assist, a passenger occupying an exit seat may use if called upon to perform the following functions:

- (1) Locate the emergency exit;
- (2) Recognize the emergency exit opening mechanism;
- (3) Comprehend the instructions for operating the emergency exit;
- (4) Operate the emergency exit;
- (5) Assess whether opening the emergency exit will increase the hazards to which passengers may be exposed;
- (6) Follow oral directions and hand signals given by a crewmember;
- (7) Stow or secure the emergency exit door so that it will not impede use of the exit;
- (8) Assess the condition of an escape slide, activate the slide, and stabilize the slide after deployment to assist others in getting off the slide;
- (9) Pass expeditiously through the emergency exit; and
- (10) Assess, select, and follow a safe path away from the emergency exit.

(e) Each certificate holder shall include on passenger information cards, at each exit seat -

(1) In the primary language in which emergency commands are given by the crew, the selection criteria set forth in paragraph (b) of this section, and a request that a passenger identify himself or herself to allow reseating if he or she:

- (i) Cannot meet the selection criteria set forth in paragraph (b) of this section;
- (ii) Has a nondiscernible condition that will prevent him or her from performing the applicable functions listed in paragraph (d) of this section;
- (iii) May suffer bodily harm as the result of performing one or more of those functions; or
- (iv) Does not wish to perform those functions; and

(2) In each language used by the certificate holder for passenger information cards, a request that a passenger identify himself or herself to allow reseating if he or she lacks the ability to read, speak, or understand the language or the graphic form in which instructions required by this section and related to emergency evacuation are provided by the certificate holder, or the ability to understand the specified language in which crew commands will be given in an emergency.

(3) May suffer bodily harm as the result of performing one or more of those functions; or,

(4) Does not wish to perform those functions.

A certificate holder shall not require the passenger to disclose his or her reason for needing reseating.

(f) Each certificate holder shall make available for inspection by the public at all passenger loading gates and ticket counters at each airport where it conducts passenger operations, written procedures established for making determinations in regard to exit row seating.

(g) No certificate holder may allow taxi or pushback unless at least one required crewmember has verified that no exit seat is occupied by a person the crewmember determines is likely to be unable to perform the applicable functions listed in paragraph (d) of this section.

(h) Each certificate holder shall include in its passenger briefings a reference to the passenger information cards, required by paragraphs (d) and (e), the selection criteria set forth in paragraph (b), and the functions to be performed, set forth in paragraph (d) of this section.

(i) Each certificate holder shall include in its passenger briefings a request that a passenger identify himself or herself to allow reseating if he or she -

(1) Cannot meet the selection criteria set forth in paragraph (b) of this section;

(2) Has a nondiscernible condition that will prevent him or her from performing the applicable functions listed in paragraph (d) of this section;

(3) May suffer bodily harm as the result of performing one or more of those functions listed in paragraph (d) of this section; or,

(4) Does not wish to perform those functions listed in paragraph (d) of this section.

A certificate holder shall not require the passenger to disclose his or her reason for needing reseating.

(j) [Reserved]

(k) In the event a certificate holder determines in accordance with this section that it is likely that a passenger assigned to an exit seat would be unable to perform the functions listed in paragraph (d) of this section or a passenger requests a non-exit seat, the certificate holder shall expeditiously relocate the passenger to a non-exit seat.

(l) In the event of full booking in the non-exit seats and if necessary to accommodate a passenger being relocated from an exit seat, the certificate holder shall move a passenger who is willing and able to assume the evacuation functions that may be required, to an exit seat.

(m) A certificate holder may deny transportation to any passenger under this section only because -

(1) The passenger refuses to comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section, or

(2) The only seat that will physically accommodate the person's handicap is an exit seat.

(n) In order to comply with this section certificate holders shall -

(1) Establish procedures that address:

(i) The criteria listed in paragraph (b) of this section;

(ii) The functions listed in paragraph (d) of this section;

(iii) The requirements for airport information, passenger information cards, crewmember verification of appropriate seating in exit seats, passenger briefings, seat assignments, and denial of transportation as set forth in this section;

(iv) How to resolve disputes arising from implementation of this section, including identification of the certificate holder employee on the airport to whom complaints should be addressed for resolution; and,

(2) Submit their procedures for preliminary review and approval to the principal operations inspectors assigned to them at the certificate-holding district office.

(o) Certificate holders shall assign seats prior to boarding consistent with the criteria listed in paragraph (b) and the functions listed in paragraph (d) of this section, to the maximum extent feasible.

(p) The procedures required by paragraph (n) of this section will not become effective until final approval is granted by the Director, Flight Standards Service, Washington, DC. Approval will be based solely upon the safety aspects of the certificate holder's procedures.

[Doc. No. 25821, 55 FR 8072, Mar. 6, 1990, as amended by Amdt. 121-232, 57 FR 48663, Oct. 27, 1992; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.586 Authority to refuse transportation.

(a) No certificate holder may refuse transportation to a passenger on the basis that, because the passenger may need the assistance of another person to move expeditiously to an exit in the event of an emergency, his transportation would or might be inimical to safety of flight unless -

(1) The certificate holder has established procedures (including reasonable notice requirements) for the carriage of passengers who may need the assistance of another person to move expeditiously to an exit in the event of an emergency; and

(2) At least one of the following conditions exist:

(i) The passenger fails to comply with the notice requirements in the certificate holder's procedures.

(ii) The passenger cannot be carried in accordance with the certificate holder's procedures.

(b) Each certificate holder shall provide the certificate-holding district office with a copy of each procedure it establishes in accordance with paragraph (a)(2) of this section.

(c) Whenever the Administrator finds that revisions in the procedures described in paragraph (a)(2) of this section are necessary in the interest of safety or in the public interest, the certificate holder, after notification by the Administrator, shall make those revisions in its procedures. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the certificate-holding district office. The filing of a petition to reconsider stays the notice pending a decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety in air commerce, he may, upon a statement of the reasons, require a change effective without stay.

(d) Each certificate holder shall make available to the public at each airport it serves a copy of each procedure it establishes in accordance with paragraph (a)(1) of this section.

[Doc. No. 12881, 42 FR 18394, Apr. 7, 1977, as amended by Amdt. 121-174, 46 FR 38051, July 23, 1981; Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.587 Closing and locking of flightcrew compartment door.

(a) Except as provided in paragraph (b) of this section, a pilot in command of an airplane that has a lockable flightcrew compartment door in accordance with § 121.313 and that is carrying passengers shall ensure that the door separating the flightcrew compartment from the passenger compartment is closed and locked at all times when the aircraft is being operated.

(b) The provisions of paragraph (a) of this section do not apply at any time when it is necessary to permit access and egress by persons authorized in accordance with § 121.547 and provided the part 119 operator complies with FAA approved procedures regarding the opening, closing and locking of the flightdeck doors.

[Doc. No. FAA-2001-11032, 67 FR 2128, Jan. 15, 2002]

§ 121.589 Carry-on baggage.

(a) No certificate holder may allow the boarding of carry-on baggage on an airplane unless each passenger's baggage has been scanned to control the size and amount carried on board in accordance with an approved carry-on baggage program in its operations specifications. In addition, no passenger may board an airplane if his/her carry-on baggage exceeds the baggage allowance prescribed in the carry-on baggage program in the certificate holder's operations specifications.

(b) No certificate holder may allow all passenger entry doors of an airplane to be closed in preparation for taxi or pushback unless at least one required crewmember has verified that each article of baggage is stowed in accordance with this section and § 121.285 (c) and (d).

(c) No certificate holder may allow an airplane to take off or land unless each article of baggage is stowed:

(1) In a suitable closet or baggage or cargo stowage compartment placarded for its maximum weight and providing proper restraint for all baggage or cargo stowed within, and in a manner that does not hinder the possible use of any emergency equipment; or

(2) As provided in § 121.285 (c) and (d); or

(3) Under a passenger seat.

(d) Baggage, other than articles of loose clothing, may not be placed in an overhead rack unless that rack is equipped with approved restraining devices or doors.

(e) Each passenger must comply with instructions given by crewmembers regarding compliance with paragraphs (a), (b), (c), (d), and (g) of this section.

(f) Each passenger seat under which baggage is allowed to be stowed shall be fitted with a means to prevent articles of baggage stowed under it from sliding forward. In addition, each aisle seat shall be fitted with a means to prevent articles

of baggage stowed under it from sliding sideward into the aisle under crash impacts severe enough to induce the ultimate inertia forces specified in the emergency landing condition regulations under which the airplane was type certificated.

(g) In addition to the methods of stowage in paragraph (c) of this section, flexible travel canes carried by blind individuals may be stowed -

(1) Under any series of connected passenger seats in the same row, if the cane does not protrude into an aisle and if the cane is flat on the floor; or

(2) Between a nonemergency exit window seat and the fuselage, if the cane is flat on the floor; or

(3) Beneath any two nonemergency exit window seats, if the cane is flat on the floor; or

(4) In accordance with any other method approved by the Administrator.

[Doc. No. 24996, 52 FR 21476, June 5, 1987, as amended by Amdt. 121-251, 60 FR 65935, Dec. 20, 1995]

§ 121.590 Use of certificated land airports in the United States.

(a) Except as provided in paragraphs (b) or (c) of this section, or unless authorized by the Administrator under 49 U.S.C. 44706(c), no air carrier and no pilot being used by an air carrier may operate, in the conduct of a domestic type operation, flag type operation, or supplemental type operation, an airplane at a land airport in any State of the United States, the District of Columbia, or any territory or possession of the United States unless that airport is certificated under part 139 of this chapter. Further, after June 9, 2005 for Class I airports and after December 9, 2005 for Class II, III, and IV airports, when an air carrier and a pilot being used by the air carrier are required to operate at an airport certificated under part 139 of this chapter, the air carrier and the pilot may only operate at that airport if the airport is classified under part 139 to serve the type airplane to be operated and the type of operation to be conducted.

(b)(1) An air carrier and a pilot being used by the air carrier in the conduct of a domestic type operation, flag type operation, or supplemental type operation may designate and use as a required alternate airport for departure or destination an airport that is not certificated under part 139 of this chapter.

(2) Until December 9, 2005, an air carrier and a pilot being used by the air carrier in the conduct of domestic type operations and flag type operations, may operate an airplane designed for more than 9 but less than 31 passenger seats, at a land airport, in any State of the United States, the District of Columbia, or any territory or possession of the United States, that does not hold an airport operating certificate issued under part 139 of this chapter, and that serves small air carrier aircraft (as defined under "Air carrier aircraft" and "Class III airport" in § 139.5 of this Chapter).

(c) An air carrier and a pilot used by the air carrier in conducting a domestic type operation, flag type operation, or supplemental type operation may operate an airplane at an

airport operated by the U.S. Government that is not certificated under part 139 of this chapter, only if that airport meets the equivalent -

(1) Safety standards for airports certificated under part 139 of this chapter; and

(2) Airport classification requirements under part 139 to serve the type airplane to be operated and the type of operation to be conducted.

(d) An air carrier, a commercial operator, and a pilot being used by the air carrier or the commercial operator - when conducting a passenger-carrying airplane operation under this part that is not a domestic type operation, a flag type operation, or a supplemental type operation - may operate at a land airport not certificated under part 139 of this chapter only when the following conditions are met:

(1) The airport is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting.

(2) For an airplane carrying passengers at night, the pilot may not take off from, or land at, an airport unless -

(i) The pilot has determined the wind direction from an illuminated wind direction indicator or local ground communications or, in the case of takeoff, that pilot's personal observations; and

(ii) The limits of the area to be used for landing or takeoff are clearly shown by boundary or runway marker lights. If the area to be used for takeoff or landing is marked by flare pots or lanterns, their use must be authorized by the Administrator.

(e) A commercial operator and a pilot used by the commercial operator in conducting a domestic type operation, flag type operation, or supplemental type operation may operate an airplane at an airport operated by the U.S. Government that is not certificated under part 139 of this chapter only if that airport meets the equivalent -

(1) Safety standards for airports certificated under part 139 of this chapter; and

(2) Airport classification requirements under part 139 of this chapter to serve the type airplane to be operated and the type of operation to be conducted.

(f) For the purpose of this section, the terms -

Domestic type operation means any domestic operation conducted with -

(1) An airplane designed for at least 31 passenger seats (as determined by the aircraft type certificate issued by a competent civil aviation authority) at any land airport in any State of the United States, the District of Columbia, or any territory or possession of the United States; or

(2) An airplane designed for more than 9 passenger seats but less than 31 passenger seats (as determined by the aircraft type certificate issued by a competent civil aviation authority) at any land airport in any State of the United States (except Alaska), the District of Columbia, or any territory or possession of the United States.

Flag type operation means any flag operation conducted with -

(1) An airplane designed for at least 31 passenger seats (as determined by the aircraft type certificate issued by a competent civil aviation authority) at any land airport in any State of the United States, the District of Columbia, or any territory or possession of the United States; or

(2) An airplane designed for more than 9 passenger seats but less than 31 passenger seats (as determined by the aircraft type certificate issued by a competent civil aviation authority) at any land airport in any State of the United States (except Alaska), the District of Columbia, or any territory or possession of the United States.

Supplemental type operation means any supplemental operation (except an all-cargo operation) conducted with an airplane designed for at least 31 passenger seats (as determined by the aircraft type certificate issued by a competent civil aviation authority) at any land airport in any State of the United States, the District of Columbia, or any territory or possession of the United States.

United States means the States of the United States, the District of Columbia, and the territories and possessions of the United States.

Note:

Special Statutory Requirement to Operate to or From a Part 139 Airport. Each air carrier that provides - in an aircraft (e.g., airplane, rotorcraft, etc.) designed for more than 9 passenger seats - regularly scheduled charter air transportation for which the public is provided in advance a schedule containing the departure location, departure time, and arrival location of the flight must operate to and from an airport certificated under part 139 of this chapter in accordance with 49 U.S.C. 41104(b). That statutory provision contains stand-alone requirements for such air carriers and special exceptions for operations in Alaska and outside the United States. Nothing in § 121.590 exempts the air carriers described in this note from the requirements of 49 U.S.C. 41104(b). Certain operations by air carriers that conduct public charter operations under 14 CFR part 380 are covered by the statutory requirements to operate to and from part 139 airports. See 49 U.S.C. 41104(b).

[Doc. No. FAA-2000-7479, 69 FR 6424, Feb. 10, 2004; Amdt. 121-304, 69 FR 31522, June 4, 2004]

Subpart U - Dispatching and Flight Release Rules

Source:

Docket No. 6258, 29 FR 19222, Dec. 31, 1964, unless otherwise noted.

§ 121.591 Applicability.

This subpart prescribes dispatching rules for domestic and flag operations and flight release rules for supplemental operations.

[Doc. No. 28154, 61 FR 2614, Jan. 26, 1996]

§ 121.593 Dispatching authority: Domestic operations.

Except when an airplane lands at an intermediate airport specified in the original dispatch release and remains there for not more than one hour, no person may start a flight unless an aircraft dispatcher specifically authorizes that flight.

§ 121.595 Dispatching authority: Flag operations.

(a) No person may start a flight unless an aircraft dispatcher specifically authorizes that flight.

(b) No person may continue a flight from an intermediate airport without redispach if the airplane has been on the ground more than six hours.

§ 121.597 Flight release authority: Supplemental operations.

(a) No person may start a flight under a flight following system without specific authority from the person authorized by the operator to exercise operational control over the flight.

(b) No person may start a flight unless the pilot in command or the person authorized by the operator to exercise operational control over the flight has executed a flight release setting forth the conditions under which the flights will be conducted. The pilot in command may sign the flight release only when he and the person authorized by the operator to exercise operational control believe that the flight can be made with safety.

(c) No person may continue a flight from an intermediate airport without a new flight release if the aircraft has been on the ground more than six hours.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-3, 30 FR 3639, Mar. 19, 1965]

§ 121.599 Familiarity with weather conditions.

(a) *Domestic and flag operations.* No aircraft dispatcher may release a flight unless he is thoroughly familiar with reported and forecast weather conditions on the route to be flown.

(b) *Supplemental operations.* No pilot in command may begin a flight unless he is thoroughly familiar with reported and forecast weather conditions on the route to be flown.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.601 Aircraft dispatcher information to pilot in command: Domestic and flag operations.

(a) The aircraft dispatcher shall provide the pilot in command all available current reports or information on airport conditions and irregularities of navigation facilities that may affect the safety of the flight.

(b) Before beginning a flight, the aircraft dispatcher shall provide the pilot in command with all available weather reports and forecasts of weather phenomena that may affect the safety of flight, including adverse weather phenomena, such

as clear air turbulence, thunderstorms, and low altitude wind shear, for each route to be flown and each airport to be used.

(c) During a flight, the aircraft dispatcher shall provide the pilot in command any additional available information of meteorological conditions (including adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude wind shear), and irregularities of facilities and services that may affect the safety of the flight.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-134, 42 FR 27573, May 31, 1977; Amdt. 121-144, 43 FR 22649, May 25, 1978; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.603 Facilities and services: Supplemental operations.

(a) Before beginning a flight, each pilot in command shall obtain all available current reports or information on airport conditions and irregularities of navigation facilities that may affect the safety of the flight.

(b) During a flight, the pilot in command shall obtain any additional available information of meteorological conditions and irregularities of facilities and services that may affect the safety of the flight.

§ 121.605 Airplane equipment.

No person may dispatch or release an airplane unless it is airworthy and is equipped as prescribed in § 121.303.

§ 121.607 Communication and navigation facilities: Domestic and flag operations.

(a) Except as provided in paragraph (b) of this section for a certificate holder conducting flag operations, no person may dispatch an airplane over an approved route or route segment unless the communication and navigation facilities required by §§ 121.99 and 121.103 for the approval of that route or segment are in satisfactory operating condition.

(b) If, because of technical reasons or other reasons beyond the control of a certificate holder conducting flag operations, the facilities required by §§ 121.99 and 121.103 are not available over a route or route segment outside the United States, the certificate holder may dispatch an airplane over that route or route segment if the pilot in command and dispatcher find that communication and navigation facilities equal to those required are available and are in satisfactory operating condition.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.609 Communication and navigation facilities: Supplemental operations.

No person may release an aircraft over any route or route segment unless communication and navigation facilities equal to those required by § 121.121 are in satisfactory operating condition.

§ 121.611 Dispatch or flight release under VFR.

No person may dispatch or release an aircraft for VFR operation unless the ceiling and visibility en route, as indicated by available weather reports or forecasts, or any combination thereof, are and will remain at or above applicable VFR minimums until the aircraft arrives at the airport or airports specified in the dispatch or flight release.

§ 121.613 Dispatch or flight release under IFR or over the top.

Except as provided in § 121.615, no person may dispatch or release an aircraft for operations under IFR or over-the-top, unless appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at the airport or airports to which dispatched or released.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-33, 32 FR 13912, Oct. 6, 1967]

§ 121.615 Dispatch or flight release over water: Flag and supplemental operations.

(a) No person may dispatch or release an aircraft for a flight that involves extended overwater operation unless appropriate weather reports or forecasts or any combination thereof, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at any airport to which dispatched or released or to any required alternate airport.

(b) Each certificate holder conducting a flag or supplemental operation or a domestic operation within the State of Alaska shall conduct extended overwater operations under IFR unless it shows that operating under IFR is not necessary for safety.

(c) Each certificate holder conducting a flag or supplemental operation or a domestic operation within the State of Alaska shall conduct other overwater operations under IFR if the Administrator determines that operation under IFR is necessary for safety.

(d) Each authorization to conduct extended overwater operations under VFR and each requirement to conduct other overwater operations under IFR will be specified in the certificate holder's operations specifications.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-33, 32 FR 13912, Oct. 6, 1967; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.617 Alternate airport for departure.

(a) If the weather conditions at the airport of takeoff are below the landing minimums in the certificate holder's operations specifications for that airport, no person may dispatch or release an aircraft from that airport unless the dispatch or flight release specifies an alternate airport located within the following distances from the airport of takeoff:

(1) *Aircraft having two engines.* Not more than one hour from the departure airport at normal cruising speed in still air with one engine inoperative.

(2) *Aircraft having three or more engines.* Not more than two hours from the departure airport at normal cruising speed in still air with one engine inoperative.

(b) For the purpose of paragraph (a) of this section, the alternate airport weather conditions must meet the requirements of the certificate holder's operations specifications.

(c) No person may dispatch or release an aircraft from an airport unless he lists each required alternate airport in the dispatch or flight release.

§ 121.619 Alternate airport for destination: IFR or over-the-top: Domestic operations.

(a) No person may dispatch an airplane under IFR or over-the-top unless he lists at least one alternate airport for each destination airport in the dispatch release. When the weather conditions forecast for the destination and first alternate airport are marginal at least one additional alternate must be designated. However, no alternate airport is required if for at least 1 hour before and 1 hour after the estimated time of arrival at the destination airport the appropriate weather reports or forecasts, or any combination of them, indicate -

(1) The ceiling will be at least 2,000 feet above the airport elevation; and

(2) Visibility will be at least 3 miles.

(b) For the purposes of paragraph (a) of this section, the weather conditions at the alternate airport must meet the requirements of § 121.625.

(c) No person may dispatch a flight unless he lists each required alternate airport in the dispatch release.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-159, 45 FR 41594, June 19, 1980]

§ 121.621 Alternate airport for destination: Flag operations.

(a) No person may dispatch an airplane under IFR or over-the-top unless he lists at least one alternate airport for each destination airport in the dispatch release, unless -

(1) The flight is scheduled for not more than 6 hours and, for at least 1 hour before and 1 hour after the estimated time of arrival at the destination airport, the appropriate weather reports or forecasts, or any combination of them, indicate the ceiling will be:

(i) At least 1,500 feet above the lowest circling MDA, if a circling approach is required and authorized for that airport; or

(ii) At least 1,500 feet above the lowest published instrument approach minimum or 2,000 feet above the airport elevation, whichever is greater; and

(iii) The visibility at that airport will be at least 3 miles, or 2 miles more than the lowest applicable visibility minimums, whichever is greater, for the instrument approach procedures to be used at the destination airport; or

(2) The flight is over a route approved without an available alternate airport for a particular destination airport and the airplane has enough fuel to meet the requirements of § 121.641(b) or § 121.645(c).

(b) For the purposes of paragraph (a) of this section, the weather conditions at the alternate airport must meet the requirements of the certificate holder's operations specifications.

(c) No person may dispatch a flight unless he lists each required alternate airport in the dispatch release.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-159, 45 FR 41594, June 19, 1980; Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.623 Alternate airport for destination: IFR or over-the-top: Supplemental operations.

(a) Except as provided in paragraph (b) of this section, each person releasing an aircraft for operation under IFR or over-the-top shall list at least one alternate airport for each destination airport in the flight release.

(b) An alternate airport need not be designated for IFR or over-the-top operations where the aircraft carries enough fuel to meet the requirements of §§ 121.643 and 121.645 for flights outside the 48 contiguous States and the District of Columbia over routes without an available alternate airport for a particular airport of destination.

(c) For the purposes of paragraph (a) of this section, the weather requirements at the alternate airport must meet the requirements of the certificate holder's operations specifications.

(d) No person may release a flight unless he lists each required alternate airport in the flight release.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2614, Jan. 26, 1996]

§ 121.624 ETOPS Alternate Airports.

(a) No person may dispatch or release an airplane for an ETOPS flight unless enough ETOPS Alternate Airports are listed in the dispatch or flight release such that the airplane remains within the authorized ETOPS maximum diversion time. In selecting these ETOPS Alternate Airports, the certificate holder must consider all adequate airports within the authorized ETOPS diversion time for the flight that meet the standards of this part.

(b) No person may list an airport as an ETOPS Alternate Airport in a dispatch or flight release unless, when it might be used (from the earliest to the latest possible landing time) -

(1) The appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the ETOPS Alternate Airport minima specified in the certificate holder's operations specifications; and

(2) The field condition reports indicate that a safe landing can be made.

(c) Once a flight is en route, the weather conditions at each ETOPS Alternate Airport must meet the requirements of § 121.631 (c).

(d) No person may list an airport as an ETOPS Alternate Airport in the dispatch or flight release unless that airport meets the public protection requirements of § 121.97(b)(1)(ii).

[Doc. No. FAA-2002-6717, 72 FR 1881, Jan. 16, 2007]

§ 121.625 Alternate Airport weather minima.

Except as provided in § 121.624 for ETOPS Alternate Airports, no person may list an airport as an alternate in the dispatch or flight release unless the appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the alternate weather minima specified in the certificate holder's operations specifications for that airport when the flight arrives.

[Doc. No. FAA-2002-6717, 72 FR 1881, Jan. 16, 2007]

§ 121.627 Continuing flight in unsafe conditions.

(a) No pilot in command may allow a flight to continue toward any airport to which it has been dispatched or released if, in the opinion of the pilot in command or dispatcher (domestic and flag operations only), the flight cannot be completed safely; unless, in the opinion of the pilot in command, there is no safer procedure. In that event, continuation toward that airport is an emergency situation as set forth in § 121.557.

(b) If any instrument or item of equipment required under this chapter for the particular operation becomes inoperative en route, the pilot in command shall comply with the approved procedures for such an occurrence as specified in the certificate holder's manual.

[Doc. No. 6258, 29 FR 1922, Dec. 31, 1964, as amended by Amdt. 121-222, 56 FR 12310, Mar. 22, 1991; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.628 Inoperable instruments and equipment.

(a) No person may take off an airplane with inoperable instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that airplane.

(2) The certificate-holding district office has issued the certificate holder operations specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Administrator in the certificate holders operations specifications. An approved Minimum Equipment List, as authorized by the operations specifications, constitutes an approved change to the type design without requiring recertification.

(3) The approved Minimum Equipment List must:

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section.

(ii) Provide for the operation of the airplane with certain instruments and equipment in an inoperable condition.

(4) Records identifying the inoperable instruments and equipment and the information required by paragraph (a)(3) (ii) of this section must be available to the pilot.

(5) The airplane is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the operations specifications authorizing use of the Minimum Equipment List.

(b) The following instruments and equipment may not be included in the Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) Notwithstanding paragraphs (b)(1) and (b)(3) of this section, an airplane with inoperable instruments or equipment may be operated under a special flight permit under §§ 21.197 and 21.199 of this chapter.

[Doc. No. 25780, 56 FR 12310, Mar. 22, 1991; Amdt. 121-222, 56 FR 14290, Apr. 8, 1991; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.629 Operation in icing conditions.

(a) No person may dispatch or release an aircraft, continue to operate an aircraft en route, or land an aircraft when in the opinion of the pilot in command or aircraft dispatcher (domestic and flag operations only), icing conditions are expected or met that might adversely affect the safety of the flight.

(b) No person may take off an aircraft when frost, ice, or snow is adhering to the wings, control surfaces, propellers, engine inlets, or other critical surfaces of the aircraft or when the takeoff would not be in compliance with paragraph (c) of this section. Takeoffs with frost under the wing in the area of the fuel tanks may be authorized by the Administrator.

(c) Except as provided in paragraph (d) of this section, no person may dispatch, release, or take off an aircraft any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft, unless the certificate holder has an approved ground deicing/anti-icing program in its operations specifications and unless the dispatch, release, and takeoff comply with that program. The approved ground deicing/anti-icing program must include at least the following items:

(1) A detailed description of -

(i) How the certificate holder determines that conditions are such that frost, ice, or snow may reasonably be expected

to adhere to the aircraft and that ground deicing/anti-icing operational procedures must be in effect;

(ii) Who is responsible for deciding that ground deicing/anti-icing operational procedures must be in effect;

(iii) The procedures for implementing ground deicing/anti-icing operational procedures;

(iv) The specific duties and responsibilities of each operational position or group responsible for getting the aircraft safely airborne while ground deicing/anti-icing operational procedures are in effect.

(2) Initial and annual recurrent ground training and testing for flight crewmembers and qualification for all other affected personnel (e.g., aircraft dispatchers, ground crews, contract personnel) concerning the specific requirements of the approved program and each person's responsibilities and duties under the approved program, specifically covering the following areas:

(i) The use of holdover times.

(ii) Aircraft deicing/anti-icing procedures, including inspection and check procedures and responsibilities.

(iii) Communications procedures.

(iv) Aircraft surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and how contamination adversely affects aircraft performance and flight characteristics.

(v) Types and characteristics of deicing/anti-icing fluids.

(vi) Cold weather preflight inspection procedures;

(vii) Techniques for recognizing contamination on the aircraft.

(3) The certificate holder's holdover timetables and the procedures for the use of these tables by the certificate holder's personnel. Holdover time is the estimated time deicing/anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aircraft. Holdover time begins when the final application of deicing/anti-icing fluid commences and expires when the deicing/anti-icing fluid applied to the aircraft loses its effectiveness. The holdover times must be supported by data acceptable to the Administrator. The certificate holder's program must include procedures for flight crewmembers to increase or decrease the determined holdover time in changing conditions. The program must provide that takeoff after exceeding any maximum holdover time in the certificate holder's holdover timetable is permitted only when at least one of the following conditions exists:

(i) A pretakeoff contamination check, as defined in paragraph (c)(4) of this section, determines that the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, or snow.

(ii) It is otherwise determined by an alternate procedure approved by the Administrator in accordance with the certificate holder's approved program that the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, or snow.

(iii) The wings, control surfaces, and other critical surfaces are redeiced and a new holdover time is determined.

(4) Aircraft deicing/anti-icing procedures and responsibilities, pretakeoff check procedures and responsibilities, and pretakeoff contamination check procedures and responsibilities. A pretakeoff check is a check of the aircraft's wings or representative aircraft surfaces for frost, ice, or snow within the aircraft's holdover time. A pretakeoff contamination check is a check to make sure the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, and snow. It must be conducted within five minutes prior to beginning take off. This check must be accomplished from outside the aircraft unless the program specifies otherwise.

(d) A certificate holder may continue to operate under this section without a program as required in paragraph (c) of this section, if it includes in its operations specifications a requirement that, any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft, no aircraft will take off unless it has been checked to ensure that the wings, control surfaces, and other critical surfaces are free of frost, ice, and snow. The check must occur within five minutes prior to beginning takeoff. This check must be accomplished from outside the aircraft.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-231, 57 FR 44942, Sept. 29, 1992; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.631 Original dispatch or flight release, redispach or amendment of dispatch or flight release.

(a) A certificate holder may specify any regular, provisional, or refueling airport, authorized for the type of aircraft, as a destination for the purpose of original dispatch or release.

(b) No person may allow a flight to continue to an airport to which it has been dispatched or released unless the weather conditions at an alternate airport that was specified in the dispatch or flight release are forecast to be at or above the alternate minimums specified in the operations specifications for that airport at the time the aircraft would arrive at the alternate airport. However, the dispatch or flight release may be amended en route to include any alternate airport that is within the fuel range of the aircraft as specified in §§ 121.639 through 121.647.

(c) No person may allow a flight to continue beyond the ETOPS Entry Point unless -

(1) Except as provided in paragraph (d) of this section, the weather conditions at each ETOPS Alternate Airport required by § 121.624 are forecast to be at or above the operating minima for that airport in the certificate holder's operations specifications when it might be used (from the earliest to the latest possible landing time); and

(2) All ETOPS Alternate Airports within the authorized ETOPS maximum diversion time are reviewed and the flight

crew advised of any changes in conditions that have occurred since dispatch.

(d) If paragraph (c)(1) of this section cannot be met for a specific airport, the dispatch or flight release may be amended to add an ETOPS Alternate Airport within the maximum ETOPS diversion time that could be authorized for that flight with weather conditions at or above operating minima.

(e) Before the ETOPS Entry Point, the pilot in command for a supplemental operator or a dispatcher for a flag operator must use company communications to update the flight plan if needed because of a re-evaluation of aircraft system capabilities.

(f) No person may change an original destination or alternate airport that is specified in the original dispatch or flight release to another airport while the aircraft is en route unless the other airport is authorized for that type of aircraft and the appropriate requirements of §§ 121.593 through 121.661 and 121.173 are met at the time of redispach or amendment of the flight release.

(g) Each person who amends a dispatch or flight release en route shall record that amendment.

[Doc. No. 628, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-65, 35 FR 12709, Aug. 11, 1970; Amdt. 121-329, 72 FR 1881, Jan. 16, 2007]

§ 121.633 Considering time-limited systems in planning ETOPS alternates.

(a) For ETOPS up to and including 180 minutes, no person may list an airport as an ETOPS Alternate Airport in a dispatch or flight release if the time needed to fly to that airport (at the approved one-engine inoperative cruise speed under standard conditions in still air) would exceed the approved time for the airplane's most limiting ETOPS Significant System (including the airplane's most limiting fire suppression system time for those cargo and baggage compartments required by regulation to have fire-suppression systems) minus 15 minutes.

(b) For ETOPS beyond 180 minutes, no person may list an airport as an ETOPS Alternate Airport in a dispatch or flight release if the time needed to fly to that airport:

(1) at the all engine operating cruise speed, corrected for wind and temperature, exceeds the airplane's most limiting fire suppression system time minus 15 minutes for those cargo and baggage compartments required by regulation to have fire suppression systems (except as provided in paragraph (c) of this section), or

(2) at the one-engine-inoperative cruise speed, corrected for wind and temperature, exceeds the airplane's most limiting ETOPS Significant System time (other than the airplane's most limiting fire suppression system time minus 15 minutes for those cargo and baggage compartments required by regulation to have fire-suppression systems).

(c) For turbine-engine powered airplanes with more than two engines, the certificate holder need not meet paragraph (b) (1) of this section until February 15, 2013.

[Doc. No. FAA-2002-6717, 72 FR 1882, Jan. 16, 2007]

§ 121.635 Dispatch to and from refueling or provisional airports: Domestic and flag operations.

No person may dispatch an airplane to or from a refueling or provisional airport except in accordance with the requirements of this part applicable to dispatch from regular airports and unless that airport meets the requirements of this part applicable to regular airports.

[Doc. No. 16383, 43 FR 22649, May 25, 1978]

§ 121.637 Takeoffs from unlisted and alternate airports: Domestic and flag operations.

(a) No pilot may takeoff an airplane from an airport that is not listed in the operations specifications unless -

(1) The airport and related facilities are adequate for the operation of the airplane;

(2) He can comply with the applicable airplane operating limitations;

(3) The airplane has been dispatched according to dispatching rules applicable to operation from an approved airport; and

(4) The weather conditions at that airport are equal to or better than the following:

(i) *Airports in the United States.* The weather minimums for takeoff prescribed in part 97 of this chapter; or where minimums are not prescribed for the airport, 800-2, 900-1, or 1,000-1.

(ii) *Airports outside the United States.* The weather minimums for takeoff prescribed or approved by the government of the country in which the airport is located; or where minimums are not prescribed or approved for the airport, 800-2, 900-1, or 1,000-1.

(b) No pilot may take off from an alternate airport unless the weather conditions are at least equal to the minimums prescribed in the certificate holder's operations specifications for alternate airports.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-33, 32 FR 13912, Oct. 6, 1967; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.639 Fuel supply: All domestic operations.

No person may dispatch or take off an airplane unless it has enough fuel -

(a) To fly to the airport to which it is dispatched;

(b) Thereafter, to fly to and land at the most distant alternate airport (where required) for the airport to which dispatched; and

(c) Thereafter, to fly for 45 minutes at normal cruising fuel consumption or, for certificate holders who are authorized to conduct day VFR operations in their operations specifications and who are operating nontransport category airplanes type certificated after December 31, 1964, to fly for 30 minutes at normal cruising fuel consumption for day VFR operations.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65935, Dec. 20, 1995]

§ 121.641 Fuel supply: Nonturbine and turbo-propeller-powered airplanes: Flag operations.

(a) No person may dispatch or take off a nonturbine or turbo-propeller-powered airplane unless, considering the wind and other weather conditions expected, it has enough fuel -

(1) To fly to and land at the airport to which it is dispatched;

(2) Thereafter, to fly to and land at the most distant alternate airport specified in the dispatch release; and

(3) Thereafter, to fly for 30 minutes plus 15 percent of the total time required to fly at normal cruising fuel consumption to the airports specified in paragraphs (a) (1) and (2) of this section or to fly for 90 minutes at normal cruising fuel consumption, whichever is less.

(b) No person may dispatch a nonturbine or turbo-propeller-powered airplane to an airport for which an alternate is not specified under § 121.621(a)(2), unless it has enough fuel, considering wind and forecast weather conditions, to fly to that airport and thereafter to fly for three hours at normal cruising fuel consumption.

§ 121.643 Fuel supply: Nonturbine and turbo-propeller-powered airplanes: Supplemental operations.

(a) Except as provided in paragraph (b) of this section, no person may release for flight or takeoff a nonturbine or turbo-propeller-powered airplane unless, considering the wind and other weather conditions expected, it has enough fuel -

(1) To fly to and land at the airport to which it is released;

(2) Thereafter, to fly to and land at the most distant alternate airport specified in the flight release; and

(3) Thereafter, to fly for 45 minutes at normal cruising fuel consumption or, for certificate holders who are authorized to conduct day VFR operations in their operations specifications and who are operating nontransport category airplanes type certificated after December 31, 1964, to fly for 30 minutes at normal cruising fuel consumption for day VFR operations.

(b) If the airplane is released for any flight other than from one point in the contiguous United States to another point in the contiguous United States, it must carry enough fuel to meet the requirements of paragraphs (a) (1) and (2) of this section and thereafter fly for 30 minutes plus 15 percent of the total time required to fly at normal cruising fuel consumption to the airports specified in paragraphs (a) (1) and (2) of this section, or to fly for 90 minutes at normal cruising fuel consumption, whichever is less.

(c) No person may release a nonturbine or turbo-propeller-powered airplane to an airport for which an alternate is not specified under § 121.623(b), unless it has enough fuel, considering wind and other weather conditions expected, to fly to that airport and thereafter to fly for three hours at normal cruising fuel consumption.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-10, 30 FR 10025, Aug. 12, 1965; Amdt. 121-251, 60 FR 65935, Dec. 20, 1995]

§ 121.645 Fuel supply: Turbine-engine powered airplanes, other than turbo propeller: Flag and supplemental operations.

(a) Any flag operation within the 48 contiguous United States and the District of Columbia may use the fuel requirements of § 121.639.

(b) For any certificate holder conducting flag or supplemental operations outside the 48 contiguous United States and the District of Columbia, unless authorized by the Administrator in the operations specifications, no person may release for flight or takeoff a turbine-engine powered airplane (other than a turbo-propeller powered airplane) unless, considering wind and other weather conditions expected, it has enough fuel -

(1) To fly to and land at the airport to which it is released;

(2) After that, to fly for a period of 10 percent of the total time required to fly from the airport of departure to, and land at, the airport to which it was released;

(3) After that, to fly to and land at the most distant alternate airport specified in the flight release, if an alternate is required; and

(4) After that, to fly for 30 minutes at holding speed at 1,500 feet above the alternate airport (or the destination airport if no alternate is required) under standard temperature conditions.

(c) No person may release a turbine-engine powered airplane (other than a turbo-propeller airplane) to an airport for which an alternate is not specified under § 121.621(a)(2) or § 121.623(b) unless it has enough fuel, considering wind and other weather conditions expected, to fly to that airport and thereafter to fly for at least two hours at normal cruising fuel consumption.

(d) The Administrator may amend the operations specifications of a certificate holder conducting flag or supplemental operations to require more fuel than any of the minimums stated in paragraph (a) or (b) of this section if he finds that additional fuel is necessary on a particular route in the interest of safety.

(e) For a supplemental operation within the 48 contiguous States and the District of Columbia with a turbine engine powered airplane the fuel requirements of § 121.643 apply.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-10, 30 FR 10025, Aug. 12, 1965; Amdt. 121-144, 43 FR 22649, May 25, 1978; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.646 En-route fuel supply: flag and supplemental operations.

(a) No person may dispatch or release for flight a turbine-engine powered airplane with more than two engines for a flight more than 90 minutes (with all engines operating at

cruise power) from an Adequate Airport unless the following fuel supply requirements are met:

(1) The airplane has enough fuel to meet the requirements of § 121.645(b);

(2) The airplane has enough fuel to fly to the Adequate Airport -

(i) Assuming a rapid decompression at the most critical point;

(ii) Assuming a descent to a safe altitude in compliance with the oxygen supply requirements of § 121.333; and

(iii) Considering expected wind and other weather conditions.

(3) The airplane has enough fuel to hold for 15 minutes at 1500 feet above field elevation and conduct a normal approach and landing.

(b) No person may dispatch or release for flight an ETOPS flight unless, considering wind and other weather conditions expected, it has the fuel otherwise required by this part and enough fuel to satisfy each of the following requirements:

(1) Fuel to fly to an ETOPS Alternate Airport.

(i) Fuel to account for rapid decompression and engine failure. The airplane must carry the greater of the following amounts of fuel:

(A) Fuel sufficient to fly to an ETOPS Alternate Airport assuming a rapid decompression at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements of § 121.333 of this chapter;

(B) Fuel sufficient to fly to an ETOPS Alternate Airport (at the one-engine-inoperative cruise speed) assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by descent to a safe altitude in compliance with the oxygen requirements of § 121.333 of this chapter; or

(C) Fuel sufficient to fly to an ETOPS Alternate Airport (at the one engine inoperative cruise speed) assuming an engine failure at the most critical point followed by descent to the one engine inoperative cruise altitude.

(ii) Fuel to account for errors in wind forecasting. In calculating the amount of fuel required by paragraph (b)(1)(i) of this section, the certificate holder must increase the actual forecast wind speed by 5% (resulting in an increase in headwind or a decrease in tailwind) to account for any potential errors in wind forecasting. If a certificate holder is not using the actual forecast wind based on a wind model accepted by the FAA, the airplane must carry additional fuel equal to 5% of the fuel required for paragraph (b)(1)(i) of this section, as reserve fuel to allow for errors in wind data.

(iii) Fuel to account for icing. In calculating the amount of fuel required by paragraph (b)(1)(i) of this section (after completing the wind calculation in paragraph (b)(1)(ii) of this section), the certificate holder must ensure that the airplane carries the greater of the following amounts of fuel in anticipation of possible icing during the diversion:

(A) Fuel that would be burned as a result of airframe icing during 10 percent of the time icing is forecast (including the fuel used by engine and wing anti-ice during this period).

(B) Fuel that would be used for engine anti-ice, and if appropriate wing anti-ice, for the entire time during which icing is forecast.

(iv) Fuel to account for engine deterioration. In calculating the amount of fuel required by paragraph (b)(1)(i) of this section (after completing the wind calculation in paragraph (b)(1)(ii) of this section), the airplane also carries fuel equal to 5% of the fuel specified above, to account for deterioration in cruise fuel burn performance unless the certificate holder has a program to monitor airplane in-service deterioration to cruise fuel burn performance.

(2) Fuel to account for holding, approach, and landing. In addition to the fuel required by paragraph (b)(1) of this section, the airplane must carry fuel sufficient to hold at 1500 feet above field elevation for 15 minutes upon reaching an ETOPS Alternate Airport and then conduct an instrument approach and land.

(3) Fuel to account for APU use. If an APU is a required power source, the certificate holder must account for its fuel consumption during the appropriate phases of flight.

[Doc. No. FAA-2002-6717, 72 FR 1882, Jan. 16, 2007, as amended by Amdt. 121-348, 75 FR 12121, Mar. 15, 2010]

§ 121.647 Factors for computing fuel required.

Each person computing fuel required for the purposes of this subpart shall consider the following:

(a) Wind and other weather conditions forecast.

(b) Anticipated traffic delays.

(c) One instrument approach and possible missed approach at destination.

(d) Any other conditions that may delay landing of the aircraft.

For the purposes of this section, required fuel is in addition to unusable fuel.

§ 121.649 Takeoff and landing weather minimums:

VFR: Domestic operations.

(a) Except as provided in paragraph (b) of this section, regardless of any clearance from ATC, no pilot may takeoff or land an airplane under VFR when the reported ceiling or visibility is less than the following:

(1) For day operations - 1,000-foot ceiling and one-mile visibility.

(2) For night operations - 1,000-foot ceiling and two-mile visibility.

(b) Where a local surface restriction to visibility exists (e.g., smoke, dust, blowing snow or sand) the visibility for day and night operations may be reduced to mile, if all turns after takeoff and prior to landing, and all flight beyond one mile from the airport boundary can be accomplished above or outside the area of local surface visibility restriction.

(c) The weather minimums in this section do not apply to the VFR operation of fixed-wing aircraft at any of the locations where the special weather minimums of § 91.157 of this chapter are not applicable (See part 91, appendix D, section 3 of this chapter). The basic VFR weather minimums of § 91.155 of this chapter apply at those locations.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-39, 33 FR 4097, Mar. 2, 1968; Amdt. 121-206, 54 FR 34331, Aug. 18, 1989; Amdt. 121-226, 56 FR 65663, Dec. 17, 1991]

**§ 121.651 Takeoff and landing weather minimums:
IFR: All certificate holders.**

Link to an amendment published at 81 FR 90175, Dec. 13, 2016.

(a) Notwithstanding any clearance from ATC, no pilot may begin a takeoff in an airplane under IFR when the weather conditions reported by the U.S. National Weather Service, a source approved by that Service, or a source approved by the Administrator, are less than those specified in -

(1) The certificate holder's operations specifications; or

(2) Parts 91 and 97 of this chapter, if the certificate holder's operations specifications do not specify takeoff minimums for the airport.

(b) Except as provided in paragraphs (d) and (e) of this section, no pilot may continue an approach past the final approach fix, or where a final approach fix is not used, begin the final approach segment of an instrument approach procedure -

(1) At any airport, unless the U.S. National Weather Service, a source approved by that Service, or a source approved by the Administrator, issues a weather report for that airport; and

(2) At airports within the United States and its territories or at U.S. military airports, unless the latest weather report for that airport issued by the U.S. National Weather Service, a source approved by that Service, or a source approved by the Administrator, reports the visibility to be equal to or more than the visibility minimums prescribed for that procedure. For the purpose of this section, the term "U.S. military airports" means airports in foreign countries where flight operations are under the control of U.S. military authority.

(c) A pilot who has begun the final approach segment of an instrument approach procedure in accordance with paragraph (b) of this section, and after that receives a later weather report indicating below-minimum conditions, may continue the approach to DA/DH or MDA. Upon reaching DA/DH or at MDA, and at any time before the missed approach point, the pilot may continue the approach below DA/DH or MDA if either the requirements of § 91.175(l) or § 91.176 of this chapter, or the following requirements are met:

(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where

that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;

(2) The flight visibility is not less than the visibility prescribed in the standard instrument approach procedure being used;

(3) Except for Category II or Category III approaches where any necessary visual reference requirements are specified by authorization of the Administrator, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.

(iv) The threshold lights.

(v) The runway end identifier lights.

(vi) The visual approach slope indicator.

(vii) The touchdown zone or touchdown zone markings.

(viii) The touchdown zone lights.

(ix) The runway or runway markings.

(x) The runway lights; and

(4) When the aircraft is on a straight-in nonprecision approach procedure which incorporates a visual descent point, the aircraft has reached the visual descent point, except where the aircraft is not equipped for or capable of establishing that point, or a descent to the runway cannot be made using normal procedures or rates of descent if descent is delayed until reaching that point.

(d) A pilot may begin the final approach segment of an instrument approach procedure other than a Category II or Category III procedure at an airport when the visibility is less than the visibility minimums prescribed for that procedure if the airport is served by an operative ILS and an operative PAR, and both are used by the pilot. However, no pilot may continue an approach below the authorized DA/DH unless the requirements of § 91.175(l) or § 91.176 of this chapter, or the following requirements are met:

(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers and where such a descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;

(2) The flight visibility is not less than the visibility prescribed in the standard instrument approach procedure being used; and

(3) Except for Category II or Category III approaches where any necessary visual reference requirements are specified by the authorization of the Administrator, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone

elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

- (ii) The threshold.
- (iii) The threshold markings.
- (iv) The threshold lights.
- (v) The runway end identifier lights.
- (vi) The visual approach slope indicator.
- (vii) The touchdown zone or touchdown zone markings.
- (viii) The touchdown zone lights.
- (ix) The runway or runway markings.
- (x) The runway lights.

(e) A pilot may begin the final approach segment of an instrument approach procedure, or continue that approach procedure, at an airport when the visibility is reported to be less than the visibility minimums prescribed for that procedure if the pilot uses an operable EFVS in accordance with § 91.176 of this chapter and the certificate holder's operations specifications for EFVS operations.

(f) For the purpose of this section, the final approach segment begins at the final approach fix or facility prescribed in the instrument approach procedure. When a final approach fix is not prescribed for a procedure that includes a procedure turn, the final approach segment begins at the point where the procedure turn is completed and the aircraft is established inbound toward the airport on the final approach course within the distance prescribed in the procedure.

(g) Unless otherwise authorized in the certificate holder's operations specifications, each pilot making an IFR takeoff, approach, or landing at a foreign airport shall comply with the applicable instrument approach procedures and weather minimums prescribed by the authority having jurisdiction over the airport.

[Doc. No. 20060, 46 FR 2291, Jan. 8, 1981, as amended by Amdt. 121-303, 69 FR 1641, Jan. 9, 2004; Amdt. 121-333, 72 FR 31682, June 7, 2007; Docket FAA-2013-0485, Amdt. 121-376, 81 FR 90175, Dec. 13, 2016]

§ 121.652 Landing weather minimums: IFR: All certificate holders.

(a) If the pilot in command of an airplane has not served 100 hours as pilot in command in operations under this part in the type of airplane he is operating, the MDA or DA/DH and visibility landing minimums in the certificate holder's operations specification for regular, provisional, or refueling airports are increased by 100 feet and one-half mile (or the RVR equivalent). The MDA or DA/DH and visibility minimums need not be increased above those applicable to the airport when used as an alternate airport, but in no event may the landing minimums be less than 300 and 1. However, a Pilot in command employed by a certificate holder conducting operations in large aircraft under part 135 of this chapter, may credit flight time acquired in operations conducted for that operator under part 91 in the same type airplane for up to

50 percent of the 100 hours of pilot in command experience required by this paragraph.

(b) The 100 hours of pilot in command experience required by paragraph (a) of this section may be reduced (not to exceed 50 percent) by substituting one landing in operations under this part in the type of airplane for 1 required hour of pilot in command experience, if the pilot has at least 100 hours as pilot in command of another type airplane in operations under this part.

(c) Category II minimums and the sliding scale when authorized in the certificate holder's operations specifications do not apply until the pilot in command subject to paragraph (a) of this section meets the requirements of that paragraph in the type of airplane he is operating.

[Doc. No. 7594, 33 FR 10843, July 31, 1968, as amended by Amdt. 121-143, 43 FR 22642, May 25, 1978; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996; Amdt. 121-333, 72 FR 31682, June 7, 2007]

§ 121.653 [Reserved]

§ 121.655 Applicability of reported weather minimums.

In conducting operations under §§ 121.649 through 121.653, the ceiling and visibility values in the main body of the latest weather report control for VFR and IFR takeoffs and landings and for instrument approach procedures on all runways of an airport. However, if the latest weather report, including an oral report from the control tower, contains a visibility value specified as runway visibility or runway visual range for a particular runway of an airport, that specified value controls for VFR and IFR landings and takeoffs and straight-in instrument approaches for that runway.

§ 121.657 Flight altitude rules.

(a) *General.* Notwithstanding § 91.119 or any rule applicable outside the United States, no person may operate an aircraft below the minimums set forth in paragraphs (b) and (c) of this section, except when necessary for takeoff or landing, or except when, after considering the character of the terrain, the quality and quantity of meteorological services, the navigational facilities available, and other flight conditions, the Administrator prescribes other minimums for any route or part of a route where he finds that the safe conduct of the flight requires other altitudes. Outside of the United States the minimums prescribed in this section are controlling unless higher minimums are prescribed in the certificate holder's operations specifications or by the foreign country over which the aircraft is operating.

(b) *Day VFR operations.* No certificate holder conducting domestic operations may operate a passenger-carrying aircraft and no certificate holder conducting flag or supplemental operations may operate any aircraft under VFR during the day at an altitude less than 1,000 feet above the surface or less

than 1,000 feet from any mountain, hill, or other obstruction to flight.

(c) *Night VFR, IFR, and over-the-top operations.* No person may operate an aircraft under IFR including over-the-top or at night under VFR at an altitude less than 1,000 feet above the highest obstacle within a horizontal distance of five miles from the center of the intended course, or, in designated mountainous areas, less than 2,000 feet above the highest obstacle within a horizontal distance of five miles from the center of the intended course.

(d) *Day over-the-top operations below minimum en route altitudes.* A person may conduct day over-the-top operations in an airplane at flight altitudes lower than the minimum en route IFR altitudes if -

(1) The operation is conducted at least 1,000 feet above the top of lower broken or overcast cloud cover;

(2) The top of the lower cloud cover is generally uniform and level;

(3) Flight visibility is at least five miles; and

(4) The base of any higher broken or overcast cloud cover is generally uniform and level and is at least 1,000 feet above the minimum en route IFR altitude for that route segment.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-144, 43 FR 22649, May 25, 1978; Amdt. 121-206, 54 FR 34331, Aug. 18, 1989; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.659 Initial approach altitude: Domestic and supplemental operations.

(a) Except as provided in paragraph (b) of this section, when making an initial approach to a radio navigation facility under IFR, no person may descend an aircraft below the pertinent minimum altitude for initial approach (as specified in the instrument approach procedure for that facility) until his arrival over that facility has been definitely established.

(b) When making an initial approach on a flight being conducted under § 121.657(d), no pilot may commence an instrument approach until his arrival over the radio facility has definitely been established. In making an instrument approach under these circumstances no person may descend an aircraft lower than 1,000 feet above the top of the lower cloud or the minimum altitude determined by the Administrator for that part of the IFR approach, whichever is lower.

§ 121.661 Initial approach altitude: Flag operations.

When making an initial approach to a radio navigation facility under IFR, no person may descend below the pertinent minimum altitude for initial approach (as specified in the instrument approach procedure for that facility) until his arrival over that facility has been definitely established.

§ 121.663 Responsibility for dispatch release: Domestic and flag operations.

Each certificate holder conducting domestic or flag operations shall prepare a dispatch release for each flight

between specified points, based on information furnished by an authorized aircraft dispatcher. The pilot in command and an authorized aircraft dispatcher shall sign the release only if they both believe that the flight can be made with safety. The aircraft dispatcher may delegate authority to sign a release for a particular flight, but he may not delegate his authority to dispatch.

[Doc. No. 28154, 61 FR 2615, Jan. 26, 1996]

§ 121.665 Load manifest.

Each certificate holder is responsible for the preparation and accuracy of a load manifest form before each takeoff. The form must be prepared and signed for each flight by employees of the certificate holder who have the duty of supervising the loading of aircraft and preparing the load manifest forms or by other qualified persons authorized by the certificate holder.

§ 121.667 Flight plan: VFR and IFR: Supplemental operations.

(a) No person may take off an aircraft unless the pilot in command has filed a flight plan, containing the appropriate information required by part 91, with the nearest FAA communication station or appropriate military station or, when operating outside the United States, with other appropriate authority. However, if communications facilities are not readily available, the pilot in command shall file the flight plan as soon as practicable after the aircraft is airborne. A flight plan must continue in effect for all parts of the flight.

(b) When flights are operated into military airports, the arrival or completion notice required by §§ 91.153 and 91.169 may be filed with the appropriate airport control tower or aeronautical communication facility used for that airport.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-206, 54 FR 34331, Aug. 18, 1989]

Subpart V - Records and Reports

Source:

Docket No. 6258, 29 FR 19226, Dec. 31, 1964, unless otherwise noted.

§ 121.681 Applicability.

This subpart prescribes requirements for the preparation and maintenance of records and reports for all certificate holders.

§ 121.683 Crewmember and dispatcher record.

(a) Each certificate holder shall -

(1) Maintain current records of each crewmember and each aircraft dispatcher (domestic and flag operations only) that show whether the crewmember or aircraft dispatcher complies with the applicable sections of this chapter, including, but not limited to, proficiency and route checks, airplane and route

qualifications, training, any required physical examinations, flight, duty, and rest time records; and

(2) Record each action taken concerning the release from employment or physical or professional disqualification of any flight crewmember or aircraft dispatcher (domestic and flag operations only) and keep the record for at least six months thereafter.

(b) Each certificate holder conducting supplemental operations shall maintain the records required by paragraph (a) of this section at its principal base of operations, or at another location used by it and approved by the Administrator.

(c) Computer record systems approved by the Administrator may be used in complying with the requirements of paragraph (a) of this section.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-144, 43 FR 22649, May 25, 1978; Amdt. 121-241, 59 FR 42993, Aug. 19, 1994; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.685 Aircraft record: Domestic and flag operations.

Each certificate holder conducting domestic or flag operations shall maintain a current list of each aircraft that it operates in scheduled air transportation and shall send a copy of the record and each change to the certificate-holding district office. Airplanes of another certificate holder operated under an interchange agreement may be incorporated by reference.

[Doc. No. 28154, 61 FR 2615, Jan. 26, 1996]

§ 121.687 Dispatch release: Flag and domestic operations.

(a) The dispatch release may be in any form but must contain at least the following information concerning each flight:

- (1) Identification number of the aircraft.
- (2) Trip number.
- (3) Departure airport, intermediate stops, destination airports, and alternate airports.
- (4) A statement of the type of operation (e.g., IFR, VFR).
- (5) Minimum fuel supply.
- (6) For each flight dispatched as an ETOPS flight, the ETOPS diversion time for which the flight is dispatched.

(b) The dispatch release must contain, or have attached to it, weather reports, available weather forecasts, or a combination thereof, for the destination airport, intermediate stops, and alternate airports, that are the latest available at the time the release is signed by the pilot in command and dispatcher. It may include any additional available weather reports or forecasts that the pilot in command or the aircraft dispatcher considers necessary or desirable.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-329, 72 FR 1883, Jan. 16, 2007]

§ 121.689 Flight release form: Supplemental operations.

(a) Except as provided in paragraph (c) of this section, the flight release may be in any form but must contain at least the following information concerning each flight:

- (1) Company or organization name.
- (2) Make, model, and registration number of the aircraft being used.
- (3) Flight or trip number, and date of flight.
- (4) Name of each flight crewmember, flight attendant, and pilot designated as pilot in command.
- (5) Departure airport, destination airports, alternate airports, and route.
- (6) Minimum fuel supply (in gallons or pounds).
- (7) A statement of the type of operation (e.g., IFR, VFR).
- (8) For each flight released as an ETOPS flight, the ETOPS diversion time for which the flight is released.

(b) The aircraft flight release must contain, or have attached to it, weather reports, available weather forecasts, or a combination thereof, for the destination airport, and alternate airports, that are the latest available at the time the release is signed. It may include any additional available weather reports or forecasts that the pilot in command considers necessary or desirable.

(c) Each certificate holder conducting domestic or flag operations under the rules of this part applicable to supplemental operations shall comply with the dispatch or flight release forms required for scheduled operations under this subpart.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-253, 61 FR 2615, Jan. 26, 1996; Amdt. 121-329, 72 FR 1883, Jan. 16, 2007]

§ 121.691 [Reserved]

§ 121.693 Load manifest: All certificate holders.

The load manifest must contain the following information concerning the loading of the airplane at takeoff time:

- (a) The weight of the aircraft, fuel and oil, cargo and baggage, passengers and crewmembers.
- (b) The maximum allowable weight for that flight that must not exceed the least of the following weights:

(1) Maximum allowable takeoff weight for the runway intended to be used (including corrections for altitude and gradient, and wind and temperature conditions existing at the takeoff time).

(2) Maximum takeoff weight considering anticipated fuel and oil consumption that allows compliance with applicable en route performance limitations.

(3) Maximum takeoff weight considering anticipated fuel and oil consumption that allows compliance with the maximum authorized design landing weight limitations on arrival at the destination airport.

(4) Maximum takeoff weight considering anticipated fuel and oil consumption that allows compliance with landing distance limitations on arrival at the destination and alternate airports.

(c) The total weight computed under approved procedures.

(d) Evidence that the aircraft is loaded according to an approved schedule that insures that the center of gravity is within approved limits.

(e) Names of passengers, unless such information is maintained by other means by the certificate holder.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-159, 45 FR 41595, June 19, 1980; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.695 Disposition of load manifest, dispatch release, and flight plans: Domestic and flag operations.

(a) The pilot in command of an airplane shall carry in the airplane to its destination -

(1) A copy of the completed load manifest (or information from it, except information concerning cargo and passenger distribution);

(2) A copy of the dispatch release; and

(3) A copy of the flight plan.

(b) The certificate holder shall keep copies of the records required in this section for at least three months.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-178, 47 FR 13316, Mar. 29, 1982; Amdt. 121-253, 61 FR 2616, Jan. 26, 1996]

§ 121.697 Disposition of load manifest, flight release, and flight plans: Supplemental operations.

(a) The pilot in command of an airplane shall carry in the airplane to its destination the original or a signed copy of the -

(1) Load manifest;

(2) Flight release;

(3) Airworthiness release;

(4) Pilot route certification; and

(5) Flight plan.

(b) If a flight originates at the certificate holder's principal base of operations, it shall retain at that base a signed copy of each document listed in paragraph (a) of this section.

(c) Except as provided in paragraph (d) of this section, if a flight originates at a place other than the certificate holder's principal base of operations, the pilot in command (or another person not aboard the airplane who is authorized by the certificate holder) shall, before or immediately after departure of the flight, mail signed copies of the documents listed in paragraph (a) of this section, to the principal base of operations.

(d) If a flight originates at a place other than the certificate holder's principal base of operations, and there is at that place a person to manage the flight departure for the certificate holder who does not himself or herself depart on the airplane, signed copies of the documents listed in paragraph (a) of this

section may be retained at that place for not more than 30 days before being sent to the certificate holder's principal base of operations. However, the documents for a particular flight need not be further retained at that place or be sent to the principal base of operations, if the originals or other copies of them have been previously returned to the principal base of operations.

(e) The certificate holder conducting supplemental operations shall:

(1) Identify in its operations manual the person having custody of the copies of documents retained in accordance with paragraph (d) of this section; and

(2) Retain at its principal base of operations either an original or a copy of the records required by this section for at least three months.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-123, 40 FR 44541, Sept. 29, 1975; Amdt. 121-143, 43 FR 22642, May 25, 1978; Amdt. 121-178, 47 FR 13316, Mar. 29, 1982; Amdt. 121-253, 61 FR 2616, Jan. 26, 1996]

§§ 121.698-121.699 [Reserved]

§ 121.701 Maintenance log: Aircraft.

(a) Each person who takes action in the case of a reported or observed failure or malfunction of an airframe, engine, propeller, or appliance that is critical to the safety of flight shall make, or have made, a record of that action in the airplane's maintenance log.

(b) Each certificate holder shall have an approved procedure for keeping adequate copies of the record required in paragraph (a) of this section in the airplane in a place readily accessible to each flight crewmember and shall put that procedure in the certificate holder's manual.

§ 121.703 Service difficulty reports.

(a) Each certificate holder shall report the occurrence or detection of each failure, malfunction, or defect concerning -

(1) Fires during flight and whether the related fire-warning system functioned properly;

(2) Fires during flight not protected by a related fire-warning system;

(3) False fire warning during flight;

(4) An engine exhaust system that causes damage during flight to the engine, adjacent structure, equipment, or components;

(5) An aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;

(6) Engine shutdown during flight because of flameout;

(7) Engine shutdown during flight when external damage to the engine or airplane structure occurs;

(8) Engine shutdown during flight due to foreign object ingestion or icing;

(9) Engine shutdown during flight of more than one engine;

(10) A propeller feathering system or ability of the system to control overspeed during flight;

(11) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage during flight;

(12) An unwanted landing gear extension or retraction, or an unwanted opening or closing of landing gear doors during flight;

(13) Brake system components that result in loss of brake actuating force when the airplane is in motion on the ground;

(14) Aircraft structure that requires major repair;

(15) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the FAA;

(16) Aircraft components or systems that result in taking emergency actions during flight (except action to shut down an engine); and

(17) Emergency evacuation systems or components including all exit doors, passenger emergency evacuation lighting systems, or evacuation equipment that are found defective, or that fail to perform the intended functions during an actual emergency or during training, testing, maintenance, demonstrations, or inadvertent deployments.

(b) For the purpose of this section *during flight* means the period from the moment the aircraft leaves the surface of the earth on takeoff until it touches down on landing.

(c) In addition to the reports required by paragraph (a) of this section, each certificate holder shall report any other failure, malfunction, or defect in an aircraft that occurs or is detected at any time if, in its opinion, that failure, malfunction, or defect has endangered or may endanger the safe operation of an aircraft used by it.

(d) Each certificate holder shall submit each report required by this section, covering each 24-hour period beginning at 0900 local time of each day and ending at 0900 local time on the next day, to the FAA offices in Oklahoma City, Oklahoma. Each report of occurrences during a 24-hour period shall be submitted to the collection point within the next 96 hours. However, a report due on Saturday or Sunday may be submitted on the following Monday, and a report due on a holiday may be submitted on the next work day.

(e) The certificate holder shall submit the reports required by this section on a form or in another format acceptable to the Administrator. The reports shall include the following information:

(1) Type and identification number of the aircraft.

(2) The name of the operator.

(3) The date, flight number, and stage during which the incident occurred (e.g., preflight, takeoff, climb, cruise, descent landing, and inspection).

(4) The emergency procedure effected (e.g., unscheduled landing and emergency descent).

(5) The nature of the failure, malfunction, or defect.

(6) Identification of the part and system involved, including available information pertaining to type designation of the major component and time since overhaul.

(7) Apparent cause of the failure, malfunction, or defect (e.g., wear, crack, design deficiency, or personnel error).

(8) Whether the part was repaired, replaced, sent to the manufacturer, or other action taken.

(9) Whether the aircraft was grounded.

(10) Other pertinent information necessary for more complete identification, determination of seriousness, or corrective action.

(f) A certificate holder that is also the holder of a Type Certificate (including a Supplemental Type Certificate), a Parts Manufacturer Approval, or a Technical Standard Order Authorization, or that is the licensee of a type certificate holder, need not report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported by it under § 21.3 of this chapter or under the accident reporting provisions of 14 CFR part 830.

(g) No person may withhold a report required by this section even though all information required in this section is not available.

(h) When certificate holder gets additional information, including information from the manufacturer or other agency, concerning a report required by this section, it shall expeditiously submit it as a supplement to the first report and reference the date and place of submission of the first report.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Doc. No. 8084, 32 FR 5770, Apr. 11, 1967; Amdt. 121-72, 35 FR 18188, Nov. 28, 1970; Amdt. 121-143, 43 FR 22642, May 25, 1978; Amdt. 121-178, 47 FR 13316, Mar. 29, 1982; Amdt. 121-187, 50 FR 32375, Aug. 9, 1985; Amdt. 121-195, 53 FR 8728, Mar. 16, 1988; Amdt. 121-251, 60 FR 65936, Dec. 20, 1995; Amdt. 121-319, 70 FR 76979, Dec. 29, 2005]

§ 121.705 Mechanical interruption summary report.

Each certificate holder shall submit to the Administrator, before the end of the 10th day of the following month, a summary report for the previous month of:

(a) Each interruption to a flight, unscheduled change of aircraft en route, or unscheduled stop or diversion from a route, caused by known or suspected mechanical difficulties or malfunctions that are not required to be reported under § 121.703.

(b) The number of engines removed prematurely because of malfunction, failure or defect, listed by make and model and the aircraft type in which it was installed.

(c) The number of propeller featherings in flight, listed by type of propeller and engine and aircraft on which it was installed. Propeller featherings for training, demonstration, or flight check purposes need not be reported.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-10, 30 FR 10025, Aug. 12, 1965; Amdt. 121-319, 70 FR 76979, Dec. 29, 2005]

§ 121.707 Alteration and repair reports.

(a) Each certificate holder shall, promptly upon its completion, prepare a report of each major alteration or major

repair of an airframe, aircraft engine, propeller, or appliance of an aircraft operated by it.

(b) The certificate holder shall submit a copy of each report of a major alteration to, and shall keep a copy of each report of a major repair available for inspection by, the representative of the Administrator who is assigned to it.

§ 121.709 Airworthiness release or aircraft log entry.

(a) No certificate holder may operate an aircraft after maintenance, preventive maintenance or alterations are performed on the aircraft unless the certificate holder, or the person with whom the certificate holder arranges for the performance of the maintenance, preventive maintenance, or alterations, prepares or causes to be prepared -

- (1) An airworthiness release; or
- (2) An appropriate entry in the aircraft log.

(b) The airworthiness release or log entry required by paragraph (a) of this section must -

(1) Be prepared in accordance with the procedures set forth in the certificate holder's manual;

(2) Include a certification that -

(i) The work was performed in accordance with the requirements of the certificate holder's manual;

(ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed;

(iii) No known condition exists that would make the airplane unairworthy; and

(iv) So far as the work performed is concerned, the aircraft is in condition for safe operation; and

(3) Be signed by an authorized certificated mechanic or repairman except that a certificated repairman may sign the release or entry only for the work for which he is employed and certificated.

(c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations performed by a repair station that is located outside the United States, the airworthiness release or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

(d) When an airworthiness release form is prepared the certificate holder must give a copy to the pilot in command and must keep a record thereof for at least 2 months.

(e) Instead of restating each of the conditions of the certification required by paragraph (b) of this section, the air carrier may state in its manual that the signature of an authorized certificated mechanic or repairman constitutes that certification.

[Doc. No. 6258, 29 FR 19226, Dec. 31, 1964, as amended by Amdt. 121-6, 30 FR 6432, May 8, 1965; Amdt. 121-21, 31 FR 10613, Aug. 9, 1966; Amdt. 121-286, 66 FR 41116, Aug. 6, 2001]

§ 121.711 Communication records: Domestic and flag operations.

(a) Each certificate holder conducting domestic or flag operations must record each en route communication between the certificate holder and its pilots using a communication system as required by § 121.99 of this part.

(b) For purposes of this section the term en route means from the time the aircraft pushes back from the departing gate until the time the aircraft reaches the arrival gate at its destination.

(c) The record required in paragraph (a) of this section must contain at least the following information:

- (1) The date and time of the contact;
- (2) The flight number;
- (3) Aircraft registration number;
- (4) Approximate position of the aircraft during the contact;
- (5) Call sign; and
- (6) Narrative of the contact.

(d) The record required in paragraph (a) of this section must be kept for at least 30 days.

[Doc. No. FAA-2008-0677, 78 FR 67841, Nov. 12, 2013]

§ 121.713 Retention of contracts and amendments: Commercial operators who conduct intrastate operations for compensation or hire.

(a) Each commercial operator who conducts intrastate operations for compensation or hire shall keep a copy of each written contract under which it provides services as a commercial operator for a period of at least 1 year after the date of execution of the contract. In the case of an oral contract, it shall keep a memorandum stating its elements, and of any amendments to it, for a period of at least one year after the execution of that contract or change.

(b) Each commercial operator who conducts intrastate operations for compensation or hire shall submit a financial report for the first 6 months of each fiscal year and another financial report for each complete fiscal year. If that person's operating certificate is suspended for more than 29 days, that person shall submit a financial report as of the last day of the month in which the suspension is terminated. The report required to be submitted by this section shall be submitted within 60 days of the last day of the period covered by the report and must include -

- (1) A balance sheet that shows assets, liabilities, and net worth on the last day of the reporting period;
- (2) The information required by § 119.36 (e)(2), (e)(7), and (e)(8) of this chapter;
- (3) An itemization of claims in litigation against the applicant, if any, as of the last day of the period covered by the report;

(4) A profit and loss statement with the separation of items relating to the applicant's commercial operator activities from his other business activities, if any; and

(5) A list of each contract that gave rise to operating income on the profit and loss statement, including the names and addresses of the contracting parties and the nature, scope, date, and duration of each contract.

[Doc. No. 28154, 60 FR 65936, Dec. 20, 1995, as amended by Amdt. 121-262, 62 FR 13257, Mar. 19, 1997]

Subpart W - Crewmember Certificate: International

§ 121.721 Applicability.

This section describes the certificates that were issued to United States citizens who were employed by air carriers at the time of issuance as flight crewmembers on United States registered aircraft engaged in international air commerce. The purpose of the certificate is to facilitate the entry and clearance of those crewmembers into ICAO contracting states. They were issued under Annex 9, as amended, to the Convention on International Civil Aviation.

[Doc. No. 28154, 61 FR 30435, June 14, 1996]

§ 121.723 Surrender of international crewmember certificate.

The holder of a certificate issued under this section, or the air carrier by whom the holder is employed, shall surrender the certificate for cancellation at the nearest FAA Flight Standards District Office at the termination of the holder's employment with that air carrier.

[Doc. No. 28154, 61 FR 30435, June 14, 1996]

Subpart X - Emergency Medical Equipment and Training

Source:

Docket No. FAA-2000-7119, 66 FR 19044, Apr. 12, 2001, unless otherwise noted.

§ 121.801 Applicability.

This subpart prescribes the emergency medical equipment and training requirements applicable to all certificate holders operating passenger-carrying airplanes under this part. Nothing in this subpart is intended to require certificate holders or its agents to provide emergency medical care or to establish a standard of care for the provision of emergency medical care.

§ 121.803 Emergency medical equipment.

(a) No person may operate a passenger-carrying airplane under this part unless it is equipped with the emergency medical equipment listed in this section.

(b) Each equipment item listed in this section -

(1) Must be inspected regularly in accordance with inspection periods established in the operations specifications

to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes;

(2) Must be readily accessible to the crew and, with regard to equipment located in the passenger compartment, to passengers;

(3) Must be clearly identified and clearly marked to indicate its method of operation; and

(4) When carried in a compartment or container, must be carried in a compartment or container marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.

(c) For treatment of injuries, medical events, or minor accidents that might occur during flight time each airplane must have the following equipment that meets the specifications and requirements of appendix A of this part:

(1) Approved first-aid kits.

(2) In airplanes for which a flight attendant is required, an approved emergency medical kit.

(3) In airplanes for which a flight attendant is required, an approved emergency medical kit as modified effective April 12, 2004.

(4) In airplanes for which a flight attendant is required and with a maximum payload capacity of more than 7,500 pounds, an approved automated external defibrillator as of April 12, 2004.

§ 121.805 Crewmember training for in-flight medical events.

(a) Each training program must provide the instruction set forth in this section with respect to each airplane type, model, and configuration, each required crewmember, and each kind of operation conducted, insofar as appropriate for each crewmember and the certificate holder.

(b) Training must provide the following:

(1) Instruction in emergency medical event procedures, including coordination among crewmembers.

(2) Instruction in the location, function, and intended operation of emergency medical equipment.

(3) Instruction to familiarize crewmembers with the content of the emergency medical kit.

(4) Instruction to familiarize crewmembers with the content of the emergency medical kit as modified on April 12, 2004.

(5) For each flight attendant -

(i) Instruction, to include performance drills, in the proper use of automated external defibrillators.

(ii) Instruction, to include performance drills, in cardiopulmonary resuscitation.

(iii) Recurrent training, to include performance drills, in the proper use of an automated external defibrillators and in cardiopulmonary resuscitation at least once every 24 months.

(c) The crewmember instruction, performance drills, and recurrent training required under this section are not required

to be equivalent to the expert level of proficiency attained by professional emergency medical personnel.

Subpart Y - Advanced Qualification Program

Source:

Docket No. FAA-2005-20750, 70 FR 54815, Sept. 16, 2005, unless otherwise noted.

§ 121.901 Purpose and eligibility.

(a) Contrary provisions of parts 61, 63, 65, 121, 135, and 142 of this chapter notwithstanding, this subpart provides for approval of an alternative method (known as “Advanced Qualification Program” or “AQP”) for qualifying, training, certifying, and otherwise ensuring competency of crewmembers, aircraft dispatchers, other operations personnel, instructors, and evaluators who are required to be trained under parts 121 and 135 of this chapter.

(b) A certificate holder is eligible under this subpart if the certificate holder is required or elects to have an approved training program under §§ 121.401, 135.3(c), or 135.341 of this chapter.

(c) A certificate holder obtains approval of each proposed curriculum under this AQP as specified in § 121.909.

§ 121.903 General requirements for Advanced Qualification Programs.

(a) A curriculum approved under an AQP may include elements of existing training programs under part 121 and part 135 of this chapter. Each curriculum must specify the make, model, series or variant of aircraft and each crewmember position or other positions to be covered by that curriculum. Positions to be covered by the AQP must include all flight crewmember positions, flight instructors, and evaluators and may include other positions, such as flight attendants, aircraft dispatchers, and other operations personnel.

(b) Each certificate holder that obtains approval of an AQP under this subpart must comply with all the requirements of the AQP and this subpart instead of the corresponding provisions of parts 61, 63, 65, 121, or 135 of this chapter. However, each applicable requirement of parts 61, 63, 65, 121, or 135 of this chapter, including but not limited to practical test requirements, that is not specifically addressed in the AQP continues to apply to the certificate holder and to the individuals being trained and qualified by the certificate holder. No person may be trained under an AQP unless that AQP has been approved by the FAA and the person complies with all the requirements of the AQP and this subpart.

(c) No certificate holder that conducts its training program under this subpart may use any person nor may any person serve in any duty position as a required crewmember, an aircraft dispatcher, an instructor, or an evaluator, unless that person has satisfactorily accomplished, in a training program approved under this subpart for the certificate holder, the

training and evaluation of proficiency required by the AQP for that type airplane and duty position.

(d) All documentation and data required under this subpart must be submitted in a form and manner acceptable to the FAA.

(e) Any training or evaluation required under an AQP that is satisfactorily completed in the calendar month before or the calendar month after the calendar month in which it is due is considered to have been completed in the calendar month it was due.

§ 121.905 Confidential commercial information.

(a) Each certificate holder that claims that AQP information or data it is submitting to the FAA is entitled to confidential treatment under 5 U.S.C. 552(b)(4) because it constitutes confidential commercial information as described in 5 U.S.C. 552(b)(4), and should be withheld from public disclosure, must include its request for confidentiality with each submission.

(b) When requesting confidentiality for submitted information or data, the certificate holder must:

(1) If the information or data is transmitted electronically, embed the claim of confidentiality within the electronic record so the portions claimed to be confidential are readily apparent when received and reviewed.

(2) If the information or data is submitted in paper format, place the word “CONFIDENTIAL” on the top of each page containing information or data claimed to be confidential.

(3) Justify the basis for a claim of confidentiality under 5 U.S.C. 552(b)(4).

§ 121.907 Definitions.

The following definitions apply to this subpart:

Crew Resource Management (CRM) means the effective use of all the resources available to crewmembers, including each other, to achieve a safe and efficient flight.

Curriculum outline means a listing of each segment, module, lesson, and lesson element in a curriculum, or an equivalent listing acceptable to the FAA.

Evaluation of proficiency means a Line Operational Evaluation (LOE) or an equivalent evaluation under an AQP acceptable to the FAA.

Evaluator means a person who assesses or judges the performance of crewmembers, instructors, other evaluators, aircraft dispatchers, or other operations personnel.

First Look means the assessment of performance to determine proficiency on designated flight tasks before any briefing, training, or practice on those tasks is given in the training session for a continuing qualification curriculum. First Look is conducted during an AQP continuing qualification cycle to determine trends of degraded proficiency, if any, due in part to the length of the interval between training sessions.

Instructional systems development means a systematic methodology for developing or modifying qualification standards and associated curriculum content based on a

documented analysis of the job tasks, skills, and knowledge required for job proficiency.

Job task listing means a listing of all tasks, subtasks, knowledge, and skills required for accomplishing the operational job.

Line Operational Evaluation (LOE) means a simulated line environment, the scenario content of which is designed to test integrating technical and CRM skills.

Line Operational Simulation (LOS) means a training or evaluation session, as applicable, that is conducted in a simulated line environment using equipment qualified and approved for its intended purpose in an AQP.

Planned hours means the estimated amount of time (as specified in a curriculum outline) that it takes a typical student to complete a segment of instruction (to include all instruction, demonstration, practice, and evaluation, as appropriate, to reach proficiency).

Qualification standard means a statement of a minimum required performance, applicable parameters, criteria, applicable flight conditions, evaluation strategy, evaluation media, and applicable document references.

Qualification standards document means a single document containing all the qualification standards for an AQP together with a prologue that provides a detailed description of all facets of the evaluation process.

Special tracking means assigning a person to an augmented schedule of training, checking, or both.

Training session means a contiguously scheduled period devoted to training activities at a facility approved by the FAA for that purpose.

Variant means a specifically configured aircraft for which the FAA has identified training and qualifications that are significantly different from those applicable to other aircraft of the same make, model, and series.

§ 121.909 Approval of Advanced Qualification Program.

(a) *Approval process.* Application for approval of an AQP curriculum under this subpart is made, through the FAA office responsible for approval of the certificate holder's operations specifications, to the Manager of the Advanced Qualification Program.

(b) *Approval criteria.* Each AQP must have separate curriculums for indoctrination, qualification, and continuing qualification (including upgrade, transition, and requalification), as specified in §§ 121.911, 121.913, and 121.915. All AQP curriculums must be based on an instructional systems development methodology. This methodology must incorporate a thorough analysis of the certificate holder's operations, aircraft, line environment and job functions. All AQP qualification and continuing qualification curriculums must integrate the training and evaluation of CRM and technical skills and knowledge. An application for approval of an AQP curriculum may be approved if the program meets the following requirements:

(1) The program must meet all the requirements of this subpart.

(2) Each indoctrination, qualification, and continuing qualification AQP, and derivatives must include the following documentation:

(i) Initial application for AQP.

(ii) Initial job task listing.

(iii) Instructional systems development methodology.

(iv) Qualification standards document.

(v) Curriculum outline.

(vi) Implementation and operations plan.

(3) Subject to approval by the FAA, certificate holders may elect, where appropriate, to consolidate information about multiple programs within any of the documents referenced in paragraph (b)(2) of this section.

(4) The Qualification Standards Document must indicate specifically the requirements of the parts 61, 63, 65, 121, or 135 of this chapter, as applicable, that would be replaced by an AQP curriculum. If a practical test requirement of parts 61, 63, 65, 121, or 135 of this chapter is replaced by an AQP curriculum, the certificate holder must establish an initial justification and a continuing process approved by the FAA to show how the AQP curriculum provides an equivalent level of safety for each requirement that is to be replaced.

(c) *Application and transition.* Each certificate holder that applies for one or more advanced qualification curriculums must include as part of its application a proposed transition plan (containing a calendar of events) for moving from its present approved training to the advanced qualification program training.

(d) *Advanced Qualification Program revisions or rescissions of approval.* If after a certificate holder begins training and qualification under an AQP, the FAA finds the certificate holder is not meeting the provisions of its approved AQP, the FAA may require the certificate holder, pursuant to § 121.405(e), to make revisions. Or if otherwise warranted, the FAA may withdraw AQP approval and require the certificate holder to submit and obtain approval for a plan (containing a schedule of events) that the certificate holder must comply with and use to transition to an approved training program under subpart N of this part or under subpart H of part 135 of this chapter, as appropriate. The certificate holder may also voluntarily submit and obtain approval for a plan (containing a schedule of events) to transition to an approved training program under subpart N of this part or under subpart H of part 135 of this chapter, as appropriate.

(e) *Approval by the FAA.* Final approval of an AQP by the FAA indicates the FAA has accepted the justification provided under paragraph (b)(4) of this section and the applicant's initial justification and continuing process establish an equivalent level of safety for each requirement of parts 61, 63, 65, 121, and 135 of this chapter that is being replaced.

§ 121.911 Indoctrination curriculum.

Each indoctrination curriculum must include the following:

(a) For newly hired persons being trained under an AQP: The certificate holder's policies and operating practices and general operational knowledge.

(b) For newly hired crewmembers and aircraft dispatchers: General aeronautical knowledge appropriate to the duty position.

(c) For instructors: The fundamental principles of the teaching and learning process; methods and theories of instruction; and the knowledge necessary to use aircraft, flight training devices, flight simulators, and other training equipment in advanced qualification curriculums, as appropriate.

(d) For evaluators: General evaluation requirements of the AQP; methods of evaluating crewmembers and aircraft dispatchers and other operations personnel, as appropriate, and policies and practices used to conduct the kinds of evaluations particular to an AQP (e.g., LOE).

§ 121.913 Qualification curriculum.

Each qualification curriculum must contain training, evaluation, and certification activities, as applicable for specific positions subject to the AQP, as follows:

(a) The certificate holder's planned hours of training, evaluation, and supervised operating experience.

(b) For crewmembers, aircraft dispatchers, and other operations personnel, the following:

(1) Training, evaluation, and certification activities that are aircraft- and equipment-specific to qualify a person for a particular duty position on, or duties related to the operation of, a specific make, model, series, or variant aircraft.

(2) A list of and text describing the knowledge requirements, subject materials, job skills, and qualification standards of each proficiency objective to be trained and evaluated.

(3) The requirements of the certificate holder's approved AQP program that are in addition to or in place of, the requirements of parts 61, 63, 65, 121 or 135 of this chapter, including any applicable practical test requirements.

(4) A list of and text describing operating experience, evaluation/remediation strategies, provisions for special tracking, and how recency of experience requirements will be accomplished.

(c) For flight crewmembers: Initial operating experience and line check.

(d) For instructors, the following as appropriate:

(1) Training and evaluation activities to qualify a person to conduct instruction on how to operate, or on how to ensure the safe operation of a particular make, model, and series aircraft (or variant).

(2) A list of and text describing the knowledge requirements, subject materials, job skills, and qualification

standards of each procedure and proficiency objective to be trained and evaluated.

(3) A list of and text describing evaluation/remediation strategies, standardization policies and recency requirements.

(e) For evaluators: The requirements of paragraph (d)(1) of this section plus the following, as appropriate:

(1) Training and evaluation activities that are aircraft and equipment specific to qualify a person to assess the performance of persons who operate or who ensure the safe operation of, a particular make, model, and series aircraft (or variant).

(2) A list of and text describing the knowledge requirements, subject materials, job skills, and qualification standards of each procedure and proficiency objective to be trained and evaluated.

(3) A list of and text describing evaluation/remediation strategies, standardization policies and recency requirements.

§ 121.915 Continuing qualification curriculum.

Each continuing qualification curriculum must contain training and evaluation activities, as applicable for specific positions subject to the AQP, as follows:

(a) *Continuing qualification cycle.* A continuing qualification cycle that ensures that during each cycle each person qualified under an AQP, including instructors and evaluators, will receive a mix that will ensure training and evaluation on all events and subjects necessary to ensure that each person maintains proficiency in knowledge, technical skills, and cognitive skills required for initial qualification in accordance with the approved continuing qualification AQP, evaluation/remediation strategies, and provisions for special tracking. Each continuing qualification cycle must include at least the following:

(1) *Evaluation period.* Initially the continuing qualification cycle is comprised of two or more evaluation periods of equal duration. Each person qualified under an AQP must receive ground training and flight training, as appropriate, and an evaluation of proficiency during each evaluation period at a training facility. The number and frequency of training sessions must be approved by the FAA.

(2) *Training.* Continuing qualification must include training in all tasks, procedures and subjects required in accordance with the approved program documentation, as follows:

(i) For pilots in command, seconds in command, and flight engineers, First Look in accordance with the certificate holder's FAA-approved program documentation.

(ii) For pilots in command, seconds in command, flight engineers, flight attendants, instructors and evaluators: Ground training including a general review of knowledge and skills covered in qualification training, updated information on newly developed procedures, and safety information.

(iii) For crewmembers, instructors, evaluators, and other operational personnel who conduct their duties in flight: Proficiency training in an aircraft, flight training device, flight

simulator, or other equipment, as appropriate, on normal, abnormal, and emergency flight procedures and maneuvers.

(iv) For dispatchers and other operational personnel who do not conduct their duties in flight: ground training including a general review of knowledge and skills covered in qualification training, updated information on newly developed procedures, safety related information, and, if applicable, a line observation program.

(v) For instructors and evaluators: Proficiency training in the type flight training device or the type flight simulator, as appropriate, regarding training equipment operation. For instructors and evaluators who are limited to conducting their duties in flight simulators or flight training devices: Training in operational flight procedures and maneuvers (normal, abnormal, and emergency).

(b) *Evaluation of performance.* Continuing qualification must include evaluation of performance on a sample of those events and major subjects identified as diagnostic of competence and approved for that purpose by the FAA. The following evaluation requirements apply:

(1) Evaluation of proficiency as follows:

(i) For pilots in command, seconds in command, and flight engineers: An evaluation of proficiency, portions of which may be conducted in an aircraft, flight simulator, or flight training device as approved in the certificate holder's curriculum that must be completed during each evaluation period.

(ii) For any other persons covered by an AQP, a means to evaluate their proficiency in the performance of their duties in their assigned tasks in an operational setting.

(2) Line checks as follows:

(i) Except as provided in paragraph (b)(2)(ii) of this section, for pilots in command: A line check conducted in an aircraft during actual flight operations under part 121 or part 135 of this chapter or during operationally (line) oriented flights, such as ferry flights or proving flights. A line check must be completed in the calendar month at the midpoint of the evaluation period.

(ii) With the FAA's approval, a no-notice line check strategy may be used in lieu of the line check required by paragraph (b)(2)(i) of this section. The certificate holder who elects to exercise this option must ensure the "no-notice" line checks are administered so the flight crewmembers are not notified before the evaluation. In addition, the AQP certificate holder must ensure that each pilot in command receives at least one "no-notice" line check every 24 months. As a minimum, the number of "no-notice" line checks administered each calendar year must equal at least 50% of the certificate holder's pilot-in-command workforce in accordance with a strategy approved by the FAA for that purpose. In addition, the line checks to be conducted under this paragraph must be conducted over all geographic areas flown by the certificate holder in accordance with a sampling methodology approved by the FAA for that purpose.

(iii) During the line checks required under paragraph (b)(2)(i) and (ii) of this section, each person performing duties as a pilot in command, second in command, or flight engineer for that flight, must be individually evaluated to determine whether the person remains adequately trained and currently proficient with respect to the particular aircraft, crew position, and type of operation in which he or she serves; and the person has sufficient knowledge and skills to operate effectively as part of a crew. The evaluator must be a check airman, an APD, or an FAA inspector and must hold the certificates and ratings required of the pilot in command.

(c) *Recency of experience.* For pilots in command, seconds in command, flight engineers, aircraft dispatchers, instructors, evaluators, and flight attendants, approved recency of experience requirements appropriate to the duty position.

(d) *Duration of cycles and periods.* Initially, the continuing qualification cycle approved for an AQP must not exceed 24 calendar months in duration, and must include two or more evaluation periods of equal duration. After that, upon demonstration by a certificate holder that an extension is warranted, the FAA may approve an extension of the continuing qualification cycle to a maximum of 36 calendar months in duration.

(e) *Requalification.* Each continuing qualification curriculum must include a curriculum segment that covers the requirements for requalifying a crewmember, aircraft dispatcher, other operations personnel, instructor, or evaluator who has not maintained continuing qualification.

§ 121.917 Other requirements.

In addition to the requirements of §§ 121.913 and 121.915, each AQP qualification and continuing qualification curriculum must include the following requirements:

(a) Integrated Crew Resource Management (CRM) or Dispatcher Resource Management (DRM) ground and if appropriate flight training applicable to each position for which training is provided under an AQP.

(b) Approved training on and evaluation of skills and proficiency of each person being trained under AQP to use his or her resource management skills and his or her technical (piloting or other) skills in an actual or simulated operations scenario. For flight crewmembers this training and evaluation must be conducted in an approved flight training device, flight simulator, or, if approved under this subpart, in an aircraft.

(c) Data collection and analysis processes acceptable to the FAA that will ensure the certificate holder provides performance information on its crewmembers, dispatchers, instructors, evaluators, and other operations personnel that will enable the certificate holder and the FAA to determine whether the form and content of training and evaluation activities are satisfactorily accomplishing the overall objectives of the curriculum.

§ 121.919 Certification.

A person subject to an AQP is eligible to receive a commercial or airline transport pilot, flight engineer, or aircraft dispatcher certificate or appropriate rating based on the successful completion of training and evaluation events accomplished under that program if the following requirements are met:

(a) Training and evaluation of required knowledge and skills under the AQP must meet minimum certification and rating criteria established by the FAA in parts 61, 63, or 65 of this chapter. The FAA may approve alternatives to the certification and rating criteria of parts 61, 63, or 65 of this chapter, including practical test requirements, if it can be demonstrated that the newly established criteria or requirements represent an equivalent or better measure of crewmember or dispatcher competence, operational proficiency, and safety.

(b) The applicant satisfactorily completes the appropriate qualification curriculum.

(c) The applicant shows competence in required technical knowledge and skills (*e.g.*, piloting or other) and crew resource management (*e.g.*, CRM or DRM) knowledge and skills in scenarios (*i.e.*, LOE) that test both types of knowledge and skills together.

(d) The applicant is otherwise eligible under the applicable requirements of part 61, 63, or 65 of this chapter.

(e) The applicant has been trained to proficiency on the certificate holder's approved AQP Qualification Standards as witnessed by an instructor, check airman, or APD and has passed an LOE administered by an APD or the FAA.

§ 121.921 Training devices and simulators.

(a) Each flight training device or airplane simulator that will be used in an AQP for one of the following purposes must be evaluated by the FAA for assignment of a flight training device or flight simulator qualification level:

(1) Required evaluation of individual or crew proficiency.

(2) Training to proficiency or training activities that determine if an individual or crew is ready for an evaluation of proficiency.

(3) Activities used to meet recency of experience requirements.

(4) Line Operational Simulations (LOS).

(b) Approval of other training equipment.

(1) Any training equipment that is intended to be used in an AQP for purposes other than those set forth in paragraph (a) of this section must be approved by the FAA for its intended use.

(2) An applicant for approval of training equipment under this paragraph must identify the device by its nomenclature and describe its intended use.

(3) Each training device approved for use in an AQP must be part of a continuing program to provide for its serviceability and fitness to perform its intended function as approved by the FAA.

§ 121.923 Approval of training, qualification, or evaluation by a person who provides training by arrangement.

(a) A certificate holder operating under part 121 or part 135 of this chapter may arrange to have AQP training, qualification, evaluation, or certification functions performed by another person (a "training provider") if the following requirements are met:

(1) The training provider is certificated under part 119 or 142 of this chapter.

(2) The training provider's AQP training and qualification curriculums, curriculum segments, or portions of curriculum segments must be provisionally approved by the FAA. A training provider may apply for provisional approval independently or in conjunction with a certificate holder's application for AQP approval. Application for provisional approval must be made, through the FAA office directly responsible for oversight of the training provider, to the Manager of the Advanced Qualification Program.

(3) The specific use of provisionally approved curriculums, curriculum segments, or portions of curriculum segments in a certificate holder's AQP must be approved by the FAA as set forth in § 121.909.

(b) An applicant for provisional approval of a curriculum, curriculum segment, or portion of a curriculum segment under this paragraph must show the following requirements are met:

(1) The applicant must have a curriculum for the qualification and continuing qualification of each instructor and evaluator used by the applicant.

(2) The applicant's facilities must be found by the FAA to be adequate for any planned training, qualification, or evaluation for a certificate holder operating under part 121 or part 135 of this chapter.

(3) Except for indoctrination curriculums, the curriculum, curriculum segment, or portion of a curriculum segment must identify the specific make, model, and series aircraft (or variant) and crewmember or other positions for which it is designed.

(c) A certificate holder who wants approval to use a training provider's provisionally approved curriculum, curriculum segment, or portion of a curriculum segment in its AQP, must show the following requirements are met:

(1) Each instructor or evaluator used by the training provider must meet all the qualification and continuing qualification requirements that apply to employees of the certificate holder that has arranged for the training, including knowledge of the certificate holder's operations.

(2) Each provisionally approved curriculum, curriculum segment, or portion of a curriculum segment must be approved by the FAA for use in the certificate holder's AQP. The FAA will either provide approval or require modifications to ensure that each curriculum, curriculum segment, or portion of a curriculum segment is applicable to the certificate holder's AQP.

§ 121.925 Recordkeeping requirements.

Each certificate holder conducting an approved AQP must establish and maintain records in sufficient detail to demonstrate the certificate holder is in compliance with all the requirements of the AQP and this subpart.

Subpart Z - Hazardous Materials Training Program

Source:

Docket No. FAA-2003-15085, 70 FR 58823, Oct. 7, 2005, unless otherwise noted.

§ 121.1001 Applicability and definitions.

(a) This subpart prescribes the requirements applicable to each certificate holder for training each crewmember and person performing or directly supervising any of the following job functions involving any item for transport on board an aircraft:

- (1) Acceptance;
- (2) Rejection;
- (3) Handling;
- (4) Storage incidental to transport;
- (5) Packaging of company material; or
- (6) Loading.

(b) *Definitions.* For purposes of this subpart, the following definitions apply:

(1) *Company material (COMAT)* - Material owned or used by a certificate holder.

(2) *Initial hazardous materials training* - The basic training required for each newly hired person, or each person changing job functions, who performs or directly supervises any of the job functions specified in paragraph (a) of this section.

(3) *Recurrent hazardous materials training* - The training required every 24 months for each person who has satisfactorily completed the certificate holder's approved initial hazardous materials training program and performs or directly supervises any of the job functions specified in paragraph (a) of this section.

§ 121.1003 Hazardous materials training: General.

(a) Each certificate holder must establish and implement a hazardous materials training program that:

- (1) Satisfies the requirements of Appendix O of this part;
- (2) Ensures that each person performing or directly supervising any of the job functions specified in § 121.1001(a) is trained to comply with all applicable parts of 49 CFR parts 171 through 180 and the requirements of this subpart; and
- (3) Enables the trained person to recognize items that contain, or may contain, hazardous materials regulated by 49 CFR parts 171 through 180.

(b) Each certificate holder must provide initial hazardous materials training and recurrent hazardous materials training

to each crewmember and person performing or directly supervising any of the job functions specified in § 121.1001(a).

(c) Each certificate holder's hazardous materials training program must be approved by the FAA prior to implementation.

§ 121.1005 Hazardous materials training required.

(a) *Training requirement.* Except as provided in paragraphs (b), (c) and (f) of this section, no certificate holder may use any crewmember or person to perform any of the job functions or direct supervisory responsibilities, and no person may perform any of the job functions or direct supervisory responsibilities, specified in § 121.1001(a) unless that person has satisfactorily completed the certificate holder's FAA-approved initial or recurrent hazardous materials training program within the past 24 months.

(b) *New hire or new job function.* A person who is a new hire and has not yet satisfactorily completed the required initial hazardous materials training, or a person who is changing job functions and has not received initial or recurrent training for a job function involving storage incidental to transport, or loading of items for transport on an aircraft, may perform those job functions for not more than 30 days from the date of hire or a change in job function, if the person is under the direct visual supervision of a person who is authorized by the certificate holder to supervise that person and who has successfully completed the certificate holder's FAA-approved initial or recurrent training program within the past 24 months.

(c) *Persons who work for more than one certificate holder.* A certificate holder that uses or assigns a person to perform or directly supervise a job function specified in § 121.1001(a), when that person also performs or directly supervises the same job function for another certificate holder, need only train that person in its own policies and procedures regarding those job functions, if all of the following are met:

(1) The certificate holder using this exception receives written verification from the person designated to hold the training records representing the other certificate holder that the person has satisfactorily completed hazardous materials training for the specific job function under the other certificate holder's FAA approved hazardous material training program under Appendix O of this part; and

(2) The certificate holder who trained the person has the same operations specifications regarding the acceptance, handling, and transport of hazardous materials as the certificate holder using this exception.

(d) *Recurrent hazardous materials training - Completion date.* A person who satisfactorily completes recurrent hazardous materials training in the calendar month before, or the calendar month after, the month in which the recurrent training is due, is considered to have taken that training during the month in which it is due. If the person completes this training earlier than the month before it is due, the month of the completion date becomes his or her new anniversary month.

(e) *Repair stations.* A certificate holder must ensure that each repair station performing work for, or on the certificate holder's behalf is notified in writing of the certificate holder's policies and operations specification authorization permitting or prohibition against the acceptance, rejection, handling, storage incidental to transport, and transportation of hazardous materials, including company material. This notification requirement applies only to repair stations that are regulated by 49 CFR parts 171 through 180.

(f) *Certificate holders operating at foreign locations.* This exception applies if a certificate holder operating at a foreign location where the country requires the certificate holder to use persons working in that country to load aircraft. In such a case, the certificate holder may use those persons even if they have not been trained in accordance with the certificate holder's FAA approved hazardous materials training program. Those persons, however, must be under the direct visual supervision of someone who has successfully completed the certificate holder's approved initial or recurrent hazardous materials training program in accordance with this part. This exception applies only to those persons who load aircraft.

§ 121.1007 Hazardous materials training records.

(a) *General requirement.* Each certificate holder must maintain a record of all training required by this part received within the preceding three years for each person who performs or directly supervises a job function specified in § 121.1001(a). The record must be maintained during the time that the person performs or directly supervises any of those job functions, and for 90 days thereafter. These training records must be kept for direct employees of the certificate holder, as well as independent contractors, subcontractors, and any other person who performs or directly supervises these job functions for or on behalf of the certificate holder.

(b) *Location of records.* The certificate holder must retain the training records required by paragraph (a) of this section for all initial and recurrent training received within the preceding 3 years for all persons performing or directly supervising the job functions listed in Appendix O at a designated location. The records must be available upon request at the location where the trained person performs or directly supervises the job function specified in § 121.1001(a). Records may be maintained electronically and provided on location electronically. When the person ceases to perform or directly supervise a hazardous materials job function, the certificate holder must retain the hazardous materials training records for an additional 90 days and make them available upon request at the last location where the person worked.

(c) *Content of records.* Each record must contain the following:

- (1) The individual's name;
- (2) The most recent training completion date;
- (3) A description, copy or reference to training materials used to meet the training requirement;

(4) The name and address of the organization providing the training; and

(5) A copy of the certification issued when the individual was trained, which shows that a test has been completed satisfactorily.

(d) *New hire or new job function.* Each certificate holder using a person under the exception in § 121.1005(b) must maintain a record for that person. The records must be available upon request at the location where the trained person performs or directly supervises the job function specified in § 121.1001(a). Records may be maintained electronically and provided on location electronically. The record must include the following:

- (1) A signed statement from an authorized representative of the certificate holder authorizing the use of the person in accordance with the exception;
- (2) The date of hire or change in job function;
- (3) The person's name and assigned job function;
- (4) The name of the supervisor of the job function; and
- (5) The date the person is to complete hazardous materials training in accordance with appendix O of this part.

Subpart AA - Continued Airworthiness and Safety Improvements

Source:

Amdt. 121-336, 72 FR 63411, Nov. 8, 2007, unless otherwise noted.

§ 121.1101 Purpose and definition.

(a) This subpart requires persons holding an air carrier or operating certificate under part 119 of this chapter to support the continued airworthiness of each airplane. These requirements may include, but are not limited to, revising the maintenance program, incorporating design changes, and incorporating revisions to Instructions for Continued Airworthiness.

(b) For purposes of this subpart, the "FAA Oversight Office" is the aircraft certification office or office of the Transport Airplane Directorate with oversight responsibility for the relevant type certificate or supplemental type certificate, as determined by the Administrator.

§ 121.1103 [Reserved]

§ 121.1105 Aging airplane inspections and records reviews.

(a) *Applicability.* This section applies to all airplanes operated by a certificate holder under this part, except for those airplanes operated between any point within the State of Alaska and any other point within the State of Alaska.

(b) *Operation after inspection and records review.* After the dates specified in this paragraph, a certificate holder may not operate an airplane under this part unless the Administrator

has notified the certificate holder that the Administrator has completed the aging airplane inspection and records review required by this section. During the inspection and records review, the certificate holder must demonstrate to the Administrator that the maintenance of age-sensitive parts and components of the airplane has been adequate and timely enough to ensure the highest degree of safety.

(1) *Airplanes exceeding 24 years in service on December 8, 2003; initial and repetitive inspections and records reviews.* For an airplane that has exceeded 24 years in service on December 8, 2003, no later than December 5, 2007, and thereafter at intervals not to exceed 7 years.

(2) *Airplanes exceeding 14 years in service but not 24 years in service on December 8, 2003; initial and repetitive inspections and records reviews.* For an airplane that has exceeded 14 years in service but not 24 years in service on December 8, 2003, no later than December 4, 2008, and thereafter at intervals not to exceed 7 years.

(3) *Airplanes not exceeding 14 years in service on December 8, 2003; initial and repetitive inspections and records reviews.* For an airplane that has not exceeded 14 years in service on December 8, 2003, no later than 5 years after the start of the airplane's 15th year in service and thereafter at intervals not to exceed 7 years.

(c) *Unforeseen schedule conflict.* In the event of an unforeseen scheduling conflict for a specific airplane, the Administrator may approve an extension of up to 90 days beyond an interval specified in paragraph (b) of this section.

(d) *Airplane and records availability.* The certificate holder must make available to the Administrator each airplane for which an inspection and records review is required under this section, in a condition for inspection specified by the Administrator, together with records containing the following information:

- (1) Total years in service of the airplane;
- (2) Total time in service of the airframe;
- (3) Total flight cycles of the airframe;
- (4) Date of the last inspection and records review required by this section;
- (5) Current status of life-limited parts of the airframe;
- (6) Time since the last overhaul of all structural components required to be overhauled on a specific time basis;
- (7) Current inspection status of the airplane, including the time since the last inspection required by the inspection program under which the airplane is maintained;
- (8) Current status of applicable airworthiness directives, including the date and methods of compliance, and if the airworthiness directive involves recurring action, the time and date when the next action is required;
- (9) A list of major structural alterations; and
- (10) A report of major structural repairs and the current inspection status for those repairs.

(e) *Notification to Administrator.* Each certificate holder must notify the Administrator at least 60 days before the

date on which the airplane and airplane records will be made available for the inspection and records review.

[Doc. No. FAA-1999-5401, 67 FR 72761, Dec. 6, 2002, as amended by Amdt. 121-284, 70 FR 5532, Feb. 2, 2005; Amdt. 121-310, 70 FR 23936, May 6, 2005. Redesignated by Amdt. 121-336, 72 FR 63412, Nov. 8, 2007]

§ 121.1107 Repairs assessment for pressurized fuselages.

(a) No certificate holder may operate an Airbus Model A300 (excluding the -600 series), British Aerospace Model BAC 1-11, Boeing Model 707, 720, 727, 737, or 747, McDonnell Douglas Model DC-8, DC-9/MD-80 or DC-10, Fokker Model F28, or Lockheed Model L-1011 airplane beyond the applicable flight cycle implementation time specified below, or May 25, 2001, whichever occurs later, unless operations specifications have been issued to reference repair assessment guidelines applicable to the fuselage pressure boundary (fuselage skin, door skin, and bulkhead webs), and those guidelines are incorporated in its maintenance program. The repair assessment guidelines must be approved by the FAA Aircraft Certification Office (ACO), or office of the Transport Airplane Directorate, having cognizance over the type certificate for the affected airplane.

(1) For the Airbus Model A300 (excluding the -600 series), the flight cycle implementation time is:

(i) Model B2: 36,000 flights.

(ii) Model B4-100 (including Model B4-2C): 30,000 flights above the window line, and 36,000 flights below the window line.

(iii) Model B4-200: 25,500 flights above the window line, and 34,000 flights below the window line.

(2) For all models of the British Aerospace BAC 1-11, the flight cycle implementation time is 60,000 flights.

(3) For all models of the Boeing 707, the flight cycle implementation time is 15,000 flights.

(4) For all models of the Boeing 720, the flight cycle implementation time is 23,000 flights.

(5) For all models of the Boeing 727, the flight cycle implementation time is 45,000 flights.

(6) For all models of the Boeing 737, the flight cycle implementation time is 60,000 flights.

(7) For all models of the Boeing 747, the flight cycle implementation time is 15,000 flights.

(8) For all models of the McDonnell Douglas DC-8, the flight cycle implementation time is 30,000 flights.

(9) For all models of the McDonnell Douglas DC-9/MD-80, the flight cycle implementation time is 60,000 flights.

(10) For all models of the McDonnell Douglas DC-10, the flight cycle implementation time is 30,000 flights.

(11) For all models of the Lockheed L-1011, the flight cycle implementation time is 27,000 flights.

(12) For the Fokker F-28 Mark 1000, 2000, 3000, and 4000, the flight cycle implementation time is 60,000 flights.

(b) [Reserved]

[Doc. No. 29104, 65 FR 24125, Apr. 25, 2000; 65 FR 50744, Aug. 21, 2000, as amended by Amdt. 121-282, 66 FR 23130, May 7, 2001; ; Amdt. 121-305, 69 FR 45942, July 30, 2004. Redesignated and amended by Amdt. 121-336, 72 FR 63412, Nov. 8, 2007]

§ 121.1109 Supplemental inspections.

(a) *Applicability.* Except as specified in paragraph (b) of this section, this section applies to transport category, turbine powered airplanes with a type certificate issued after January 1, 1958, that as a result of original type certification or later increase in capacity have -

(1) A maximum type certificated passenger seating capacity of 30 or more; or

(2) A maximum payload capacity of 7,500 pounds or more.

(b) *Exception.* This section does not apply to an airplane operated by a certificate holder under this part between any point within the State of Alaska and any other point within the State of Alaska.

(c) *General requirements.* After December 20, 2010, a certificate holder may not operate an airplane under this part unless the following requirements have been met:

(1) *Baseline Structure.* The certificate holder's maintenance program for the airplane includes FAA-approved damage-tolerance-based inspections and procedures for airplane structure susceptible to fatigue cracking that could contribute to a catastrophic failure. For the purpose of this section, this structure is termed "fatigue critical structure."

(2) *Adverse effects of repairs, alterations, and modifications.* The maintenance program for the airplane includes a means for addressing the adverse effects repairs, alterations, and modifications may have on fatigue critical structure and on inspections required by paragraph (c)(1) of this section. The means for addressing these adverse effects must be approved by the FAA Oversight Office.

(3) *Changes to maintenance program.* The changes made to the maintenance program required by paragraphs (c)(1) and (c)(2) of this section, and any later revisions to these changes, must be submitted to the Principal Maintenance Inspector for review and approval.

[Doc. No. FAA-1999-5401, 70 FR 5532, Feb. 2, 2005. Redesignated by Amdt. 121-336, 72 FR 63412, Nov. 8, 2007; Amdt. 121-337, 72 FR 70508, Dec. 12, 2007]

§ 121.1111 Electrical wiring interconnection systems (EWIS) maintenance program.

(a) Except as provided in paragraph (f) of this section, this section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity, have -

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7500 pounds or more.

(b) After March 10, 2011, no certificate holder may operate an airplane identified in paragraph (a) of this section unless

the maintenance program for that airplane includes inspections and procedures for electrical wiring interconnection systems (EWIS).

(c) The proposed EWIS maintenance program changes must be based on EWIS Instructions for Continued Airworthiness (ICA) that have been developed in accordance with the provisions of Appendix H of part 25 of this chapter applicable to each affected airplane (including those ICA developed for supplemental type certificates installed on each airplane) and that have been approved by the FAA Oversight Office.

(1) For airplanes subject to § 26.11 of this chapter, the EWIS ICA must comply with paragraphs H25.5(a)(1) and (b).

(2) For airplanes subject to § 25.1729 of this chapter, the EWIS ICA must comply with paragraph H25.4 and all of paragraph H25.5.

(d) After March 10, 2011, before returning an airplane to service after any alterations for which EWIS ICA are developed, the certificate holder must include in the airplane's maintenance program inspections and procedures for EWIS based on those ICA.

(e) The EWIS maintenance program changes identified in paragraphs (c) and (d) of this section and any later EWIS revisions must be submitted to the Principal Inspector for review and approval.

(f) This section does not apply to the following airplane models:

- (1) Lockheed L-188
- (2) Bombardier CL-44
- (3) Mitsubishi YS-11
- (4) British Aerospace BAC 1-11
- (5) Concorde
- (6) deHavilland D.H. 106 Comet 4C
- (7) VFW-Vereinigte Flugtechnische Werk VFW-614
- (8) Ilyushin Aviation IL 96T
- (9) Bristol Aircraft Britannia 305
- (10) Handley Page Herald Type 300
- (11) Avions Marcel Dassault - Breguet Aviation Mercure 100C
- (12) Airbus Caravelle
- (13) Lockheed L-300

§ 121.1113 Fuel tank system maintenance program.

(a) Except as provided in paragraph (g) of this section, this section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity, have -

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7500 pounds or more.

(b) For each airplane on which an auxiliary fuel tank is installed under a field approval, before June 16, 2008, the certificate holder must submit to the FAA Oversight Office proposed maintenance instructions for the tank that meet the

requirements of Special Federal Aviation Regulation No. 88 (SFAR 88) of this chapter.

(c) After December 16, 2008, no certificate holder may operate an airplane identified in paragraph (a) of this section unless the maintenance program for that airplane has been revised to include applicable inspections, procedures, and limitations for fuel tanks systems.

(d) The proposed fuel tank system maintenance program revisions must be based on fuel tank system Instructions for Continued Airworthiness (ICA) that have been developed in accordance with the applicable provisions of SFAR 88 of this chapter or § 25.1529 and part 25, Appendix H, of this chapter, in effect on June 6, 2001 (including those developed for auxiliary fuel tanks, if any, installed under supplemental type certificates or other design approval) and that have been approved by the FAA Oversight Office.

(e) After December 16, 2008, before returning an aircraft to service after any alteration for which fuel tank ICA are developed under SFAR 88 or under § 25.1529 in effect on June 6, 2001, the certificate holder must include in the maintenance program for the airplane inspections and procedures for the fuel tank system based on those ICA.

(f) The fuel tank system maintenance program changes identified in paragraphs (d) and (e) of this section and any later fuel tank system revisions must be submitted to the Principal Inspector for review and approval.

(g) This section does not apply to the following airplane models:

- (1) Bombardier CL-44
- (2) Concorde
- (3) deHavilland D.H. 106 Comet 4C
- (4) VFW-Vereinigte Flugtechnische Werk VFW-614
- (5) Ilyushin Aviation IL 96T
- (6) Bristol Aircraft Britannia 305
- (7) Handley Page Herald Type 300
- (8) Avions Marcel Dassault - Breguet Aviation Mercure 100C
- (9) Airbus Caravelle
- (10) Lockheed L-300

§ 121.1115 Limit of validity.

(a) *Applicability.* This section applies to certificate holders operating any transport category, turbine-powered airplane with a maximum takeoff gross weight greater than 75,000 pounds and a type certificate issued after January 1, 1958, regardless of whether the maximum takeoff gross weight is a result of an original type certificate or a later design change. This section also applies to certificate holders operating any transport category, turbine-powered airplane with a type certificate issued after January 1, 1958, regardless of the maximum takeoff gross weight, for which a limit of validity of

the engineering data that supports the structural maintenance program (hereafter referred to as LOV) is required in accordance with § 25.571 or § 26.21 of this chapter after January 14, 2011.

(b) *Limit of validity.* No certificate holder may operate an airplane identified in paragraph (a) of this section after the applicable date identified in Table 1 of this section unless an Airworthiness Limitations section approved under Appendix H to part 25 or § 26.21 of this chapter is incorporated into its maintenance program. The ALS must -

(1) Include an LOV approved under § 25.571 or § 26.21 of this chapter, as applicable, except as provided in paragraph (f) of this section; and

(2) Be clearly distinguishable within its maintenance program.

(c) *Operation of airplanes excluded from § 26.21.* No certificate holder may operate an airplane identified in § 26.21(g) of this chapter after July 14, 2013, unless an Airworthiness Limitations section approved under Appendix H to part 25 or § 26.21 of this chapter is incorporated into its maintenance program. The ALS must -

(1) Include an LOV approved under § 25.571 or § 26.21 of this chapter, as applicable, except as provided in paragraph (f) of this section; and

(2) Be clearly distinguishable within its maintenance program.

(d) *Extended limit of validity.* No certificate holder may operate an airplane beyond the LOV, or extended LOV, specified in paragraph (b)(1), (c), (d), or (f) of this section, as applicable, unless the following conditions are met:

(1) An ALS must be incorporated into its maintenance program that -

(i) Includes an extended LOV and any widespread fatigue damage airworthiness limitation items approved under § 26.23 of this chapter; and

(ii) Is approved under § 26.23 of this chapter.

(2) The extended LOV and the airworthiness limitation items pertaining to widespread fatigue damage must be clearly distinguishable within its maintenance program.

(e) *Principal Maintenance Inspector approval.* Certificate holders must submit the maintenance program revisions required by paragraphs (b), (c), and (d) of this section to the Principal Maintenance Inspector for review and approval.

(f) *Exception.* For any airplane for which an LOV has not been approved as of the applicable compliance date specified in paragraph (c) or Table 1 of this section, instead of including an approved LOV in the ALS, an operator must include the applicable default LOV specified in Table 1 or Table 2 of this section, as applicable, in the ALS.

Table 1 - Airplanes Subject to § 26.21

| Airplane model | Compliance date - months after January 14, 2011 | Default LOV [flight cycles (FC) or flight hours (FH)] |
|--|---|---|
| Airbus - Existing ¹ Models Only: | | |
| A300 B2-1A, B2-1C, B2K-3C, B2-203 | 30 | 48,000 FC |
| A300 B4-2C, B4-103 | 30 | 40,000 FC |
| A300 B4-203 | 30 | 34,000 FC |
| A300-600 Series | 60 | 30,000 FC/67,500 FH |
| A310-200 Series | 60 | 40,000 FC/60,000 FH |
| A310-300 Series | 60 | 35,000 FC/60,000 FH |
| A318 Series | 60 | 48,000 FC/60,000 FH |
| A319 Series | 60 | 48,000 FC/60,000 FH |
| A320-100 Series | 60 | 48,000 FC/48,000 FH |
| A320-200 Series | 60 | 48,000 FC/60,000 FH |
| A321 Series | 60 | 48,000 FC/60,000 FH |
| A330-200, -300 Series (except WV050 family) (non enhanced) | 60 | 40,000 FC/60,000 FH |
| A330-200, -300 Series WV050 family (enhanced) | 60 | 33,000 FC/100,000 FH |
| A330-200 Freighter Series | 60 | See NOTE. |
| A340-200, -300 Series (except WV 027 and WV050 family) (non enhanced) | 60 | 20,000 FC/80,000 FH |
| A340-200, -300 Series WV 027 (non enhanced) | 60 | 30,000 FC/60,000 FH |
| A340-300 Series WV050 family (enhanced) | 60 | 20,000 FC/100,000 FH |
| A340-500, -600 Series | 60 | 16,600 FC/100,000 FH |
| A380-800 Series | 72 | See NOTE. |
| Boeing - Existing ¹ Models Only: | | |
| 717 | 60 | 60,000 FC/60,000 FH |
| 727 (all series) | 30 | 60,000 FC |
| 737 (Classics): 737-100, -200, -200C, -300, -400, -500 | 30 | 75,000 FC |
| 737 (NG): 737-600, -700, -700C, -800, -900, -900ER | 60 | 75,000 FC |
| 747 (Classics): 747-100, -100B, -100B SUD, -200B, -200C, -200F, -300, 747SP, 747SR | 30 | 20,000 FC |
| 747-400: 747-400, -400D, -400F | 60 | 20,000 FC |
| 757 | 60 | 50,000 FC |

| Airplane model | Compliance date - months after January 14, 2011 | Default LOV [flight cycles (FC) or flight hours (FH)] |
|--|--|---|
| 767 | 60 | 50,000 FC |
| 777-200, -300 | 60 | 40,000 FC |
| 777-200LR, 777-300ER | 72 | 40,000 FC |
| 777F | 72 | 11,000 FC |
| Bombardier - Existing ¹ Models Only: | | |
| CL-600: 2D15 (Regional Jet Series 705), 2D24 (Regional Jet Series 900) | 72 | 60,000 FC |
| Embraer - Existing ¹ Models Only: | | |
| ERJ 170 | 72 | See NOTE. |
| ERJ 190 | 72 | See NOTE. |
| Fokker - Existing ¹ Models Only: | | |
| F.28 Mark 0070, Mark 0100 | 30 | 90,000 FC |
| Lockheed - Existing ¹ Models Only: | | |
| L-1011 | 30 | 36,000 FC |
| 188 | 30 | 26,600 FC |
| 382 (all series) | 30 | 20,000 FC/50,000 FH |
| McDonnell Douglas - Existing ¹ Models Only: | | |
| DC-8, -8F | 30 | 50,000 FC/50,000 FH |
| DC-9 (except for MD-80 models) | 30 | 100,000 FC/100,000 FH |
| MD-80 (DC-9-81, -82, -83, -87, MD-88) | 30 | 50,000 FC/50,000 FH |
| MD-90 | 60 | 60,000 FC/90,000 FH |
| DC-10-10, -15 | 30 | 42,000 FC/60,000 FH |
| DC-10-30, -40, -10F, -30F, -40F | 30 | 30,000 FC/60,000 FH |
| MD-10-10F | 60 | 42,000 FC/60,000 FH |
| MD-10-30F | 60 | 30,000 FC/60,000 FH |
| MD-11, MD-11F | 60 | 20,000 FC/60,000 FH |
| Maximum Takeoff Gross Weight Changes: | | |
| All airplanes whose maximum takeoff gross weight has been decreased to 75,000 pounds or below after January 14, 2011, or increased to greater than 75,000 pounds at any time by an amended type certificate or supplemental type certificate | 30, or within 12 months after the LOV is approved, or before operating the airplane, whichever occurs latest | Not applicable. |

| Airplane model | Compliance date - months after January 14, 2011 | Default LOV [flight cycles (FC) or flight hours (FH)] |
|---|--|---|
| All Other Airplane Models (TCs and amended TCs) not Listed in Table 2 | 72, or within 12 months after the LOV is approved, or before operating the airplane, whichever occurs latest | Not applicable. |

¹ Type certificated as of January 14, 2011.

Note: Airplane operation limitation is stated in the Airworthiness Limitation section.

Note:

Airplane operation limitation is stated in the Airworthiness Limitation section.

Table 2 - Airplanes Excluded from § 26.21

| Airplane model | Default LOV [flight cycles (FC) or flight hours (FH)] |
|--|---|
| Airbus: | |
| Caravelle | 15,000 FC/24,000 FH |
| Avions Marcel Dassault: | |
| Breguet Aviation Mercure 100C | 20,000 FC/16,000 FH |
| Boeing: | |
| Boeing 707 (-100 Series and -200 Series) | 20,000 FC |
| Boeing 707 (-300 Series and -400 Series) | 20,000 FC |
| Boeing 720 | 30,000 FC |
| Bombardier: | |
| CL-44D4 and CL-44J | 20,000 FC |
| BD-700 | 15,000 FH |
| Bristol Aeroplane Company: | |
| Britannia 305 | 10,000 FC |
| British Aerospace Airbus, Ltd.: | |
| BAC 1-11 (all models) | 85,000 FC |
| British Aerospace (Commercial Aircraft) Ltd.: | |
| Armstrong Whitworth Argosy A.W. 650 Series 101 | 20,000 FC |
| BAE Systems (Operations) Ltd.: | |
| BAe 146-100A (all models) | 50,000 FC |
| BAe 146-200-07 | 50,000 FC |
| BAe 146-200-07 Dev | 50,000 FC |
| BAe 146-200-11 | 50,000 FC |
| BAe 146-200-07A | 47,000 FC |
| BAe 146-200-11 Dev | 43,000 FC |
| BAe 146-300 (all models) | 40,000 FC |

| Airplane model | Default LOV [flight cycles (FC) or flight hours (FH)] |
|--|---|
| Avro 146-RJ70A (all models) | 40,000 FC |
| Avro 146-RJ85A and 146-RJ100A (all models) | 50,000 FC |
| D & R Nevada, LLC: | |
| Convair Model 22 | 1,000 FC/1,000 FH |
| Convair Model 23M | 1,000 FC/1,000 FH |
| deHavilland Aircraft Company, Ltd.: | |
| D.H. 106 Comet 4C | 8,000 FH |
| Gulfstream: | |
| GV | 40,000 FH |
| GV-SP | 40,000 FH |
| Ilyushin Aviation Complex: | |
| IL-96T | 10,000 FC/30,000 FH |
| Lockheed: | |
| 300-50A01 (USAF C 141A) | 20,000 FC |

[Doc. No. FAA-2006-24281, 75 FR 69785, Nov. 15, 2010, as amended by Amdt. 121-360, 77 FR 30878, May 24, 2012; Amdt. 121-360A, 77 FR 55105, Sept. 7, 2012]

§ 121.1117 Flammability reduction means.

(a) *Applicability.* Except as provided in paragraph (o) of this section, this section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity have:

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7,500 pounds or more.
 (b) *New Production Airplanes.* Except in accordance with § 121.628, no certificate holder may operate an airplane identified in Table 1 of this section (including all-cargo airplanes) for which the State of Manufacture issued the original certificate of airworthiness or export airworthiness approval after December 27, 2010 unless an Ignition Mitigation Means (IMM) or Flammability Reduction Means (FRM) meeting the requirements of § 26.33 of this chapter is operational.

Table 1

| Model - Boeing | Model - Airbus |
|----------------|-------------------------------|
| 747 Series | A318, A319, A320, A321 Series |
| 737 Series | A330, A340 Series |
| 777 Series | |
| 767 Series | |

(c) *Auxiliary Fuel Tanks.* After the applicable date stated in paragraph (e) of this section, no certificate holder may operate any airplane subject to § 26.33 of this chapter that has an Auxiliary Fuel Tank installed pursuant to a field approval, unless the following requirements are met:

(1) The certificate holder complies with 14 CFR 26.35 by the applicable date stated in that section.

(2) The certificate holder installs Flammability Impact Mitigation Means (FIMM), if applicable, that is approved by the FAA Oversight Office.

(3) Except in accordance with § 121.628, the FIMM, if applicable, is operational.

(d) *Retrofit.* Except as provided in paragraphs (j), (k), and (l) of this section, after the dates specified in paragraph (e) of this section, no certificate holder may operate an airplane to which this section applies unless the requirements of paragraphs (d)(1) and (d)(2) of this section are met.

(1) IMM, FRM or FIMM, if required by §§ 26.33, 26.35, or 26.37 of this chapter, that are approved by the FAA Oversight

Office, are installed within the compliance times specified in paragraph (e) of this section.

(2) Except in accordance with § 121.628, the IMM, FRM or FIMM, as applicable, are operational.

(e) *Compliance Times.* Except as provided in paragraphs (k) and (l) of this section, the installations required by paragraph (d) of this section must be accomplished no later than the applicable dates specified in paragraph (e)(1), (e)(2), or (e)(3) of this section.

(1) Fifty percent of each certificate holder's fleet identified in paragraph (d)(1) of this section must be modified no later than December 26, 2014.

(2) One hundred percent of each certificate holder's fleet identified in paragraph (d)(1) of this section must be modified no later than December 26, 2017.

(3) For those certificate holders that have only one airplane of a model identified in Table 1 of this section, the airplane must be modified no later than December 26, 2017.

(f) *Compliance After Installation.* Except in accordance with § 121.628, no certificate holder may -

(1) Operate an airplane on which IMM or FRM has been installed before the dates specified in paragraph (e) of this section unless the IMM or FRM is operational, or

(2) Deactivate or remove an IMM or FRM once installed unless it is replaced by a means that complies with paragraph (d) of this section.

(g) *Maintenance Program Revisions.* No certificate holder may operate an airplane for which airworthiness limitations have been approved by the FAA Oversight Office in accordance with §§ 26.33, 26.35, or 26.37 of this chapter after the airplane is modified in accordance with paragraph (d) of this section unless the maintenance program for that airplane is revised to include those applicable airworthiness limitations.

(h) After the maintenance program is revised as required by paragraph (g) of this section, before returning an airplane to service after any alteration for which airworthiness limitations are required by §§ 25.981, 26.33, or 26.37 of this chapter, the certificate holder must revise the maintenance program for the airplane to include those airworthiness limitations.

(i) The maintenance program changes identified in paragraphs (g) and (h) of this section must be submitted to the operator's Principal Maintenance Inspector responsible for review and approval prior to incorporation.

(j) The requirements of paragraph (d) of this section do not apply to airplanes operated in all-cargo service, but those airplanes are subject to paragraph (f) of this section.

(k) The compliance dates specified in paragraph (e) of this section may be extended by one year, provided that -

(1) No later than March 26, 2009, the certificate holder notifies its assigned Flight Standards Office or Principal Inspector that it intends to comply with this paragraph;

(2) No later than June 24, 2009, the certificate holder applies for an amendment to its operations specification in accordance with § 119.51 of this chapter and revises the manual required by § 121.133 to include a requirement for the airplane models specified in Table 2 of this section to use ground air conditioning systems for actual gate times of more than 30 minutes, when available at the gate and operational, whenever the ambient temperature exceeds 60 degrees Fahrenheit; and

(3) Thereafter, the certificate holder uses ground air conditioning systems as described in paragraph (k)(2) of this section on each airplane subject to the extension.

Table 2

| Model - Boeing | Model - Airbus |
|----------------|-------------------------------|
| 747 Series | A318, A319, A320, A321 Series |
| 737 Series | A300, A310 Series |
| 777 Series | A330, A340 Series |
| 767 Series | |
| 757 Series | |

(l) For any certificate holder for which the operating certificate is issued after December 26, 2008, the compliance date specified in paragraph (e) of this section may be extended by one year, provided that the certificate holder meets the requirements of paragraph (k)(2) of this section when its initial operations specifications are issued and, thereafter, uses ground air conditioning systems as described in paragraph (k) (2) of this section on each airplane subject to the extension.

(m) After the date by which any person is required by this section to modify 100 percent of the affected fleet, no certificate holder may operate in passenger service any airplane model specified in Table 2 of this section unless the

airplane has been modified to comply with § 26.33(c) of this chapter.

(n) No certificate holder may operate any airplane on which an auxiliary fuel tank is installed after December 26, 2017 unless the FAA has certified the tank as compliant with § 25.981 of this chapter, in effect on December 26, 2008.

(o) *Exclusions.* The requirements of this section do not apply to the following airplane models:

- (1) Convair CV-240, 340, 440, including turbine powered conversions.
- (2) Lockheed L-188 Electra.
- (3) Vickers VC-10.

- (4) Douglas DC-3, including turbine powered conversions.
- (5) Bombardier CL-44.
- (6) Mitsubishi YS-11.
- (7) BAC 1-11.
- (8) Concorde.
- (9) deHavilland D.H. 106 Comet 4C.
- (10) VFW - Vereinigte Flugtechnische VFW-614.
- (11) Ilyushin Aviation IL 96T.
- (12) Bristol Aircraft Britannia 305.
- (13) Handley Page Herald Type 300.
- (14) Avions Marcel Dassault - Breguet Aviation Mercure 100C.
- (15) Airbus Caravelle.
- (16) Fokker F-27/Fairchild Hiller FH-227.
- (17) Lockheed L-300.

[Doc. No. FAA-2005-22997, 73 FR 42501, July 21, 2008, as amended by Amdt. 121-345, 74 FR 31619, July 2, 2009]

§ 121.1119 Fuel tank vent explosion protection.

(a) *Applicability.* This section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that have:

- (1) A maximum type-certificated passenger capacity of 30 or more; or
- (2) A maximum payload capacity of 7,500 pounds or more.

(b) *New production airplanes.* No certificate holder may operate an airplane for which the State of Manufacture issued the original certificate of airworthiness or export airworthiness approval after August 23, 2018 unless means, approved by the Administrator, to prevent fuel tank explosions caused by propagation of flames from outside the fuel tank vents into the fuel tank vapor spaces are installed and operational.

[Docket FAA-2014-0500, Amdt. 121-375, 81 FR 41208, June 24, 2016]

Subpart BB [Reserved]

§§ 121.1200-121.1399 [Reserved]

Subpart CC [Reserved]

§§ 121.1400-121.1499 [Reserved]

Subpart DD - Special Federal Aviation Regulations

§ 121.1500 SFAR No. 111 - Lavatory Oxygen Systems.

(a) *Applicability.* This SFAR applies to the following persons:

- (1) All operators of transport category airplanes that are required to comply with AD 2012-11-09, but only for airplanes

on which the actions required by that AD have not been accomplished.

- (2) Applicants for airworthiness certificates.
- (3) Holders of production certificates.
- (4) Applicants for type certificates, including changes to type certificates.

(b) *Regulatory relief.* Except as noted in paragraph (d) of this section and contrary provisions of 14 CFR part 21, and 14 CFR 25.1447, 119.51, 121.329, 121.333 and 129.13, notwithstanding, for the duration of this SFAR:

(1) A person described in paragraph (a) of this section may conduct flight operations and add airplanes to operations specifications with disabled lavatory oxygen systems, modified in accordance with FAA Airworthiness Directive 2011-04-09, subject to the following limitations:

(i) This relief is limited to regulatory compliance of lavatory oxygen systems.

(ii) Within 30 days of March 29, 2013, all oxygen masks must be removed from affected lavatories, and the mask stowage location must be reclosed.

(iii) Within 60 days of March 29, 2013 each affected operator must verify that crew emergency procedures specifically include a visual check of the lavatory as a priority when checking the cabin following any event where oxygen masks were deployed in the cabin.

(2) An applicant for an airworthiness certificate may obtain an airworthiness certificate for airplanes to be operated by a person described in paragraph (a) of this section, although the airplane lavatory oxygen system is disabled.

(3) A holder of a production certificate may apply for an airworthiness certificate or approval for airplanes to be operated by a person described in paragraph (a) of this section.

(4) An applicant for a type certificate or change to a type certificate may obtain a design approval without showing compliance with § 25.1447(c)(1) of this chapter for lavatory oxygen systems, in accordance with this SFAR.

(5) Each person covered by paragraph (a) of this section may inform passengers that the lavatories are not equipped with supplemental oxygen.

(c) *Return to service documentation.* When a person described in paragraph (a) of this section has modified airplanes as required by Airworthiness Directive 2011-04-09, the affected airplanes must be returned to service with a note in the airplane maintenance records that the modification was done under the provisions of this SFAR.

(d) *Expiration.* This SFAR expires on September 10, 2015, except this SFAR will continue to apply to any airplane for which the FAA approves an extension of the AD compliance time for the duration of the extension.

[Doc. No. FAA-2011-0186, 78 FR 5710, Jan. 28, 2013]

Appendix A to Part 121 - First Aid Kits and Emergency Medical Kits

Approved first-aid kits, at least one approved emergency medical kit, and at least one approved automated external defibrillator required under § 121.803 of this part must be

readily accessible to the crew, stored securely, and kept free from dust, moisture, and damaging temperatures.

First-aid Kits

1. The minimum number of first aid kits required is set forth in the following table:

| No. of passenger seats | No. of first-aid kits |
|------------------------|-----------------------|
| 0-50 | 1 |
| 51-150 | 2 |
| 151-250 | 3 |
| More than 250 | 4 |

2. Except as provided in paragraph (3), each approved first-aid kit must contain at least the following appropriately maintained contents in the specified quantities:

| Contents | Quantity |
|--|----------|
| Adhesive bandage compresses, 1-inch | 16 |
| Antiseptic swabs | 20 |
| Ammonia inhalants | 10 |
| Bandage compresses, 4-inch | 8 |
| Triangular bandage compresses, 40-inch | 5 |
| Arm splint, noninflatable | 1 |
| Leg splint, noninflatable | 1 |
| Roller bandage, 4-inch | 4 |
| Adhesive tape, 1-inch standard roll | 2 |
| Bandage scissors | 1 |

3. Arm and leg splints which do not fit within a first-aid kit may be stowed in a readily accessible location that is as near as practicable to the kit.

Emergency Medical Kits

1. Until April 12, 2004, at least one approved emergency medical kit that must contain at least the following appropriately maintained contents in the specified quantities:

| Contents | Quantity |
|---|----------|
| Sphygmomanometer | 1 |
| Stethoscope | 1 |
| Airways, oropharyngeal (3 sizes) | 3 |
| Syringes (sizes necessary to administer required drugs) | 4 |
| Needles (sizes necessary to administer required drugs) | 6 |
| 50% Dextrose injection, 50cc | 1 |
| Epinephrine 1:1000, single dose ampule or equivalent) | 2 |
| Diphenhydramine HCl injection, single dose ampule or equivalent | 2 |
| Nitroglycerin tablets | 10 |
| Basic instructions for use of the drugs in the kit | 1 |

| Contents | Quantity |
|--|----------|
| protective nonpermeable gloves or equivalent | 1 pair |

2. As of April 12, 2004, at least one approved emergency medical kit that must contain at least the following appropriately maintained contents in the specified quantities:

| Contents | Quantity |
|---|-----------|
| Sphygmonanometer | 1 |
| Stethoscope | 1 |
| Airways, oropharyngeal (3 sizes): 1 pediatric, 1 small adult, 1 large adult or equivalent | 3 |
| Self-inflating manual resuscitation device with 3 masks (1 pediatric, 1 small adult, 1 large adult or equivalent) | 1:3 masks |
| CPR mask (3 sizes), 1 pediatric, 1 small adult, 1 large adult, or equivalent | 3 |
| IV Admin Set: Tubing w/ 2 Y connectors | 1 |
| Alcohol sponges | 2 |
| Adhesive tape, 1-inch standard roll adhesive | 1 |
| Tape scissors | 1 pair |
| Tourniquet | 1 |
| Saline solution, 500 cc | 1 |
| Protective nonpermeable gloves or equivalent | 1 pair |
| Needles (2-18 ga., 2-20 ga., 2-22 ga., or sizes necessary to administer required medications) | 6 |
| Syringes (1-5 cc, 2-10 cc, or sizes necessary to administer required medications) | 4 |
| Analgesic, non-narcotic, tablets, 325 mg | 4 |
| Antihistamine tablets, 25 mg | 4 |
| Antihistamine injectable, 50 mg, (single dose ampule or equivalent) | 2 |
| Atropine, 0.5 mg, 5 cc (single dose ampule or equivalent) | 2 |
| Aspirin tablets, 325 mg | 4 |
| Bronchodilator, inhaled (metered dose inhaler or equivalent) | 1 |
| Dextrose, 50%/50 cc injectable, (single dose ampule or equivalent) | 1 |
| Epinephrine 1:1000, 1 cc, injectable, (single dose ampule or equivalent) | 2 |
| Epinephrine 1:10,000, 2 cc, injectable, (single dose ampule or equivalent) | 2 |
| Lidocaine, 5 cc, 20 mg/ml, injectable (single dose ampule or equivalent) | 2 |
| Nitroglycerin tablets, 0.4 mg | 10 |
| Basic instructions for use of the drugs in the kit | 1 |

3. If all of the above-listed items do not fit into one container, more than one container may be used.

Automated External Defibrillators

At least one approved automated external defibrillator, legally marketed in the United States in accordance with Food and Drug Administration requirements, that must:

1. Be stored in the passenger cabin.
2. After April 30, 2005:

(a) Have a power source that meets FAA Technical Standard Order requirements for power sources for electronic devices used in aviation as approved by the Administrator; or

(b) Have a power source that was manufactured before July 30, 2004, and been found by the FAA to be equivalent

to a power source that meets the Technical Standard Order requirements of paragraph (a) of this section.

3. Be maintained in accordance with the manufacturer's specifications.

[Doc. No. FAA-2000-7119, 66 FR 19044, Apr. 12, 2001, as amended by Amdt. 121-280, 69 FR 19762, Apr. 14, 2004; Amdt. 121-309, 70 FR 15196, Mar. 24, 2005]

Appendix B to Part 121 - Airplane Flight Recorder Specification

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution 4 readout |
|--|---|---|--------------------------------|-------------------------|
| Time (GMT or Frame Counter) (range 0 to 4095, sampled 1 per frame) | 24 Hrs | ±0.125% Per Hour | 0.25 (1 per 4 seconds) | 1 sec. |
| Altitude | #1,000 ft to max certificated altitude of aircraft | ±100 to ±700 ft (See Table 1, TSO-C51a) | 1 | 5# to 35# 1 |
| Airspeed | 50 KIAS to V _{SO} , and V _{SO} to 1.2V _D | ±5%, ±3% | 1 | 1 kt. |
| Heading | 360° | ±2° | 1 | 0.5° |
| Normal Acceleration (Vertical) | #3g to +6g | ±1% of max range excluding datum error of ±5% | 8 | 0.01g. |
| Pitch Attitude | ±75° | ±2° | 1 | 0.5° |
| Roll Attitude | ±180° | ±2° | 1 | 0.5° |
| Radio Transmitter Keying | On-Off (Discrete) | ±2° | ±2% | |
| Thrust/Power on Each Engine | Full Range Forward | ±2° | 1 (per engine) | 0.2% 2 |
| Trailing Edge Flap or Cockpit Control Selection | Full Range or Each Discrete Position | ±3° or as Pilot's Indicator | 0.5 | 0.5% 2 |
| Leading Edge Flap or Cockpit Control Selection | Full Range or Each Discrete Position | ±3° or as Pilot's Indicator | 0.5 | 0.5% 2 |
| Thrust Reverser Position | Stowed, In Transit, and Reverse (Discrete) | | 1 (per 4 seconds per engine) | |
| Ground Spoiler Position/ Speed Brake Selection | Full Range or Each Discrete Position | ±2% Unless Higher Accuracy Uniquely Required | 1 | 0.2% 2 |
| Marker Beacon Passage | Discrete | | 1 | |
| Autopilot Engagement | Discrete | | 1 | |
| Longitudinal Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g. |
| Pilot Input and/or Surface Position - Primary | Full Range | ±2° Unless Higher Accuracy Uniquely Required | 1 | 0.2% 2 |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution 4 readout |
|---|--------------------|---|--------------------------------|----------------------------|
| Controls (Pitch, Roll, Yaw) 3 | | | | |
| Lateral Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g. |
| Pitch Trim Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 1 | 0.3% 2. |
| Glideslope Deviation | ±400 Microamps | ±3% | 1 | 0.3% 2. |
| Localizer Deviation | ±400 Microamps | ±3% | 1 | 0.3% 2. |
| AFCS Mode and Engagement Status | Discrete | | 1 | |
| Radio Altitude | #20 ft to 2,500 ft | ±2 Ft or ±3% Whichever is Greater Below 500 Ft and ±5% Above 500 Ft | 1 | 1 ft + 5% 2 above 500#. |
| Master Warning | Discrete | | 1 | |
| Main Gear Squat Switch Status | Discrete | | 1 | |
| Angle of Attack (if recorded directly). | As installed | As installed | 2 | 0.3% 2 |
| Outside Air Temperature or Total Air Temperature. | #50 °C to + 90 °C | ±2 °c | 0.5 | 0.3 °c |
| Hydraulics, Each System Low Pressure | Discrete | | 0.5 | or 0.5% 2 |
| Groundspeed. | As installed | Most Accurate Systems Installed (IMS Equipped Aircraft Only) | 1 | 0.2% 2 |

If additional recording capacity is available, recording of the following parameters is recommended. The parameters are listed in order of significance:

| | | | | |
|-------------------------------------|------------------------------|--------------|-----------------|--|
| Drift Angle | When available, As installed | As installed | 4 | |
| Wind Speed and Direction | When available, As installed | As installed | 4 | |
| Latitude and Longitude | When available, As installed | As installed | 4 | |
| Brake pressure/Brake pedal position | As installed | As installed | 1 | |
| Additional engine parameters: | | | | |
| EPR | As installed | As installed | 1 (per engine). | |
| N1 | As installed | As installed | 1 (per engine). | |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution ⁴ readout |
|---|--------------|---------------------------------------|--------------------------------|---------------------------------|
| N2 | As installed | As installed | 1 (per engine). | |
| EGT | As installed | As installed | 1 (per engine). | |
| Throttle Lever Position | As installed | As installed | 1 (per engine). | |
| Fuel Flow | As installed | As installed | 1 (per engine). | |
| TCAS: | | | | |
| TA | As installed | As installed | 1 | |
| RA | As installed | As installed | 1 | |
| Sensitivity level (as selected by crew) | As installed | As installed | 2 | |
| GPWS (ground proximity warning system) | Discrete | | 1 | |
| Landing gear or gear selector position | Discrete | | 0.25 (1 per 4 seconds) | |
| DME 1 and 2 Distance | 0-200 NM; | As installed | 0.25 | 1 mi. |
| Nav 1 and 2 Frequency Selection | Full range | As installed | 0.25 | |

¹ When altitude rate is recorded. Altitude rate must have sufficient resolution and sampling to permit the derivation of altitude to 5 feet.

² Per cent of full range.

³ For airplanes that can demonstrate the capability of deriving either the control input on control movement (one from the other) for all modes of operation and flight regimes, the “or” applies. For airplanes with non-mechanical control systems (fly-by-wire) the “and” applies. In airplanes with split surfaces, suitable combination of inputs is acceptable in lieu of recording each surface separately.

⁴ This column applies to aircraft manufactured after October 11, 1991.

[Doc. No. 25530, 53 FR 26147, July 11, 1988; 53 FR 30906, Aug. 16, 1988]

Appendix C to Part 121 - C-46 Nontransport Category Airplanes

Cargo Operations

1. *Required engines.* (a) Except as provided in paragraph (b) of this section, the engines specified in subparagraphs (1) or (2) of this section must be installed in C-46 nontransport category airplanes operated at gross weights exceeding 45,000 pounds:

(1) Pratt and Whitney R2800-51-M1 or R2800-75-M1 engines (engines converted from basic model R2800-51 or R2800-75 engines in accordance with FAA approved data) that -

(i) Conform to Engine Specification 5E-8;

(ii) Conform to the applicable portions of the operator's manual;

(iii) Comply with all the applicable airworthiness directives; and

(iv) Are equipped with high capacity oil pump drive gears in accordance with FAA approved data.

(2) Other engines found acceptable by the FAA Regional Flight Standards Division having type certification responsibility for the C-46 airplane.

(b) Upon application by an operator conducting cargo operations with nontransport category C-46 airplanes between points within the State of Alaska, the appropriate FAA Flight Standards District Office, Alaskan Region, may authorize the operation of such airplanes, between points within the State of Alaska; without compliance with paragraph (a) of this section if the operator shows that, in its area of operation, installation of the modified engines is not necessary to provide adequate cooling for single-engine operations. Such authorization and any conditions or limitations therefor is made a part of the Operations Specifications of the operator.

2. *Minimum acceptable means of complying with the special airworthiness requirements.* Unless otherwise authorized under § 121.213, the data set forth in sections 3 through 34 of this appendix, as correlated to the C-46 nontransport category airplane, is the minimum means of compliance with the special airworthiness requirements of §§ 121.215 through 121.281.

3. *Susceptibility of material to fire.* [Deleted as unnecessary]

4. *Cabin interiors.* C-46 crew compartments must meet all the requirements of § 121.215, and, as required in §

121.221, the door between the crew compartment and main cabin (cargo) compartment must be flame resistant.

5. *Internal doors.* Internal doors, including the crew to main cabin door, must meet all the requirements of § 121.217.

6. *Ventilation.* Standard C-46 crew compartments meet the ventilation requirements of § 121.219 if a means of ventilation for controlling the flow of air is available between the crew compartment and main cabin. The ventilation requirement may be met by use of a door between the crew compartment and main cabin. The door need not have louvers installed; however, if louvers are installed, they must be controllable.

7. *Fire precautions.* Compliance is required with all the provisions of § 121.221.

(a) In establishing compliance with this section, the C-46 main cabin is considered as a Class A compartment if -

(1) The operator utilizes a standard system of cargo loading and tiedown that allows easy access in flight to all cargo in such compartment, and, such system is included in the appropriate portion of the operator's manual; and

(2) A cargo barrier is installed in the forward end of the main cabin cargo compartment. The barrier must -

(i) Establish the most forward location beyond which cargo cannot be carried;

(ii) Protect the components and systems of the airplane that are essential to its safe operation from cargo damage; and

(iii) Permit easy access, in flight, to cargo in the main cabin cargo compartment.

The barrier may be a cargo net or a network of steel cables or other means acceptable to the Administrator which would provide equivalent protection to that of a cargo net. The barrier need not meet crash load requirements of FAR § 25.561; however, it must be attached to the cargo retention fittings and provide the degree of cargo retention that is required by the operators' standard system of cargo loading and tiedown.

(b) C-46 forward and aft baggage compartments must meet, as a minimum, Class B requirements of this section or be placarded in a manner to preclude their use as cargo or baggage compartments.

8. *Proof of compliance.* The demonstration of compliance required by § 121.223 is not required for C-46 airplanes in which -

(1) The main cabin conforms to Class A cargo compartment requirements of § 121.219; and

(2) Forward and aft baggage compartments conform to Class B requirements of § 121.221, or are placarded to preclude their use as cargo or baggage compartments.

9. *Propeller deicing fluid.* No change from the requirements of § 121.225. Isopropyl alcohol is a combustible fluid within the meaning of this section.

10. *Pressure cross-feed arrangements, location of fuel tanks, and fuel system lines and fittings.* C-46 fuel systems which conform to all applicable Curtiss design specifications and which comply with the FAA type

certification requirements are in compliance with the provisions of §§ 121.227 through 121.231.

11. *Fuel lines and fittings in designated fire zones.* No change from the requirements of § 121.233.

12. *Fuel valves.* Compliance is required with all the provisions of § 121.235. Compliance can be established by showing that the fuel system conforms to all the applicable Curtiss design specifications, the FAA type certification requirements, and, in addition, has explosion-proof fuel booster pump electrical selector switches installed in lieu of the open contact type used originally.

13. *Oil lines and fittings in designated fire zones.* No change from the requirements of § 121.237.

14. *Oil valves.* C-46 oil shutoff valves must conform to the requirements of § 121.239. In addition, C-46 airplanes using Hamilton Standard propellers must provide, by use of stand pipes in the engine oil tanks or other approved means, a positive source of oil for feathering each propeller.

15. *Oil system drains.* The standard C-46 "Y" drains installed in the main oil inlet line for each engine meet the requirements of § 121.241.

16. *Engine breather line.* The standard C-46 engine breather line installation meets the requirements of § 121.243 if the lower breather lines actually extend to the trailing edge of the oil cooler air exit duct.

17. *Firewalls and firewall construction.* Compliance is required with all of the provisions of §§ 121.245 and 121.247. The following requirements must be met in showing compliance with these sections:

(a) *Engine compartment.* The engine firewalls of the C-46 airplane must -

(1) Conform to type design, and all applicable airworthiness directives;

(2) Be constructed of stainless steel or approved equivalent; and

(3) Have fireproof shields over the fairleads used for the engine control cables that pass through each firewall.

(b) *Combustion heater compartment.* C-46 airplanes must have a combustion heater fire extinguishing system which complies with AD-49-18-1 or an FAA approved equivalent.

18. *Cowling.* Standard C-46 engine cowling (cowling of aluminum construction employing stainless steel exhaust shrouds) which conforms to the type design and cowling configurations which conform to the C-46 transport category requirements meet the requirements of § 121.249.

19. *Engine accessory section diaphragm.* C-46 engine nacelles which conform to the C-46 transport category requirements meet the requirements of § 121.251. As provided for in that section, a means of equivalent protection which does not require provision of a diaphragm to isolate the engine power section and exhaust system from the engine accessory compartment is the designation of the entire engine compartment forward of and including the firewall as a designated fire zone, and the installation of adequate fire detection and fire extinguishing systems which meet the

requirements of § 121.263 and § 121.273, respectively, in such zone.

20. *Powerplant fire protection.* C-46 engine compartments and combustion heater compartments are considered as designated fire zones within the meaning of § 121.253.

21. *Flammable fluids -*

(a) *Engine compartment.* C-46 engine compartments which conform to the type design and which comply with all applicable airworthiness directives meet the requirements of § 121.255.

(b) *Combustion heater compartment.* C-46 combustion heater compartments which conform to type design and which meet all the requirements of AD-49-18-1 or an FAA approved equivalent meet the requirements of § 121.255.

22. *Shutoff means -*

(a) *Engine compartment.* C-46 engine compartments which comply with AD-62-10-2 or FAA approved equivalent meet the requirements of § 121.257 applicable to engine compartments, if, in addition, a means satisfactory to the Administrator is provided to shut off the flow of hydraulic fluid to the cowl flap cylinder in each engine nacelle. The shutoff means must be located aft of the engine firewall. The operator's manual must include, in the emergency portion, adequate instructions for proper operation of the additional shutoff means to assure correct sequential positioning of engine cowl flaps under emergency conditions. In accordance with § 121.315, this positioning must also be incorporated in the emergency section of the pilot's checklist.

(b) *Combustion heater compartment.* C-46 heater compartments which comply with paragraph (5) of AD-49-18-1 or FAA approved equivalent meet the requirements of § 121.257 applicable to heater compartments if, in addition, a shutoff valve located above the main cabin floor level is installed in the alcohol supply line or lines between the alcohol supply tank and those alcohol pumps located under the main cabin floor. If all of the alcohol pumps are located above the main cabin floor, the alcohol shutoff valve need not be installed. In complying with paragraph (5) of AD-49-18-1, a fail-safe electric fuel shutoff valve may be used in lieu of the manually operated valve.

23. *Lines and fittings -* (a) *Engine compartment.* C-46 engine compartments which comply with all applicable airworthiness directives, including AD-62-10-2, by using FAA approved fire-resistant lines, hoses, and end fittings, and engine compartments which meet the C-46 transport category requirements, meet the requirements of § 121.259.

(b) *Combustion heater compartments* All lines, hoses, and end fittings, and couplings which carry fuel to the heaters and heater controls, must be of FAA approved fire-resistant construction.

24. *Vent and drain lines -* (a) *Engine compartment.* C-46 engine compartments meet the requirements of § 121.261 if -

(1) The compartments conform to type design and comply with all applicable airworthiness directives or FAA approved equivalent; and

(2) Drain lines from supercharger case, engine-driven fuel pump, and engine-driven hydraulic pump reach into the scupper drain located in the lower cowling segment.

(b) *Combustion heater compartment.* C-46 heater compartments meet the requirements of § 121.261 if they conform to AD-49-18-1 or FAA approved equivalent.

25. *Fire-extinguishing system.* (a) To meet the requirements of § 121.263, C-46 airplanes must have installed fire extinguishing systems to serve all designated fire zones. The fire-extinguishing systems, the quantity of extinguishing agent, and the rate of discharge shall be such as to provide a minimum of one adequate discharge for each designated fire zone. Compliance with this provision requires the installation of a separate fire extinguisher for each engine compartment. Insofar as the engine compartment is concerned, the system shall be capable of protecting the entire compartment against the various types of fires likely to occur in the compartment.

(b) Fire-extinguishing systems which conform to the C-46 transport category requirements meet the requirements set forth in paragraph (a). Furthermore, fire-extinguishing systems for combustion heater compartments which conform to the requirements of AD-49-18-1 or an FAA approved equivalent also meet the requirements in paragraph (a).

In addition, a fire-extinguishing system for C-46 airplanes meets the adequacy requirement of paragraph (a) if it provides the same or equivalent protection to that demonstrated by the CAA in tests conducted in 1941 and 1942, using a CW-20 type engine nacelle (without diaphragm). These tests were conducted at the Bureau of Standards facilities in Washington, DC, and copies of the test reports are available through the FAA Regional Engineering Offices. In this connection, the flow rates and distribution of extinguishing agent substantiated in American Airmotive Report No. 128-52-d, FAA approved February 9, 1953, provides protection equivalent to that demonstrated by the CAA in the CW-20 tests. In evaluating any C-46 fire-extinguishing system with respect to the aforementioned CW-20 tests, the Administration would require data in a narrative form, utilizing drawings or photographs to show at least the following:

Installation of containers; installation and routing of plumbing; type, number, and location of outlets or nozzles; type, total volume, and distribution of extinguishing agent; length of time required for discharging; means for thermal relief, including type and location of discharge indicators; means of discharging, e.g., mechanical cutterheads, electric cartridge, or other method; and whether a one- or two-shot system is used; and if the latter is used, means of cross-feeding or otherwise selecting distribution of extinguishing agent; and types of materials used in makeup of plumbing.

High rate discharge (HRD) systems using agents such as bromotrifluoromethane, dibrodifluoromethane and chlorobromomethane (CB), may also meet the requirements of paragraph (a).

26. *Fire-extinguishing agents, Extinguishing agent container pressure relief, Extinguishing agent container*

compartment temperatures, and Fire-extinguishing system materials. No change from the requirements of §§ 121.265 through 121.271.

27. *Fire-detector system.* Compliance with the requirements of § 121.273 requires that C-46 fire detector systems conform to:

- (a) AD-62-10-2 or FAA approved equivalent for engine compartments; and
- (b) AD-49-18-1 or FAA approved equivalent for combustion heater compartments

28. *Fire detectors.* No change from the requirements of § 121.275.

29. *Protection of other airplane components against fire.* To meet the requirements of § 121.277, C-46 airplanes must -

- (a) Conform to the type design and all applicable airworthiness directives; and
- (b) Be modified or have operational procedures established to provide additional fire protection for the wheel well door aft of each engine compartment. Modifications may consist of improvements in sealing of the main landing gear wheel well doors. An operational procedure which is acceptable to the Agency is one requiring the landing gear control to be placed in the up position in case of in-flight engine fire. In accordance with § 121.315, such procedure must be set forth in the emergency portion of the operator's emergency checklist pertaining to in-flight engine fire.

30. *Control of engine rotation.* C-46 propeller feathering systems which conform to the type design and all applicable airworthiness directives meet the requirements of § 121.279.

31. *Fuel system independence.* C-46 fuel systems which conform to the type design and all applicable airworthiness directives meet the requirements of § 121.281.

32. *Induction system ice prevention.* The C-46 carburetor anti-icing system which conforms to the type design and all applicable airworthiness directives meets the requirements of § 121.283.

33. *Carriage of cargo in passenger compartments.* Section 121.285 is not applicable to nontransport category C-46 cargo airplanes.

34. *Carriage of cargo in cargo compartments.* A standard cargo loading and tiedown arrangement set forth in the operator's manual and found acceptable to the Administrator must be used in complying with § 121.287.

35. *Performance data.* Performance data on Curtiss model C-46 airplane certificated for maximum weight of 45,000 and 48,000 pounds for cargo-only operations.

1. The following performance limitation data, applicable to the Curtiss model C-46 airplane for cargo-only operation, must be used in determining compliance with §§ 121.199 through 121.205. These data are presented in the tables and figures of this appendix.

Table 1 - Takeoff Limitations

(a) Curtiss C-46 certificated for maximum weight of 45,000 pounds.

(1) *Effective length* of runway required when effective length is determined in accordance with § 121.171 (distance to accelerate to 93 knots TIAS and stop, with zero wind and zero gradient). (Factor = 1.00)

[Distance in feet]

| Standard altitude in feet | Airplane weight in pounds | | |
|---------------------------|---------------------------|--------|-------------|
| | 39,000 | 42,000 | 45,000 1 |
| S.L | 4,110 | 4,290 | 4,570 |
| 1,000 | 4,250 | 4,440 | 4,720 |
| 2,000 | 4,400 | 4,600 | 4,880 |
| 3,000 | 4,650 | 4,880 | 5,190 |
| 4,000 | 4,910 | 5,170 | 5,500 |
| 5,000 | 5,160 | 5,450 | 5,810 |
| 6,000 | 5,420 | 5,730 | 6,120 |
| 7,000 | 5,680 | 6,000 | 6,440 |
| 8,000 | 5,940 | 6,280 | (1) |

¹ Ref. Fig. 1(a)(1) for weight and distance for altitudes above 7,000#.

(2) Actual length of runway required when *effective length*, considering obstacles, is not determined (distance to accelerate to 93 knots TIAS and stop, divided by the factor 0.85).

[Distance in feet]

| Standard altitude in feet | Airplane weight in pounds | | |
|---------------------------|---------------------------|--------|---------------------|
| | 39,000 | 42,000 | 45,000 ¹ |
| S.L | 4,830 | 5,050 | 5,370 |
| 1,000 | 5,000 | 5,230 | 5,550 |
| 2,000 | 5,170 | 5,410 | 5,740 |
| 3,000 | 5,470 | 5,740 | 6,100 |
| 4,000 | 5,770 | 6,080 | 6,470 |
| 5,000 | 6,070 | 6,410 | 6,830 |
| 6,000 | 6,380 | 6,740 | 7,200 |
| 7,000 | 6,680 | 7,070 | 7,570 |
| 8,000 | 6,990 | 7,410 | (1) |

¹ Ref. Fig. 1(a)(2) for weight and distance for altitudes above 7,000#.

(b) Curtiss C-46 certificated for maximum weight 48,000 pounds.

(1) *Effective length* of runway required when effective length is determined in accordance with § 121.171 (distance to accelerate to 93 knots TIAS and stop, with zero wind and zero gradient). (Factor = 1.00)
[Distance in feet]

| Standard altitude in feet | Airplane weight in pounds | | | |
|---------------------------|---------------------------|--------|--------|---------------------|
| | 39,000 | 42,000 | 45,000 | 48,000 ¹ |
| S.L | 4,110 | 4,290 | 4,570 | 4,950 |
| 1,000 | 4,250 | 4,440 | 4,720 | 5,130 |
| 2,000 | 4,400 | 4,600 | 4,880 | 5,300 |
| 3,000 | 4,650 | 4,880 | 5,190 | 5,670 |
| 4,000 | 4,910 | 5,170 | 5,500 | 6,050 |
| 5,000 | 5,160 | 5,450 | 5,810 | 6,420 |
| 6,000 | 5,420 | 5,730 | 6,120 | 6,800 |
| 7,000 | 5,680 | 6,000 | 6,440 | (1) |
| 8,000 | 5,940 | 6,280 | 6,750 | (1) |

¹ Ref. Fig. 1(b)(1) for weight and distance for altitudes above 6,000#.

(2) Actual length of runway required when *effective length*, considering obstacles, is not determined (distance to accelerate to 93 knots TIAS and stop, divided by the factor 0.85).
[Distance in feet]

| Standard altitude in feet | Airplane weight in pounds | | | |
|---------------------------|---------------------------|--------|--------|---------------------|
| | 39,000 | 42,000 | 45,000 | 48,000 ¹ |
| S.L | 4,830 | 5,050 | 5,370 | 5,830 |

| Standard altitude in feet | Airplane weight in pounds | | | |
|---------------------------|---------------------------|--------|--------|---------------------|
| | 39,000 | 42,000 | 45,000 | 48,000 ¹ |
| 1,000 | 5,000 | 5,230 | 5,550 | 6,030 |
| 2,000 | 5,170 | 5,410 | 5,740 | 6,230 |
| 3,000 | 5,470 | 5,740 | 6,100 | 6,670 |
| 4,000 | 5,770 | 6,080 | 6,470 | 7,120 |
| 5,000 | 6,070 | 6,410 | 6,830 | 7,560 |
| 6,000 | 6,380 | 6,740 | 7,200 | 8,010 |
| 7,000 | 6,680 | 7,070 | 7,570 | (1) |
| 8,000 | 6,990 | 7,410 | 7,940 | (1) |

¹ Ref. Fig. 1(b)(2) for weight and distance for altitudes above 6,000#.

Table 2 - En Route Limitations

(a) Curtiss model C-46 certificated for maximum weight of 45,000 pounds (based on a climb speed of 113 knots (TIAS)).

| Weight (pounds) | Terrain clearance (feet) ¹ | Blower setting |
|-----------------|---------------------------------------|----------------|
| 45,000 | 6,450 | Low. |
| 44,000 | 7,000 | Do. |
| 43,000 | 7,500 | Do. |
| 42,200 | 8,000 | High. |
| 41,000 | 9,600 | Do. |
| 40,000 | 11,000 | Do. |
| 39,000 | 12,300 | Do. |

¹ Highest altitude of terrain over which airplanes may be operated in compliance with § 121.201. Ref. Fig. 2(a).

(b) Curtiss model C-46 certificated for maximum weight of 48,000 pounds or with engine installation approved for 2,550 revolutions per minute (1,700 brake horsepower). Maximum continuous power in low blower (based on a climb speed of 113 knots (TIAS)).

| Weight (pounds) | Terrain clearance (feet) ¹ | Blower setting |
|-----------------|---------------------------------------|----------------|
| 48,000 | 5,850 | Low. |
| 47,000 | 6,300 | Do. |
| 46,000 | 6,700 | Do. |
| 45,000 | 7,200 | Do. |
| 44,500 | 7,450 | Do. |
| 44,250 | 8,000 | High. |
| 44,000 | 8,550 | Do. |
| 43,000 | 10,800 | Do. |

| Weight (pounds) | Terrain clearance (feet) 1 | Blower setting |
|-----------------|-------------------------------|----------------|
| 42,000 | 12,500 | Do. |
| 41,000 | 13,000 | Do. |

¹ Highest altitude of terrain over which airplanes may be operated in compliance with § 121.201.

Ref. Fig. 2(b).

Table 3 - Landing Limitations

(a) Intended Destination.

Effective length of runway required for intended destination when effective length is determined in accordance with § 121.171 with zero wind and zero gradient.

(1) Curtiss model C-46 certificated for maximum weight of 45,000 pounds. (0.60 factor)

Distance in feet

| Standard altitude in feet | Airplane weight in pounds and approach speeds 1 in knots | | | | | | | |
|---------------------------|---|----|---------|----|---------|----|---------|----|
| | 40,000 | | 42,000 | | 44,000 | | 45,000 | |
| | V 50 | | V 50 | | V 50 | | V 50 | |
| S.L. | 4,320 | 86 | 4,500 | 88 | 4,700 | 90 | 4,800 | 91 |
| 1,000 | 4,440 | 86 | 4,620 | 88 | 4,830 | 90 | 4,930 | 91 |
| 2,000 | 4,550 | 86 | 4,750 | 88 | 4,960 | 90 | 5,050 | 91 |
| 3,000 | 4,670 | 86 | 4,880 | 88 | 5,090 | 90 | 5,190 | 91 |
| 4,000 | 4,800 | 86 | 5,000 | 88 | 5,220 | 90 | 5,320 | 91 |
| 5,000 | 4,920 | 86 | 5,140 | 88 | 5,360 | 90 | 5,460 | 91 |
| 6,000 | 5,040 | 86 | 5,270 | 88 | 5,550 | 90 | 5,600 | 91 |
| 7,000 | 5,170 | 86 | 5,410 | 88 | 5,650 | 90 | 5,750 | 91 |
| 8,000 | 5,310 | 86 | 5,550 | 88 | 5,800 | 90 | 5,900 | 91 |

¹ Steady approach speed through 50-foot height TIAS denoted by symbol V 50.

Ref. Fig. 3(a)(1).

(2) Curtiss model C-46 certificated for maximum weight of 48,000 pounds. ¹ (0.60 factor.)

Distance in feet

| Standard altitude in feet | Airplane weight in pounds and approach speeds 2 in knots | | | | | | | |
|---------------------------|---|----|---------|----|---------|----|---------|----|
| | 42,000 | | 44,000 | | 46,000 | | 43,000 | |
| | V 50 | | V 50 | | V 50 | | V 50 | |
| S.L. | 3,370 | 80 | 3,490 | 82 | 3,620 | 84 | 3,740 | 86 |
| 1,000 | 3,460 | 80 | 3,580 | 82 | 3,710 | 84 | 3,830 | 86 |
| 2,000 | 3,540 | 80 | 3,670 | 82 | 3,800 | 84 | 3,920 | 86 |
| 3,000 | 3,630 | 80 | 3,760 | 82 | 3,890 | 84 | 4,020 | 86 |
| 4,000 | 3,720 | 80 | 3,850 | 82 | 3,980 | 84 | 4,110 | 86 |
| 5,000 | 3,800 | 80 | 3,940 | 82 | 4,080 | 84 | 4,220 | 86 |
| 6,000 | 3,890 | 80 | 4,040 | 82 | 4,180 | 84 | 4,320 | 86 |
| 7,000 | 3,980 | 80 | 4,140 | 82 | 4,280 | 84 | 4,440 | 86 |
| 8,000 | 4,080 | 80 | 4,240 | 82 | 4,390 | 84 | 4,550 | 86 |

¹ For use with Curtiss model C-46 airplanes when approved for this weight.

² Steady approach speed through 50 height knots TIAS denoted by symbol *V*₅₀³.

Ref. Fig. 3(a)(2).

(b) Alternate Airports.

Effective length of runway required when effective length is determined in accordance with § 121.171 with zero wind and zero gradient.

(1) Curtiss model C-46 certificated for maximum weight of 45,000 pounds. (0.70 factor.)

Distance in feet

| Standard altitude in feet | Airplane weight in pounds and approach speeds | | | | | | | |
|---------------------------|---|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|
| | ¹ in knots | | | | | | | |
| | 40,000 | <i>V</i> ₅₀ | 42,000 | <i>V</i> ₅₀ | 44,000 | <i>V</i> ₅₀ | 45,000 | <i>V</i> ₅₀ |
| S.L. | 3,700 | 86 | 3,860 | 88 | 4,030 | 90 | 4,110 | 91 |
| 1,000 | 3,800 | 86 | 3,960 | 88 | 4,140 | 90 | 4,220 | 91 |
| 2,000 | 3,900 | 86 | 4,070 | 88 | 4,250 | 90 | 4,340 | 91 |
| 3,000 | 4,000 | 86 | 4,180 | 88 | 4,360 | 90 | 4,450 | 91 |
| 4,000 | 4,110 | 86 | 4,290 | 88 | 4,470 | 90 | 4,560 | 91 |
| 5,000 | 4,210 | 86 | 4,400 | 88 | 4,590 | 90 | 4,680 | 91 |
| 6,000 | 4,330 | 86 | 4,510 | 88 | 4,710 | 90 | 4,800 | 91 |
| 7,000 | 4,430 | 86 | 4,630 | 88 | 4,840 | 90 | 4,930 | 91 |
| 8,000 | 4,550 | 86 | 4,750 | 88 | 4,970 | 90 | 5,060 | 91 |

¹ Steady approach speed through 50 foot-height-knots TIAS denoted by symbol *V*₅₀.

Ref. Fig. 3(b)(1).

(2) Curtiss model C-46 certificated for maximum weight of 48,000 pounds. ¹ (0.70 factor.)

Distance in feet

| Standard altitude in feet | Airplane weight in pounds and approach speeds | | | | | | | |
|---------------------------|---|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|
| | ² in knots | | | | | | | |
| | 42,000 | <i>V</i> ₅₀ | 44,000 | <i>V</i> ₅₀ | 46,000 | <i>V</i> ₅₀ | 48,000 | <i>V</i> ₅₀ |
| S.L. | 2,890 | 80 | 3,000 | 82 | 3,110 | 84 | 3,220 | 86 |
| 1,000 | 2,960 | 80 | 3,070 | 82 | 3,180 | 84 | 3,280 | 86 |
| 2,000 | 3,040 | 80 | 3,150 | 82 | 3,260 | 84 | 3,360 | 86 |
| 3,000 | 3,110 | 80 | 3,220 | 82 | 3,340 | 84 | 3,440 | 86 |
| 4,000 | 3,180 | 80 | 3,300 | 82 | 3,410 | 84 | 3,520 | 86 |
| 5,000 | 3,260 | 80 | 3,380 | 82 | 3,500 | 84 | 3,610 | 86 |
| 6,000 | 3,330 | 80 | 3,460 | 82 | 3,580 | 84 | 3,700 | 86 |
| 7,000 | 3,420 | 80 | 3,540 | 82 | 3,670 | 84 | 3,800 | 86 |
| 8,000 | 3,500 | 80 | 3,630 | 82 | 3,760 | 84 | 3,900 | 86 |

¹ For use with Curtiss model C-46 airplanes when approved for this weight.

² Steady approach speed through 50 foot-height-knots TIAS denoted by symbol *V*₅₀.

Ref. Fig. 3(b)(2).

(c) Actual length of runway required when effective length, considering obstacles, is not determined in accordance with § 121.171.

(1) Curtiss model C-46 certificated for maximum weight of 45,000 pounds. (0.55 factor.) Distance in feet

| Standard altitude in feet | Airplane weight in pounds and approach speeds ¹ in knots | | | | | | | |
|---------------------------|---|------|--------|------|--------|------|--------|------|
| | 40,000 | V 50 | 42,000 | V 50 | 44,000 | V 50 | 45,000 | V 50 |
| S.L | 4,710 | 86 | 4,910 | 88 | 5,130 | 90 | 5,230 | 91 |
| 1,000 | 4,840 | 86 | 5,050 | 88 | 5,270 | 90 | 5,370 | 91 |
| 2,000 | 4,960 | 86 | 5,180 | 88 | 5,410 | 90 | 5,510 | 91 |
| 3,000 | 5,090 | 86 | 5,320 | 88 | 5,550 | 90 | 5,660 | 91 |
| 4,000 | 5,230 | 86 | 5,460 | 88 | 5,700 | 90 | 5,810 | 91 |
| 5,000 | 5,360 | 86 | 5,600 | 88 | 5,850 | 90 | 5,960 | 91 |
| 6,000 | 5,500 | 86 | 5,740 | 88 | 6,000 | 90 | 6,110 | 91 |
| 7,000 | 5,640 | 86 | 5,900 | 88 | 6,170 | 90 | 6,280 | 91 |
| 8,000 | 5,790 | 86 | 6,050 | 88 | 6,340 | 90 | 6,450 | 91 |

¹ Steady approach speed through 50 foot-height-knots TIAS denoted by symbol V 50.

Ref. Fig. 3(c)(1).

(2) Curtiss C-46 certificated for maximum weight of 48,000 pounds.¹ (0.55 factor.) Distance in feet

| Standard altitude in feet | Airplane weight in pounds and approach speeds ² in knots | | | | | | | |
|---------------------------|---|------|--------|------|--------|------|--------|------|
| | 42,000 | V 50 | 44,000 | V 50 | 46,000 | V 50 | 48,000 | V 50 |
| S.L | 3,680 | 80 | 3,820 | 82 | 3,960 | 84 | 4,090 | 86 |
| 1,000 | 3,770 | 80 | 3,910 | 82 | 4,050 | 84 | 4,180 | 86 |
| 2,000 | 3,860 | 80 | 4,000 | 82 | 4,140 | 84 | 4,280 | 86 |
| 3,000 | 3,960 | 80 | 4,090 | 82 | 4,240 | 84 | 4,380 | 86 |
| 4,000 | 4,050 | 80 | 4,190 | 82 | 4,340 | 84 | 4,490 | 86 |
| 5,000 | 4,150 | 80 | 4,290 | 82 | 4,450 | 84 | 4,600 | 86 |
| 6,000 | 4,240 | 80 | 4,400 | 82 | 4,560 | 84 | 4,710 | 86 |
| 7,000 | 4,350 | 80 | 4,510 | 82 | 4,670 | 84 | 4,840 | 86 |
| 8,000 | 4,450 | 80 | 4,620 | 82 | 4,790 | 84 | 4,960 | 86 |

¹ For use with Curtiss model C-46 airplanes when approved for this weight.

² Steady approach speed through 50 foot-height-knots TIAS denoted by symbol V 50.

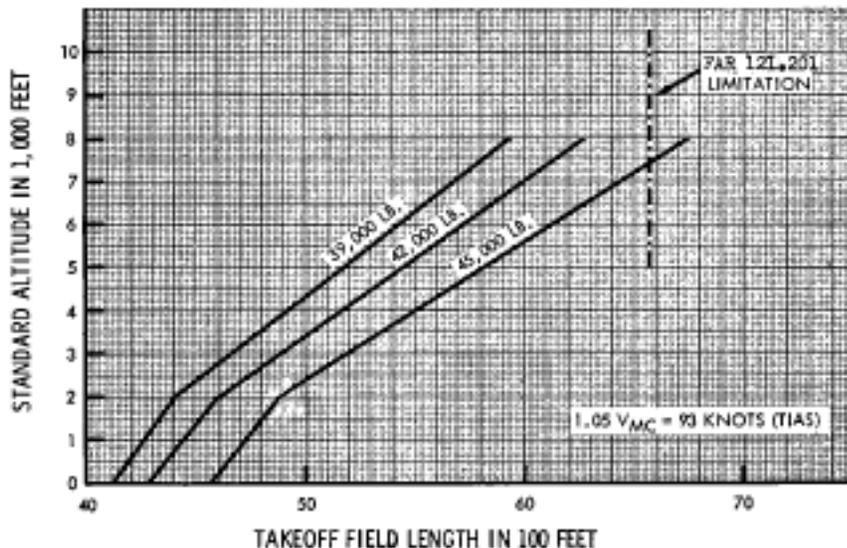
Ref. Fig. 3(c)(2).

CURTISS C-46 MODELS
 CERTIFICATED FOR MAX. WEIGHT OF 45,000 LBS.

TAKEOFF LIMITATION.
 ZERO WIND AND ZERO GRADIENT.

BASED ON EFFECTIVE TAKEOFF
 LENGTH. (1.00 FACTOR)

FAR 121.199



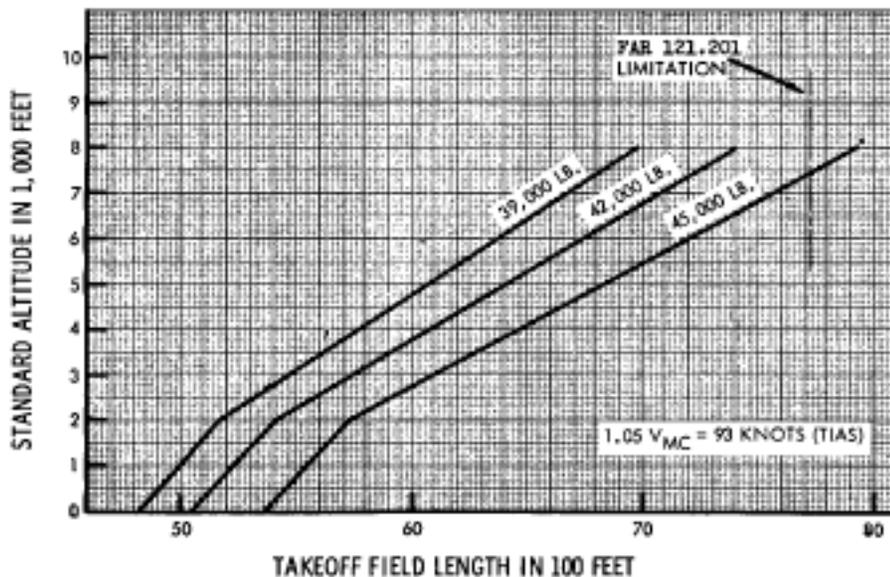
REFERENCE TABLE 1(a) (1)

FIG. 1 (a)(1)

CURTISS C-46 MODELS
 CERTIFICATED FOR MAX. WEIGHT OF 45,000 LBS.

TAKEOFF LIMITATION
 ZERO WIND AND ZERO GRADIENT

BASED ON ACTUAL TAKEOFF LENGTH
 WHEN EFFECTIVE LENGTH IS NOT
 DETERMINED. (0.85 FACTOR)



REFERENCE TABLE 1 (a) (2)

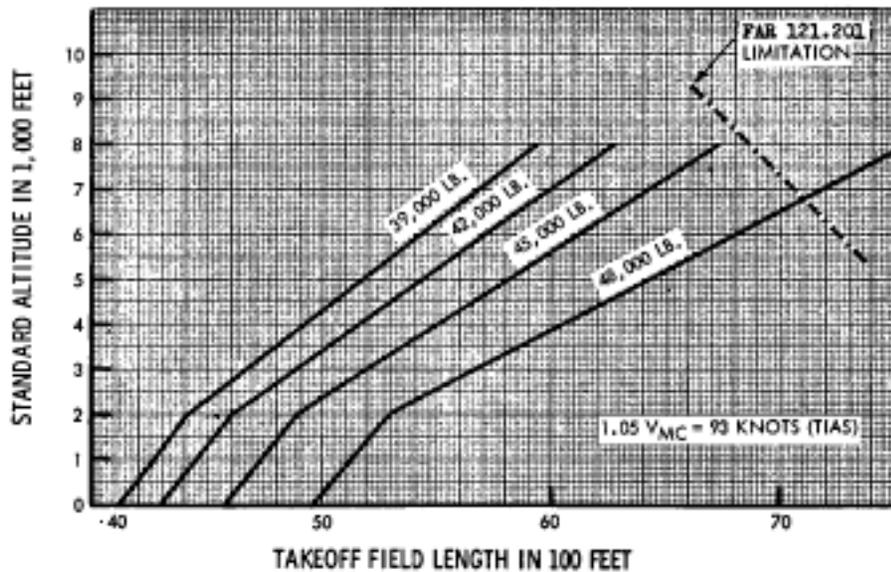
FIG. 1(a) (2)

CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 48,000 LBS.

TAKEOFF LIMITATION
ZERO WIND AND ZERO GRADIENT

BASED ON EFFECTIVE TAKEOFF
LENGTH. (1.00 FACTOR)

FAR 121.199



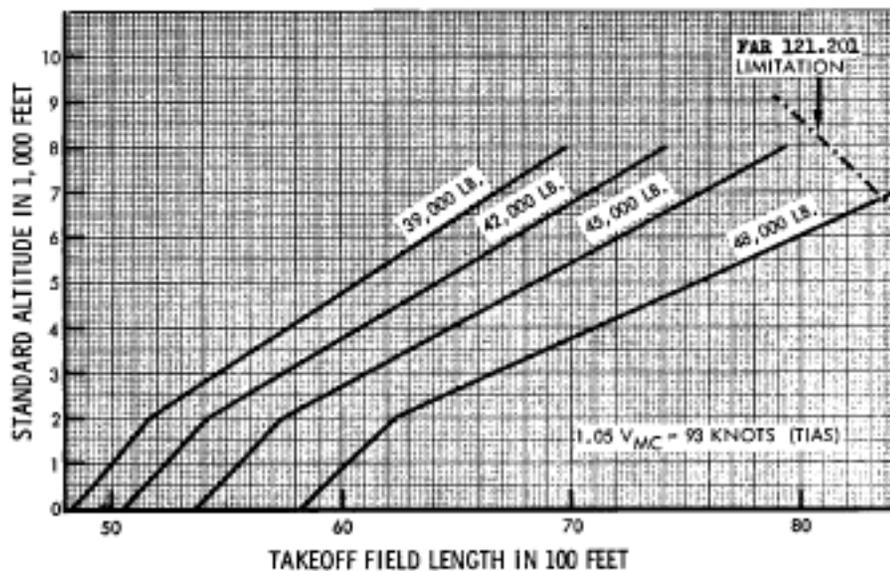
REFERENCE TABLE 1(b) (1)

FIG. 1(b) (1)

CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 48,000 LBS.

TAKEOFF LIMITATION
ZERO WIND AND ZERO GRADIENT

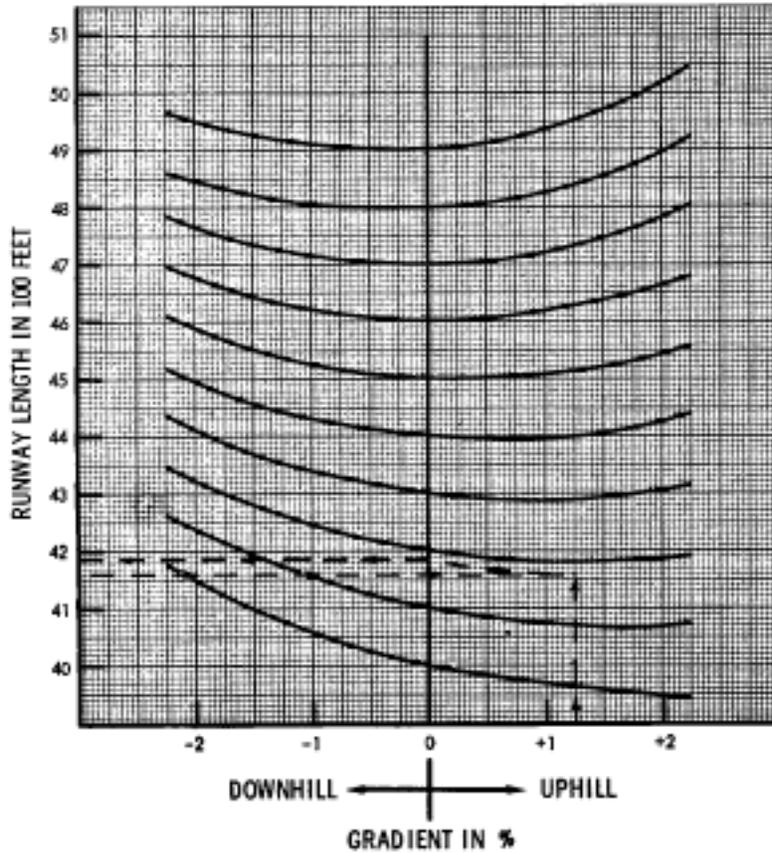
BASED ON ACTUAL TAKEOFF LENGTH
WHEN EFFECTIVE LENGTH IS NOT
DETERMINED. (0.85 FACTOR)



REFERENCE TABLE 1(b) (2)

FIG. 1(b) (2)

RUNWAY GRADIENT CORRECTION
 FOR ACCELERATE - STOP DISTANCE
 FOR C-46 AIRPLANES UNDER FAR 121.199

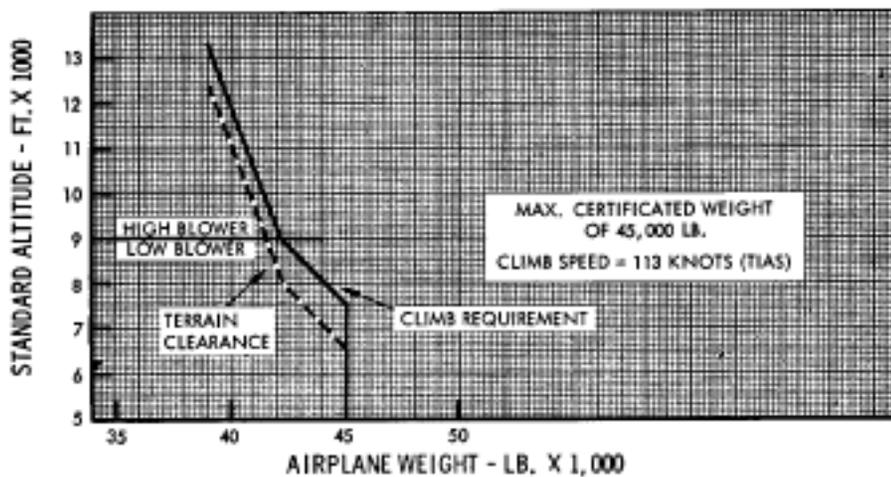


1-27-64

FIG. 1(e)

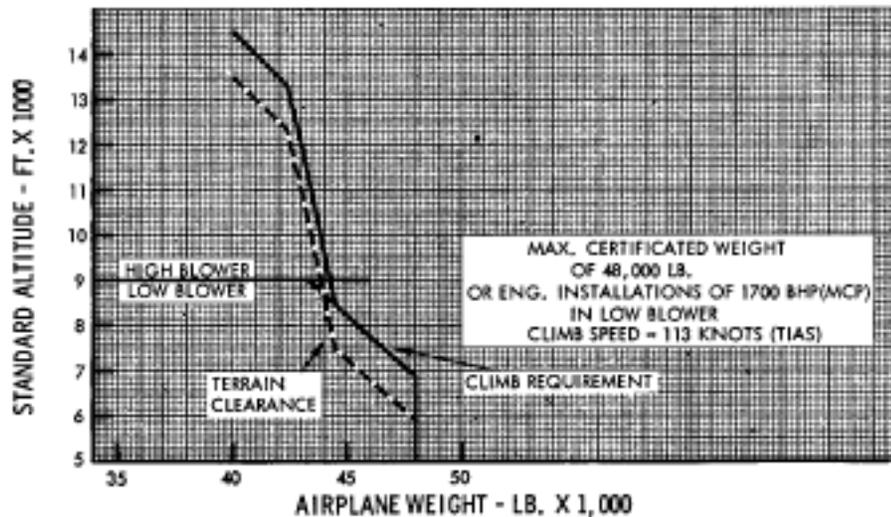
CURTISS C-46 MODELS
ENROUTE LIMITATIONS - ONE ENGINE INOPERATIVE

FAR 121.201



REFERENCE TABLE 2(a)

FIG. 2(a)



REFERENCE TABLE 2(b)

FIG. 2(b)

1-46 MAX. CERTIFICATED WEIGHT 40,000 LB.
 DRIFT-DOWN CHART FAR 121.201
 SINGLE ENGINE ENROUTE OPERATION

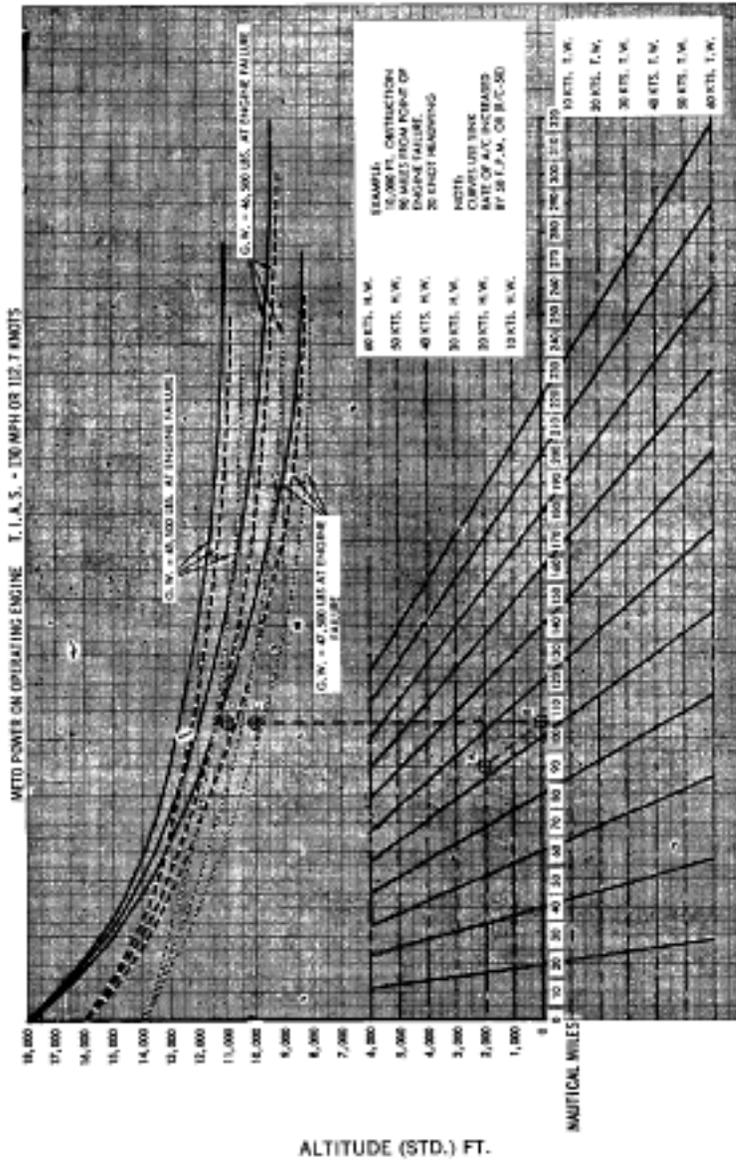
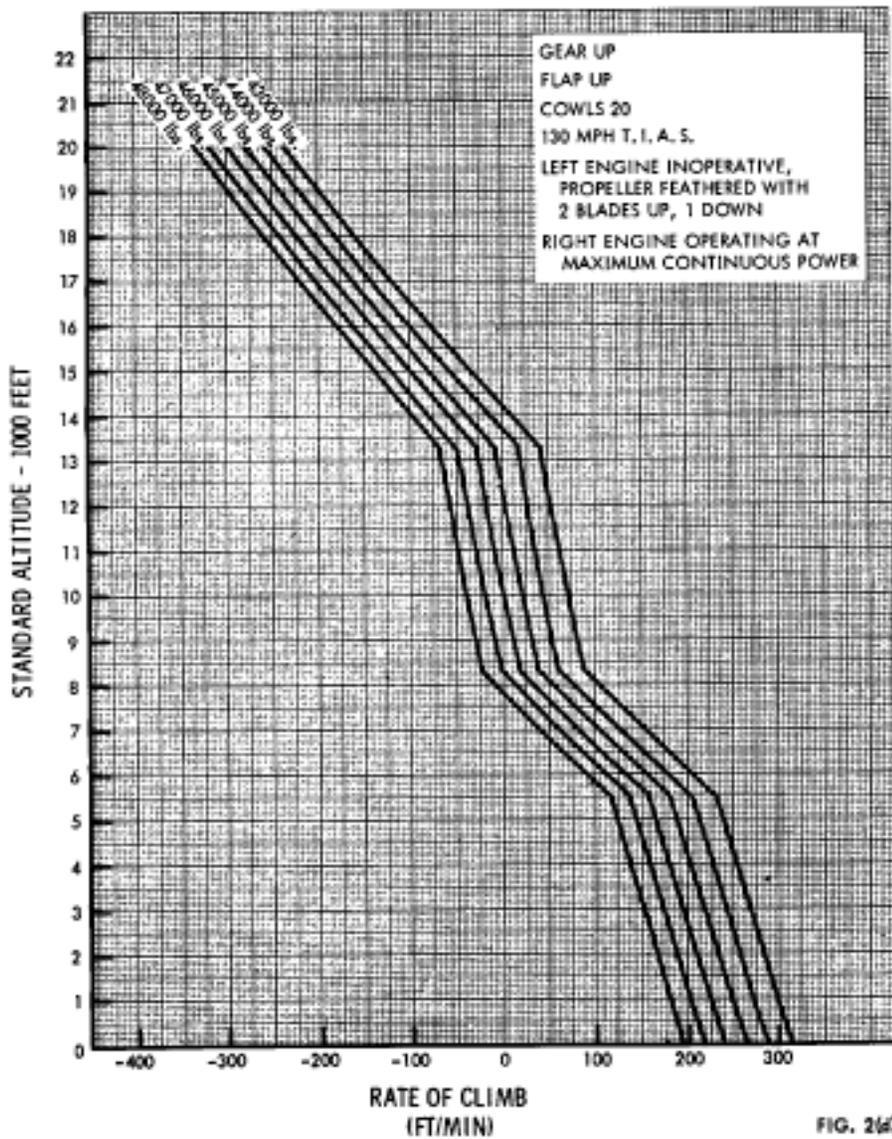


FIG. 201

C-46 MAX. CERTIFICATED WEIGHT 48,000 LBS.
ENROUTE CLIMB SUMMARY



**CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 45,000 LBS.**

LANDING LIMITATIONS.
ZERO WIND AND ZERO GRADIENT

BASED ON EFFECTIVE LANDING LENGTH
AT INTENDED DESTINATION. (0.60 FACTOR)

FAR 121.203

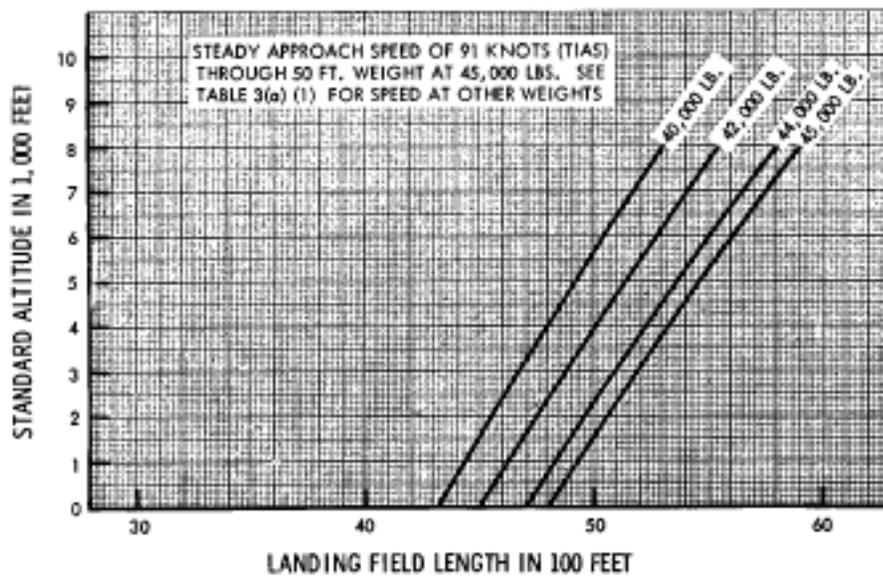


FIG. 3(a) (1)

**CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 48,000 LBS.**

**LANDING LIMITATIONS.
ZERO WIND AND ZERO GRADIENT**

**BASED ON EFFECTIVE LANDING LENGTH
AT INTENDED DESTINATION. (0.60 FACTOR)**

FAR 121.203

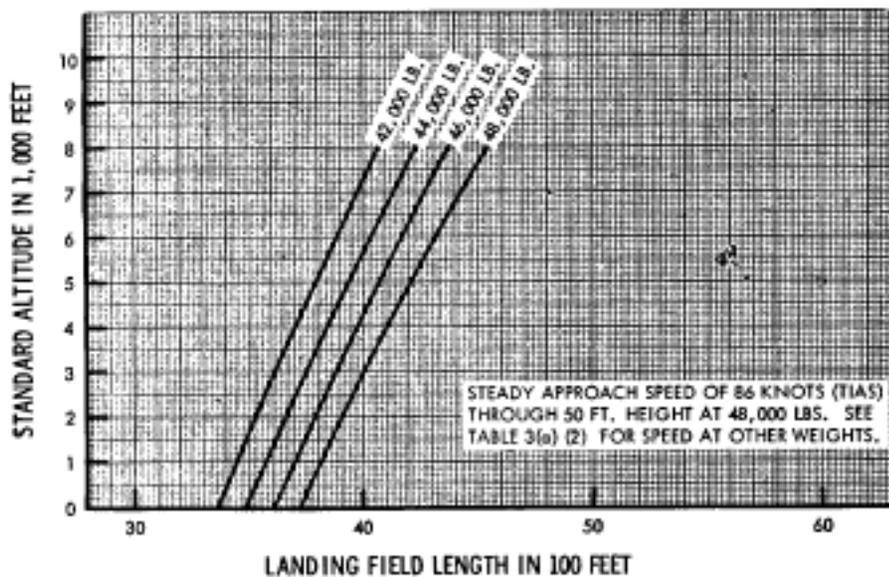


FIG. 31(a) (2)

CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 45,000 LBS.

LANDING LIMITATIONS.
 ZERO WIND AND ZERO GRADIENT

BASED ON EFFECTIVE LANDING LENGTH
 AT ALTERNATE AIRPORTS. (0.70 FACTOR).

FAR 121.205

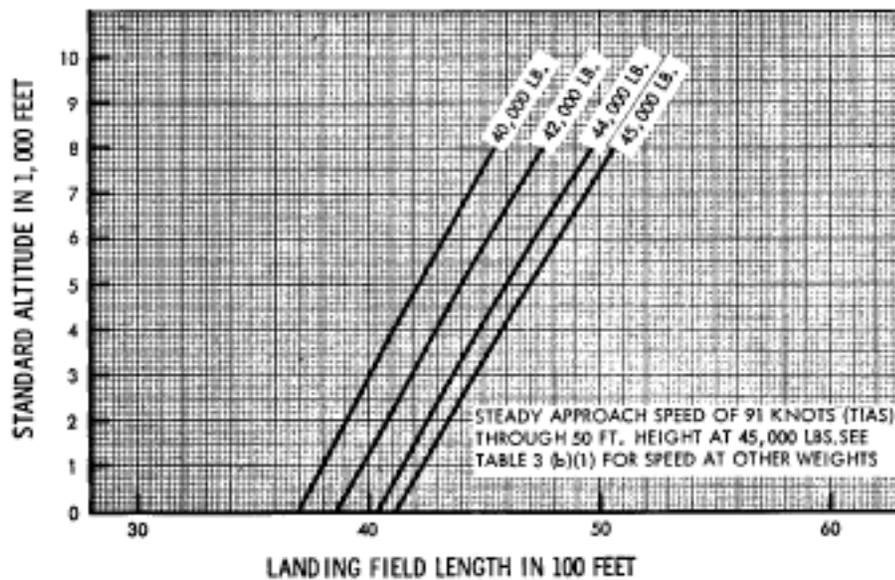


FIG. 3(b) (1)

CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 48,000 LBS.

LANDING LIMITATIONS,
 ZERO WIND AND ZERO GRADIENT

BASED ON EFFECTIVE LANDING LENGTH
 AT ALTERNATE AIRPORTS. (0.70 FACTOR).

FAR 121.205

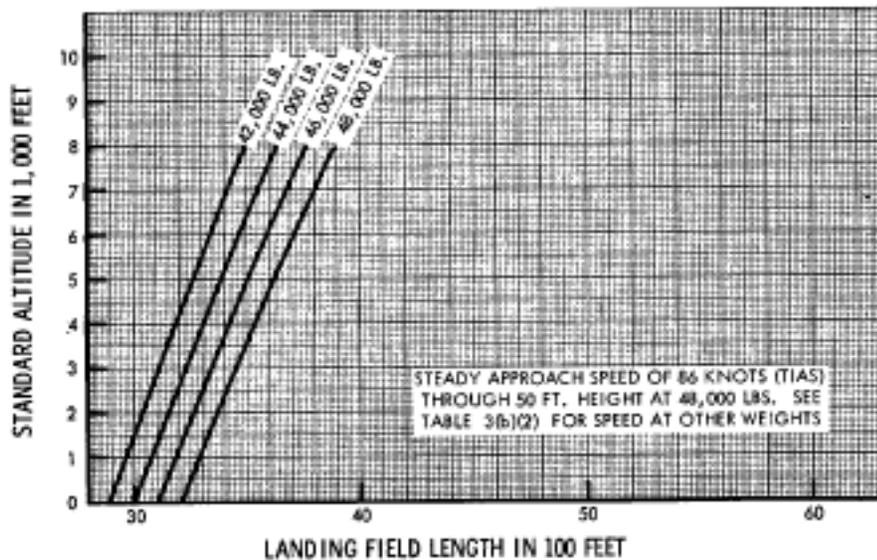


FIG. 3(b) (2)

CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 45,000 LBS.

LANDING LIMITATIONS.
 ZERO WIND AND ZERO GRADIENT

BASED ON ACTUAL LANDING LENGTH
 WHEN EFFECTIVE LENGTH IS NOT
 DETERMINED. (0.55 FACTOR)

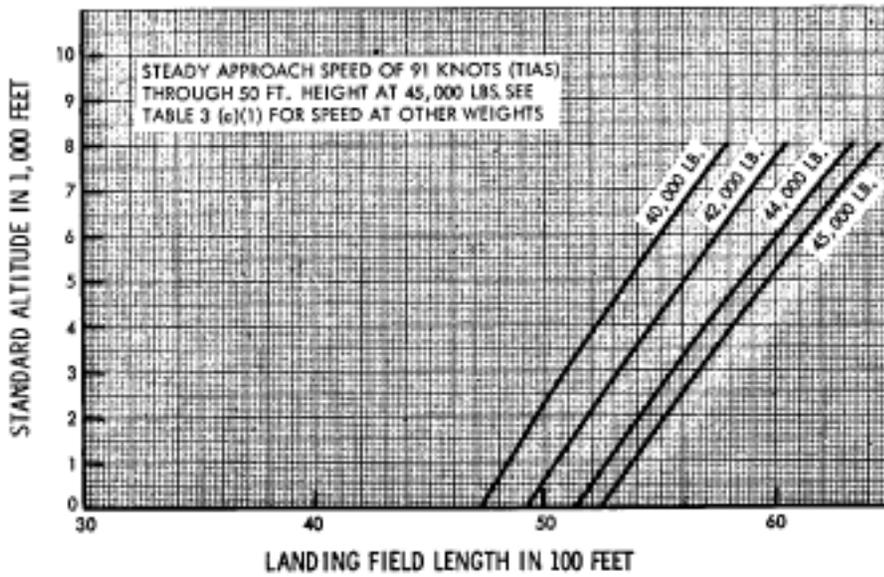


FIG. 3(e)(1)

**CURTISS C-46 MODELS
CERTIFICATED FOR MAX. WEIGHT OF 48,000 LBS.**

LANDING LIMITATIONS,
ZERO WIND AND ZERO GRADIENT

BASED ON ACTUAL LANDING LENGTH
WHEN EFFECTIVE LENGTH IS NOT
DETERMINED. (0.55 FACTOR)

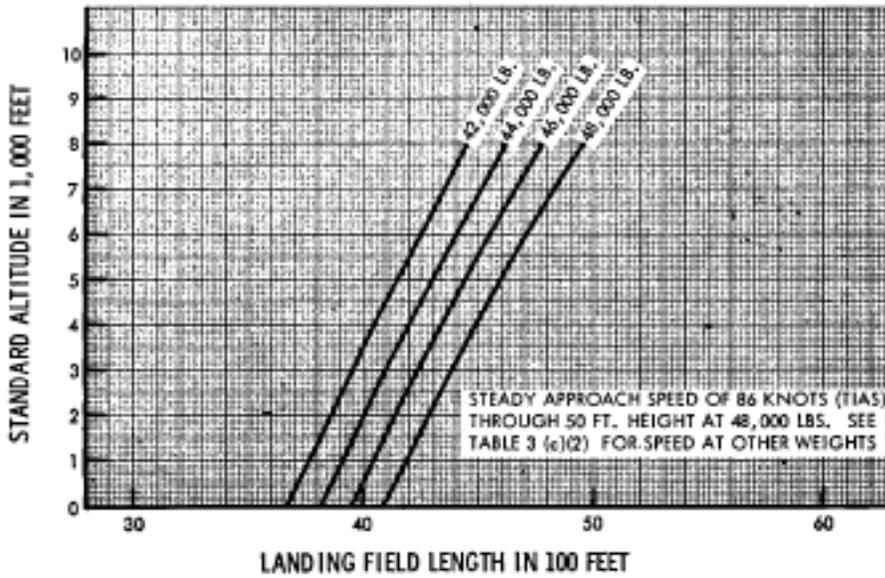


FIG. 3(c) (2)

[Doc. No. 4080, 30 FR 258, Jan. 3, 1965; 30 FR 481, Jan. 14, 1965, as amended by Amdt. 121-207, 54 FR 39293, Sept. 25, 1989]

**Appendix D to Part 121 - Criteria for
Demonstration of Emergency Evacuation
Procedures Under § 121.291**

(a) *Aborted takeoff demonstration.* (1) The demonstration must be conducted either during the dark of the night or during daylight with the dark of the night simulated. If the demonstration is conducted indoors during daylight hours, it must be conducted with each window covered and each door closed to minimize the daylight effect. Illumination on the

floor or ground may be used, but it must be kept low and shielded against shining into the airplane's windows or doors.

(2) The airplane must be a normal ground attitude with landing gear extended.

(3) Unless the airplane is equipped with an off-wing descent means, stands or ramps may be used for descent from the wing to the ground. Safety equipment such as mats or inverted life rafts may be placed on the floor or ground to protect participants. No other equipment that is not part of the emergency evacuation equipment of the airplane may be used to aid the participants in reaching the ground.

(4) The airplane's normal electrical power sources must be deenergized.

(5) All emergency equipment for the type of passenger-carrying operation involved must be installed in accordance with the certificate holder's manual.

(6) Each external door and exit, and each internal door or curtain must be in position to simulate a normal takeoff.

(7) A representative passenger load of persons in normal health must be used. At least 40 percent of the passenger load must be females. At least 35 percent of the passenger load must be over 50 years of age. At least 15 percent of the passenger load must be female and over 50 year of age. Three life-size dolls, not included as part of the total passenger load, must be carried by passengers to simulate live infants 2 years old or younger. Crewmembers, mechanics, and training personnel, who maintain or operate the airplane in the normal course of their duties, may not be used as passengers.

(8) No passenger may be assigned a specific seat except as the Administrator may require. Except as required by item (12) of this paragraph, no employee of the certificate holder may be seated next to an emergency exit.

(9) Seat belts and shoulder harnesses (as required) must be fastened.

(10) Before the start of the demonstration, approximately one-half of the total average amount of carry-on baggage, blankets, pillows, and other similar articles must be distributed at several locations in the aisles and emergency exit access ways to create minor obstructions.

(11) The seating density and arrangement of the airplane must be representative of the highest capacity passenger version of that airplane the certificate holder operates or proposes to operate.

(12) Each crewmember must be a member of a regularly scheduled line crew, except that flight crewmembers need not be members of a regularly scheduled line crew, provided they have knowledge of the airplane. Each crewmember must be seated in the seat the crewmember is normally assigned for takeoff, and must remain in that seat until the signal for commencement of the demonstration is received.

(13) No crewmember or passenger may be given prior knowledge of the emergency exits available for the demonstration.

(14) The certificate holder may not practice, rehearse, or describe the demonstration for the participants nor may any participant have taken part in this type of demonstration within the preceding 6 months.

(15) The pretakeoff passenger briefing required by § 121.571 may be given in accordance with the certificate holder's manual. The passengers may also be warned to follow directions of crewmembers, but may not be instructed on the procedures to be followed in the demonstration.

(16) If safety equipment as allowed by item (3) of this section is provided, either all passenger and cockpit windows must be blacked out or all of the emergency exits must have safety equipment in order to prevent disclosure of the available emergency exits.

(17) Not more than 50 percent of the emergency exits in the sides of the fuselage of an airplane that meet all of the requirements applicable to the required emergency exits for that airplane may be used for the demonstration. Exits that are not to be used in the demonstration must have the exit handle deactivated or must be indicated by red lights, red tape, or other acceptable means, placed outside the exits to indicate fire or other reason that they are unusable. The exits to be used must be representative of all of the emergency exits on the airplane and must be designated by the certificate holder, subject to approval by the Administrator. At least one floor level exit must be used.

(18) Except as provided in paragraph (a)(3) of this appendix, all evacuees must leave the airplane by a means provided as part of the airplane's equipment.

(19) The certificate holder's approved procedures and all of the emergency equipment that is normally available, including slides, ropes, lights, and megaphones, must be fully utilized during the demonstration, except that the flightcrew must take no active role in assisting others inside the cabin during the demonstration.

(20) The evacuation time period is completed when the last occupant has evacuated the airplane and is on the ground. Evacuees using stands or ramps allowed by item (3) above are considered to be on the ground when they are on the stand or ramp: *Provided*, That the acceptance rate of the stand or ramp is no greater than the acceptance rate of the means available on the airplane for descent from the wing during an actual crash situation.

(b) *Ditching demonstration.* The demonstration must assume that daylight hours exist outside the airplane, and that all required crewmembers are available for the demonstration.

(1) If the certificate holder's manual requires the use of passengers to assist in the launching of liferafts, the needed passengers must be aboard the airplane and participate in the demonstration according to the manual.

(2) A stand must be placed at each emergency exit and wing, with the top of the platform at a height simulating the water level of the airplane following a ditching.

(3) After the ditching signal has been received, each evacuee must don a life vest according to the certificate holder's manual.

(4) Each liferaft must be launched and inflated, according to the certificate holder's manual, and all other required emergency equipment must be placed in rafts.

(5) Each evacuee must enter a liferaft, and the crewmembers assigned to each liferaft must indicate the location of emergency equipment aboard the raft and describe its use.

(6) Either the airplane, a mockup of the airplane or a floating device simulating a passenger compartment must be used.

(i) If a mockup of the airplane is used, it must be a life-size mockup of the interior and representative of the airplane currently used by or proposed to be used by the

certificate holder, and must contain adequate seats for use of the evacuees. Operation of the emergency exits and the doors must closely simulate those on the airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation.

(ii) If a floating device simulating a passenger compartment is used, it must be representative, to the extent possible, of the passenger compartment of the airplane used in operations. Operation of the emergency exits and the doors must closely simulate operation on that airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation. The device must be equipped with the same survival equipment as is installed on the airplane, to accommodate all persons participating in the demonstration.

[Doc. No. 2033, 30 FR 3206, Mar. 9, 1965, as amended by Amdt. 121-30, 32 FR 13268, Sept. 20, 1967; Amdt. 121-41, 33 FR 9067, June 20, 1968; Amdt. 121-46, 34 FR 5545, Mar. 22, 1969; Amdt. 121-47, 34 FR 11489, July 11, 1969; Amdt. 121-233, 58 FR 45230, Aug. 26, 1993]

Appendix E to Part 121 - Flight Training Requirements

The maneuvers and procedures required by § 121.424 of this part for pilot initial, transition, and upgrade flight training are set forth in the certificate holder's approved low-altitude windshear flight training program, § 121.423 extended envelope training, and in this appendix. All required maneuvers and procedures must be performed inflight except that windshear and extended envelope training maneuvers and procedures must be performed in an airplane simulator

in which the maneuvers and procedures are specifically authorized to be accomplished. Certain other maneuvers and procedures may be performed in an airplane simulator with a visual system (visual simulator), an airplane simulator without a visual system (nonvisual simulator), a training device, or a static airplane as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in a nonvisual simulator, it may be performed in a visual simulator; when authorized in a training device, it may be performed in a visual or nonvisual simulator, and in some cases, a static airplane. Whenever the requirement may be performed in either a training device or a static airplane, the appropriate symbols are entered in the respective columns.

For the purpose of this appendix, the following symbols mean -

- P = Pilot in Command (PIC).
- S = Second in Command (SIC).
- B = PIC and SIC.
- F = Flight Engineer.
- PJ = PIC transition Jet to Jet.
- PP = PIC transition Prop. to Prop.
- SJ = SIC transition Jet to Jet.
- SP = SIC transition Prop. to Prop.
- AT = All transition categories (PJ, PP, SJ, SP).
- PS = SIC upgrading to PIC (same airplane).
- SF = Flight Engineer upgrading to SIC (same airplane).
- BU = Both SIC and Flight Engineer upgrading (same airplane).

Flight Training Requirements

| Maneuvers and Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| As appropriate to the airplane and the operation involved, flight training for pilots must include the following maneuvers and procedures. | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| I. Preflight: | | | | | | | | | | | | | | | |
| (a) Visual inspection of the exterior and interior of the airplane, the location of each item to be inspected, and the purpose for inspecting it. If a flight engineer is a required crewmember for the particular type of airplane, the visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detain of | | B | | | | | AT | | | | | | | | BU |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| preflight inspection items. | | | | | | | | | | | | | | | |
| (b) Use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight | | | | B | | | | | AT | | | | | BU | |
| (c)(1) Before March 12, 2019, taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Traffic Control | B | | | | | AT | | | | | BU | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| Authority or by the person conducting the training | | | | | | | | | | | | | | | |
| (2) Taxiing, Beginning March 12, 2019, this maneuver includes the following: | | | | | | | | | | | | | | | |
| (i) Taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Traffic Control Authority or by the person conducting the training | B | | | | | AT | | | | | BU | | | | |
| (ii) Use of airport diagram (surface movement chart) | | | | | | | | | | | | | | | |
| (iii) Obtaining appropriate clearance before crossing | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| or entering active runways | | | | | | | | | | | | | | | |
| (iv) Observation of all surface movement guidance control markings and lighting | | | | | | | | | | | | | | | |
| (d)(1) Before March 12, 2019, pre-takeoff checks that include power-plant checks | | | | B | | | | | AT | | | | | BU | |
| (2) Beginning March 12, 2019, pre-takeoff procedures that include power-plant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS | | | B | | | | | AT | | | | | BU | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| entry (if appropriate) for departure runway prior to crossing hold short line for takeoff | | | | | | | | | | | | | | | |
| II. Takeoffs: | | | | | | | | | | | | | | | |
| (a) Normal takeoffs which, for the purpose of this maneuver, begin when the airplane is taxied into position on the runway to be used | B | | | | | AT | | | | | BU | | | | |
| (b) Takeoffs with instrument conditions simulated at or before reaching an altitude of 100# above the airport elevation | | | B | | | | | AT | | | | | BU | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| (c)(1) Crosswind takeoffs | B | | | | | AT | | | | | BU | | | | |
| (2) Beginning March 12, 2019, crosswind takeoffs including crosswind takeoffs with gusts if practicable under the existing meteorological, airport, and traffic conditions | B | | | | | AT | | | | | BU | | | | |
| (d) Takeoffs with a simulated failure of the most critical powerplant - | | | B | | | | | AT | | | | | BU | | |
| (1) At a point after V ₁ and before V ₂ that in the judgment of the person conducting the training is appropriate to the | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| airplane type under the prevailing conditions; or | | | | | | | | | | | | | | | |
| (2) At a point as close as possible after V ₁ when V ₁ and V ₂ or V ₁ and V _R are identical; or | | | | | | | | | | | | | | | |
| (3) At the appropriate speed for nontransport category airplanes | | | | | | | | | | | | | | | |
| For transition training in an airplane group with engines mounted in similar positions, or from wing-mounted engines to aft | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| fuselage-mounted engines, the maneuver may be performed in a nonvisual simulator | | | | | | | | | | | | | | | |
| (e) Rejected takeoffs accomplished during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety | | | | B | | | | | AT | | | | | BU | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| or the airplane | | | | | | | | | | | | | | | |
| Training in at least one of the above takeoffs must be accomplished at night. For transitioning pilots this requirement may be met during the operating experience required under § 121.434 of this part by performing a normal takeoff at night when a check airman serving as pilot-in-command is occupying a pilot station | | | | | | | | | | | | | | | |
| III. Flight Maneuvers | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| and Procedures: | | | | | | | | | | | | | | | |
| (a) Turns with and without spoilers | | | | B | | | | | AT | | | | | | BU |
| (b) Tuck and Mach buffet | | | | B | | | | | AT | | | | | | BU |
| (c) Maximum endurance and maximum range procedures | | | | B | | | | | AT | | | | | | BU |
| (d) Operation of systems and controls at the flight engineer station | | | | B | | | | | AT | | | | | | PS |
| (e) Runaway and jammed stabilizer | | | | B | | | | | AT | | | | | | BU |
| (f) Normal and abnormal or alternate operation of the following systems and procedures: | | | | | | | | | | | | | | | |
| (1) Pressurization | | | | | B | | | | | AT | | | | | BU |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| (2) Pneumatic | | | | | B | | | | | AT | | | | | BU |
| (3) Air conditioning | | | | | B | | | | | AT | | | | | BU |
| (4) Fuel and oil | | B | | | B | | AT | | | AT | | BU | | | BU |
| (5) Electrical | | B | | | B | | AT | | | AT | | BU | | | BU |
| (6) Hydraulic | | B | | | B | | AT | | | AT | | BU | | | BU |
| (7) Flight control | | B | | | B | | AT | | | | | BU | | | BU |
| (8) Anti-icing and deicing | | | | B | | | | | AT | | | | | BU | |
| (9) Auto-pilot | | | | B | | | | | AT | | | | | BU | |
| (10) Automatic or other approach aids | B | | | B | | | | | AT | | SF | | | BU | |
| (11) Stall warning devices, stall avoidance devices, and stability augmentation devices | B | | | B | | | | | AT | | SF | | | BU | |
| (12) Airborne radar devices | | | | B | | | | | AT | | | | | BU | |
| (13) Any other | | | | B | | | | | AT | | | | | BU | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| systems, devices, or aids available | | | | | | | | | | | | | | | |
| (14) Electrical, hydraulic, flight control, and flight instrument system malfunctioning or failure | | B | | | B | | AT | | | AT | | BU | | | BU |
| (15) Landing gear and flap systems failure or malfunction | | B | | | B | | AT | | | AT | | BU | | | BU |
| (16) Failure of navigation or communications equipment | | | | B | | | | | AT | | | | | BU | |
| (g) Flight emergency procedures that include at least the following: | | | | | | | | | | | | | | | |
| (1) Powerplant, heater, cargo compartment, cabin, flight deck, wing, and | | B | | | B | | AT | | | AT | | BU | | | BU |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| electrical fires | | | | | | | | | | | | | | | |
| (2) Smoke control | | B | | | B | | AT | | | AT | | BU | | BU | BU |
| (3) Powerplant failures | | | | B | | | | | AT | | | | | | BU |
| (4) Fuel jettisoning | | B | | | B | | B | | | B | | BU | | | BU |
| (5) Any other emergency procedures outlined in the appropriate flight manual | | | | B | | | | | AT | | | | | BU | |
| (h) Steep turns in each direction. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360° | | | | P | | | | | PJ | | | | | PS | |
| (i) Stall Prevention. For the purpose | | | | B | | | | | AT | | | | | BU | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| of this training the approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Stall prevention training must be conducted in at least the following configurations: | | | | | | | | | | | | | | | |
| (1) Takeoff configuration (except where the airplane uses only a zero-flap takeoff configuration) | | | | | | | | | | | | | | | |
| (2) Clean configuration | | | | | | | | | | | | | | | |
| (3) Landing configuration | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| (j) Recovery from specific flight characteristics that are peculiar to the airplane type | | | | B | | | | | AT | | | | | | BU |
| (k) Instrument procedures that include the following: | | | | | | | | | | | | | | | |
| (1) Area departure and arrival | | | | B | | | | | AT | | | | | | BU |
| (2) Use of navigation systems including adherence to assigned radials | | | | B | | | | | AT | | | | | | BU |
| (3) Holding | | | | B | | | | | AT | | | | | | BU |
| (1) ILS instrument approaches that include the following: | | | | | | | | | | | | | | | |
| (1) Normal ILS approaches | B | | | | | AT | | | | | | BU | | | |
| (2) Manually controlled ILS approaches | B | | | | | | | AT | | | | | BU | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| with a simulated failure of one powerplant which occurs before initiating the final approach course and continues to touchdown or through the missed approach procedure | | | | | | | | | | | | | | | |
| (m) Instrument approaches and missed approaches other than ILS which include the following: | | | | | | | | | | | | | | | |
| (1) Nonprecision approaches that the trainee is likely to use | | | | | B | | | | | AT | | | | BU | |
| (2) In addition to subparagraph (1) of this paragraph, at | | | B | | | | | AT | | | | | | BU | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| least one other nonprecision approach and missed approach procedure that the trainee is likely to use | | | | | | | | | | | | | | | |
| In connection with paragraphs III(k) and III(l), each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| used (or turned over to the final approach controller in the case of GCA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed | | | | | | | | | | | | | | | |
| (n) Circling approaches which include the following: | B | | | | | AT | | | | | BU | | | | |
| (1) That portion of the circling approach to the authorized minimum altitude for the procedure being used must be | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| made under simulated instrument conditions | | | | | | | | | | | | | | | |
| (2) The circling approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| of the approach | | | | | | | | | | | | | | | |
| (3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30° | | | | | | | | | | | | | | | |
| Training in the circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of Part 121 of this chapter if the certificate holder's manual | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| prohibits a circling approach in weather conditions below 1000-3 (ceiling and visibility); for a SIC if the certificate holder's manual prohibits the SIC from performing a circling approach in operations under this part | | | | | | | | | | | | | | | |
| (o) Zero-flap approaches. Training in this maneuver is not required for a particular airplane type if the Administrator has determined that the probability of flap extension failure | P | | | | | | | PP, PJ | | | | | | PS | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| on that type airplane is extremely remote due to system design. In making this determination, the Administrator determines whether training on slats only and partial flap approaches is necessary | | | | | | | | | | | | | | | |
| (p) Missed approaches which include the following: | | | | | | | | | | | | | | | |
| (1) Missed approaches from ILS approaches | | | B | | | | | AT | | | | | BU | | |
| (2) Other missed approaches | | | | | B | | | | | AT | | | | | BU |
| (3) Missed approaches that include a complete approved | | | | | B | | | | | AT | | | | | BU |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| missed approach procedure | | | | | | | | | | | | | | | |
| (4) Missed approaches that include a powerplant failure | | | B | | | | | AT | | | | | | BU | |
| IV. Landings and Approaches to Landings: | | | | | | | | | | | | | | | |
| (a) Normal landings | B | | | | | AT | | | | | BU | | | | |
| (b) Landing and go around with the horizontal stabilizer out of trim | P | | | | | | | PJ, PP | | | | | | | PS |
| (c) Landing in sequence from an ILS instrument approach | B | | | | | AT | | AT | | | | | BU | | |
| (d)(1) Cross wind landing | B | | | | | AT | | | | | BU | | | | |
| (2) Beginning March 12, 2019, crosswind landing, including crosswind | B | | | | | AT | | | | | BU | | | | |

| Maneuvering Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| landings with gusts if practicable under the existing meteorological, airport, and traffic conditions | | | | | | | | | | | | | | | |
| (e) Maneuvering to a landing with simulated powerplant failure, as follows: | | | | | | | | | | | | | | | |
| (1) Except as provided in subparagraph (3) of this paragraph in the case of 3-engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one out- | P | | | | | | | PJ, PP | | | | | | PS | |

| Maneuvering Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| board engine) | | | | | | | | | | | | | | | |
| (2) Except as provided in subparagraph (3) of this paragraph, in the case of other multiengine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants with the simulated loss of power on one side of the airplane | P | | | | | | | PJ, PP | | | | | | | PS |
| (3) Notwithstanding the requirements of subparagraphs (1) and (2) of this paragraph, flight crewmembers who satisfy those requirements | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| in a visual simulator must also: | | | | | | | | | | | | | | | |
| (i) Take inflight training in one-engine inoperative landings; and | | | | | | | | | | | | | | | |
| (ii) In the case of a second-in-command upgrading to a pilot-in-command and who has not previously performed the maneuvers required by this paragraph in flight, meet the requirements of this paragraph applicable to initial training for pilots-in-command | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| (4) In the case of flight crewmembers other than the pilot-in-command, perform the maneuver with the simulated loss of power of the most critical powerplant only | | | | | | | | | | | | | | | |
| (f) Landing under simulated circling approach conditions (exceptions under III(n) applicable to this requirement) | B | | | | | | | AT | | | | | | BU | |
| (g) Rejected landings that include a normal missed approach procedure after the landing is rejected. For | B | | | | | | | AT | | | | | | BU | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|--|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| the purpose of this maneuver the landing should be rejected at approximately 50 feet and approximately over the runway threshold | | | | | | | | | | | | | | | |
| (h) Zero-flap landings if the Administrator finds that maneuver appropriate for training in the airplane | P | | | | | | | PP, PJ | | | | | | PS | |
| (i) Manual reversion (if appropriate) | | | B | | | | | AT | | | | | | BU | |
| Training in landings and approaches to landings must include the types and conditions provided in | | | | | | | | | | | | | | | |

| Maneuver Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| IV(a) through (i) but more than one type may be combined where appropriate | | | | | | | | | | | | | | | |
| Training in one of the above landings must be accomplished at night. For transitioning pilots, this requirement may be met during the operating experience required under § 121.434 of this part by performing a normal landing when a check pilot serving as pilot-in-command is | | | | | | AT | | | | | | | | | BU |

| Maneuvers/ Procedures | Initial training | | | | | Transition training | | | | | Upgrade training | | | | |
|---------------------------|------------------|--------|------------------|---------------------|-----------------|---------------------|--------|------------------|---------------------|-----------------|------------------|--------|------------------|---------------------|-----------------|
| | A/P | | Simulator | | | A/P | | Simulator | | | A/P | | Simulator | | |
| | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device | Inflight | Static | Visual simulator | Nonvisual simulator | Training device |
| occupying a pilot station | | | | | | | | | | | | | | | |

[Doc. No. 9509, 35 FR 97, Jan. 3, 1970, as amended by Amdt. 121-91, 37 FR 10730, May 27, 1972; Amdt. 121-108, 38 FR 35446, Dec. 28, 1973; Amdt. 121-159, 45 FR 41595, June 19, 1980; Amdt. 121-199, 53 FR 37697, Sept. 27, 1988; Amdt. 121-366, 78 FR 67841, Nov. 12, 2013]

For the purpose of this appendix, the following symbols mean -

P = Pilot in Command.

B = Both Pilot in Command and Second in Command.

* = A symbol and asterisk (B*) indicates that a particular condition is specified in the maneuvers and procedures column.

= When a maneuver is preceded by this symbol it indicates the maneuver may be required in the airplane at the discretion of the person conducting the check.

Throughout the maneuvers prescribed in this appendix, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the person conducting the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or recommended practice, and qualities of prudence and care in selecting a course of action.

Appendix F to Part 121 - Proficiency Check Requirements

The maneuvers and procedures required by § 121.441 for pilot proficiency checks are set forth in this appendix and must be performed inflight except to the extent that certain maneuvers and procedures may be performed in an airplane simulator with a visual system (visual simulator), an airplane simulator without a visual system (nonvisual simulator), or a training device as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in a nonvisual simulator, it may also be performed in a visual simulator; when authorized in a training device, it may be performed in a visual or nonvisual simulator.

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| The procedures and maneuvers set forth in this appendix must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to - | | | | | | |
| (1) The airplane, its systems and components; | | | | | | |
| (2) Proper control of airspeed, configuration, direction, altitude, and attitude in accordance | | | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| with procedures and limitations contained in the approved Airplane Flight Manual, the certificate holder's operations Manual, check lists, or other approved material appropriate to the airplane type; and | | | | | | |
| (3) Compliance with approach, ATC, or other applicable procedures | | | | | | |
| I. Preflight: | | | | | | |
| (a) Equipment examination (oral or written). As part of the practical test the equipment examination must be closely coordinated with, and related to, the flight maneuvers portion but may not be given during the flight maneuvers portion. The equipment examination must cover - | | | | | B | |
| (1) Subjects requiring a practical knowledge of the airplane, its powerplants, systems, components, operational, and performance factors; | | | | | | |
| (2) Normal, abnormal, and | | | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| emergency procedures, and the operations and limitations relating thereto; and | | | | | | |
| (3) The appropriate provisions of the approved Airplane Flight Manual | | | | | | |
| The person conducting the check may accept, as equal to this equipment test, an equipment test given to the pilot in the certificate holder's ground school within the preceding 6 calendar months | | | | | | |
| (b) Preflight inspection. The pilot must - | | | | | B | B* |
| (1) Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose for inspecting it; and | | | | | | |
| (2) Demonstrate the use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications | | | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| radio facilities and frequencies prior to flight | | | | | | |
| Except for flight checks required by § 121.424(d)(1) (ii), an approved pictorial means that realistically portrays the location and detail of preflight inspection items and provides for the portrayal of abnormal conditions may be substituted for the preflight inspection. If a flight engineer is a required flight crewmember for the particular type airplane, the visual inspection may be waived under § 121.441(d) | | | | | | |
| (c)(1) Taxiing. Before March 12, 2019, this maneuver includes taxiing (in the case of a second in command proficiency check to the extent practical from the second in command crew position), sailing, or docking procedures in compliance with instructions issued by the appropriate traffic control authority or by the person | | | B | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| conducting the checks | | | | | | |
| (c)(2) Taxiing. Beginning March 12, 2019, this maneuver includes the following: (i) Taxiing (in the case of a second in command proficiency check to the extent practical from the second in command crew position), sailing, or docking procedures in compliance with instructions issued by the appropriate traffic control authority or by the person conducting the checks. (ii) Use of airport diagram (surface movement chart). (iii) Obtaining appropriate clearance before crossing or entering active runways. (iv) Observation of all surface movement guidance control markings and lighting | | B | | | | |
| (d)(1) Power-plant checks. As appropriate to the airplane type | | | | | B | |
| (d)(2) Beginning March 12, 2019, pre-takeoff procedures that include power-plant checks, receipt of takeoff | | | B | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| clearance and confirmation of aircraft location, and FMS entry (if appropriate), for departure runway prior to crossing hold short line for takeoff | | | | | | |
| II. Takeoff: | | | | | | |
| (a) Normal. One normal takeoff which, for the purpose of this maneuver, begins when the airplane is taxied into position on the runway to be used | | B* | | | | |
| (b) Instrument. One takeoff with instrument conditions simulated at or before reaching an altitude of 100# above the airport elevation | B | | B* | | | |
| (c)(1) Crosswind. Before March 12, 2019, one crosswind takeoff, if practicable, under the existing meteorological, airport, and traffic conditions | | B * | | | | |
| (c)(2) Beginning March 12, 2019, one crosswind takeoff with gusts, if practicable, under the existing meteorological, airport, and traffic conditions | | B * | | | | |
| #(d) Powerplant failure. One | | | B | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| takeoff with a simulated failure of the most critical powerplant - | | | | | | |
| (1) At a point after V_1 and before V_2 that in the judgment of the person conducting the check is appropriate to the airplane type under the prevailing conditions; | | | | | | |
| (2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_r are identical; or | | | | | | |
| (3) At the appropriate speed for non-transport category airplanes | | | | | | |
| In an airplane group with aft fuselage-mounted engines this maneuver may be performed in a non-visual simulator | | | | | | |
| (e) Rejected. A rejected takeoff may be performed in an airplane during a normal takeoff run after reaching a reasonable speed determined by giving due consideration | | | | B* | | B |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane | | | | | | |
| III. Instrument procedures: | | | | | | |
| (a) Area departure and area arrival. During each of these maneuvers the applicant must - | B | | | B | | B* |
| (1) Adhere to actual or simulated ATC clearances (including assigned radials); and | | | | | | |
| (2) Properly use available navigation facilities | | | | | | |
| Either area arrival or area departure, but not both, may be waived under § 121.441(d) | | | | | | |
| (b) Holding. This maneuver includes entering, maintaining, and leaving holding patterns. It may be performed in connection with either area departure or area arrival | B | | | B | | B |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| (c) ILS and other instrument approaches. There must be the following: | | | | | | |
| (1) At least one normal ILS approach | B | | B | | | |
| (2) At least one manually controlled ILS approach with a simulated failure of one powerplant. The simulated failure should occur before initiating the final approach course and must continue to touchdown or through the missed approach procedure | B | | | | | |
| (3) At least one nonprecision approach procedure that is representative of the nonprecision approach procedures that the certificate holder is likely to use | B | | B | | | |
| (4) Demonstration of at least one nonprecision approach procedure on a letdown aid other than the approach procedure performed under subparagraph (3) of this paragraph that the certificate holder is approved to use. | B | | | | B | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| Each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of GCA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed. Instrument conditions need not be simulated below 100# above touchdown zone elevation | | | | | | |
| (5) For each type of EFVS operation the certificate holder is authorized to conduct, at least one instrument approach must be made using an EFVS. | B | * B | | | | |
| (d) Circling approaches. If the certificate holder is approved for circling minimums below 1000-3, at least | | | B* | | | B* |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| one circling approach must be made under the following conditions - | | | | | | |
| (1) The portion of the approach to the authorized minimum circling approach altitude must be made under simulated instrument conditions | B | | | | | |
| (2) The approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach | | | | | | |
| (3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30° | | | | | | |
| If local conditions beyond the control of the pilot prohibit | | | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| the maneuver or prevent it from being performed as required, it may be waived as provided in § 121.441(d): Provided, however, That the maneuver may not be waived under this provision for two successive proficiency checks. The circling approach maneuver is not required for a second-in-command if the certificate holder's manual prohibits a second-in-command from performing a circling approach in operations under this part | | | | | | |
| (e) Missed approach | | | | | | |
| (1) Each pilot must perform at least one missed approach from an ILS approach | | | | B* | | |
| (2) Each pilot in command must perform at least one additional missed approach | | | | P* | | |
| A complete approved missed approach procedure must be accomplished at least once. At the discretion of the person conducting the check a simulated | | | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| powerplant failure may be required during any of the missed approaches. These maneuvers may be performed either independently or in conjunction with maneuvers required under Sections III or V of this appendix. At least one missed approach must be performed in flight | | | | | | |
| IV. Inflight Maneuvers: | | | | | | |
| (a) Steep turns. At least one steep turn in each direction must be performed. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360° | P | | | P | | P |
| (b) Stall Prevention. For the purpose of this maneuver the approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Except as provided below there must be at least three stall prevention recoveries as follows: | B | | | B | | B * |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| (1) One in the takeoff configuration (except where the airplane uses only a zero-flap takeoff configuration). | | | | | | |
| (2) One in a clean configuration. | | | | | | |
| (3) One in a landing configuration. | | | | | | |
| At the discretion of the person conducting the check, one stall prevention recovery must be performed in one of the above configurations while in a turn with the bank angle between 15° and 30°. Two out of the three stall prevention recoveries required by this paragraph may be waived. | | | | | | |
| If the certificate holder is authorized to dispatch or flight release the airplane with a stall warning device inoperative the device may not be used during this maneuver | | | | | | |
| (c) Specific flight characteristics. Recovery from specific flight characteristics | | | | | B | B |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| that are peculiar to the airplane type | | | | | | |
| (d) Powerplant failures. In addition to specific requirements for maneuvers with simulated powerplant failures, the person conducting the check may require a simulated powerplant failure at any time during the check | | | | B | | |
| V. Landings and Approaches to Landings: | | | | | | |
| Notwithstanding the authorizations for combining and waiving maneuvers and for the use of a simulator, at least two actual landings (one to a full stop) must be made for all pilot-in-command and initial second-in-command proficiency checks. | | | | | | |
| Landings and approaches to landings must include the types listed below, but more than one type may be combined where appropriate: | | | | | | |
| (a) Normal landing | | B | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| (b) Landing in sequence from an ILS instrument approach except that if circumstances beyond the control of the pilot prevent an actual landing, the person conducting the check may accept an approach to a point where in his judgment a landing to a full stop could have been made | | B* | | | | |
| (c)(1) Crosswind landing, if practical under existing meteorological, airport, and traffic conditions | | B* | | | | |
| (c)(2) Beginning March 12, 2019, crosswind landing with gusts, if practical under existing meteorological, airport, and traffic conditions | | B * | | | | |
| (d) Maneuvering to a landing with simulated powerplant failure as follows: | | | | | | |
| (1) In the case of 3-engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one | | | B* | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| outboard engine); or | | | | | | |
| (2) In the case of other multiengine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants, with the simulated loss of power on one side of the airplane | | | B* | | | |
| Notwithstanding the requirements of subparagraphs (d) (1) and (2) of this paragraph, in a proficiency check for other than a pilot-in-command, the simulated loss of power may be only the most critical powerplant. However, if a pilot satisfies the requirements of subparagraphs (d) (1) or (2) of this paragraph in a visual simulator, he also must maneuver in flight to a landing with a simulated failure of the most critical powerplant. In addition, a pilot-in-command may omit the maneuver required by subparagraph (d) (1) or (d)(2) of this paragraph during a required proficiency check | | | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| or simulator course of training if he satisfactorily performed that maneuver during the preceding proficiency check, or during the preceding approved simulator course of training under the observation of a check airman, whichever was completed later | | | | | | |
| (e) Except as provided in paragraph (f) of this section, if the certificate holder is approved for circling minimums below 1000-3, a landing under simulated circling approach conditions. However, when performed in an airplane, if circumstances beyond the control of the pilot prevent a landing, the person conducting the check may accept an approach to a point where, in his judgment, a landing to a full stop could have been made | | | B* | | | |
| #(f) A rejected landing, including a normal missed approach procedure, that is rejected approximately 50# over the | | | B | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| runway and approximately over the runway threshold. This maneuver may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 feet above the runway | | | | | | |
| (g) If the certificate holder is authorized to conduct EFVS operations to touchdown and rollout, at least one instrument approach to a landing must be made using an EFVS, including the use of enhanced flight vision from 100 feet above the touchdown zone elevation to touchdown and rollout | B | * B | | | | |
| (h) If the certificate holder is authorized to conduct EFVS operations to 100 feet above the touchdown zone elevation, at least one instrument approach to a landing must be made using an EFVS, including the transition from enhanced flight vision to natural vision at 100 feet above | B | * B | | | | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|---|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| the touchdown zone elevation | | | | | | |
| VI. Normal and Abnormal Procedures: | | | | | | |
| Each applicant must demonstrate the proper use of as many of the systems and devices listed below as the person conducting the check finds are necessary to determine that the person being checked has a practical knowledge of the use of the systems and devices appropriate to the airplane type: | | | | | | |
| (a) Anti-icing and de-icing systems | | | | B | | |
| (b) Auto-pilot systems | | | | B | | |
| (c) Automatic or other approach aid systems | | | | B | | |
| (d) Stall warning devices, stall avoidance devices, and stability augmentation devices | | | | B | | |
| (e) Airborne radar devices | | | | B | | |
| (f) Any other systems, devices, or aids available | | | | B | | |
| (g) Hydraulic and electrical system failures and malfunctions | | | | | B | |

| Maneuvers/ Procedures | Required | | Permitted | | | |
|--|---------------------------------|----------|------------------|---------------------|-----------------|-----------------------------------|
| | Simulated instrument conditions | Inflight | Visual simulator | Nonvisual simulator | Training device | Waiver provisions of § 121.441(d) |
| (h) Landing gear and flap systems failure or malfunction | | | | | B | |
| (i) Failure of navigation or communications equipment | | | | B | | |
| VII. Emergency Procedures: | | | | | | |
| Each applicant must demonstrate the proper emergency procedures for as many of the emergency situations listed below as the person conducting the check finds are necessary to determine that the person being checked has an adequate knowledge of, and ability to perform, such procedure: | | | | | | |
| (a) Fire in flight | | | | B | | |
| (b) Smoke control | | | | B | | |
| (c) Rapid decompression | | | | B | | |
| (d) Emergency descent | | | | B | | |
| (e) Any other emergency procedures outlined in the appropriate approved Airplane Flight Manual | | | | B | | |

[Doc. No. 9509, 35 FR 99, Jan. 3, 1970, as amended by Amdt. 121-80, 36 FR 19362, Oct. 5, 1971; Amdt. 121-91, 37 FR 10730, May 27, 1972; Amdt. 121-92, 37 FR 12717, June 28, 1972; Amdt. 121-108, 38 FR 35448, Dec. 28, 1973; Amdt. 121-136, 42 FR

43389, Aug. 29, 1977; Amdt. 121-366, 78 FR 67844, Nov. 12, 2013; Docket FAA-2013-0485, Amdt. 121-376, 81 FR 90175, Dec. 13, 2016]

Appendix G to Part 121 - Doppler Radar and Inertial Navigation System (INS): Request for Evaluation; Equipment and Equipment Installation; Training Program; Equipment Accuracy and Reliability; Evaluation Program

1. *Application authority.* (a) An applicant for authority to use a Doppler Radar or Inertial Navigation System must submit a request for evaluation of the system to the Flight Standards District Office or International Field Office charged with the overall inspection of its operations 30 days prior to the start of evaluation flights.

(b) The application must contain:

(1) A summary of experience with the system showing to the satisfaction of the Administrator a history of the accuracy and reliability of the system proposed to be used.

(2) A training program curriculum for initial approval under § 121.405.

(3) A maintenance program for compliance with subpart L of this part.

(4) A description of equipment installation.

(5) Proposed revisions to the Operations Manual outlining all normal and emergency procedures relative to use of the proposed system, including detailed methods for continuing the navigational function with partial or complete equipment failure, and methods for determining the most accurate system when an unusually large divergence between systems occurs. For the purpose of this appendix, a large divergence is a divergence that results in a track that falls beyond clearance limits.

(6) Any proposed revisions to the minimum equipment list with adequate justification therefor.

(7) A list of operations to be conducted using the system, containing an analysis of each with respect to length, magnetic compass reliability, availability of en route aids, and adequacy of gateway and terminal radio facilities to support the system. For the purpose of this appendix, a gateway is a specific navigational fix where use of long range navigation commences or terminates.

2. *Equipment and equipment installation - Inertial Navigation Systems (INS) or Doppler Radar System.* (a) Inertial Navigation and Doppler Radar Systems must be installed in accordance with applicable airworthiness requirements.

(b) Cockpit arrangement must be visible and useable by either pilot seated at his duty station.

(c) The equipment must provide, by visual, mechanical, or electrical output signals, indications of the invalidity of output data upon the occurrence of probable failures or malfunctions within the system.

(d) A probable failure or malfunction within the system must not result in loss of the aircraft's required navigation capability.

(e) The alignment, updating, and navigation computer functions of the system must not be invalidated by normal aircraft power interruptions and transients.

(f) The system must not be the source of cause of objectionable radio frequency interference, and must not be adversely affected by radio frequency interference from other aircraft systems.

(g) The FAA-approved airplane flight manual, or supplement thereto, must include pertinent material as required to define the normal and emergency operating procedures and applicable operating limitations associated with INS and Doppler performance (such as maximum latitude at which ground alignment capability is provided, or deviations between systems).

3. *Equipment and equipment installation - Inertial Navigation Systems (INS).* (a) If an applicant elects to use an Inertial Navigation System it must be at least a dual system (including navigational computers and reference units). At least two systems must be operational at takeoff. The dual system may consist of either two INS units, or one INS unit and one Doppler Radar unit.

(b) Each Inertial Navigation System must incorporate the following:

(1) Valid ground alignment capability at all latitudes appropriate for intended use of the installation.

(2) A display of alignment status or a ready to navigate light showing completed alignment to the flight crew.

(3) The present position of the airplane in suitable coordinates.

(4) Information relative to destinations or waypoint positions:

(i) The information needed to gain and maintain a desired track and to determine deviations from the desired track.

(ii) The information needed to determine distance and time to go to the next waypoint or destination.

(c) For INS installations that do not have memory or other inflight alignment means, a separate electrical power source (independent of the main propulsion system) must be provided which can supply, for at least 5 minutes, enough power (as shown by analysis or as demonstrated in the airplane) to maintain the INS in such condition that its full capability is restored upon the reactivation of the normal electrical supply.

(d) The equipment must provide such visual, mechanical, or electrical output signals as may be required to permit the flight crew to detect probable failures or malfunctions in the system.

4. *Equipment and equipment installation - Doppler Radar Systems.* (a) If an applicant elects to use a Doppler Radar System it must be at least a dual system (including dual antennas or a combined antenna designed for multiple operation), except that:

(1) A single operating transmitter with a standby capable of operation may be used in lieu of two operating transmitters.

(2) Single heading source information to all installations may be utilized, provided a compass comparator system is

installed and operational procedures call for frequent cross-checks of all compass heading indicators by crewmembers. The dual system may consist of either two Doppler Radar units or one Doppler Radar unit and one INS unit.

(b) At least two systems must be operational at takeoff.

(c) As determined by the Administrator and specified in the certificate holder's operations specifications, other navigational aids may be required to update the Doppler Radar for a particular operation. These may include DME, VOR, ADF, ground-based radar, and airborne weather radar. When these aids are required, the cockpit arrangement must be such that all controls are accessible to each pilot seated at his duty station.

5. *Training programs.* The initial training program for Doppler Radar and Inertial Navigation Systems must include the following:

(a) Duties and responsibilities of flight crewmembers, dispatchers, and maintenance personnel.

(b) For pilots, instruction in the following:

(1) Theory and procedures, limitations, detection of malfunctions, preflight and inflight testing, and cross-checking methods.

(2) The use of computers, an explanation of all systems, compass limitations at high latitudes, a review of navigation, flight planning, and applicable meteorology.

(3) The methods for updating by means of reliable fixes.

(4) The actual plotting of fixes.

(c) Abnormal and emergency procedures.

6. *Equipment accuracy and reliability.* (a) Each Inertial Navigation System must meet the following accuracy requirements, as appropriate:

(1) For flights up to 10 hours' duration, no greater than 2 nautical miles per hour of circular error on 95 percent of system flights completed is permitted.

(2) For flights over 10 hours' duration, a tolerance of ± 20 miles cross-track and ± 25 miles along-track on 95 percent of system flights completed is permitted.

(b) Compass heading information to the Doppler Radar must be maintained to an accuracy of $\pm 1^\circ$ and total system deviations must not exceed 2° . When free gyro techniques are used, procedures shall be utilized to ensure that an equivalent level of heading accuracy and total system deviation is attained.

(c) Each Doppler Radar System must meet accuracy requirements of ± 20 miles cross-track and ± 25 miles along-track for 95 percent of the system flights completed. Updating is permitted.

A system that does not meet the requirements of this section will be considered a failed system.

7. *Evaluation program.* (a) Approval by evaluation must be requested as a part of the application for operational approval of a Doppler Radar or Inertial Navigation System.

(b) The applicant must provide sufficient flights which show to the satisfaction of the Administrator the applicant's ability to use cockpit navigation in his operation.

(c) The Administrator bases his evaluation on the following:

(1) Adequacy of operational procedures.

(2) Operational accuracy and reliability of equipment and feasibility of the system with regard to proposed operations.

(3) Availability of terminal, gateway, area, and en route ground-based aids, if required, to support the self-contained system.

(4) Acceptability of cockpit workload.

(5) Adequacy of flight crew qualifications.

(6) Adequacy of maintenance training and availability of spare parts.

After successful completion of evaluation demonstrations, FAA approval is indicated by issuance of amended operations specifications and en route flight procedures defining the new operation. Approval is limited to those operations for which the adequacy of the equipment and the feasibility of cockpit navigation has been satisfactorily demonstrated.

[Doc. No. 10204, 37 FR 6464, Mar. 30, 1972, as amended by Amdt. 121-207, 54 FR 39293, Sept. 25, 1989; Docket FAA-2017-0733, Amdt. 121-379, 82 FR 34398, July 25, 2017]

Appendix H to Part 121 - Advanced Simulation

This appendix provides guidelines and a means for achieving flightcrew training in advanced airplane simulators. The requirements in this appendix are in addition to the simulator approval requirements in § 121.407. Each simulator used under this appendix must be approved as a Level B, C, or D simulator, as appropriate.

Advanced Simulation Training Program

For an operator to conduct Level C or D training under this appendix all required simulator instruction and checks must be conducted under an advanced simulation training program approved by the Administrator for the operator. This program must also ensure that all instructors and check airmen used in appendix H training and checking are highly qualified to provide the training required in the training program. The advanced simulation training program must include the following:

1. The operator's initial, transition, upgrade, and recurrent simulator training programs and its procedures for re-establishing recency of experience in the simulator.

2. How the training program will integrate Level B, C, and D simulators with other simulators and training devices to maximize the total training, checking, and certification functions.

3. Documentation that each instructor and check airman has served for at least 1 year in that capacity in a certificate holder's approved program or has served for at least 1 year as a pilot in command or second in command in an airplane of the group in which that pilot is instructing or checking.

4. A procedure to ensure that each instructor and check airman actively participates in either an approved regularly

scheduled line flying program as a flight crewmember or an approved line observation program in the same airplane type for which that person is instructing or checking.

5. A procedure to ensure that each instructor and check airman is given a minimum of 4 hours of training each year to become familiar with the operator's advanced simulation training program, or changes to it, and to emphasize their respective roles in the program. Training for simulator instructors and check airmen must include training policies and procedures, instruction methods and techniques, operation of simulator controls (including environmental and trouble panels), limitations of the simulator, and minimum equipment required for each course of training.

6. A special Line Oriented Flight Training (LOFT) program to facilitate the transition from the simulator to line flying. This LOFT program must consist of at least a 4-hour course of training for each flightcrew. It also must contain at least two representative flight segments of the operator's route. One of the flight segments must contain strictly normal operating procedures from push back at one airport to arrival at another. Another flight segment must contain training in appropriate abnormal and emergency flight operations. After March 12, 2019, the LOFT must provide an opportunity for the pilot to demonstrate workload management and pilot monitoring skills.

Level B

Training and Checking Permitted

1. Recency of experience (§ 121.439).
2. Night takeoffs and landings (Part 121, Appendix E).
3. Except for EFVS operations, landings in a proficiency check without the landing on the line requirements (§ 121.441).

Level C

Training and Checking Permitted

1. For all pilots, transition training between airplanes in the same group, and for a pilot in command the certification check required by § 61.153 of this chapter.

2. Upgrade to pilot-in-command training and the certification check when the pilot -

- a. Has previously qualified as second in command in the equipment to which the pilot is upgrading;
- b. Has at least 500 hours of actual flight time while serving as second in command in an airplane of the same group; and
- c. Is currently serving as second in command in an airplane in this same group.

3. Initial pilot-in-command training and the certification check when the pilot -

- a. Is currently serving as second in command in an airplane of the same group;
- b. Has a minimum of 2,500 flight hours as second in command in an airplane of the same group; and
- c. Has served as second in command on at least two airplanes of the same group.

4. For all second-in-command pilot applicants who meet the aeronautical experience requirements of § 61.159 of this chapter in the airplane, the initial and upgrade training and checking required by this part, and the certification check requirements of § 61.153 of this chapter.

5. For all pilots, the extended envelope training required by § 121.423 of this part.

Level D

Training and Checking Permitted

Except for the requirements listed in the next sentence, all pilot flight training and checking required by this part and the certification check requirements of § 61.153(h) of this chapter. The line check required by § 121.440, the static airplane requirements of appendix E of this part, and the operating experience requirements of § 121.434 must still be performed in the airplane.

[Doc. No. FAA-2002-12461, 71 FR 63640, Oct. 30, 2006, as amended by Amdt. 121-365, 78 FR 42379, July 15, 2013; Amdt. 121-366, 78 FR 67846, Nov. 12, 2013; Docket FAA-2013-0485, Amdt. 121-376, 81 FR 90176, Dec. 13, 2016]

Appendixes I-J to Part 121 [Reserved]

Appendix K to Part 121 - Performance Requirements for Certain Turbopropeller Powered Airplanes

1. *Applicability.* This appendix specifies requirements for the following turbopropeller powered airplanes that must comply with the Airplane Performance Operating Limitations in §§ 121.189 through 121.197:

a. After December 20, 2010, each airplane manufactured before March 20, 1997 and type certificated in the:

i. Normal category before July 1, 1970, and meets special conditions issued by the Administrator for airplanes intended for use in operations under part 135 of this chapter.

ii. Normal category before July 19, 1970, and meets the additional airworthiness standards in SFAR No. 23 of 14 CFR part 23.

iii. Normal category, and complies with the additional airworthiness standards in appendix A of part 135 of this chapter.

iv. Normal category, and complies with section 1.(a) or 1.(b) of SFAR No. 41 of 14 CFR part 21.

b. After March 20, 1997, each airplane:

i. Type certificated prior to March 29, 1995, in the commuter category.

ii. Manufactured on or after March 20, 1997, and that was type certificated in the normal category, and complies with the requirements described in paragraphs 1.a.i through iii of this appendix.

2. *Background.* Sections 121.157 and 121.173(b) require that the airplanes operated under this part and described in paragraph 1 of this appendix, comply with the Airplane Performance Operating Limitations in §§ 121.189 through

121.197. Airplanes described in § 121.157(f) and paragraph 1.a of this appendix must comply on and after December 20, 2010. Airplanes described in § 121.157(e) and paragraph 1.b of this appendix must comply on and after March 20, 1997. (Airplanes type certificated in the normal category, and in accordance with SFAR No. 41 of 14 CFR part 21, as described in paragraph 1.a.iv of this appendix, may not be produced after October 17, 1991.)

3. *References.* Unless otherwise specified, references in this appendix to sections of part 23 of this chapter are to those sections of 14 CFR part 23, as amended by Amendment No. 23-45 (August 6, 1993, 58 FR 42156).

Performance

4. *Interim Airplane Performance Operating Limitations.*

a. Until December 20, 2010, airplanes described in paragraph 1.a of this appendix may continue to comply with the requirements in subpart I of part 135 and § 135.181(a) (2) of this chapter that apply to small, nontransport category airplanes.

b. Until March 20, 1997, airplanes described in paragraph 1.b.i of this appendix may continue to comply with the requirements in subpart I of part 135 of this chapter that apply to commuter category airplanes.

5. *Final Airplane Performance Operating Limitations.*

a. Through an amended type certification program or a supplemental type certification program, each airplane described in paragraph 1.a and 1.b.ii of this appendix must be shown to comply with the commuter category performance requirements specified in this appendix, which are included in part 23 of this chapter. Each new revision to a current airplane performance operating limitation for an airplane that is or has been demonstrated to comply, must also be approved by the Administrator. An airplane approved to the requirements of section 1.(b) of SFAR No. 41 of 14 CFR part 21, as described in paragraph 1.a.iv of this appendix, and that has been demonstrated to comply with the additional requirements of section 4.(c) of SFAR No. 41 of 14 CFR part 21 and International Civil Aviation Organization Annex 8 (available from the FAA, 800 Independence Avenue SW., Washington,

DC 20591), will be considered to be in compliance with the commuter category performance requirements.

b. Each turbopropeller powered airplane subject to this appendix must be demonstrated to comply with the airplane performance operating limitation requirements of this chapter specified as follows:

- i. Section 23.45 Performance General.
- ii. Section 23.51 Takeoff.
- iii. Section 23.53 Takeoff speeds.
- iv. Section 23.55 Accelerate stop distance.
- v. Section 23.57 Takeoff path.
- vi. Section 23.59 Takeoff distance and takeoff run.
- vii. Section 23.61 Takeoff flight path.
- viii. Section 23.65 Climb: All engines operating.
- ix. Section 23.67 Climb: one engine inoperative.
- x. Section 23.75 Landing.
- xi. Section 23.77 Balked landing.
- xii. Sections 23.1581 through 23.1589 Airplane flight manual and approved manual material.

6. *Operation.* After compliance with the final airplane performance operating limitations requirements has been demonstrated and added to the Airplane Flight Manual performance data of the affected airplane, that airplane must be operated in accordance with the performance limitations of §§ 121.189 through 121.197.

[Doc. No. 28154, 60 FR 65936, Dec. 20, 1995, as amended by Doc. No. OST-2002-13435]

Appendix L to Part 121 - Type Certification Regulations Made Previously Effective

Appendix L lists regulations in this part that require compliance with standards contained in superseded type certification regulations that continue to apply to certain transport category airplanes. The tables set out citations to current CFR section, applicable aircraft, superseded type certification regulation and applicable time periods, and the CFR edition and Federal Register documents where the regulation having prior effect is found. Copies of all superseded regulations may be obtained at the Federal Aviation Administration Law Library, Room 924, 800 Independence Avenue SW., Washington, DC.

| Part 121 section | Applicable aircraft | Provisions: CFR/FR references |
|---------------------|--|--|
| § 121.312(a)(1)(i) | Transport category; or nontransport category type certificated before January 1, 1965; passenger capacity of 20 or more; manufactured prior to August 20, 1990 | Heat release rate testing. 14 CFR 25.853(d) in effect March 6, 1995: 14 CFR parts 1 to 59, Revised as of January 1, 1995, and amended by Amdt. 25-83, 60 FR 6623, February 2, 1995. Formerly 14 CFR 25.853(a-1) in effect August 20, 1986: 14 CFR parts 1 to 59, Revised as of January 1, 1986. |
| § 121.312(a)(1)(ii) | Transport category; or nontransport category type certificated before January | Heat release rate and smoke testing. 14 CFR 25.853(d) in effect March 6, 1995: 14 CFR parts 1 to 59, Revised as of January 1, 1995, |

| Part 121 section | Applicable aircraft | Provisions: CFR/FR references |
|--------------------------|---|---|
| | 1, 1965; passenger capacity of 20 or more; manufactured after August 19, 1990 | and amended by Amdt. 25-83, 60 FR 6623, February 2, 1995. Formerly 14 CFR 25.853(a-1) in effect September 26, 1988: 14 CFR parts 1 to 59, Revised as of January 1, 1988, and amended by Amdt. 25-66, 53 FR 32584, August 25, 1988 |
| § 121.312(a)(2)(i) | Transport category; or nontransport category type certificate before January 1, 1965; application for type certificate filed prior to May 1, 1972; substantially complete replacement of cabin interior on or after May 1, 1972 | Provisions of 14 CFR 25.853 in effect on April 30, 1972: 14 CFR parts 1 to 59, Revised as of January 1, 1972. |
| § 121.312(a)(3)(i) | Transport category type certificated after January 1, 1958; nontransport category type certificated after January 1, 1958, but before January 1, 1965; passenger capacity of 20 or more; substantially complete replacement of the cabin interior on or after March 6, 1995 | Heat release rate testing. 14 CFR 25.853(d) in effect March 6, 1995: 14 CFR parts 1 to 59, Revised as of January 1, 1995; and amended by \n25-83, 60 FR 6623, February 2, 1995. Formerly 14 CFR 25.853(a-1) in effect August 20, 1986: 14 CFR parts 1 to 59, Revised as of January 1, 1986. |
| § 121.312(a)(3)(ii) | Transport category type certificated after January 1, 1958; nontransport category type certificated after January 1, 1958, but before January 1, 1965; passenger capacity of 20 or more; substantially complete replacement of the cabin interior on or after August 20, 1990 | Heat release rate and smoke testing. 14 CFR 25.853(d) in effect March 6, 1995; 14 CFR parts 1 to 59, Revised as of January 1, 1995; and amended by \n25-83, 60 FR 6623, February 2, 1995. Formerly 14 CFR § 25.853(a-1) in effect September 26, 1988: CFR, Title 14, Parts 1 to 59, Revised as of January 1, 1988, and amended by \n25-66, 53 FR 32584, August 25, 1988. |
| § 121.312(b) (1) and (2) | Transport category airplane type certificated after January 1, 1958; Nontransport category airplane type certificated after December 31, 1964 | Seat cushions. 14 CFR 25.853(c) effective on November 26, 1984: 14 CFR parts 1 to 59, Revised as of January 1, 1984, and amended by \n25-59, 49 FR 43188, October 26, 1984. |
| § 121.312(c) | Airplane type certificated in accordance with SFAR No. 41; maximum certificated takeoff weight in excess of 12,500 pounds | Compartment interior requirements. 14 CFR 25.853(a) in effect March 6, 1995: 14 CFR parts 1 to 59, Revised as of January 1, 1995, and amended by \n25-83, 60 FR 6623, February 2, 1995. Formerly 14 CFR 25.853(a), (b-1), (b-2), and (b-3) in effect on September 26, 1978: 14 CFR parts 1 to 59, Revised as of January 1, 1978. |
| § 121.314(a) | Transport category airplanes type certificated after January 1, 1958 | Class C or D cargo or baggage compartment definition, 14 CFR 25.857 in effect on June 16, 1986, 14 CFR parts 1 to 59, Revised 1/1/97, and amended by Amendment 25-60, 51 FR 18243, May 16, 1986. |

[Doc. No. 28154, 60 FR 65936, Dec. 20, 1995, as amended by Amdt. 121-269, 63 FR 8049, Feb. 17, 1998]

Appendix M to Part 121 - Airplane Flight Recorder Specifications

The recorded values must meet the designated range, resolution and accuracy requirements during static and

dynamic conditions. Dynamic condition means the parameter is experiencing change at the maximum rate attainable, including the maximum rate of reversal. All data recorded must be correlated in time to within one second.

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|--|---|------------|--|
| 1. Time or relative times counts. 1 | 24 Hrs, 0 to 4095 | ±0.125% per hour | 4 | 1 sec | UTC time preferred when available. Count increments each 4 seconds of system operation. |
| 2. Pressure Altitude | #1000 ft to max certificated altitude of aircraft. + 5000 ft | ±100 to ±700 ft (see table, TSO C124a or TSO C51a) | 1 | 5# to 35# | Data should be obtained from the air data computer when practicable. |
| 3. Indicated airspeed or Calibrated airspeed | 50 KIAS or minimum value to Max V _{SO} to 1.2 V. D | ±5% and ±3% | 1 | 1 kt | Data should be obtained from the air data computer when practicable. |
| 4. Heading (Primary flight crew reference) | 0-360° and Discrete "true" or "mag" | ±2° | 1 | 0.5° | When true or magnetic heading can be selected as the primary heading reference, a discrete indicating selection must be recorded. |
| 5. Normal acceleration (vertical) 9 | #3g to + 6g | ±1% of max range excluding datum error of ±5% | 0.125 | 0.004g | |
| 6. Pitch Attitude | ±75° | ±2° | 1 or 0.25 for airplanes operated under § 121.344(f) | 0.5° | A sampling rate of 0.25 is recommended. |
| 7. Roll attitude 2 | ±180° | ±2° | 1 or 0.5 for airplanes operated under § 121.344(f) | 0.5 | A sampling rate of 0.5 is recommended. |
| 8. Manual Radio Transmitter Keying or CVR/DFDR synchronization reference | On-Off (Discrete) None | | 1 | | Preferably each crew member but one discrete acceptable for all transmission provided the CVR/FDR system complies with TSO C124a CVR synchronization requirements (paragraph 4.2.1 ED-55). |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|------------------------|---|---|--------------------|---|
| 9. Thrust/power on each engine - primary flight crew reference | Full range forward | ±2% | 1 (per engine) | 0.3% of full range | Sufficient parameters (e.g. EPR, N1 or Torque, NP) as appropriate to the particular engine being recorded to determine power in forward and reverse thrust, including potential overspeed condition. |
| 10. Autopilot Engagement | Discrete “on” or “off” | | 1 | | |
| 11. Longitudinal Acceleration | ±1g | ±1.5% max. range excluding datum error of ±5% | 0.25 | 0.004g | |
| 12a. Pitch control(s) position (nonfly-by-wire systems). 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 121.344(f) | 0.5% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 12b. Pitch control(s) position (fly-by-wire systems). 3,18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 121.344(f) | 0.2% of full range | |
| 13a. Lateral control position(s) (nonfly-by-wire). 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 121.344(f) | 0.2% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|------------|--|---|---------------------|--|
| 13b. Lateral control position(s) (fly-by-wire). 4,18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 121.344(f) | 0.2% of full range. | |
| 14a. Yaw control position(s) (nonfly-by-wire). 5,18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 | 0.3% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5. |
| 14b. Yaw control position(s) (fly-by-wire). 18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 | 0.2% of full range | |
| 15. Pitch control surface(s) position. 6,18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 121.344(f) | 0.3% of full range | For airplanes fitted with multiple or split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 16. Lateral control surface(s) position. 7,18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 121.344(f) | 0.3% of full range | A suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5 or 0.25, as applicable. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|--|--|--------------------|--|
| 17. Yaw control surface(s) position. 8,18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 | 0.2% of full range | For airplanes with multiple or split surfaces, a suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5. |
| 18. Lateral Acceleration | ±1g | ±1.5% max. range excluding datum error of ±5% | 0.25 | 0.004g | |
| 19. Pitch Trim Surface Position | Full Range | ±3° Unless Higher Accuracy Uniquely Required | 1 | 0.6% of full range | |
| 20. Trailing Edge Flap or Cockpit Control Selection. 10 | Full Range or Each Position (discrete) | ±3° or as Pilot's indicator | 2 | 0.5% of full range | Flap position and cockpit control may each be sampled at 4 second intervals, to give a data point every 2 seconds. |
| 21. Leading Edge Flap or Cockpit Control Selection. 11 | Full Range or Each Discrete Position | ±3° or as Pilot's indicator and sufficient to determine each discrete position | 2 | 0.5% of full range | Left and right sides, or flap position and cockpit control may each be sampled at 4 second intervals, so as to give a data point every 2 seconds. |
| 22. Each Thrust Reverser Position (or equivalent for propeller airplane) | Stowed, In Transit, and Reverse (Discrete) | | 1 (per engine) | | Turbo-jet - 2 discretely enable the 3 states to be determined. Turbo-prop - discrete. |
| 23. Ground spoiler position or brake selection 12 | Full range or each position (discrete) | ±2° Unless higher accuracy uniquely required | 1 or 0.5 for airplanes operated under § 121.344(f) | 0.5% of full range | |
| 24. Outside Air Temperature or Total Air Temperature. 13 | #50 °C to + 90 °C | ±2 °C | 2 | 0.3 °C | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---|--|-------------------------------|------------------------|--|
| 25. Autopilot/ Autothrottle/ AFCS Mode and Engagement Status | A suitable combination of discretets | | 1 | | Discretets should show which systems are engaged and which primary modes are controlling the flight path and speed of the aircraft. |
| 26. Radio Altitude 14 | #20 ft to 2,500 ft | ± 2 ft or $\pm 3\%$ whichever is greater below 500 ft and $\pm 5\%$ above 500 ft | 1 | 1 ft + 5% above 500 ft | For autoland/ category 3 operations. Each radio altimeter should be recorded, but arranged so that at least one is recorded each second. |
| 27. Localizer Deviation, MLS Azimuth, or GPS Latitude Deviation | ± 400 Microamps or available sensor range as installed $\pm 62^\circ$ | As installed $\pm 3\%$ recommended | 1 | 0.3% of full range | For autoland/ category 3 operations. Each system should be recorded but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded. |
| 28. Glideslope Deviation, MLS Elevation, or GPS Vertical Deviation | ± 400 Microamps or available sensor range as installed 0.9 to + 30° | As installed + 3% recommended | 1 | 0.3% of full range | For autoland/ category 3 operations. Each system should be recorded but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded. |
| 29. Marker Beacon Passage | Discrete "on" or "off" | | 1 | | A single discrete is acceptable for all markers. |
| 30. Master Warning | Discrete | | 1 | | Record the master warning and record each "red" warning that cannot be determined from other parameters |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---|---------------------------------|--|-------------------------|---|
| | | | | | or from the cockpit voice recorder. |
| 31. Air/ground sensor (primary airplane system reference nose or main gear) | Discrete “air” or “ground” | | 1 (0.25 recommended) | | |
| 32. Angle of Attack (If measured directly) | As installed | As installed | 2 or 0.5 for airplanes operated under § 121.344(f) | 0.3% of full range | If left and right sensors are available, each may be recorded at 4 or 1 second intervals, as appropriate, so as to give a data point at 2 seconds or 0.5 second, as required. |
| 33. Hydraulic Pressure Low, Each System | Discrete or available sensor range, “low” or “normal” | ±5% | 2 | 0.5% of full range | |
| 34. Groundspeed | As Installed | Most Accurate Systems Installed | 1 | 0.2% of full range | |
| 35. GPWS (ground proximity warning system) | Discrete “warning” or “off” | | 1 | | A suitable combination of discretely unless recorder capacity is limited in which case a single discrete for all modes is acceptable. |
| 36. Landing Gear Position or Landing gear cockpit control selection | Discrete | | 4 | | A suitable combination of discretely should be recorded. |
| 37. Drift Angle. 15 | As installed | As installed | 4 | 0.1° | |
| 38. Wind Speed and Direction | As installed | As installed | 4 | 1 knot, and 1.0° | |
| 39. Latitude and Longitude | As installed | As installed | 4 | 0.002°, or as installed | Provided by the Primary Navigation System Reference. Where capacity permits Latitude/ longitude resolution should be 0.0002°. |
| 40. Stick shaker and pusher activation | Discrete(s) “on” or “off” | | 1 | | A suitable combination of discretely to determine activation. |
| 41. Windshear Detection | Discrete “warning” or “off” | | 1 | | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|--------------|-------------------------|-------------------------------|--------------------|---|
| 42. Throttle/power Lever position. 16 | Full Range | ±2% | 1 for each lever | 2% of full range | For airplanes with non-mechanically linked cockpit engine controls. |
| 43. Additional Engine Parameters | As installed | As installed | Each engine each second | 2% of full range | Where capacity permits, the preferred priority is indicated vibration level, N2, EGT, Fuel Flow, Fuel Cut-off lever position and N3, unless engine manufacturer recommends otherwise. |
| 44. Traffic Alert and Collision Avoidance System (TCAS) | DisCRETes | As installed | 1 | | A suitable combination of disCRETes should be recorded to determine the status of - Combined Control, Vertical Control, Up Advisory, and Down Advisory. (ref. ARINC Characteristic 735 Attachment 6E, TCAS VERTICAL RA DATA OUTPUT WORD.) |
| 45. DME 1 and 2 Distance | 0-200 NM | As installed | 4 | 1 NM | 1 mile |
| 46. Nav 1 and 2 Selected Frequency | Full Range | As installed | 4 | | Sufficient to determine selected frequency |
| 47. Selected barometric setting | Full Range | ±5% | (1 per 64 sec.) | 0.2% of full range | |
| 48. Selected Altitude | Full Range | ±5% | 1 | 100 ft | |
| 49. Selected speed | Full Range | ±5% | 1 | 1 knot | |
| 50. Selected Mach | Full Range | ±5% | 1 | .01 | |
| 51. Selected vertical speed | Full Range | ±5% | 1 | 100 ft/min | |
| 52. Selected heading | Full Range | ±5% | 1 | 1° | |
| 53. Selected flight path | Full Range | ±5% | 1 | 1° | |
| 54. Selected decision height | Full Range | ±5% | 64 | 1 ft | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|---|--|-------------------------------|--------------------|---|
| 55. EFIS display format | Discrete(s) | | 4 | | Discretes should show the display system status (e.g., off, normal, fail, composite, sector, plan, nav aids, weather radar, range, copy. |
| 56. Multi-function/ Engine Alerts Display format | Discrete(s) | | 4 | | Discretes should show the display system status (e.g., off, normal, fail, and the identity of display pages for emergency procedures, need not be recorded. |
| 57. Thrust command. 17 | Full Range | ±2% | 2 | 2% of full range | |
| 58. Thrust target | Full Range | ±2% | 4 | 2% of full range | |
| 59. Fuel quantity in CG trim tank | Full Range | ±5% | (1 per 64 sec.) | 1% of full range | |
| 60. Primary Navigation System Reference | Discrete GPS, INS, VOR/DME, MLS, Localizer Glideslope | | 4 | | A suitable combination of discretes to determine the Primary Navigation System reference. |
| 61. Ice Detection | Discrete “ice” or “no ice” | | 4 | | |
| 62. Engine warning each engine vibration | Discrete | | 1 | | |
| 63. Engine warning each engine over temp | Discrete | | 1 | | |
| 64. Engine warning each engine oil pressure low | Discrete | | 1 | | |
| 65. Engine warning each engine over speed | Discrete | | 1 | | |
| 66. Yaw Trim Surface Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 2 | 0.3% of full range | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---------------------------------------|--|-------------------------------|--------------------|---|
| 67. Roll Trim Surface Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 2 | 0.3% of full range | |
| 68. Brake Pressure (left and right) | As installed | ±5% | 1 | | To determine braking effort applied by pilots or by autobrakes. |
| 69. Brake Pedal Application (left and right) | Discrete or Analog "applied" or "off" | ±5% (Analog) | 1 | | To determine braking applied by pilots. |
| 70. Yaw or sideslip angle | Full Range | ±5% | 1 | 0.5° | |
| 71. Engine bleed valve position | Discrete "open" or "closed" | | 4 | | |
| 72. De-icing or anti-icing system selection | Discrete "on" or "off" | | 4 | | |
| 73. Computed center of gravity | Full Range | ±5% | (1 per 64 sec.) | 1% of full range | |
| 74. AC electrical bus status | Discrete "power" or "off" | | 4 | | Each bus. |
| 75. DC electrical bus status | Discrete "power" or "off" | | 4 | | Each bus. |
| 76 APU bleed valve position | Discrete "open" or "closed" | | 4 | | |
| 77. Hydraulic Pressure (each system) | Full range | ±5% | 2 | 100 psi | |
| 78. Loss of cabin pressure | Discrete "loss" or "normal" | | 1 | | |
| 79. Computer failure (critical flight and engine control systems) | Discrete "fail" or "normal" | | 4 | | |
| 80. Heads-up display (when an information source is installed) | Discrete(s) "on" or "off" | | 4 | | |
| 81. Para-visual display (when an information source is installed) | Discrete(s) "on" or "off" | | | | |
| 82. Cockpit trim control input position - pitch | Full Range | ±5% | 1 | 0.2% of full range | Where mechanical means for control inputs are not available, cockpit display trim positions should be recorded. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|-------------------------|-------------------------------|--------------------|---|
| 83. Cockpit trim control input position - roll | Full Range | ±5% | 1 | 0.7% of full range | Where mechanical means for control inputs are not available, cockpit display trim position should be recorded. |
| 84. Cockpit trim control input position - yaw | Full range | ±5% | 1 | 0.3% of full range | Where mechanical means for control input are not available, cockpit display trim positions should be recorded. |
| 85. Trailing edge flap and cockpit flap control position | Full Range | ±5% | 2 | 0.5% of full range | Trailing edge flaps and cockpit flap control position may each be sampled alternately at 4 second intervals to provide a sample each 0.5 second. |
| 86. Leading edge flap and cockpit flap control position | Full Range or Discrete | ±5% | 1 | 0.5% of full range | |
| 87. Ground spoiler position and speed brake selection | Full range or discrete | ±5% | 0.5 | 0.3% of full range | |
| 88. All cockpit flight control input forces (control wheel, control column, rudder pedal) 18 19 | Full range Control wheel ±70 lbs Control column ±85 lbs Rudder pedal ±165 lbs | ±5% | 1 | 0.3% of full range | For fly-by-wire flight control systems, where flight control surface position is a function of the displacement of the control input device only, it is not necessary to record this parameter. For airplanes that have a flight control break away capability that allows either pilot to operate the control independently, record both control force inputs. The control force inputs may be sampled alternately once per 2 seconds to produce the sampling interval of 1. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---------------------------------|-------------------|-------------------------|-------------------------------|------------------|---------|
| 89. Yaw damper status | Discrete (on/off) | 0.5 | | | |
| 90. Yaw damper command | Full range | As installed | 0.5 | 1% of full range | |
| 91. Standby rudder valve status | Discrete | 0.5 | | | |

¹ For A300 B2/B4 airplanes, resolution = 6 seconds.

² For A330/A340 series airplanes, resolution = 0.703°.

³ For A318/A319/A320/A321 series airplanes, resolution = 0.275% (0.088°>0.064°).

For A330/A340 series airplanes, resolution = 2.20% (0.703°>0.064°).

⁴ For A318/A319/A320/A321 series airplanes, resolution = 0.22% (0.088°>0.080°).

For A330/A340 series airplanes, resolution = 1.76% (0.703°>0.080°).

⁵ For A330/A340 series airplanes, resolution = 1.18% (0.703° >0.120°).

For A330/A340 series airplanes, seconds per sampling interval = 1.

⁶ For A330/A340 series airplanes, resolution = 0.783% (0.352°>0.090°).

⁷ For A330/A340 series airplanes, aileron resolution = 0.704% (0.352°>0.100°). For A330/A340 series airplanes, spoiler resolution = 1.406% (0.703°>0.100°).

⁸ For A330/A340 series airplanes, resolution = 0.30% (0.176°>0.12°).

For A330/A340 series airplanes, seconds per sampling interval = 1.

⁹ For B-717 series airplanes, resolution = .005g. For Dassault F900C/F900EX airplanes, resolution = .007g.

¹⁰ For A330/A340 series airplanes, resolution = 1.05% (0.250°>0.120°).

¹¹ For A330/A340 series airplanes, resolution = 1.05% (0.250°>0.120°). For A300 B2/B4 series airplanes, resolution = 0.92% (0.230°>0.125°).

¹² For A330/A340 series airplanes, spoiler resolution = 1.406% (0.703°>0.100°).

¹³ For A330/A340 series airplanes, resolution = 0.5°C.

¹⁴ For Dassault F900C/F900EX airplanes, Radio altitude resolution = 1.25 ft.

¹⁵ For A330/A340 series airplanes, resolution = 0.352 degrees.

¹⁶ For A318/A319/A320/A321 series airplanes, resolution = 4.32%. For A330/A340 series airplanes, resolution is 3.27%

of full range for throttle lever angle (TLA); for reverse thrust, reverse throttle lever angle (RLA) resolution is nonlinear over the active reverse thrust range, which is 51.54 degrees to 96.14 degrees. The resolved element is 2.8 degrees uniformly over the entire active reverse thrust range, or 2.9% of the full range value of 96.14 degrees.

¹⁷ For A318/A319/A320/A321 series airplanes, with IAE engines, resolution = 2.58%.

¹⁸ For all aircraft manufactured on or after December 6, 2010, the seconds per sampling interval is 0.125. Each input must be recorded at this rate. Alternately sampling inputs (interleaving) to meet this sampling interval is prohibited.

¹⁹ For 737 model airplanes manufactured between August 19, 2000 and April 6, 2010: the seconds per sampling interval is 0.5 per control input; the remarks regarding the sampling rate do not apply; a single control wheel force transducer installed on the left cable control is acceptable provided the left and right control wheel positions also are recorded.

[Doc. No. 28109, 62 FR 38382, July 17, 1997; 62 FR 48135, Sept. 12, 1997, as amended by Amdt. 121-271, 64 FR 46120, Aug. 24, 1999; Amdt. 121-278, 65 FR 51745, Aug. 24, 2000; 65 FR 81733, Dec. 27, 2000; Amdt. 121-292, 67 FR 54323, Aug. 21, 2002; Amdt. 121-300, 68 FR 42936, July 18, 2003; 68 FR 50069, Aug. 20, 2003; 68 FR 53877, Sept. 15, 2003; 70 FR 41134, July 18, 2005; Amdt. 125-54, 73 FR 12566, Mar. 7, 2008; Amdt. 121-338, 73 FR 12566, Mar. 7, 2008; Amdt. 121-342, 73 FR 73179, Dec. 2, 2008; Amdt. 121-349, 75 FR 17046, Apr. 5, 2010; Amdt. 121-347, 75 FR 7356, Feb. 19, 2010; Amdt. 121-364, 78 FR 39971, July 3, 2013; Docket FAA-2017-0733, Amdt. 121-379, 82 FR 34398, July 25, 2017]

Appendix N to Part 121 [Reserved]

Appendix O to Part 121 - Hazardous Materials Training Requirements For Certificate Holders

This appendix prescribes the requirements for hazardous materials training under part 121, subpart Z, and part 135, subpart K of this chapter. The training requirements for various categories of persons are defined by job function or responsibility. An “X” in a box under a category of persons indicates that the specified category must receive the noted training. All training requirements apply to direct supervisors as well as to persons actually performing the job function. Training requirements for certificate holders authorized in their operations specifications to transport hazardous materials

(will-carry) are prescribed in Table 1. Those certificate holders with a prohibition in their operations specifications against carrying or handling hazardous materials (will-not-carry) must follow the curriculum prescribed in Table 2. The method of delivering the training will be determined by the certificate holder. The certificate holder is responsible for providing a method (may include email, telecommunication, etc.) to

answer all questions prior to testing regardless of the method of instruction. The certificate holder must certify that a test has been completed satisfactorily to verify understanding of the regulations and requirements.

Table 1 - Operators That Transport Hazardous Material - Will-Carry Certificate Holders

| Aspects of transport of hazardous materials by air with which they must be familiar, as a minimum (See note 1) | Shippers (See Note 2) Will-carry | Operators and ground-handling agent's staff accepting hazardous materials (See Note 3) Will-carry | Operators and ground-handling agents staff responsible for the handling, storage, and loading of cargo and baggage Will-carry | Passenger-handling staff Will-carry | Flight crew members and load planners Will-carry | Crew members (other than flight crew members) Will-carry |
|--|---|--|---|---|--|---|
| General philosophy | X | X | X | X | X | X |
| Limitations | X | X | X | X | X | X |
| General requirements for shippers | X | X | | | | |
| Classification | X | X | | | | |
| List of hazardous materials | X | X | | | X | |
| General packing requirements | X | X | | | | |
| Labeling and marking | X | X | X | X | X | X |
| Hazardous materials transport document and other relevant documentation | X | X | | | | |
| Acceptance procedures | | X | | | | |
| Recognition of undeclared hazardous materials | X | X | X | X | X | X |
| Storage and loading procedures | | X | X | | X | |
| Pilots' notification | | X | X | | X | |
| Provisions for passengers and crew | | X | X | X | X | X |

| Aspects of transport of hazardous materials by air with which they must be familiar, as a minimum (See note 1) | Shippers (See Note 2) Will-carry | Operators and ground-handling agent's staff accepting hazardous materials (See Note 3) Will-carry | Operators and ground-handling agents staff responsible for the handling, storage, and loading of cargo and baggage Will-carry | Passenger-handling staff Will-carry | Flight crew members and load planners Will-carry | Crew members (other than flight crew members) Will-carry |
|---|---|--|--|--|---|---|
| Emergency procedures | X | X | X | X | X | X |

Note 1. Depending on the responsibilities of the person, the aspects of training to be covered may vary from those shown in the table.

Note 2. When a person offers a consignment of hazmat, including COMAT, for or on behalf of the certificate holder, then the person must be trained in the certificate holder's training program and comply with shipper responsibilities and training. If offering goods on another certificate holder's equipment, the person must be trained in compliance with the training requirements in 49 CFR. All shippers of hazmat must be trained under 49 CFR. The shipper functions in 49 CFR

mirror the training aspects that must be covered for any shipper offering hazmat for transport.

Note 3. When an operator, its subsidiary, or an agent of the operator is undertaking the responsibilities of acceptance staff, such as the passenger handling staff accepting small parcel cargo, the certificate holder, its subsidiary, or the agent must be trained in the certificate holder's training program and comply with the acceptance staff training requirements.

Table 2 - Operators That Do Not Transport Hazardous Materials - Will-Not-Carry Certificate Holders

| Aspects of transport of hazardous materials by air with which they must be familiar, as a minimum (See Note 1) | Shippers (See Note 2) Will-not-carry | Operators and ground-handling agent's staff accepting cargo other than hazardous materials (See Note 3) Will-not-carry | Operators and ground-handling agents staff responsible for the handling, storage, and loading of cargo and baggage Will-not-carry | Passenger-handling staff Will-not-carry | Flight crew members and load planners Will-not-carry | Crew members (other than flight crew members) Will-not-carry |
|---|---|---|--|--|---|---|
| General philosophy | X | X | X | X | X | X |
| Limitations | X | X | X | X | X | X |
| General requirements for shippers | X | | | | | |
| Classification | X | | | | | |
| List of hazardous materials | X | | | | | |
| General packing requirements | X | | | | | |
| Labeling and marking | X | X | X | X | X | X |
| Hazardous materials transport document and | X | X | | | | |

| Aspects of transport of hazardous materials by air with which they must be familiar, as a minimum (See Note 1) | Shippers (See Note 2) Will-not-carry | Operators and ground-handling agent's staff accepting cargo other than hazardous materials (See Note 3) Will-not-carry | Operators and ground-handling agents staff responsible for the handling, storage, and loading of cargo and baggage Will-not-carry | Passenger-handling staff Will-not-carry | Flight crew members and load planners Will-not-carry | Crew members (other than flight crew members) Will-not-carry |
|---|--|--|--|--|---|---|
| other relevant documentation | | | | | | |
| Acceptance procedures | | | | | | |
| Recognition of undeclared hazardous materials | X | X | X | X | X | X |
| Storage and loading procedures | | | | | | |
| Pilots' notification | | | | | | |
| Provisions for passengers and Crew | | X | X | X | X | X |
| Emergency procedures | X | X | X | X | X | X |

Note 1 - Depending on the responsibilities of the person, the aspects of training to be covered may vary from those shown in the table.

Note 2 - When a person offers a consignment of hazmat, including COMAT, for air transport for or on behalf of the certificate holder, then that person must be properly trained. All shippers of hazmat must be trained under 49 CFR. The shipper functions in 49 CFR mirror the training aspects that must be covered for any shipper, including a will-not-carry certificate holder offering dangerous goods for transport, with the exception of recognition training. Recognition training is a separate FAA requirement in the certificate holder's training program.

Note 3 - When an operator, its subsidiary, or an agent of the operator is undertaking the responsibilities of acceptance staff, such as the passenger handling staff accepting small parcel cargo, the certificate holder, its subsidiary, or the agent must be trained in the certificate holder's training program and comply with the acceptance staff training requirements.

[Doc. No. FAA-2003-15085, 70 FR 58825, Oct. 7, 2005, as amended by Amdt. 121-318, 70 FR 75396, Dec. 20, 2005]

Appendix P to Part 121 - Requirements for ETOPS and Polar Operations

The FAA approves ETOPS in accordance with the requirements and limitations in this appendix.

Section I. *ETOPS Approvals: Airplanes with Two engines.*

(a) *Propulsion system reliability for ETOPS.* (1) Before the FAA grants ETOPS operational approval, the operator must be able to demonstrate the ability to achieve and maintain the level of propulsion system reliability, if any, that is required by § 21.4(b)(2) of this chapter for the ETOPS-approved airplane-engine combination to be used.

(2) Following ETOPS operational approval, the operator must monitor the propulsion system reliability for the airplane-engine combination used in ETOPS, and take action as required by § 121.374(i) for the specified IFSD rates.

(b) *75 Minutes ETOPS - (1) Caribbean/Western Atlantic Area.* The FAA grants approvals to conduct ETOPS with maximum diversion times up to 75 minutes on Western Atlantic/Caribbean area routes as follows:

(i) The FAA reviews the airplane-engine combination to ensure the absence of factors that could prevent safe operations. The airplane-engine combination need not be type-design-approved for ETOPS; however, it must have sufficient

favorable experience to demonstrate to the Administrator a level of reliability appropriate for 75-minute ETOPS.

(ii) The certificate holder must comply with the requirements of § 121.633 for time-limited system planning.

(iii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(iv) The certificate holder must comply with the maintenance program requirements of § 121.374, except that a pre-departure service check before departure of the return flight is not required.

(2) *Other Areas.* The FAA grants approvals to conduct ETOPS with maximum diversion times up to 75 minutes on other than Western Atlantic/Caribbean area routes as follows:

(i) The FAA reviews the airplane-engine combination to ensure the absence of factors that could prevent safe operations. The airplane-engine combination need not be type-design-approved for ETOPS; however, it must have sufficient favorable experience to demonstrate to the Administrator a level of reliability appropriate for 75-minute ETOPS.

(ii) The certificate holder must comply with the requirements of § 121.633 for time-limited system planning.

(iii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(iv) The certificate holder must comply with the maintenance program requirements of § 121.374.

(v) The certificate holder must comply with the MEL in its operations specifications for 120-minute ETOPS.

(c) *90-minute ETOPS (Micronesia).* The FAA grants approvals to conduct ETOPS with maximum diversion times up to 90 minutes on Micronesian area routes as follows:

(1) The airplane-engine combination must be type-design approved for ETOPS of at least 120-minutes.

(2) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(3) The certificate holder must comply with the maintenance program requirements of § 121.374, except that a pre-departure service check before departure of the return flight is not required.

(4) The certificate holder must comply with the MEL requirements in its operations specifications for 120-minute ETOPS.

(d) *120-minute ETOPS.* The FAA grants approvals to conduct ETOPS with maximum diversion times up to 120 minutes as follows:

(1) The airplane-engine combination must be type-design approved for ETOPS of at least 120 minutes.

(2) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(3) The certificate holder must comply with the maintenance program requirements of § 121.374.

(4) The certificate holder must comply with the MEL requirements for 120-minute ETOPS.

(e) *138-Minute ETOPS.* The FAA grants approval to conduct ETOPS with maximum diversion times up to 138 minutes as follows:

(1) *Operators with 120-minute ETOPS approval.* The FAA grants 138-minute ETOPS approval as an extension of an existing 120-minute ETOPS approval as follows:

(i) The authority may be exercised only for specific flights for which the 120-minute diversion time must be exceeded.

(ii) For these flight-by-flight exceptions, the airplane-engine combination must be type-design-approved for ETOPS up to at least 120 minutes. The capability of the airplane's time-limited systems may not be less than 138 minutes calculated in accordance with § 121.633.

(iii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(iv) The certificate holder must comply with the maintenance program requirements of § 121.374.

(v) The certificate holder must comply with minimum equipment list (MEL) requirements in its operations specifications for "beyond 120 minutes ETOPS". Operators without a "beyond 120-minute ETOPS" MEL may apply to AFS-200 through their certificate holding district office for a modified MEL which satisfies the master MEL policy for system/component relief in ETOPS beyond 120 minutes.

(vi) The certificate holder must conduct training for maintenance, dispatch, and flight crew personnel regarding differences between 138-minute ETOPS authority and its previously-approved 120-minute ETOPS authority.

(2) *Operators with existing 180-minute ETOPS approval.* The FAA grants approvals to conduct 138-minute ETOPS (without the limitation in paragraph (e)(1)(i) of section I of this appendix) to certificate holders with existing 180-minute ETOPS approval as follows:

(i) The airplane-engine combination must be type-design approved for ETOPS of at least 180 minutes.

(ii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(iii) The certificate holder must comply with the maintenance program requirements of § 121.374.

(iv) The certificate holder must comply with the MEL requirements for "beyond 120 minutes ETOPS."

(v) The certificate holder must conduct training for maintenance, dispatch and flight crew personnel for differences between 138-minute ETOPS diversion approval and its previously approved 180-minute ETOPS diversion authority.

(f) *180-minute ETOPS.* The FAA grants approval to conduct ETOPS with diversion times up to 180 minutes as follows:

(1) For these operations the airplane-engine combination must be type-design-approved for ETOPS of at least 180 minutes.

(2) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(3) The certificate holder must comply with the maintenance program requirements of § 121.374.

(4) The certificate holder must comply with the MEL requirements for “beyond 120 minutes ETOPS.”

(g) *Greater than 180-minute ETOPS.* The FAA grants approval to conduct ETOPS greater than 180 minutes. The following are requirements for all operations greater than 180 minutes.

(1) The FAA grants approval only to certificate holders with existing 180-minute ETOPS operating authority for the airplane-engine combination to be operated.

(2) The certificate holder must have previous ETOPS experience satisfactory to the Administrator.

(3) In selecting ETOPS Alternate Airports, the operator must make every effort to plan ETOPS with maximum diversion distances of 180 minutes or less, if possible. If conditions necessitate using an ETOPS Alternate Airport beyond 180 minutes, the route may be flown only if the requirements for the specific operating area in paragraph (h) or (i) of section I of this appendix are met.

(4) The certificate holder must inform the flight crew each time an airplane is proposed for dispatch for greater than 180 minutes and tell them why the route was selected.

(5) In addition to the equipment specified in the certificate holder's MEL for 180-minute ETOPS, the following systems must be operational for dispatch:

(i) The fuel quantity indicating system.

(ii) The APU (including electrical and pneumatic supply and operating to the APU's designed capability).

(iii) The auto throttle system.

(iv) The communication system required by § 121.99(d) or § 121.122(c), as applicable.

(v) One-engine-inoperative auto-land capability, if flight planning is predicated on its use.

(6) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

(7) The certificate holder must comply with the maintenance program requirements of § 121.374.

(h) *207-minute ETOPS in the North Pacific Area of Operations.* (1) The FAA grants approval to conduct ETOPS with maximum diversion times up to 207 minutes in the North Pacific Area of Operations as an extension to 180-minute ETOPS authority to be used on an exception basis. This exception may be used only on a flight-by-flight basis when an ETOPS Alternate Airport is not available within 180 minutes for reasons such as political or military concerns; volcanic activity; temporary airport conditions; and airport

weather below dispatch requirements or other weather related events.

(2) The nearest available ETOPS Alternate Airport within 207 minutes diversion time must be specified in the dispatch or flight release.

(3) In conducting such a flight the certificate holder must consider Air Traffic Service's preferred track.

(4) The airplane-engine combination must be type-design-approved for ETOPS of at least 180 minutes. The approved time for the airplane's most limiting ETOPS significant system and most limiting cargo-fire suppression time for those cargo and baggage compartments required by regulation to have fire-suppression systems must be at least 222 minutes.

(5) The certificate holder must track how many times 207-minute authority is used.

(i) *240-minute ETOPS in the North Polar Area, in the area north of the NOPAC, and in the Pacific Ocean north of the equator.* (1) The FAA grants approval to conduct 240-minute ETOPS authority with maximum diversion times in the North Polar Area, in the area north of the NOPAC area, and the Pacific Ocean area north of the equator as an extension to 180-minute ETOPS authority to be used on an exception basis. This exception may be used only on a flight-by-flight basis when an ETOPS Alternate Airport is not available within 180 minutes. In that case, the nearest available ETOPS Alternate Airport within 240 minutes diversion time must be specified in the dispatch or flight release.

(2) This exception may be used in the North Polar Area and in the area north of NOPAC only in extreme conditions particular to these areas such as volcanic activity, extreme cold weather at en-route airports, airport weather below dispatch requirements, temporary airport conditions, and other weather related events. The criteria used by the certificate holder to decide that extreme weather precludes using an airport must be established by the certificate holder, accepted by the FAA, and published in the certificate holder's manual for the use of dispatchers and pilots.

(3) This exception may be used in the Pacific Ocean area north of the equator only for reasons such as political or military concern, volcanic activity, airport weather below dispatch requirements, temporary airport conditions and other weather related events.

(4) The airplane-engine combination must be type design approved for ETOPS greater than 180 minutes.

(j) *240-minute ETOPS in areas South of the equator.* (1) The FAA grants approval to conduct ETOPS with maximum diversion times of up to 240 minutes in the following areas:

(i) Pacific oceanic areas between the U.S. West coast and Australia, New Zealand and Polynesia.

(ii) South Atlantic oceanic areas.

(iii) Indian Ocean areas.

(iv) Oceanic areas between Australia and South America.

(2) The operator must designate the nearest available ETOPS Alternate Airports along the planned route of flight.

(3) The airplane-engine combination must be type-design-approved for ETOPS greater than 180 minutes.

(k) *ETOPS beyond 240 minutes.* (1) The FAA grants approval to conduct ETOPS with diversion times beyond 240 minutes for operations between specified city pairs on routes in the following areas:

(i) The Pacific oceanic areas between the U.S. west coast and Australia, New Zealand, and Polynesia;

(ii) The South Atlantic oceanic areas;

(iii) The Indian Oceanic areas; and

(iv) The oceanic areas between Australia and South America, and the South Polar Area.

(2) This approval is granted to certificate holders who have been operating under 180-minute or greater ETOPS authority for at least 24 consecutive months, of which at least 12 consecutive months must be under 240-minute ETOPS authority with the airplane-engine combination to be used.

(3) The operator must designate the nearest available ETOPS alternate or alternates along the planned route of flight.

(4) For these operations, the airplane-engine combination must be type-design-approved for ETOPS greater than 180 minutes.

Section II. *ETOPS Approval: Passenger-carrying Airplanes With More Than Two Engines.*

(a) The FAA grants approval to conduct ETOPS, as follows:

(1) Except as provided in § 121.162, the airplane-engine combination must be type-design-approved for ETOPS.

(2) The operator must designate the nearest available ETOPS Alternate Airports within 240 minutes diversion time (at one-engine-inoperative cruise speed under standard conditions in still air). If an ETOPS alternate is not available within 240 minutes, the operator must designate the nearest available ETOPS Alternate Airports along the planned route of flight.

(3) The MEL limitations for the authorized ETOPS diversion time apply.

(i) The Fuel Quantity Indicating System must be operational.

(ii) The communications systems required by § 121.99(d) or § 121.122(c) must be operational.

(4) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

Section III. *Approvals for operations whose airplane routes are planned to traverse either the North Polar or South Polar Areas.*

(a) Except for intrastate operations within the State of Alaska, no certificate holder may operate an aircraft in the North Polar Area or South Polar Area, unless authorized by the FAA.

(b) In addition to any of the applicable requirements of sections I and II of this appendix, the certificate holder's operations specifications must contain the following:

(1) The designation of airports that may be used for en-route diversions and the requirements the airports must meet at the time of diversion.

(2) Except for supplemental all-cargo operations, a recovery plan for passengers at designated diversion airports.

(3) A fuel-freeze strategy and procedures for monitoring fuel freezing.

(4) A plan to ensure communication capability for these operations.

(5) An MEL for these operations.

(6) A training plan for operations in these areas.

(7) A plan for mitigating crew exposure to radiation during solar flare activity.

(8) A plan for providing at least two cold weather anti-exposure suits in the aircraft, to protect crewmembers during outside activity at a diversion airport with extreme climatic conditions. The FAA may relieve the certificate holder from this requirement if the season of the year makes the equipment unnecessary.

[Doc. No. FAA-2002-6717, 72 FR 1883, Jan. 16, 2007]

PART 125 - CERTIFICATION AND OPERATIONS: AIRPLANES HAVING A SEATING CAPACITY OF 20 OR MORE PASSENGERS OR A MAXIMUM PAYLOAD CAPACITY OF 6,000 POUNDS OR MORE; AND RULES GOVERNING PERSONS ON BOARD SUCH AIRCRAFT

Authority:

49 U.S.C. 106(f), 106(g), 40113, 44701-44702, 44705, 44710-44711, 44713, 44716-44717, 44722.

Source:

Docket No. 19779, 45 FR 67235, Oct. 9, 1980, unless otherwise noted.

Special Federal Aviation Regulation No. 89

Editorial Note:

For the text of SFAR No. 89, see part 121 of this chapter.

Special Federal Aviation Regulation No. 97

Editorial Note:

For the text of SFAR No. 97, see part 91 of this chapter.

Subpart A - General

§ 125.1 Applicability.

(a) Except as provided in paragraphs (b), (c) and (d) of this section, this part prescribes rules governing the operations of U.S.-registered civil airplanes which have a seating configuration of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more when common carriage is not involved.

(b) The rules of this part do not apply to the operations of airplanes specified in paragraph (a) of this section, when -

(1) They are required to be operated under part 121, 129, 135, or 137 of this chapter;

(2) They have been issued restricted, limited, or provisional airworthiness certificates, special flight permits, or experimental certificates;

(3) They are being operated by a part 125 certificate holder without carrying passengers or cargo under part 91 for training, ferrying, positioning, or maintenance purposes;

(4) They are being operated under part 91 by an operator certificated to operate those airplanes under the rules of parts 121, 135, or 137 of this chapter, they are being operated under the applicable rules of part 121 or part 135 of this chapter by an applicant for a certificate under part 119 of this chapter or they are being operated by a foreign air carrier or a foreign person engaged in common carriage solely outside the United States under part 91 of this chapter;

(5) They are being operated under a deviation authority issued under § 125.3;

(6) They are being operated under part 91, subpart K by a fractional owner as defined in § 91.1001 of this chapter; or

(7) They are being operated by a fractional ownership program manager as defined in § 91.1001 of this chapter, for training, ferrying, positioning, maintenance, or demonstration purposes under part 91 of this chapter and without carrying passengers or cargo for compensation or hire except as permitted for demonstration flights under § 91.501(b)(3) of this chapter.

(c) The rules of this part, except § 125.247, do not apply to the operation of airplanes specified in paragraph (a) when they are operated outside the United States by a person who is not a citizen of the United States.

(d) The provisions of this part apply to each person on board an aircraft being operated under this part, unless otherwise specified.

(e) This part also establishes requirements for operators to take actions to support the continued airworthiness of each airplane.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-4, 47 FR 44719, Oct. 12, 1982; Amdt. 125-5, 49 FR 34816, Sept. 4, 1984; Amdt. 125-6, 51 FR 873, Jan. 8, 1986; Amdt. 125-9, 52 FR 20028, May 28, 1987; Amdt. 121-251, 60 FR 65937, Dec. 20, 1995; Amdt. 125-31, 64 FR 1080, Jan. 7, 1999;

Amdt. 125-44, 68 FR 54585, Sept. 17, 2003; Amdt. 125-53, 72 FR 63412, Nov. 8, 2007]

§ 125.3 Deviation authority.

(a) The Administrator may, upon consideration of the circumstances of a particular operation, issue deviation authority providing relief from specified sections of part 125. This deviation authority will be issued as a Letter of Deviation Authority.

(b) A Letter of Deviation Authority may be terminated or amended at any time by the Administrator.

(c) A request for deviation authority must be submitted to the nearest Flight Standards District Office, not less than 60 days prior to the date of intended operations. A request for deviation authority must contain a complete statement of the circumstances and justification for the deviation requested.

(d) After February 2, 2012, no deviation authority from the flight data recorder requirements of this part will be granted. Any previously issued deviation from the flight data recorder requirements of this part is no longer valid.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-13, 54 FR 39294, Sept. 25, 1989; Amdt. 125-56, 73 FR 73179, Dec. 2, 2008]

§ 125.5 Operating certificate and operations specifications required.

(a) After February 3, 1981, no person may engage in operations governed by this part unless that person holds a certificate and operations specification or appropriate deviation authority.

(b) Applicants who file an application before June 1, 1981 shall continue to operate under the rules applicable to their operations on February 2, 1981 until the application for an operating certificate required by this part has been denied or the operating certificate and operations specifications required by this part have been issued.

(c) The rules of this part which apply to a certificate holder also apply to any person who engages in any operation governed by this part without an appropriate certificate and operations specifications required by this part or a Letter of Deviation Authority issued under § 125.3.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-1A, 46 FR 10903, Feb. 5, 1981]

§ 125.7 Display of certificate.

(a) The certificate holder must display a true copy of the certificate in each of its aircraft.

(b) Each operator holding a Letter of Deviation Authority issued under this part must carry a true copy in each of its airplanes.

§ 125.9 Definitions.

(a) For the purposes of this part, *maximum payload capacity* means:

(1) For an airplane for which a maximum zero fuel weight is prescribed in FAA technical specifications, the maximum zero fuel weight, less empty weight, less all justifiable airplane equipment, and less the operating load (consisting of minimum flightcrew, foods and beverages and supplies and equipment related to foods and beverages, but not including disposable fuel or oil):

(2) For all other airplanes, the maximum certificated takeoff weight of an airplane, less the empty weight, less all justifiable airplane equipment, and less the operating load (consisting of minimum fuel load, oil, and flightcrew). The allowance for the weight of the crew, oil, and fuel is as follows:

(i) Crew - 200 pounds for each crewmember required under this chapter

(ii) Oil - 350 pounds.

(iii) Fuel - the minimum weight of fuel required under this chapter for a flight between domestic points 174 nautical miles apart under VFR weather conditions that does not involve extended overwater operations.

(b) For the purposes of this part, *empty weight* means the weight of the airframe, engines, propellers, and fixed equipment. Empty weight excludes the weight of the crew and payload, but includes the weight of all fixed ballast, unusable fuel supply, undrainable oil, total quantity of engine coolant, and total quantity of hydraulic fluid.

(c) For the purposes of this part, *maximum zero fuel weight* means the maximum permissible weight of an airplane with no disposable fuel or oil. The zero fuel weight figure may be found in either the airplane type certificate data sheet or the approved Airplane Flight Manual, or both.

(d) For the purposes of this section, *justifiable airplane equipment* means any equipment necessary for the operation of the airplane. It does not include equipment or ballast specifically installed, permanently or otherwise, for the purpose of altering the empty weight of an airplane to meet the maximum payload capacity.

§ 125.11 Certificate eligibility and prohibited operations.

(a) No person is eligible for a certificate or operations specifications under this part if the person holds the appropriate operating certificate and/or operations specifications necessary to conduct operations under part 121, 129 or 135 of this chapter.

(b) No certificate holder may conduct any operation which results directly or indirectly from any person's holding out to the public to furnish transportation.

(c) No person holding operations specifications under this part may operate or list on its operations specifications any aircraft listed on any operations specifications or other required aircraft listing under part 121, 129, or 135 of this chapter.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-9, 52 FR 20028, May 28, 1987]

Subpart B - Certification Rules and Miscellaneous Requirements

§ 125.21 Application for operating certificate.

(a) Each applicant for the issuance of an operating certificate must submit an application in a form and manner prescribed by the Administrator to the FAA Flight Standards district office in whose area the applicant proposes to establish or has established its principal operations base. The application must be submitted at least 60 days before the date of intended operations.

(b) Each application submitted under paragraph (a) of this section must contain a signed statement showing the following:

(1) The name and address of each director and each officer or person employed or who will be employed in a management position described in § 125.25.

(2) A list of flight crewmembers with the type of airman certificate held, including ratings and certificate numbers.

§ 125.23 Rules applicable to operations subject to this part.

Each person operating an airplane in operations under this part shall -

(a) While operating inside the United States, comply with the applicable rules in part 91 of this chapter; and

(b) While operating outside the United States, comply with Annex 2, Rules of the Air, to the Convention on International Civil Aviation or the regulations of any foreign country, whichever applies, and with any rules of parts 61 and 91 of this chapter and this part that are more restrictive than that Annex or those regulations and that can be complied with without violating that Annex or those regulations. Annex 2 is incorporated by reference in § 91.703(b) of this chapter.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-12, 54 FR 34331, Aug. 18, 1989]

§ 125.25 Management personnel required.

(a) Each applicant for a certificate under this part must show that it has enough management personnel, including at least a director of operations, to assure that its operations are conducted in accordance with the requirements of this part.

(b) Each applicant shall -

(1) Set forth the duties, responsibilities, and authority of each of its management personnel in the general policy section of its manual;

(2) List in the manual the names and addresses of each of its management personnel;

(3) Designate a person as responsible for the scheduling of inspections required by the manual and for the updating of the approved weight and balance system on all airplanes.

(c) Each certificate holder shall notify the FAA Flight Standards district office charged with the overall inspection of

the certificate holder of any change made in the assignment of persons to the listed positions within 10 days, excluding Saturdays, Sundays, and Federal holidays, of such change.

§ 125.26 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no certificate holder may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

(1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and

(2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the certificate holder.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a certificate holder in a matter before the agency if the individual makes any written or oral communication on behalf of the certificate holder to the agency (or any of its officers or employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a certificate holder from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual was employed by the certificate holder before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52235, Aug. 22, 2011]

§ 125.27 Issue of certificate.

(a) An applicant for a certificate under this subpart is entitled to a certificate if the Administrator finds that the applicant is properly and adequately equipped and able to conduct a safe operation in accordance with the requirements of this part and the operations specifications provided for in this part.

(b) The Administrator may deny an application for a certificate under this subpart if the Administrator finds -

(1) That an operating certificate required under this part or part 121, 123, or 135 of this chapter previously issued to the applicant was revoked; or

(2) That a person who was employed in a management position under § 125.25 of this part with (or has exercised control with respect to) any certificate holder under part 121, 123, 125, or 135 of this chapter whose operating certificate has been revoked, will be employed in any of those positions or a similar position with the applicant and that the person's employment or control contributed materially to the reasons for revoking that certificate.

§ 125.29 Duration of certificate.

(a) A certificate issued under this part is effective until surrendered, suspended, or revoked.

(b) The Administrator may suspend or revoke a certificate under section 609 of the Federal Aviation Act of 1958 and the applicable procedures of part 13 of this chapter for any cause that, at the time of suspension or revocation, would have been grounds for denying an application for a certificate.

(c) If the Administrator suspends or revokes a certificate or it is otherwise terminated, the holder of that certificate shall return it to the Administrator.

§ 125.31 Contents of certificate and operations specifications.

(a) Each certificate issued under this part contains the following:

(1) The holder's name.

(2) A description of the operations authorized.

(3) The date it is issued.

(b) The operations specifications issued under this part contain the following:

(1) The kinds of operations authorized.

(2) The types and registration numbers of airplanes authorized for use.

(3) Approval of the provisions of the operator's manual relating to airplane inspections, together with necessary conditions and limitations.

(4) Registration numbers of airplanes that are to be inspected under an approved airplane inspection program under § 125.247.

(5) Procedures for control of weight and balance of airplanes.

(6) Any other item that the Administrator determines is necessary to cover a particular situation.

§ 125.33 Operations specifications not a part of certificate.

Operations specifications are not a part of an operating certificate.

§ 125.35 Amendment of operations specifications.

(a) The FAA Flight Standards district office charged with the overall inspection of the certificate holder may amend any operations specifications issued under this part if -

(1) It determines that safety in air commerce requires that amendment; or

(2) Upon application by the holder, that district office determines that safety in air commerce allows that amendment.

(b) The certificate holder must file an application to amend operations specifications at least 15 days before the date proposed by the applicant for the amendment to become effective, unless a shorter filing period is approved. The application must be on a form and in a manner prescribed by the Administrator and be submitted to the FAA Flight

Standards district office charged with the overall inspection of the certificate holder.

(c) Within 30 days after a notice of refusal to approve a holder's application for amendment is received, the holder may petition the Director, Flight Standards Service, to reconsider the refusal to amend.

(d) When the FAA Flight Standards district office charged with the overall inspection of the certificate holder amends operations specifications, that district office gives notice in writing to the holder of a proposed amendment to the operations specifications, fixing a period of not less than 7 days within which the holder may submit written information, views, and arguments concerning the proposed amendment. After consideration of all relevant matter presented, that district office notifies the holder of any amendment adopted, or a rescission of the notice. That amendment becomes effective not less than 30 days after the holder receives notice of the adoption of the amendment, unless the holder petitions the Director, Flight Standards Service, for reconsideration of the amendment. In that case, the effective date of the amendment is stayed pending a decision by the Director. If the Director finds there is an emergency requiring immediate action as to safety in air commerce that makes the provisions of this paragraph impracticable or contrary to the public interest, the Director notifies the certificate holder that the amendment is effective on the date of receipt, without previous notice.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-13, 54 FR 39294, Sept. 25, 1989]

§ 125.37 Duty period limitations.

(a) Each flight crewmember and flight attendant must be relieved from all duty for at least 8 consecutive hours during any 24-hour period.

(b) The Administrator may specify rest, flight time, and duty time limitations in the operations specifications that are other than those specified in paragraph (a) of this section.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-21, 59 FR 42993, Aug. 19, 1994]

§ 125.39 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

If the holder of a certificate issued under this part permits any airplane owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of § 91.19(a) of this chapter, that operation is a basis for suspending or revoking the certificate.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-12, 54 FR 34331, Aug. 18, 1989]

§ 125.41 Availability of certificate and operations specifications.

Each certificate holder shall make its operating certificate and operations specifications available for inspection by the Administrator at its principal operations base.

§ 125.43 Use of operations specifications.

(a) Each certificate holder shall keep each of its employees informed of the provisions of its operations specifications that apply to the employee's duties and responsibilities.

(b) Each certificate holder shall maintain a complete and separate set of its operations specifications. In addition, each certificate holder shall insert pertinent excerpts of its operations specifications, or reference thereto, in its manual in such a manner that they retain their identity as operations specifications.

§ 125.45 Inspection authority.

Each certificate holder shall allow the Administrator, at any time or place, to make any inspections or tests to determine its compliance with the Federal Aviation Act of 1958, the Federal Aviation Regulations, its operating certificate and operations specifications, its letter of deviation authority, or its eligibility to continue to hold its certificate or its letter of deviation authority.

§ 125.47 Change of address.

Each certificate holder shall notify the FAA Flight Standards district office charged with the overall inspection of its operations, in writing, at least 30 days in advance, of any change in the address of its principal business office, its principal operations base, or its principal maintenance base.

§ 125.49 Airport requirements.

(a) No certificate holder may use any airport unless it is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting.

(b) No pilot of an airplane carrying passengers at night may take off from, or land on, an airport unless -

(1) That pilot has determined the wind direction from an illuminated wind direction indicator or local ground communications, or, in the case of takeoff, that pilot's personal observations; and

(2) The limits of the area to be used for landing or takeoff are clearly shown by boundary or runway marker lights.

(c) For the purposes of paragraph (b) of this section, if the area to be used for takeoff or landing is marked by flare pots or lanterns, their use must be approved by the Administrator.

§ 125.51 En route navigation facilities.

(a) Except as provided in paragraph (b) of this section, no certificate holder may conduct any operation over a route (including to any destination, refueling or alternate airports) unless suitable navigation aids are available over the route to navigate the airplane along the route within the degree of accuracy required for ATC. Navigation aids required for routes outside of controlled airspace are listed in the certificate holder's operations specifications except for those aids required for routes to alternate airports.

(b) Navigation aids are not required for any of the following operations -

(1) Day VFR operations that the certificate holder shows can be conducted safely by pilotage because of the characteristics of the terrain;

(2) Night VFR operations on routes that the certificate holder shows have reliably lighted landmarks adequate for safe operations; and

(3) Other operations approved by the certificate holding district office.

[Doc. No. FAA-2002-14002, 72 FR 31682, June 7, 2007]

§ 125.53 Flight locating requirements.

(a) Each certificate holder must have procedures established for locating each flight for which an FAA flight plan is not filed that -

(1) Provide the certificate holder with at least the information required to be included in a VFR flight plan;

(2) Provide for timely notification of an FAA facility or search and rescue facility, if an airplane is overdue or missing; and

(3) Provide the certificate holder with the location, date, and estimated time for reestablishing radio or telephone communications, if the flight will operate in an area where communications cannot be maintained.

(b) Flight locating information shall be retained at the certificate holder's principal operations base, or at other places designated by the certificate holder in the flight locating procedures, until the completion of the flight.

(c) Each certificate holder shall furnish the representative of the Administrator assigned to it with a copy of its flight locating procedures and any changes or additions, unless those procedures are included in a manual required under this part.

Subpart C - Manual Requirements

§ 125.71 Preparation.

(a) Each certificate holder shall prepare and keep current a manual setting forth the certificate holder's procedures and policies acceptable to the Administrator. This manual must be used by the certificate holder's flight, ground, and maintenance personnel in conducting its operations. However, the Administrator may authorize a deviation from this paragraph if the Administrator finds that, because of the limited size of the operation, all or part of the manual is not necessary for guidance of flight, ground, or maintenance personnel.

(b) Each certificate holder shall maintain at least one copy of the manual at its principal operations base.

(c) The manual must not be contrary to any applicable Federal regulations, foreign regulation applicable to the certificate holder's operations in foreign countries, or the certificate holder's operating certificate or operations specifications.

(d) A copy of the manual, or appropriate portions of the manual (and changes and additions) shall be made available to maintenance and ground operations personnel by the certificate holder and furnished to -

(1) Its flight crewmembers; and

(2) The FAA Flight Standards district office charged with the overall inspection of its operations.

(e) Each employee of the certificate holder to whom a manual or appropriate portions of it are furnished under paragraph (d)(1) of this section shall keep it up to date with the changes and additions furnished to them.

(f) For the purpose of complying with paragraph (d) of this section, a certificate holder may furnish the persons listed therein with the maintenance part of its manual in printed form or other form, acceptable to the Administrator, that is retrievable in the English language. If the certificate holder furnishes the maintenance part of the manual in other than printed form, it must ensure there is a compatible reading device available to those persons that provides a legible image of the maintenance information and instructions or a system that is able to retrieve the maintenance information and instructions in the English language.

(g) If a certificate holder conducts airplane inspections or maintenance at specified stations where it keeps the approved inspection program manual, it is not required to carry the manual aboard the airplane en route to those stations.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-28, 62 FR 13257, Mar. 19, 1997]

§ 125.73 Contents.

Each manual shall have the date of the last revision and revision number on each revised page. The manual must include -

(a) The name of each management person who is authorized to act for the certificate holder, the person's assigned area of responsibility, and the person's duties, responsibilities, and authority;

(b) Procedures for ensuring compliance with airplane weight and balance limitations;

(c) Copies of the certificate holder's operations specifications or appropriate extracted information, including area of operations authorized, category and class of airplane authorized, crew complements, and types of operations authorized;

(d) Procedures for complying with accident notification requirements;

(e) Procedures for ensuring that the pilot in command knows that required airworthiness inspections have been made and that the airplane has been approved for return to service in compliance with applicable maintenance requirements;

(f) Procedures for reporting and recording mechanical irregularities that come to the attention of the pilot in command before, during, and after completion of a flight;

(g) Procedures to be followed by the pilot in command for determining that mechanical irregularities or defects reported

for previous flights have been corrected or that correction has been deferred;

(h) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the airplane at a place where previous arrangements have not been made by the operator, when the pilot is authorized to so act for the operator;

(i) Procedures for the release for, or continuation of, flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route;

(j) Procedures for refueling airplanes, eliminating fuel contamination, protecting from fire (including electrostatic protection), and supervising and protecting passengers during refueling;

(k) Procedures to be followed by the pilot in command in the briefing under § 125.327;

(l) Flight locating procedures, when applicable;

(m) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned each category of required crewmembers in connection with an emergency and emergency evacuation;

(n) The approved airplane inspection program;

(o) Procedures and instructions to enable personnel to recognize hazardous materials, as defined in title 49 CFR, and if these materials are to be carried, stored, or handled, procedures and instructions for -

(1) Accepting shipment of hazardous material required by title 49 CFR, to assure proper packaging, marking, labeling, shipping documents, compatibility of articles, and instructions on their loading, storage, and handling;

(2) Notification and reporting hazardous material incidents as required by title 49 CFR; and

(3) Notification of the pilot in command when there are hazardous materials aboard, as required by title 49 CFR;

(p) Procedures for the evacuation of persons who may need the assistance of another person to move expeditiously to an exit if an emergency occurs;

(q) The identity of each person who will administer tests required by this part, including the designation of the tests authorized to be given by the person; and

(r) Other procedures and policy instructions regarding the certificate holder's operations that are issued by the certificate holder.

§ 125.75 Airplane flight manual.

(a) Each certificate holder shall keep a current approved Airplane Flight Manual or approved equivalent for each type airplane that it operates.

(b) Each certificate holder shall carry the approved Airplane Flight Manual or the approved equivalent aboard each airplane it operates. A certificate holder may elect to carry a combination of the manuals required by this section and § 125.71. If it so elects, the certificate holder may revise the operating procedures sections and modify the presentation of performance from the applicable Airplane Flight Manual if the

revised operating procedures and modified performance data presentation are approved by the Administrator.

Subpart D - Airplane Requirements

§ 125.91 Airplane requirements: General.

(a) No certificate holder may operate an airplane governed by this part unless it -

(1) Carries an appropriate current airworthiness certificate issued under this chapter; and

(2) Is in an airworthy condition and meets the applicable airworthiness requirements of this chapter, including those relating to identification and equipment.

(b) No person may operate an airplane unless the current empty weight and center of gravity are calculated from the values established by actual weighing of the airplane within the preceding 36 calendar months.

(c) Paragraph (b) of this section does not apply to airplanes issued an original airworthiness certificate within the preceding 36 calendar months.

§ 125.93 Airplane limitations.

No certificate holder may operate a land airplane (other than a DC-3, C-46, CV-240, CV-340, CV-440, CV-580, CV-600, CV-640, or Martin 404) in an extended overwater operation unless it is certificated or approved as adequate for ditching under the ditching provisions of part 25 of this chapter.

Subpart E - Special Airworthiness Requirements

§ 125.111 General.

(a) Except as provided in paragraph (b) of this section, no certificate holder may use an airplane powered by airplane engines rated at more than 600 horsepower each for maximum continuous operation unless that airplane meets the requirements of §§ 125.113 through 125.181.

(b) If the Administrator determines that, for a particular model of airplane used in cargo service, literal compliance with any requirement under paragraph (a) of this section would be extremely difficult and that compliance would not contribute materially to the objective sought, the Administrator may require compliance with only those requirements that are necessary to accomplish the basic objectives of this part.

(c) This section does not apply to any airplane certificated under -

(1) Part 4b of the Civil Air Regulations in effect after October 31, 1946;

(2) Part 25 of this chapter; or

(3) Special Civil Air Regulation 422, 422A, or 422B.

§ 125.113 Cabin interiors.

(a) Upon the first major overhaul of an airplane cabin or refurbishing of the cabin interior, all materials in each compartment used by the crew or passengers that do not meet the following requirements must be replaced with materials that meet these requirements:

(1) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, § 25.853 in effect on April 30, 1972.

(2) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the materials requirement under which the airplane was type certificated.

(b) Except as provided in paragraph (a) of this section, each compartment used by the crew or passengers must meet the following requirements:

(1) Materials must be at least flash resistant.

(2) The wall and ceiling linings and the covering of upholstering, floors, and furnishings must be flame resistant.

(3) Each compartment where smoking is to be allowed must be equipped with self-contained ash trays that are completely removable and other compartments must be placarded against smoking.

(4) Each receptacle for used towels, papers, and wastes must be of fire-resistant material and must have a cover or other means of containing possible fires started in the receptacles.

(c) Thermal/acoustic insulation materials. For transport category airplanes type certificated after January 1, 1958:

(1) For airplanes manufactured before September 2, 2005, when thermal/acoustic insulation is installed in the fuselage as replacements after September 2, 2005, the insulation must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003, if it is:

(i) of a blanket construction or

(ii) Installed around air ducting.

(2) For airplanes manufactured after September 2, 2005, thermal/acoustic insulation materials installed in the fuselage must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003.

[Doc. No. 19799, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-43, 68 FR 45084, July 31, 2003; Amdt. 125-50, 70 FR 77752, Dec. 30, 2005]

§ 125.115 Internal doors.

In any case where internal doors are equipped with louvres or other ventilating means, there must be a means convenient to the crew for closing the flow of air through the door when necessary.

§ 125.117 Ventilation.

Each passenger or crew compartment must be suitably ventilated. Carbon monoxide concentration may not be more than one part in 20,000 parts of air, and fuel fumes may not be present. In any case where partitions between compartments

have louvres or other means allowing air to flow between compartments, there must be a means convenient to the crew for closing the flow of air through the partitions when necessary.

§ 125.119 Fire precautions.

(a) Each compartment must be designed so that, when used for storing cargo or baggage, it meets the following requirements:

(1) No compartment may include controls, wiring, lines, equipment, or accessories that would upon damage or failure, affect the safe operation of the airplane unless the item is adequately shielded, isolated, or otherwise protected so that it cannot be damaged by movement of cargo in the compartment and so that damage to or failure of the item would not create a fire hazard in the compartment.

(2) Cargo or baggage may not interfere with the functioning of the fire-protective features of the compartment.

(3) Materials used in the construction of the compartments, including tie-down equipment, must be at least flame resistant.

(4) Each compartment must include provisions for safeguarding against fires according to the classifications set forth in paragraphs (b) through (f) of this section.

(b) *Class A.* Cargo and baggage compartments are classified in the “A” category if a fire therein would be readily discernible to a member of the crew while at that crewmember's station, and all parts of the compartment are easily accessible in flight. There must be a hand fire extinguisher available for each Class A compartment.

(c) *Class B.* Cargo and baggage compartments are classified in the “B” category if enough access is provided while in flight to enable a member of the crew to effectively reach all of the compartment and its contents with a hand fire extinguisher and the compartment is so designed that, when the access provisions are being used, no hazardous amount of smoke, flames, or extinguishing agent enters any compartment occupied by the crew or passengers. Each Class B compartment must comply with the following:

(1) It must have a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station.

(2) There must be a hand-held fire extinguisher available for the compartment.

(3) It must be lined with fire-resistant material, except that additional service lining of flame-resistant material may be used.

(d) *Class C.* Cargo and baggage compartments are classified in the “C” category if they do not conform with the requirements for the “A”, “B”, “D”, or “E” categories. Each Class C compartment must comply with the following:

(1) It must have a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station.

(2) It must have an approved built-in fire-extinguishing system controlled from the pilot or flight engineer station.

(3) It must be designed to exclude hazardous quantities of smoke, flames, or extinguishing agents from entering into any compartment occupied by the crew or passengers.

(4) It must have ventilation and draft control so that the extinguishing agent provided can control any fire that may start in the compartment.

(5) It must be lined with fire-resistant material, except that additional service lining of flame-resistant material may be used.

(e) *Class D.* Cargo and baggage compartments are classified in the “D” category if they are so designed and constructed that a fire occurring therein will be completely confined without endangering the safety of the airplane or the occupants. Each Class D compartment must comply with the following:

(1) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering any compartment occupied by the crew or passengers.

(2) Ventilation and drafts must be controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits.

(3) It must be completely lined with fire-resistant material.

(4) Consideration must be given to the effect of heat within the compartment on adjacent critical parts of the airplane.

(f) *Class E.* On airplanes used for the carriage of cargo only, the cabin area may be classified as a Class “E” compartment. Each Class E compartment must comply with the following:

(1) It must be completely lined with fire-resistant material.

(2) It must have a separate system of an approved type smoke or fire detector to give warning at the pilot or flight engineer station.

(3) It must have a means to shut off the ventilating air flow to or within the compartment and the controls for that means must be accessible to the flightcrew in the crew compartment.

(4) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering the flightcrew compartment.

(5) Required crew emergency exits must be accessible under all cargo loading conditions.

§ 125.121 Proof of compliance with § 125.119.

Compliance with those provisions of § 125.119 that refer to compartment accessibility, the entry of hazardous quantities of smoke or extinguishing agent into compartment occupied by the crew or passengers, and the dissipation of the extinguishing agent in Class “C” compartments must be shown by tests in flight. During these tests it must be shown that no inadvertent operation of smoke or fire detectors in other compartments within the airplane would occur as a result of fire contained in any one compartment, either during the time it is being extinguished, or thereafter, unless the extinguishing system floods those compartments simultaneously.

§ 125.123 Propeller deicing fluid.

If combustible fluid is used for propeller deicing, the certificate holder must comply with § 125.153.

§ 125.125 Pressure cross-feed arrangements.

(a) Pressure cross-feed lines may not pass through parts of the airplane used for carrying persons or cargo unless there is a means to allow crewmembers to shut off the supply of fuel to these lines or the lines are enclosed in a fuel and fume-proof enclosure that is ventilated and drained to the exterior of the airplane. However, such an enclosure need not be used if those lines incorporate no fittings on or within the personnel or cargo areas and are suitably routed or protected to prevent accidental damage.

(b) Lines that can be isolated from the rest of the fuel system by valves at each end must incorporate provisions for relieving excessive pressures that may result from exposure of the isolated line to high temperatures.

§ 125.127 Location of fuel tanks.

(a) Fuel tanks must be located in accordance with § 125.153.

(b) No part of the engine nacelle skin that lies immediately behind a major air outlet from the engine compartment may be used as the wall of an integral tank.

(c) Fuel tanks must be isolated from personnel compartments by means of fume- and fuel-proof enclosures.

§ 125.129 Fuel system lines and fittings.

(a) Fuel lines must be installed and supported so as to prevent excessive vibration and so as to be adequate to withstand loads due to fuel pressure and accelerated flight conditions.

(b) Lines connected to components of the airplane between which there may be relative motion must incorporate provisions for flexibility.

(c) Flexible connections in lines that may be under pressure and subject to axial loading must use flexible hose assemblies rather than hose clamp connections.

(d) Flexible hoses must be of an acceptable type or proven suitable for the particular application.

§ 125.131 Fuel lines and fittings in designated fire zones.

Fuel lines and fittings in each designated fire zone must comply with § 125.157.

§ 125.133 Fuel valves.

Each fuel valve must -

(a) Comply with § 125.155;

(b) Have positive stops or suitable index provisions in the “on” and “off” positions; and

(c) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines connected to the valve.

§ 125.135 Oil lines and fittings in designated fire zones.

Oil lines and fittings in each designated fire zone must comply with § 125.157.

§ 125.137 Oil valves.

(a) Each oil valve must -

(1) Comply with § 125.155;

(2) Have positive stops or suitable index provisions in the “on” and “off” positions; and

(3) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines attached to the valve.

(b) The closing of an oil shutoff means must not prevent feathering the propeller, unless equivalent safety provisions are incorporated.

§ 125.139 Oil system drains.

Accessible drains incorporating either a manual or automatic means for positive locking in the closed position must be provided to allow safe drainage of the entire oil system.

§ 125.141 Engine breather lines.

(a) Engine breather lines must be so arranged that condensed water vapor that may freeze and obstruct the line cannot accumulate at any point.

(b) Engine breathers must discharge in a location that does not constitute a fire hazard in case foaming occurs and so that oil emitted from the line does not impinge upon the pilots' windshield.

(c) Engine breathers may not discharge into the engine air induction system.

§ 125.143 Firewalls.

Each engine, auxiliary power unit, fuel-burning heater, or other item of combusting equipment that is intended for operation in flight must be isolated from the rest of the airplane by means of firewalls or shrouds, or by other equivalent means.

§ 125.145 Firewall construction.

Each firewall and shroud must -

(a) Be so made that no hazardous quantity of air, fluids, or flame can pass from the engine compartment to other parts of the airplane;

(b) Have all openings in the firewall or shroud sealed with close-fitting fireproof grommets, bushings, or firewall fittings;

(c) Be made of fireproof material; and

(d) Be protected against corrosion.

§ 125.147 Cowling.

(a) Cowling must be made and supported so as to resist the vibration, inertia, and air loads to which it may be normally subjected.

(b) Provisions must be made to allow rapid and complete drainage of the cowling in normal ground and flight attitudes. Drains must not discharge in locations constituting a fire hazard. Parts of the cowling that are subjected to high temperatures because they are near exhaust system parts or because of exhaust gas impingement must be made of fireproof material. Unless otherwise specified in these regulations, all other parts of the cowling must be made of material that is at least fire resistant.

§ 125.149 Engine accessory section diaphragm.

Unless equivalent protection can be shown by other means, a diaphragm that complies with § 125.145 must be provided on air-cooled engines to isolate the engine power section and all parts of the exhaust system from the engine accessory compartment.

§ 125.151 Powerplant fire protection.

(a) Designated fire zones must be protected from fire by compliance with §§ 125.153 through 125.159.

(b) Designated fire zones are -

(1) Engine accessory sections;

(2) Installations where no isolation is provided between the engine and accessory compartment; and

(3) Areas that contain auxiliary power units, fuel-burning heaters, and other combustion equipment.

§ 125.153 Flammable fluids.

(a) No tanks or reservoirs that are a part of a system containing flammable fluids or gases may be located in designated fire zones, except where the fluid contained, the design of the system, the materials used in the tank, the shutoff means, and the connections, lines, and controls provide equivalent safety.

(b) At least one-half inch of clear airspace must be provided between any tank or reservoir and a firewall or shroud isolating a designated fire zone.

§ 125.155 Shutoff means.

(a) Each engine must have a means for shutting off or otherwise preventing hazardous amounts of fuel, oil, deicer, and other flammable fluids from flowing into, within, or through any designated fire zone. However, means need not be provided to shut off flow in lines that are an integral part of an engine.

(b) The shutoff means must allow an emergency operating sequence that is compatible with the emergency operation of other equipment, such as feathering the propeller, to facilitate rapid and effective control of fires.

(c) Shutoff means must be located outside of designated fire zones, unless equivalent safety is provided, and it must be shown that no hazardous amount of flammable fluid will drain into any designated fire zone after a shutoff.

(d) Adequate provisions must be made to guard against inadvertent operation of the shutoff means and to make it

possible for the crew to reopen the shutoff means after it has been closed.

§ 125.157 Lines and fittings.

(a) Each line, and its fittings, that is located in a designated fire zone, if it carries flammable fluids or gases under pressure, or is attached directly to the engine, or is subject to relative motion between components (except lines and fittings forming an integral part of the engine), must be flexible and fire-resistant with fire-resistant, factory-fixed, detachable, or other approved fire-resistant ends.

(b) Lines and fittings that are not subject to pressure or to relative motion between components must be of fire-resistant materials.

§ 125.159 Vent and drain lines.

All vent and drain lines, and their fittings, that are located in a designated fire zone must, if they carry flammable fluids or gases, comply with § 125.157, if the Administrator finds that the rupture or breakage of any vent or drain line may result in a fire hazard.

§ 125.161 Fire-extinguishing systems.

(a) Unless the certificate holder shows that equivalent protection against destruction of the airplane in case of fire is provided by the use of fireproof materials in the nacelle and other components that would be subjected to flame, fire-extinguishing systems must be provided to serve all designated fire zones.

(b) Materials in the fire-extinguishing system must not react chemically with the extinguishing agent so as to be a hazard.

§ 125.163 Fire-extinguishing agents.

Only methyl bromide, carbon dioxide, or another agent that has been shown to provide equivalent extinguishing action may be used as a fire-extinguishing agent. If methyl bromide or any other toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapors from entering any personnel compartment either because of leakage during normal operation of the airplane or because of discharging the fire extinguisher on the ground or in flight when there is a defect in the extinguishing system. If a methyl bromide system is used, the containers must be charged with dry agent and sealed by the fire-extinguisher manufacturer or some other person using satisfactory recharging equipment. If carbon dioxide is used, it must not be possible to discharge enough gas into the personnel compartments to create a danger of suffocating the occupants.

§ 125.165 Extinguishing agent container pressure relief.

Extinguishing agent containers must be provided with a pressure relief to prevent bursting of the container because of excessive internal pressures. The discharge line from the

relief connection must terminate outside the airplane in a place convenient for inspection on the ground. An indicator must be provided at the discharge end of the line to provide a visual indication when the container has discharged.

§ 125.167 Extinguishing agent container compartment temperature.

Precautions must be taken to ensure that the extinguishing agent containers are installed in places where reasonable temperatures can be maintained for effective use of the extinguishing system.

§ 125.169 Fire-extinguishing system materials.

(a) Except as provided in paragraph (b) of this section, each component of a fire-extinguishing system that is in a designated fire zone must be made of fireproof materials.

(b) Connections that are subject to relative motion between components of the airplane must be made of flexible materials that are at least fire-resistant and be located so as to minimize the probability of failure.

§ 125.171 Fire-detector systems.

Enough quick-acting fire detectors must be provided in each designated fire zone to assure the detection of any fire that may occur in that zone.

§ 125.173 Fire detectors.

Fire detectors must be made and installed in a manner that assures their ability to resist, without failure, all vibration, inertia, and other loads to which they may be normally subjected. Fire detectors must be unaffected by exposure to fumes, oil, water, or other fluids that may be present.

§ 125.175 Protection of other airplane components against fire.

(a) Except as provided in paragraph (b) of this section, all airplane surfaces aft of the nacelles in the area of one nacelle diameter on both sides of the nacelle centerline must be made of material that is at least fire resistant.

(b) Paragraph (a) of this section does not apply to tail surfaces lying behind nacelles unless the dimensional configuration of the airplane is such that the tail surfaces could be affected readily by heat, flames, or sparks emanating from a designated fire zone or from the engine from a designated fire zone or from the engine compartment of any nacelle.

§ 125.177 Control of engine rotation.

(a) Except as provided in paragraph (b) of this section, each airplane must have a means of individually stopping and restarting the rotation of any engine in flight.

(b) In the case of turbine engine installations, a means of stopping rotation need be provided only if the Administrator finds that rotation could jeopardize the safety of the airplane.

§ 125.179 Fuel system independence.

(a) Each airplane fuel system must be arranged so that the failure of any one component does not result in the irrecoverable loss of power of more than one engine.

(b) A separate fuel tank need not be provided for each engine if the certificate holder shows that the fuel system incorporates features that provide equivalent safety.

§ 125.181 Induction system ice prevention.

A means for preventing the malfunctioning of each engine due to ice accumulation in the engine air induction system must be provided for each airplane.

§ 125.183 Carriage of cargo in passenger compartments.

(a) Except as provided in paragraph (b) or (c) of this section, no certificate holder may carry cargo in the passenger compartment of an airplane.

(b) Cargo may be carried aft of the foremost seated passengers if it is carried in an approved cargo bin that meets the following requirements:

(1) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by a factor of 1.15, using the combined weight of the bin and the maximum weight of cargo that may be carried in the bin.

(2) The maximum weight of cargo that the bin is approved to carry and any instructions necessary to ensure proper weight distribution within the bin must be conspicuously marked on the bin.

(3) The bin may not impose any load on the floor or other structure of the airplane that exceeds the load limitations of that structure.

(4) The bin must be attached to the seat tracks or to the floor structure of the airplane, and its attachment must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by either the factor 1.15 or the seat attachment factor specified for the airplane, whichever is greater, using the combined weight of the bin and the maximum weight of cargo that may be carried in the bin.

(5) The bin may not be installed in a position that restricts access to or use of any required emergency exit, or of the aisle in the passenger compartment.

(6) The bin must be fully enclosed and made of material that is at least flame-resistant.

(7) Suitable safeguards must be provided within the bin to prevent the cargo from shifting under emergency landing conditions.

(8) The bin may not be installed in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.

(c) All cargo may be carried forward of the foremost seated passengers and carry-on baggage may be carried alongside the foremost seated passengers if the cargo (including carry-on baggage) is carried either in approved bins as specified in paragraph (b) of this section or in accordance with the following:

(1) It is properly secured by a safety belt or other tie down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.

(2) It is packaged or covered in a manner to avoid possible injury to passengers.

(3) It does not impose any load on seats or the floor structure that exceeds the load limitation for those components.

(4) Its location does not restrict access to or use of any required emergency or regular exit, or of the aisle in the passenger compartment.

(5) Its location does not obscure any passenger's view of the "seat belt" sign, "no smoking" sign, or required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.

§ 125.185 Carriage of cargo in cargo compartments.

When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand-held fire extinguisher.

§ 125.187 Landing gear: Aural warning device.

(a) Except for airplanes that comply with the requirements of § 25.729 of this chapter on or after January 6, 1992, each airplane must have a landing gear aural warning device that functions continuously under the following conditions:

(1) For airplanes with an established approach wing-flap position, whenever the wing flaps are extended beyond the maximum certificated approach climb configuration position in the Airplane Flight Manual and the landing gear is not fully extended and locked.

(2) For airplanes without an established approach climb wing-flap position, whenever the wing flaps are extended beyond the position at which landing gear extension is normally performed and the landing gear is not fully extended and locked.

(b) The warning system required by paragraph (a) of this section -

(1) May not have a manual shutoff;

(2) Must be in addition to the throttle-actuated device installed under the type certification airworthiness requirements; and

(3) May utilize any part of the throttle-actuated system including the aural warning device.

(c) The flap position sensing unit may be installed at any suitable place in the airplane.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-16, 56 FR 63762, Dec. 5, 1991]

§ 125.189 Demonstration of emergency evacuation procedures.

(a) Each certificate holder must show, by actual demonstration conducted in accordance with paragraph (a) of appendix B of this part, that the emergency evacuation procedures for each type and model of airplane with a seating of more than 44 passengers, that is used in its passenger-carrying operations, allow the evacuation of the full seating capacity, including crewmembers, in 90 seconds or less, in each of the following circumstances:

(1) A demonstration must be conducted by the certificate holder upon the initial introduction of a type and model of airplane into passenger-carrying operations. However, the demonstration need not be repeated for any airplane type or model that has the same number and type of exits, the same cabin configuration, and the same emergency equipment as any other airplane used by the certificate holder in successfully demonstrating emergency evacuation in compliance with this paragraph.

(2) A demonstration must be conducted -

(i) Upon increasing by more than 5 percent the passenger seating capacity for which successful demonstration has been conducted; or

(ii) Upon a major change in the passenger cabin interior configuration that will affect the emergency evacuation of passengers.

(b) If a certificate holder has conducted a successful demonstration required by § 121.291(a) in the same type airplane as a part 121 or part 123 certificate holder, it need not conduct a demonstration under this paragraph in that type airplane to achieve certification under part 125.

(c) Each certificate holder operating or proposing to operate one or more landplanes in extended overwater operations, or otherwise required to have certain equipment under § 125.209, must show, by a simulated ditching conducted in accordance with paragraph (b) of appendix B of this part, that it has the ability to efficiently carry out its ditching procedures.

(d) If a certificate holder has conducted a successful demonstration required by § 121.291(b) in the same type airplane as a part 121 or part 123 certificate holder, it need not conduct a demonstration under this paragraph in that type airplane to achieve certification under part 125.

Subpart F - Instrument and Equipment Requirements

§ 125.201 Inoperable instruments and equipment.

(a) No person may take off an airplane with inoperable instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that airplane.

(2) The Flight Standards District Office having certification responsibility has issued the certificate holder operations specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Administrator in the certificate holders operations specifications. An approved Minimum Equipment List, as authorized by the operations specifications, constitutes an approved change to the type design without requiring recertification.

(3) The approved Minimum Equipment List must:

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section.

(ii) Provide for the operation of the airplane with certain instruments and equipment in an inoperable condition.

(4) Records identifying the inoperable instruments and equipment and the information required by paragraph (a)(3)(ii) of this section must be available to the pilot.

(5) The airplane is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the operations specifications authorizing use of the Minimum Equipment List.

(b) The following instruments and equipment may not be included in the Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) Notwithstanding paragraphs (b)(1) and (b)(3) of this section, an airplane with inoperable instruments or equipment may be operated under a special flight permit under §§ 21.197 and 21.199 of this chapter.

[Doc. No. 25780, 56 FR 12310, Mar. 22, 1991]

§ 125.203 Communication and navigation equipment.

(a) *Communication equipment - general.* No person may operate an airplane unless it has two-way radio communication equipment able, at least in flight, to transmit to, and receive from, appropriate facilities 22 nautical miles away.

(b) *Navigation equipment for operations over the top.* No person may operate an airplane over the top unless it has navigation equipment suitable for the route to be flown.

(c) *Communication and navigation equipment for IFR or extended over-water operations - General.* Except as provided in paragraph (f) of this section, no person may operate an airplane carrying passengers under IFR or in extended over-water operations unless -

(1) The en route navigation aids necessary for navigating the airplane along the route (e.g., ATS routes, arrival and departure routes, and instrument approach procedures, including missed approach procedures if a missed approach routing is specified in the procedure) are available and suitable for use by the aircraft navigation systems required by this section;

(2) The airplane used in those operations is equipped with at least the following equipment -

(i) Except as provided in paragraph (d) of this section, two approved independent navigation systems suitable for navigating the airplane along the route within the degree of accuracy required for ATC;

(ii) One marker beacon receiver providing visual and aural signals;

(iii) One ILS receiver;

(iv) Two transmitters;

(v) Two microphones;

(vi) Two headsets or one headset and one speaker; and

(vii) Two independent communication systems, one of which must have two-way voice communication capability, capable of transmitting to, and receiving from, at least one appropriate facility from any place on the route to be flown; and

(3) Any RNAV system used to meet the navigation equipment requirements of this section is authorized in the certificate holder's operations specifications.

(d) *Use of a single independent navigation system for operations under IFR - not for extended overwater operations.* Notwithstanding the requirements of paragraph (c)(2)(i) of this section, the airplane may be equipped with a single independent navigation system suitable for navigating the airplane along the route to be flown within the degree of accuracy required for ATC if -

(1) It can be shown that the airplane is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single independent navigation system permitted by this paragraph at any point along the route, for proceeding safely to a suitable airport and completing an instrument approach; and

(2) The airplane has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(e) *Use of VOR navigation equipment.* If VOR navigation equipment is required by paragraph (c) or (d) of this section, no person may operate an airplane unless it is equipped with at least one approved DME or a suitable RNAV system.

(f) *Extended over-water operations.* Notwithstanding the requirements of paragraph (c) of this section, installation and use of a single long-range navigation system and a single long-range communication system for extended over-water operations in certain geographic areas may be authorized by the Administrator and approved in the certificate holder's operations specifications. The following are among the operational factors the Administrator may consider in granting an authorization:

(1) The ability of the flight crew to navigate the airplane along the route to be flown within the degree of accuracy required for ATC;

(2) The length of the route being flown; and

(3) The duration of the very high frequency communications gap.

[Doc. No. FAA-2002-14002, 72 FR 31682, June 7, 2007]

§ 125.204 Portable electronic devices.

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any U.S.-registered civil aircraft operating under this part.

(b) Paragraph (a) of this section does not apply to -

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers;

(5) Portable oxygen concentrators that comply with the requirements in § 125.219; or

(6) Any other portable electronic device that the Part 125 certificate holder has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) The determination required by paragraph (b)(6) of this section shall be made by that Part 125 certificate holder operating the particular device to be used.

[Doc. No. FAA-1998-4954, 64 FR 1080, Jan. 7, 1999, as amended by Docket FAA-2014-0554, Amdt. 125-65, 81 FR 33118, May 24, 2016]

§ 125.205 Equipment requirements: Airplanes under IFR.

No person may operate an airplane under IFR unless it has -

(a) A vertical speed indicator;

(b) A free-air temperature indicator;

(c) A heated pitot tube for each airspeed indicator;

(d) A power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source;

(e) An alternate source of static pressure for the altimeter and the airspeed and vertical speed indicators;

(f) At least two generators each of which is on a separate engine, or which any combination of one-half of the total number are rated sufficiently to supply the electrical loads of all required instruments and equipment necessary for safe emergency operation of the airplane; and

(g) Two independent sources of energy (with means of selecting either), of which at least one is an engine-driven pump or generator, each of which is able to drive all gyroscopic instruments and installed so that failure of one instrument or source does not interfere with the energy supply to the remaining instruments or the other energy source. For the purposes of this paragraph, each engine-driven source of energy must be on a different engine.

(h) For the purposes of paragraph (f) of this section, a continuous inflight electrical load includes one that draws current continuously during flight, such as radio equipment, electrically driven instruments, and lights, but does not include occasional intermittent loads.

(i) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.

(j) A sensitive altimeter.

(k) Instrument lights providing enough light to make each required instrument, switch, or similar instrument easily readable and installed so that the direct rays are shielded from the flight crewmembers' eyes and that no objectionable reflections are visible to them. There must be a means of controlling the intensity of illumination unless it is shown that nondimming instrument lights are satisfactory.

§ 125.206 Pitot heat indication systems.

(a) Except as provided in paragraph (b) of this section, after April 12, 1981, no person may operate a transport category airplane equipped with a flight instrument pitot heating system unless the airplane is equipped with an operable pitot heat indication system that complies with § 25.1326 of this chapter in effect on April 12, 1978.

(b) A certificate holder may obtain an extension of the April 12, 1981, compliance date specified in paragraph (a) of this section, but not beyond April 12, 1983, from the Director, Flight Standards Service if the certificate holder -

(1) Shows that due to circumstances beyond its control it cannot comply by the specified compliance date; and

(2) Submits by the specified compliance date a schedule for compliance acceptable to the Director, indicating that compliance will be achieved at the earliest practicable date.

[Doc. No. 18904, 46 FR 43806, Aug. 31, 1981, as amended by Amdt. 125-13, 54 FR 39294, Sept. 25, 1989]

§ 125.207 Emergency equipment requirements.

(a) No person may operate an airplane having a seating capacity of 20 or more passengers unless it is equipped with the following emergency equipment:

(1) One approved first aid kit for treatment of injuries likely to occur in flight or in a minor accident, which meets the following specifications and requirements:

(i) Each first aid kit must be dust and moisture proof and contain only materials that either meet Federal Specifications GGK-391a, as revised, or as approved by the Administrator.

(ii) Required first aid kits must be readily accessible to the cabin flight attendants.

(iii) Except as provided in paragraph (a)(1)(iv) of this section, at time of takeoff, each first aid kit must contain at least the following or other contents approved by the Administrator:

| Contents | Quantity |
|---|----------|
| Adhesive bandage compressors, 1 in | 16 |
| Antiseptic swabs | 20 |
| Ammonia inhalants | 10 |
| Bandage compressors, 4 in | 8 |
| Triangular bandage compressors, 40 in | 5 |
| Arm splint, noninflatable | 1 |
| Leg splint, noninflatable | 1 |
| Roller bandage, 4 in | 4 |
| Adhesive tape, 1-in standard roll | 2 |
| Bandage scissors | 1 |
| Protective latex gloves or equivalent nonpermeable gloves | 1 1 |

¹ Pair.

(iv) Protective latex gloves or equivalent nonpermeable gloves may be placed in the first aid kit or in a location that is readily accessible to crewmembers.

(2) A crash axe carried so as to be accessible to the crew but inaccessible to passengers during normal operations.

(3) Signs that are visible to all occupants to notify them when smoking is prohibited and when safety belts should be fastened. The signs must be so constructed that they can be turned on and off by a crewmember. They must be turned on for each takeoff and each landing and when otherwise considered to be necessary by the pilot in command.

(4) The additional emergency equipment specified in appendix A of this part.

(b) *Megaphones.* Each passenger-carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:

(1) One megaphone on each airplane with a seating capacity of more than 60 and less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Administrator may grant a deviation from the requirements of this paragraph if the Administrator finds that a different location would be more useful for evacuation of persons during an emergency.

(2) Two megaphones in the passenger cabin on each airplane with a seating capacity of more than 99 and less than 200 passengers, one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal flight attendant seat.

(3) Three megaphones in the passenger cabin on each airplane with a seating capacity of more than 199 passengers, one installed at the forward end, one installed at the most rearward location where it would be readily accessible to a normal flight attendant seat, and one installed in a readily accessible location in the mid-section of the airplane.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-19, 59 FR 1781, Jan. 12, 1994; Amdt. 125-22, 59 FR 52643, Oct. 18, 1994; 59 FR 55208, Nov. 4, 1994]

§ 125.209 Emergency equipment: Extended overwater operations.

(a) No person may operate an airplane in extended overwater operations unless it carries, installed in conspicuously marked locations easily accessible to the occupants if a ditching occurs, the following equipment:

(1) An approved life preserver equipped with an approved survivor locator light, or an approved flotation means, for each occupant of the aircraft. The life preserver or other flotation means must be easily accessible to each seated occupant. If a flotation means other than a life preserver is used, it must be readily removable from the airplane.

(2) Enough approved life rafts (with proper buoyancy) to carry all occupants of the airplane, and at least the following equipment for each raft clearly marked for easy identification -

- (i) One canopy (for sail, sunshade, or rain catcher);
- (ii) One radar reflector (or similar device);
- (iii) One life raft repair kit;
- (iv) One bailing bucket;
- (v) One signaling mirror;
- (vi) One police whistle;
- (vii) One raft knife;
- (viii) One CO₂ bottle for emergency inflation;
- (ix) One inflation pump;
- (x) Two oars;
- (xi) One 75-foot retaining line;
- (xii) One magnetic compass;
- (xiii) One dye marker;
- (xiv) One flashlight having at least two size "D" cells or equivalent;

(xv) At least one approved pyrotechnic signaling device;

(xvi) A 2-day supply of emergency food rations supplying at least 1,000 calories a day for each person;

(xvii) One sea water desalting kit for each two persons that raft is rated to carry, or two pints of water for each person the raft is rated to carry;

(xviii) One fishing kit; and

(xix) One book on survival appropriate for the area in which the airplane is operated.

(b) No person may operate an airplane in extended overwater operations unless there is attached to one of the life rafts required by paragraph (a) of this section, an approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the batteries are rechargeable) when the transmitter has been in use for more than one cumulative hour, or, when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-20, 59 FR 32058, June 21, 1994]

§ 125.211 Seat and safety belts.

(a) No person may operate an airplane unless there are available during the takeoff, en route flight, and landing -

(1) An approved seat or berth for each person on board the airplane who is at least 2 years old; and

(2) An approved safety belt for separate use by each person on board the airplane who is at least 2 years old, except that two persons occupying a berth may share one approved safety belt and two persons occupying a multiple lounge or divan seat may share one approved safety belt during en route flight only.

(b) Except as provided in paragraphs (b)(1) and (b)(2) of this section, each person on board an airplane operated under this part shall occupy an approved seat or berth with a separate safety belt properly secured about him or her during movement on the surface, takeoff, and landing. A safety belt provided for the occupant of a seat may not be used for more than one person who has reached his or her second birthday. Notwithstanding the preceding requirements, a child may:

(1) Be held by an adult who is occupying an approved seat or berth, provided the child has not reached his or her second birthday and the child does not occupy or use any restraining device; or

(2) Notwithstanding any other requirement of this chapter, occupy an approved child restraint system furnished by the certificate holder or one of the persons described in paragraph (b)(2)(i) of this section, provided:

(i) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to attend to the safety of the child during the flight;

(ii) Except as provided in paragraph (b)(2)(ii)(D) of this section, the approved child restraint system bears one or more labels as follows:

(A) Seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: "This child restraint system conforms to all applicable Federal motor vehicle safety standards";

(B) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels:

(1) "This child restraint system conforms to all applicable Federal motor vehicle safety standards"; and

(2) "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT" in red lettering;

(C) Seats that do not qualify under paragraphs (b)(2)(ii)(A) and (b)(2)(ii)(B) of this section must bear a label or markings showing:

(1) That the seat was approved by a foreign government;

(2) That the seat was manufactured under the standards of the United Nations;

(3) That the seat or child restraint device furnished by the certificate holder was approved by the FAA through Type Certificate or Supplemental Type Certificate; or

(4) That the seat or child restraint device furnished by the certificate holder, or one of the persons described in paragraph (b)(2)(i) of this section, was approved by the FAA in accordance with § 21.8(d) of this chapter or Technical Standard Order C-100b, or a later version. The child restraint device manufactured by AmSafe, Inc. (CARES, Part No. 4082) and approved by the FAA in accordance with § 21.305(d) (2010 ed.) of this chapter may continue to bear a label or markings showing FAA approval in accordance with § 21.305(d) (2010 ed.) of this chapter.

(D) Except as provided in § 125.211(b)(2)(ii)(C)(3) and § 125.211(b)(2)(ii)(C)(4), booster-type child restraint systems (as defined in Federal Motor Vehicle Safety Standard No. 213 (49 CFR 571.213)), vest- and harness-type child restraint

systems, and lap held child restraints are not approved for use in aircraft; and

(iii) The certificate holder complies with the following requirements:

(A) The restraint system must be properly secured to an approved forward-facing seat or berth;

(B) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system; and

(C) The restraint system must bear the appropriate label(s).

(c) Except as provided in paragraph (c)(3) of this section, the following prohibitions apply to certificate holders:

(1) Except as provided in § 125.211(b)(2)(ii)(C)(3) and § 125.211(b)(2)(ii)(C)(4), no certificate holder may permit a child, in an aircraft, to occupy a booster-type child restraint system, a vest-type child restraint system, a harness-type child restraint system, or a lap held child restraint system during take off, landing, and movement on the surface.

(2) Except as required in paragraph (c)(1) of this section, no certificate holder may prohibit a child, if requested by the child's parent, guardian, or designated attendant, from occupying a child restraint system furnished by the child's parent, guardian, or designated attendant provided:

(i) The child holds a ticket for an approved seat or berth or such seat or berth is otherwise made available by the certificate holder for the child's use;

(ii) The requirements of paragraph (b)(2)(i) of this section are met;

(iii) The requirements of paragraph (b)(2)(iii) of this section are met; and

(iv) The child restraint system has one or more of the labels described in paragraphs (b)(2)(ii)(A) through (b)(2)(ii)(C) of this section.

(3) This section does not prohibit the certificate holder from providing child restraint systems authorized by this section or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.

(d) Each sideward facing seat must comply with the applicable requirements of § 25.785(c) of this chapter.

(e) No certificate holder may take off or land an airplane unless each passenger seat back is in the upright position. Each passenger shall comply with instructions given by a crewmember in compliance with this paragraph. This paragraph does not apply to seats on which cargo or persons who are unable to sit erect for a medical reason are carried in accordance with procedures in the certificate holder's manual if the seat back does not obstruct any passenger's access to the aisle or to any emergency exit.

(f) Each occupant of a seat equipped with a shoulder harness must fasten the shoulder harness during takeoff and landing, except that, in the case of crewmembers, the shoulder harness need not be fastened if the crewmember cannot perform his required duties with the shoulder harness fastened.

[Doc. No. 19799, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-17, 57 FR 42674, Sept. 15, 1992; Amdt. 125-26, 61 FR 28422, June 4, 1996; Amdt. 125-48, 70 FR 50907, Aug. 26, 2005; Amdt. 125-51, 71 FR 40009, July 14, 2006; 71 FR 59373, Oct. 10, 2006; Amdt. 125-64, 79 FR 28812, May 20, 2014]

§ 125.213 Miscellaneous equipment.

No person may conduct any operation unless the following equipment is installed in the airplane:

(a) If protective fuses are installed on an airplane, the number of spare fuses approved for the airplane and appropriately described in the certificate holder's manual.

(b) A windshield wiper or equivalent for each pilot station.

(c) A power supply and distribution system that meets the requirements of §§ 25.1309, 25.1331, 25.1351 (a) and (b) (1) through (4), 25.1353, 25.1355, and 25.1431(b) or that is able to produce and distribute the load for the required instruments and equipment, with use of an external power supply if any one power source or component of the power distribution system fails. The use of common elements in the system may be approved if the Administrator finds that they are designed to be reasonably protected against malfunctioning. Engine-driven sources of energy, when used, must be on separate engines.

(d) A means for indicating the adequacy of the power being supplied to required flight instruments.

(e) Two independent static pressure systems, vented to the outside atmospheric pressure so that they will be least affected by air flow variation or moisture or other foreign matter, and installed so as to be airtight except for the vent. When a means is provided for transferring an instrument from its primary operating system to an alternative system, the means must include a positive positioning control and must be marked to indicate clearly which system is being used.

(f) A placard on each door that is the means of access to a required passenger emergency exit to indicate that it must be open during takeoff and landing.

(g) A means for the crew, in an emergency, to unlock each door that leads to a compartment that is normally accessible to passengers and that can be locked by passengers.

§ 125.215 Operating information required.

(a) The operator of an airplane must provide the following materials, in current and appropriate form, accessible to the pilot at the pilot station, and the pilot shall use them:

(1) A cockpit checklist.

(2) An emergency cockpit checklist containing the procedures required by paragraph (c) of this section, as appropriate.

(3) Pertinent aeronautical charts.

(4) For IFR operations, each pertinent navigational en route, terminal area, and approach and letdown chart;

(5) One-engine-inoperative climb performance data and, if the airplane is approved for use in IFR or over-the-top operations, that data must be sufficient to enable the pilot to determine that the airplane is capable of carrying passengers

over-the-top or in IFR conditions at a weight that will allow it to climb, with the critical engine inoperative, at least 50 feet a minute when operating at the MEA's of the route to be flown or 5,000 feet MSL, whichever is higher.

(b) Each cockpit checklist required by paragraph (a)(1) of this section must contain the following procedures:

(1) Before starting engines;

(2) Before take-off;

(3) Cruise;

(4) Before landing;

(5) After landing;

(6) Stopping engines.

(c) Each emergency cockpit checklist required by paragraph (a)(2) of this section must contain the following procedures, as appropriate:

(1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.

(2) Emergency operation of instruments and controls.

(3) Engine inoperative procedures.

(4) Any other emergency procedures necessary for safety.

§ 125.217 Passenger information.

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that meet the requirements of § 25.791 of this chapter and that are visible to passengers and flight attendants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be so constructed that the crew can turn them on and off. They must be turned on during airplane movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot in command.

(b) No passenger or crewmember may smoke while any "No Smoking" sign is lighted nor may any passenger or crewmember smoke in any lavatory.

(c) Each passenger required by § 125.211(b) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while any "Fasten Seat Belt" sign is lighted.

(d) Each passenger shall comply with instructions given him or her by crewmembers regarding compliance with paragraphs (b) and (c) of this section.

[Doc. No. 26142, 57 FR 42675, Sept. 15, 1992]

§ 125.219 Oxygen and portable oxygen concentrators for medical use by passengers.

(a) Except as provided in paragraphs (d) and (f) of this section, no certificate holder may allow the carriage or operation of equipment for the storage, generation or dispensing of medical oxygen unless the conditions in paragraphs (a) through (c) of this section are satisfied. Beginning August 22, 2016, a certificate holder may allow a passenger to carry and operate a portable oxygen concentrator when the conditions in paragraphs (b) and (f) of this section are satisfied.

(1) The equipment must be -

(i) Of an approved type or in conformity with the manufacturing, packaging, marking, labeling, and maintenance requirements of title 49 CFR parts 171, 172, and 173, except § 173.24(a)(1);

(ii) When owned by the certificate holder, maintained under the certificate holder's approved maintenance program;

(iii) Free of flammable contaminants on all exterior surfaces;

(iv) Constructed so that all valves, fittings, and gauges are protected from damage during that carriage or operation; and

(v) Appropriately secured.

(2) When the oxygen is stored in the form of a liquid, the equipment must have been under the certificate holder's approved maintenance program since its purchase new or since the storage container was last purged.

(3) When the oxygen is stored in the form of a compressed gas as defined in title 49 CFR 173.115(b) -

(i) When owned by the certificate holder, it must be maintained under its approved maintenance program; and

(ii) The pressure in any oxygen cylinder must not exceed the rated cylinder pressure.

(4) The pilot in command must be advised when the equipment is on board and when it is intended to be used.

(5) The equipment must be stowed, and each person using the equipment must be seated so as not to restrict access to or use of any required emergency or regular exit or of the aisle in the passenger compartment.

(b) No person may smoke or create an open flame and no certificate holder may allow any person to smoke or create an open flame within 10 feet of oxygen storage and dispensing equipment carried under paragraph (a) of this section or a portable oxygen concentrator carried and operated under paragraph (f) of this section.

(c) No certificate holder may allow any person other than a person trained in the use of medical oxygen equipment to connect or disconnect oxygen bottles or any other ancillary component while any passenger is aboard the airplane.

(d) Paragraph (a)(1)(i) of this section does not apply when that equipment is furnished by a professional or medical emergency service for use on board an airplane in a medical emergency when no other practical means of transportation (including any other properly equipped certificate holder) is reasonably available and the person carried under the medical emergency is accompanied by a person trained in the use of medical oxygen.

(e) Each certificate holder who, under the authority of paragraph (d) of this section, deviates from paragraph (a)(1)(i) of this section under a medical emergency shall, within 10 days, excluding Saturdays, Sundays, and Federal holidays, after the deviation, send to the FAA Flight Standards district office charged with the overall inspection of the certificate holder a complete report of the operation involved, including a description of the deviation and the reasons for it.

(f) *Portable oxygen concentrators* - (1) *Acceptance criteria.* A passenger may carry or operate a portable oxygen concentrator for personal use on board an aircraft and a certificate holder may allow a passenger to carry or operate a portable oxygen concentrator on board an aircraft operated under this part during all phases of flight if the portable oxygen concentrator satisfies all of the requirements in this paragraph (f):

(i) Is legally marketed in the United States in accordance with Food and Drug Administration requirements in title 21 of the CFR;

(ii) Does not radiate radio frequency emissions that interfere with aircraft systems;

(iii) Generates a maximum oxygen pressure of less than 200 kPa gauge (29.0 psig/43.8 psia) at 20 °C (68 °F);

(iv) Does not contain any hazardous materials subject to the Hazardous Materials Regulations (49 CFR parts 171 through 180) except as provided in 49 CFR 175.10 for batteries used to power portable electronic devices and that do not require aircraft operator approval; and

(v) Bears a label on the exterior of the device applied in a manner that ensures the label will remain affixed for the life of the device and containing the following certification statement in red lettering: "The manufacturer of this POC has determined this device conforms to all applicable FAA acceptance criteria for POC carriage and use on board aircraft." The label requirements in this paragraph (f)(1)(v) do not apply to the following portable oxygen concentrators approved by the FAA for use on board aircraft prior to May 24, 2016:

(A) AirSep Focus;

(B) AirSep FreeStyle;

(C) AirSep FreeStyle 5;

(D) AirSep LifeStyle;

(E) Delphi RS-00400;

(F) DeVilbiss Healthcare iGo;

(G) Inogen One;

(H) Inogen One G2;

(I) Inogen One G3;

(J) Inova Labs LifeChoice;

(K) Inova Labs LifeChoice Activox;

(L) International Biophysics LifeChoice;

(M) Invacare Solo2;

(N) Invacare XPO2;

(O) Oxlife Independence Oxygen Concentrator;

(P) Oxus RS-00400;

(Q) Precision Medical EasyPulse;

(R) Respironics EverGo;

(S) Respironics SimplyGo;

(T) SeQual Eclipse;

(U) SeQual eQuinox Oxygen System (model 4000);

(V) SeQual Oxywell Oxygen System (model 4000);

(W) SeQual SAROS; and

(X) VBox Trooper Oxygen Concentrator.

(2) *Operating requirements.* Portable oxygen concentrators that satisfy the acceptance criteria identified in

paragraph (f)(1) of this section may be carried or used by a passenger on an aircraft provided the aircraft operator ensures that all of the conditions in this paragraph (f)(2) are satisfied:

(i) *Exit seats.* No person operating a portable oxygen concentrator is permitted to occupy an exit seat.

(ii) *Stowage of device.* During movement on the surface, takeoff and landing, the device must be stowed under the seat in front of the user, or in another approved stowage location so that it does not block the aisle way or the entryway to the row. If the device is to be operated by the user, it must be operated only at a seat location that does not restrict any passenger's access to, or use of, any required emergency or regular exit, or the aisle(s) in the passenger compartment.

[Docket No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Docket FAA-2014-0554, Amdt. 125-65, 81 FR 33119, May 24, 2016]

§ 125.221 Icing conditions: Operating limitations.

(a) No pilot may take off an airplane that has frost, ice, or snow adhering to any propeller, windshield, stabilizing or control surface; to a powerplant installation; or to an airspeed, altimeter, rate of climb, flight attitude instrument system, or wing, except that takeoffs may be made with frost under the wing in the area of the fuel tanks if authorized by the FAA.

(b) No certificate holder may authorize an airplane to take off and no pilot may take off an airplane any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the airplane unless the pilot has completed the testing required under § 125.287(a)(9) and unless one of the following requirements is met:

(1) A pretakeoff contamination check, that has been established by the certificate holder and approved by the Administrator for the specific airplane type, has been completed within 5 minutes prior to beginning takeoff. A pretakeoff contamination check is a check to make sure the wings and control surfaces are free of frost, ice, or snow.

(2) The certificate holder has an approved alternative procedure and under that procedure the airplane is determined to be free of frost, ice, or snow.

(3) The certificate holder has an approved deicing/anti-icing program that complies with § 121.629(c) of this chapter and the takeoff complies with that program.

(c) No pilot may fly under IFR into known or forecast light or moderate icing conditions, or under VFR into known light or moderate icing conditions, unless -

(1) The aircraft has functioning deicing or anti-icing equipment protecting each propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system;

(2) The airplane has ice protection provisions that meet appendix C of this part; or

(3) The airplane meets transport category airplane type certification provisions, including the requirements for certification for flight in icing conditions.

(d) Except for an airplane that has ice protection provisions that meet appendix C of this part or those for transport category airplane type certification, no pilot may fly an airplane into known or forecast severe icing conditions.

(e) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing condition that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraphs (b) and (c) of this section based on forecast conditions do not apply.

[45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-18, 58 FR 69629, Dec. 30, 1993; Amdt. 125-58, 74 FR 62696, Dec. 1, 2009]

§ 125.223 Airborne weather radar equipment requirements.

(a) No person may operate an airplane governed by this part in passenger-carrying operations unless approved airborne weather radar equipment is installed in the airplane.

(b) No person may begin a flight under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar equipment, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment required by paragraph (a) of this section is in satisfactory operating condition.

(c) If the airborne weather radar equipment becomes inoperative en route, the airplane must be operated under the instructions and procedures specified for that event in the manual required by § 125.71.

(d) This section does not apply to airplanes used solely within the State of Hawaii, within the State of Alaska, within that part of Canada west of longitude 130 degrees W, between latitude 70 degrees N, and latitude 53 degrees N, or during any training, test, or ferry flight.

(e) Without regard to any other provision of this part, an alternate electrical power supply is not required for airborne weather radar equipment.

§ 125.224 Collision avoidance system.

Effective January 1, 2005, any airplane you operate under this part 125 must be equipped and operated according to the following table:

Collision Avoidance Systems

If you operate any . . .

(a) Turbine-powered airplane of more than 33,000 pounds maximum certificated takeoff weight

Then you must operate that airplane with:

(1) An appropriate class of Mode S transponder that meets Technical Standard Order (TSO) C-112, or a later version, and one of the following approved units:

| If you operate any . . . | Then you must operate that airplane with: |
|--|---|
| | (i) TCAS II that meets TSO C-119b (version 7.0), or a later version. (ii) TCAS II that meets TSO C-119a (version 6.04A Enhanced) that was installed in that airplane before May 1, 2003. If that TCAS II version 6.04A Enhanced no longer can be repaired to TSO C-119a standards, it must be replaced with a TCAS II that meets TSO C-119b (version 7.0), or a later version. (iii) A collision avoidance system equivalent to TSO C-119b (version 7.0), or a later version, capable of coordinating with units that meet TSO C-119a (version 6.04A Enhanced), or a later version. |
| (b) Piston-powered airplane of more than 33,000 pounds maximum certificated takeoff weight | (1) TCAS I that meets TSO C-118, or a later version, or (2) A collision avoidance system equivalent to TSO C-118, or a later version, or (1)(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section. |

[Doc. No. FAA-2001-10910, 68 FR 15903, Apr. 1, 2003]

§ 125.225 Flight data recorders.

(a) Except as provided in paragraph (d) of this section, after October 11, 1991, no person may operate a large airplane type certificated before October 1, 1969, for operations above 25,000 feet altitude, nor a multiengine, turbine powered airplane type certificated before October 1, 1969, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The following information must be able to be determined within the ranges, accuracies, resolution, and recording intervals specified in appendix D of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading;
- (6) Time of each radio transmission to or from air traffic control;
- (7) Pitch attitude;
- (8) Roll attitude;
- (9) Longitudinal acceleration;
- (10) Control column or pitch control surface position; and
- (11) Thrust of each engine.

(b) Except as provided in paragraph (d) of this section, after October 11, 1991, no person may operate a large airplane type certificated after September 30, 1969, for operations above 25,000 feet altitude, nor a multiengine, turbine powered airplane type certificated after September 30, 1969, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The following information must be able to be

determined within the ranges, accuracies, resolutions, and recording intervals specified in appendix D of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading;
- (6) Time of each radio transmission either to or from air traffic control;
- (7) Pitch attitude;
- (8) Roll attitude;
- (9) Longitudinal acceleration;
- (10) Pitch trim position;
- (11) Control column or pitch control surface position;
- (12) Control wheel or lateral control surface position;
- (13) Rudder pedal or yaw control surface position;
- (14) Thrust of each engine;
- (15) Position of each trust reverser;
- (16) Trailing edge flap or cockpit flap control position; and
- (17) Leading edge flap or cockpit flap control position.

(c) After October 11, 1991, no person may operate a large airplane equipped with a digital data bus and ARINC 717 digital flight data acquisition unit (DFDAU) or equivalent unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. Any parameters specified in appendix D of this part that are available on the digital data bus must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified.

(d) No person may operate under this part an airplane that is manufactured after October 11, 1991, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The parameters

specified in appendix D of this part must be recorded within the ranges, accuracies, resolutions and sampling intervals specified. For the purpose of this section, “manufactured” means the point in time at which the airplane inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data.

(e) Whenever a flight recorder required by this section is installed, it must be operated continuously from the instant the airplane begins the takeoff roll until it has completed the landing roll at an airport.

(f) Except as provided in paragraph (g) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed in paragraph (a), (b), (c), or (d) of this section, as applicable, until the airplane has been operated for at least 25 hours of the operating time specified in § 125.227(a) of this chapter. A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (g) of this section, no record need be kept more than 60 days.

(g) In the event of an accident or occurrence that requires immediate notification of the National Transportation Safety Board under 49 CFR part 830 and that results in termination of the flight, the certificate holder shall remove the recording media from the airplane and keep the recorded data required by paragraph (a), (b), (c), or (d) of this section, as applicable, for at least 60 days or for a longer period upon the request of the Board or the Administrator.

(h) Each flight recorder required by this section must be installed in accordance with the requirements of § 25.1459 of this chapter in effect on August 31, 1977. The correlation required by § 25.1459(c) of this chapter need be established only on one airplane of any group of airplanes.

(1) That are of the same type;

(2) On which the flight recorder models and their installations are the same; and

(3) On which there are no differences in the type design with respect to the installation of the first pilot's instruments associated with the flight recorder. The most recent instrument calibration, including the recording medium from which this calibration is derived, and the recorder correlation must be retained by the certificate holder.

(i) Each flight recorder required by this section that records the data specified in paragraphs (a), (b), (c), or (d) of this section must have an approved device to assist in locating that recorder under water.

(j) After August 20, 2001, this section applies only to the airplane models listed in § 125.226(l)(2). All other airplanes must comply with the requirements of § 125.226.

[Doc. No. 25530, 53 FR 26148, July 11, 1988; 53 FR 30906, Aug. 16, 1988; Amdt. 125-54, 73 FR 12568, Mar. 7, 2008]

§ 125.226 Digital flight data recorders.

(a) Except as provided in paragraph (l) of this section, no person may operate under this part a turbine-engine-powered transport category airplane unless it is equipped with one or more approved flight recorders that use a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The operational parameters required to be recorded by digital flight data recorders required by this section are as follows: the phrase “when an information source is installed” following a parameter indicates that recording of that parameter is not intended to require a change in installed equipment:

- (1) Time;
- (2) Pressure altitude;
- (3) Indicated airspeed;
- (4) Heading - primary flight crew reference (if selectable, record discrete, true or magnetic);
- (5) Normal acceleration (Vertical);
- (6) Pitch attitude;
- (7) Roll attitude;
- (8) Manual radio transmitter keying, or CVR/DFDR synchronization reference;
- (9) Thrust/power of each engine - primary flight crew reference;
- (10) Autopilot engagement status;
- (11) Longitudinal acceleration;
- (12) Pitch control input;
- (13) Lateral control input;
- (14) Rudder pedal input;
- (15) Primary pitch control surface position;
- (16) Primary lateral control surface position;
- (17) Primary yaw control surface position;
- (18) Lateral acceleration;
- (19) Pitch trim surface position or parameters of paragraph (a)(82) of this section if currently recorded;
- (20) Trailing edge flap or cockpit flap control selection (except when parameters of paragraph (a)(85) of this section apply);
- (21) Leading edge flap or cockpit flap control selection (except when parameters of paragraph (a)(86) of this section apply);
- (22) Each Thrust reverser position (or equivalent for propeller airplane);
- (23) Ground spoiler position or speed brake selection (except when parameters of paragraph (a)(87) of this section apply);
- (24) Outside or total air temperature;
- (25) Automatic Flight Control System (AFCS) modes and engagement status, including autothrottle;
- (26) Radio altitude (when an information source is installed);
- (27) Localizer deviation, MLS Azimuth;
- (28) Glideslope deviation, MLS Elevation;
- (29) Marker beacon passage;

- (30) Master warning;
 - (31) Air/ground sensor (primary airplane system reference nose or main gear);
 - (32) Angle of attack (when information source is installed);
 - (33) Hydraulic pressure low (each system);
 - (34) Ground speed (when an information source is installed);
 - (35) Ground proximity warning system;
 - (36) Landing gear position or landing gear cockpit control selection;
 - (37) Drift angle (when an information source is installed);
 - (38) Wind speed and direction (when an information source is installed);
 - (39) Latitude and longitude (when an information source is installed);
 - (40) Stick shaker/pusher (when an information source is installed);
 - (41) Windshear (when an information source is installed);
 - (42) Throttle/power lever position;
 - (43) Additional engine parameters (as designed in appendix E of this part);
 - (44) Traffic alert and collision avoidance system;
 - (45) DME 1 and 2 distances;
 - (46) Nav 1 and 2 selected frequency;
 - (47) Selected barometric setting (when an information source is installed);
 - (48) Selected altitude (when an information source is installed);
 - (49) Selected speed (when an information source is installed);
 - (50) Selected mach (when an information source is installed);
 - (51) Selected vertical speed (when an information source is installed);
 - (52) Selected heading (when an information source is installed);
 - (53) Selected flight path (when an information source is installed);
 - (54) Selected decision height (when an information source is installed);
 - (55) EFIS display format;
 - (56) Multi-function/engine/alerts display format;
 - (57) Thrust command (when an information source is installed);
 - (58) Thrust target (when an information source is installed);
 - (59) Fuel quantity in CG trim tank (when an information source is installed);
 - (60) Primary Navigation System Reference;
 - (61) Icing (when an information source is installed);
 - (62) Engine warning each engine vibration (when an information source is installed);
 - (63) Engine warning each engine over temp. (when an information source is installed);
 - (64) Engine warning each engine oil pressure low (when an information source is installed);
 - (65) Engine warning each engine over speed (when an information source is installed);
 - (66) Yaw trim surface position;
 - (67) Roll trim surface position;
 - (68) Brake pressure (selected system);
 - (69) Brake pedal application (left and right);
 - (70) Yaw of sideslip angle (when an information source is installed);
 - (71) Engine bleed valve position (when an information source is installed);
 - (72) De-icing or anti-icing system selection (when an information source is installed);
 - (73) Computed center of gravity (when an information source is installed);
 - (74) AC electrical bus status;
 - (75) DC electrical bus status;
 - (76) APU bleed valve position (when an information source is installed);
 - (77) Hydraulic pressure (each system);
 - (78) Loss of cabin pressure;
 - (79) Computer failure;
 - (80) Heads-up display (when an information source is installed);
 - (81) Para-visual display (when an information source is installed);
 - (82) Cockpit trim control input position-pitch;
 - (83) Cockpit trim control input position - roll;
 - (84) Cockpit trim control input position - yaw;
 - (85) Trailing edge flap and cockpit flap control position;
 - (86) Leading edge flap and cockpit flap control position;
 - (87) Ground spoiler position and speed brake selection;
 - (88) All cockpit flight control input forces (control wheel, control column, rudder pedal);
 - (89) Yaw damper status;
 - (90) Yaw damper command; and
 - (91) Standby rudder valve status.
- (b) For all turbine-engine powered transport category airplanes manufactured on or before October 11, 1991, by August 20, 2001 -
- (1) For airplanes not equipped as of July 16, 1996, with a flight data acquisition unit (FDAU), the parameters listed in paragraphs (a)(1) through (a)(18) of this section must be recorded within the ranges and accuracies specified in Appendix D of this part, and -
 - (i) For airplanes with more than two engines, the parameter described in paragraph (a)(18) is not required unless sufficient capacity is available on the existing recorder to record that parameter.
 - (ii) Parameters listed in paragraphs (a)(12) through (a)(17) each may be recorded from a single source.
 - (2) For airplanes that were equipped as of July 16, 1996, with a flight data acquisition unit (FDAU), the parameters listed in paragraphs (a)(1) through (a)(22) of this section

must be recorded within the ranges, accuracies, and recording intervals specified in Appendix E of this part. Parameters listed in paragraphs (a)(12) through (a)(17) each may be recorded from a single source.

(3) The approved flight recorder required by this section must be installed at the earliest time practicable, but no later than the next heavy maintenance check after August 18, 1999 and no later than August 20, 2001. A heavy maintenance check is considered to be any time an airplane is scheduled to be out of service for 4 or more days and is scheduled to include access to major structural components.

(c) For all turbine-engine-powered transport category airplanes manufactured on or before October 11, 1991 -

(1) That were equipped as of July 16, 1996, with one or more digital data bus(es) and an ARINC 717 digital flight data acquisition unit (DFDAU) or equivalent, the parameters specified in paragraphs (a)(1) through (a)(22) of this section must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix E of this part by August 20, 2001. Parameters listed in paragraphs (a)(12) through (a)(14) each may be recorded from a single source.

(2) Commensurate with the capacity of the recording system (DFDAU or equivalent and the DFDR), all additional parameters for which information sources are installed and which are connected to the recording system must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix E of this part by August 20, 2001.

(3) That were subject to § 125.225(e) of this part, all conditions of § 125.225(c) must continue to be met until compliance with paragraph (c)(1) of this section is accomplished.

(d) For all turbine-engine-powered transport category airplanes that were manufactured after October 11, 1991 -

(1) The parameters listed in paragraphs (a)(1) through (a)(34) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix E of this part by August 20, 2001. Parameters listed in paragraphs (a)(12) through (a)(14) each may be recorded from a single source.

(2) Commensurate with the capacity of the recording system, all additional parameters for which information sources are installed and which are connected to the recording system, must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix E of this part by August 20, 2001.

(e) For all turbine-engine-powered transport category airplanes that are manufactured after August 18, 2000 -

(1) The parameters listed in paragraph (a) (1) through (57) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix E of this part.

(2) Commensurate with the capacity of the recording system, all additional parameters for which information sources are installed and which are connected to the recording

system, must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix E of this part.

(3) In addition to the requirements of paragraphs (e)(1) and (e)(2) of this section, all Boeing 737 model airplanes must also comply with the requirements of paragraph (n) of this section, as applicable.

(f) For all turbine-engine-powered transport category airplanes manufactured after August 19, 2002 -

(1) The parameters listed in paragraphs (a)(1) through (a)(88) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix E to this part.

(2) In addition to the requirements of paragraphs (f)(1) of this section, all Boeing 737 model airplanes must also comply with the requirements of paragraph (n) of this section.

(g) Whenever a flight data recorder required by this section is installed, it must be operated continuously from the instant the airplane begins its takeoff roll until it has completed its landing roll.

(h) Except as provided in paragraph (i) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed by this section, as appropriate, until the airplane has been operated for at least 25 hours of the operating time specified in § 121.359(a) of this part. A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (i) of this section, no record need to be kept more than 60 days.

(i) In the event of an accident or occurrence that requires immediate notification of the National Transportation Safety Board under 49 CFR 830 of its regulations and that results in termination of the flight, the certificate holder shall remove the recorder from the airplane and keep the recorder data prescribed by this section, as appropriate, for at least 60 days or for a longer period upon the request of the Board or the Administrator.

(j) Each flight data recorder system required by this section must be installed in accordance with the requirements of § 25.1459(a) (except paragraphs (a)(3)(ii) and (7)), (b), (d) and (e) of this chapter. A correlation must be established between the values recorded by the flight data recorder and the corresponding values being measured. The correlation must contain a sufficient number of correlation points to accurately establish the conversion from the recorded values to engineering units or discrete state over the full operating range of the parameter. Except for airplanes having separate altitude and airspeed sensors that are an integral part of the flight data recorder system, a single correlation may be established for any group of airplanes -

(1) That are of the same type;

(2) On which the flight recorder system and its installation are the same; and

(3) On which there is no difference in the type design with respect to the installation of those sensors associated with the flight data recorder system. Documentation sufficient to convert recorded data into the engineering units and discrete values specified in the applicable appendix must be maintained by the certificate holder.

(k) Each flight data recorder required by this section must have an approved device to assist in locating that recorder under water.

(l) The following airplanes that were manufactured before August 18, 1997 need not comply with this section, but must continue to comply with applicable paragraphs of § 125.225 of this chapter, as appropriate:

(1) Airplanes that meet the Stage 2 noise levels of part 36 of this chapter and are subject to § 91.801(c) of this chapter, until January 1, 2000. On and after January 1, 2000, any Stage 2 airplane otherwise allowed to be operated under Part 91 of this chapter must comply with the applicable flight data recorder requirements of this section for that airplane.

(2) British Aerospace 1-11, General Dynamics Convair 580, General Dynamics Convair 600, General Dynamics Convair 640, deHavilland Aircraft Company Ltd. DHC-7, Fairchild Industries FH 227, Fokker F-27 (except Mark 50), F-28 Mark 1000 and Mark 4000, Gulfstream Aerospace G-159, Jetstream 4100 Series, Lockheed Aircraft Corporation Electra 10-A, Lockheed Aircraft Corporation Electra 10-B, Lockheed Aircraft Corporation Electra 10-E, Lockheed Aircraft Corporation Electra L-188, Lockheed Martin Model 382 (L-100) Hercules, Maryland Air Industries, Inc. F27, Mitsubishi Heavy Industries, Ltd. YS-11, Short Bros. Limited SD3-30, Short Bros. Limited SD3-60.

(m) All aircraft subject to the requirements of this section that are manufactured on or after April 7, 2010, must have a flight data recorder installed that also -

(1) Meets the requirements in § 25.1459(a)(3), (a)(7), and (a)(8) of this chapter; and

(2) Retains the 25 hours of recorded information required in paragraph (f) of this section using a recorder that meets the standards of TSO-C124a, or later revision.

(n) In addition to all other applicable requirements of this section, all Boeing 737 model airplanes manufactured after August 18, 2000 must record the parameters listed in paragraphs (a)(88) through (a)(91) of this section within the ranges, accuracies, resolutions, and recording intervals specified in Appendix E to this part. Compliance with this paragraph is required no later than February 2, 2011.

[Doc. No. 28109, 62 FR 38387, July 17, 1997; 62 FR 48135, Sept. 12, 1997, as amended by Amdt. 125-42, 68 FR 42937, July 18, 2003; 68 FR 50069, Aug. 20, 2003; Amdt. 125-54, 73 FR 12568, Mar. 7, 2008; Amdt. 125-56, 73 FR 73179, Dec. 2, 2008; Amdt. 125-54, 74 FR 32801, 32804, July 9, 2009]

§ 125.227 Cockpit voice recorders.

(a) No certificate holder may operate a large turbine engine powered airplane or a large pressurized airplane

with four reciprocating engines unless an approved cockpit voice recorder is installed in that airplane and is operated continuously from the start of the use of the checklist (before starting engines for the purpose of flight) to completion of the final checklist at the termination of the flight.

(b) Each certificate holder shall establish a schedule for completion, before the prescribed dates, of the cockpit voice recorder installations required by paragraph (a) of this section. In addition, the certificate holder shall identify any airplane specified in paragraph (a) of this section he intends to discontinue using before the prescribed dates.

(c) The cockpit voice recorder required by this section must also meet the following standards:

(1) The requirements of part 25 of this chapter in effect after October 11, 1991.

(2) After September 1, 1980, each recorder container must -

(i) Be either bright orange or bright yellow;

(ii) Have reflective tape affixed to the external surface to facilitate its location under water; and

(iii) Have an approved underwater locating device on or adjacent to the container which is secured in such a manner that it is not likely to be separated during crash impact, unless the cockpit voice recorder and the flight recorder, required by § 125.225 of this chapter, are installed adjacent to each other in such a manner that they are not likely to be separated during crash impact.

(d) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used so that, at any time during the operation of the recorder, information recorded more than 30 minutes earlier may be erased or otherwise obliterated.

(e) For those aircraft equipped to record the uninterrupted audio signals received by a boom or a mask microphone the flight crewmembers are required to use the boom microphone below 18,000 feet mean sea level. No person may operate a large turbine engine powered airplane or a large pressurized airplane with four reciprocating engines manufactured after October 11, 1991, or on which a cockpit voice recorder has been installed after October 11, 1991, unless it is equipped to record the uninterrupted audio signal received by a boom or mask microphone in accordance with § 25.1457(c)(5) of this chapter.

(f) In the event of an accident or occurrence requiring immediate notification of the National Transportation Safety Board under 49 CFR part 830 of its regulations, which results in the termination of the flight, the certificate holder shall keep the recorded information for at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with investigations under 49 CFR part 830. The Administrator does not use the record in any civil penalty or certificate action.

(g) By April 7, 2012, all turbine engine-powered airplanes subject to this section that are manufactured before April 7, 2010, must have a cockpit voice recorder installed that also -

(1) Meets the requirements of § 25.1457(a)(3), (a)(4), (a)(5), and (d)(6) of this chapter;

(2) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision; and

(3) Is operated continuously from the start of the use of the checklist (before starting the engines for the purpose of flight), to the completion of the final checklist at the termination of the flight.

(h) All turbine engine-powered airplanes subject to this section that are manufactured on or after April 7, 2010, must have a cockpit voice recorder installed that also -

(1) Is installed in accordance with the requirements of § 25.1457 (except for paragraph (a)(6)) of this chapter;

(2) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision; and

(3) Is operated continuously from the start of the use of the checklist (before starting the engines for the purpose of flight), to the completion of the final checklist at the termination of the flight.

(4) For all airplanes manufactured on or after December 6, 2010, also meets the requirements of § 25.1457(a)(6) of this chapter.

(i) All airplanes required by this part to have a cockpit voice recorder and a flight data recorder, that install datalink communication equipment on or after December 6, 2010, must record all datalink messages as required by the certification rule applicable to the airplane.

[Doc. No. 25530, 53 FR 26149, July 11, 1988, as amended by Amdt. 125-54, 73 FR 12568, Mar. 7, 2008; Amdt. 125-54, 74 FR 32801, July 9, 2009; Amdt. 125-60, 75 FR 17046; Apr. 5, 2010]

§ 125.228 Flight data recorders: filtered data.

(a) A flight data signal is filtered when an original sensor signal has been changed in any way, other than changes necessary to:

(1) Accomplish analog to digital conversion of the signal;

(2) Format a digital signal to be DFDR compatible; or

(3) Eliminate a high frequency component of a signal that is outside the operational bandwidth of the sensor.

(b) An original sensor signal for any flight recorder parameter required to be recorded under § 125.226 may be filtered only if the recorded signal value continues to meet the requirements of Appendix D or E of this part, as applicable.

(c) For a parameter described in § 125.226(a) (12) through (17), (42), or (88), or the corresponding parameter in Appendix D of this part, if the recorded signal value is filtered and does not meet the requirements of Appendix D or E of this part, as applicable, the certificate holder must:

(1) Remove the filtering and ensure that the recorded signal value meets the requirements of Appendix D or E of this part, as applicable; or

(2) Demonstrate by test and analysis that the original sensor signal value can be reconstructed from the recorded data. This demonstration requires that:

(i) The FAA determine that the procedure and the test results submitted by the certificate holder as its compliance with paragraph (c)(2) of this section are repeatable; and

(ii) The certificate holder maintains documentation of the procedure required to reconstruct the original sensor signal value. This documentation is also subject to the requirements of § 125.226(i).

(d) *Compliance.* Compliance is required as follows:

(1) No later than October 20, 2011, each operator must determine, for each airplane it operates, whether the airplane's DFDR system is filtering any of the parameters listed in paragraph (c) of this section. The operator must create a record of this determination for each airplane it operates, and maintain it as part of the correlation documentation required by § 125.226(j)(3) of this part.

(2) For airplanes that are not filtering any listed parameter, no further action is required unless the airplane's DFDR system is modified in a manner that would cause it to meet the definition of filtering on any listed parameter.

(3) For airplanes found to be filtering a parameter listed in paragraph (c) of this section, the operator must either:

(i) No later than April 21, 2014, remove the filtering; or

(ii) No later than April 22, 2013, submit the necessary procedure and test results required by paragraph (c)(2) of this section.

(4) After April 21, 2014, no aircraft flight data recording system may filter any parameter listed in paragraph (c) of this section that does not meet the requirements of Appendix D or E of this part, unless the certificate holder possesses test and analysis procedures and the test results that have been approved by the FAA. All records of tests, analysis and procedures used to comply with this section must be maintained as part of the correlation documentation required by § 125.226(j)(3) of this part.

[Doc. No. FAA-2006-26135, 75 FR 7356, Feb. 19, 2010]

Subpart G - Maintenance

§ 125.241 Applicability.

This subpart prescribes rules, in addition to those prescribed in other parts of this chapter, for the maintenance of airplanes, airframes, aircraft engines, propellers, appliances, each item of survival and emergency equipment, and their component parts operated under this part.

§ 125.243 Certificate holder's responsibilities.

(a) With regard to airplanes, including airframes, aircraft engines, propellers, appliances, and survival and emergency

equipment, operated by a certificate holder, that certificate holder is primarily responsible for -

- (1) Airworthiness;
- (2) The performance of maintenance, preventive maintenance, and alteration in accordance with applicable regulations and the certificate holder's manual;
- (3) The scheduling and performance of inspections required by this part; and
- (4) Ensuring that maintenance personnel make entries in the airplane maintenance log and maintenance records which meet the requirements of part 43 of this chapter and the certificate holder's manual, and which indicate that the airplane has been approved for return to service after maintenance, preventive maintenance, or alteration has been performed.

§ 125.245 Organization required to perform maintenance, preventive maintenance, and alteration.

The certificate holder must ensure that each person with whom it arranges for the performance of maintenance, preventive maintenance, alteration, or required inspection items identified in the certificate holder's manual in accordance with § 125.249(a)(3)(ii) must have an organization adequate to perform that work.

§ 125.247 Inspection programs and maintenance.

(a) No person may operate an airplane subject to this part unless

- (1) The replacement times for life-limited parts specified in the aircraft type certificate data sheets, or other documents approved by the Administrator, are complied with;
- (2) Defects disclosed between inspections, or as a result of inspection, have been corrected in accordance with part 43 of this chapter; and
- (3) The airplane, including airframe, aircraft engines, propellers, appliances, and survival and emergency equipment, and their component parts, is inspected in accordance with an inspection program approved by the Administrator.

(b) The inspection program specified in paragraph (a)(3) of this section must include at least the following:

- (1) Instructions, procedures, and standards for the conduct of inspections for the particular make and model of airplane, including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the airframe, aircraft engines, propellers, appliances, and survival and emergency equipment required to be inspected.
- (2) A schedule for the performance of inspections that must be performed under the program, expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.
- (c) No person may be used to perform the inspections required by this part unless that person is authorized to perform maintenance under part 43 of this chapter.

(d) No person may operate an airplane subject to this part unless -

- (1) The installed engines have been maintained in accordance with the overhaul periods recommended by the manufacturer or a program approved by the Administrator; and
- (2) The engine overhaul periods are specified in the inspection programs required by § 125.247(a)(3).
- (e) Inspection programs which may be approved for use under this part include, but are not limited to -
 - (1) A continuous inspection program which is a part of a current continuous airworthiness program approved for use by a certificate holder under part 121 or part 135 of this chapter;
 - (2) Inspection programs currently recommended by the manufacturer of the airplane, aircraft engines, propellers, appliances, or survival and emergency equipment; or
 - (3) An inspection program developed by a certificate holder under this part.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-2, 46 FR 24409, Apr. 30, 1981]

§ 125.248 [Reserved]

§ 125.249 Maintenance manual requirements.

(a) Each certificate holder's manual required by § 125.71 of this part shall contain, in addition to the items required by § 125.73 of this part, at least the following:

- (1) A description of the certificate holders maintenance organization, when the certificate holder has such an organization.
- (2) A list of those persons with whom the certificate holder has arranged for performance of inspections under this part. The list shall include the persons' names and addresses.
- (3) The inspection programs required by § 125.247 of this part to be followed in the performance of inspections under this part including -
 - (i) The method of performing routine and nonroutine inspections (other than required inspections);
 - (ii) The designation of the items that must be inspected (required inspections), including at least those which if improperly accomplished could result in a failure, malfunction, or defect endangering the safe operation of the airplane;
 - (iii) The method of performing required inspections;
 - (iv) Procedures for the inspection of work performed under previously required inspection findings ("buy-back procedures");
 - (v) Procedures, standards, and limits necessary for required inspections and acceptance or rejection of the items required to be inspected;
 - (vi) Instructions to prevent any person who performs any item of work from performing any required inspection of that work; and
 - (vii) Procedures to ensure that work interruptions do not adversely affect required inspections and to ensure required

inspections are properly completed before the airplane is released to service.

(b) In addition, each certificate holder's manual shall contain a suitable system which may include a coded system that provides for the retention of the following:

(1) A description (or reference to data acceptable to the Administrator) of the work performed.

(2) The name of the person performing the work and the person's certificate type and number.

(3) The name of the person approving the work and the person's certificate type and number.

§ 125.251 Required inspection personnel.

(a) No person may use any person to perform required inspections unless the person performing the inspection is appropriately certificated, properly trained, qualified, and authorized to do so.

(b) No person may perform a required inspection if that person performed the item of work required to be inspected.

Subpart H - Airman and Crewmember Requirements

§ 125.261 Airman: Limitations on use of services.

(a) No certificate holder may use any person as an airman nor may any person serve as an airman unless that person -

(1) Holds an appropriate current airman certificate issued by the FAA;

(2) Has any required appropriate current airman and medical certificates in that person's possession while engaged in operations under this part; and

(3) Is otherwise qualified for the operation for which that person is to be used.

(b) Each airman covered by paragraph (a) of this section shall present the certificates for inspection upon the request of the Administrator.

§ 125.263 Composition of flightcrew.

(a) No certificate holder may operate an airplane with less than the minimum flightcrew specified in the type certificate and the Airplane Flight Manual approved for that type airplane and required by this part for the kind of operation being conducted.

(b) In any case in which this part requires the performance of two or more functions for which an airman certificate is necessary, that requirement is not satisfied by the performance of multiple functions at the same time by one airman.

(c) On each flight requiring a flight engineer, at least one flight crewmember, other than the flight engineer, must be qualified to provide emergency performance of the flight engineer's functions for the safe completion of the flight if the flight engineer becomes ill or is otherwise incapacitated. A pilot need not hold a flight engineer's certificate to perform the flight engineer's functions in such a situation.

§ 125.265 Flight engineer requirements.

(a) No person may operate an airplane for which a flight engineer is required by the type certification requirements without a flight crewmember holding a current flight engineer certificate.

(b) No person may serve as a required flight engineer on an airplane unless, within the preceding 6 calendar months, that person has had at least 50 hours of flight time as a flight engineer on that type airplane, or the Administrator has checked that person on that type airplane and determined that person is familiar and competent with all essential current information and operating procedures.

§ 125.267 Flight navigator and long-range navigation equipment.

(a) No certificate holder may operate an airplane outside the 48 conterminous States and the District of Columbia when its position cannot be reliably fixed for a period of more than 1 hour, without -

(1) A flight crewmember who holds a current flight navigator certificate; or

(2) Two independent, properly functioning, and approved long-range means of navigation which enable a reliable determination to be made of the position of the airplane by each pilot seated at that person's duty station.

(b) Operations where a flight navigator or long-range navigation equipment, or both, are required are specified in the operations specifications of the operator.

§ 125.269 Flight attendants.

(a) Each certificate holder shall provide at least the following flight attendants on each passenger-carrying airplane used:

(1) For airplanes having more than 19 but less than 51 passengers - one flight attendant.

(2) For airplanes having more than 50 but less than 101 passengers - two flight attendants.

(3) For airplanes having more than 100 passengers - two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passengers above 100 passengers.

(b) The number of flight attendants approved under paragraphs (a) and (b) of this section are set forth in the certificate holder's operations specifications.

(c) During takeoff and landing, flight attendants required by this section shall be located as near as practicable to required floor level exits and shall be uniformly distributed throughout the airplane to provide the most effective egress of passengers in event of an emergency evacuation.

§ 125.271 Emergency and emergency evacuation duties.

(a) Each certificate holder shall, for each type and model of airplane, assign to each category of required crewmember, as appropriate, the necessary functions to be performed in an

emergency or a situation requiring emergency evacuation. The certificate holder shall show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency, including the possible incapacitation of individual crewmembers or their inability to reach the passenger cabin because of shifting cargo in combination cargo-passenger airplanes.

(b) The certificate holder shall describe in its manual the functions of each category of required crewmembers under paragraph (a) of this section.

Subpart I - Flight Crewmember Requirements

§ 125.281 Pilot-in-command qualifications.

No certificate holder may use any person, nor may any person serve, as pilot in command of an airplane unless that person -

(a) Holds at least a commercial pilot certificate, an appropriate category, class, and type rating, and an instrument rating; and

(b) Has had at least 1,200 hours of flight time as a pilot, including 500 hours of cross-country flight time, 100 hours of night flight time, including at least 10 night takeoffs and landings, and 75 hours of actual or simulated instrument flight time, at least 50 hours of which were actual flight.

§ 125.283 Second-in-command qualifications.

No certificate holder may use any person, nor may any person serve, as second in command of an airplane unless that person -

(a) Holds at least a commercial pilot certificate with appropriate category and class ratings, and an instrument rating; and

(b) For flight under IFR, meets the recent instrument experience requirements prescribed for a pilot in command in part 61 of this chapter.

§ 125.285 Pilot qualifications: Recent experience.

(a) No certificate holder may use any person, nor may any person serve, as a required pilot flight crewmember unless within the preceding 90 calendar days that person has made at least three takeoffs and landings in the type airplane in which that person is to serve. The takeoffs and landings required by this paragraph may be performed in a flight simulator if the flight simulator is qualified and approved by the Administrator for such purpose. However, any person who fails to qualify for a 90-consecutive-day period following the date of that person's last qualification under this paragraph must reestablish recency of experience as provided in paragraph (b) of this section.

(b) A required pilot flight crewmember who has not met the requirements of paragraph (a) of this section may reestablish recency of experience by making at least three takeoffs and

landings under the supervision of an authorized check airman, in accordance with the following:

(1) At least one takeoff must be made with a simulated failure of the most critical powerplant.

(2) At least one landing must be made from an ILS approach to the lowest ILS minimums authorized for the certificate holder.

(3) At least one landing must be made to a complete stop.

(c) A required pilot flight crewmember who performs the maneuvers required by paragraph (b) of this section in a qualified and approved flight simulator, as prescribed in paragraph (a) of this section, must -

(1) Have previously logged 100 hours of flight time in the same type airplane in which the pilot is to serve; and

(2) Be observed on the first two landings made in operations under this part by an authorized check airman who acts as pilot in command and occupies a pilot seat. The landings must be made in weather minimums that are not less than those contained in the certificate holder's operations specifications for Category I operations and must be made within 45 days following completion of simulator testing.

(d) An authorized check airman who observes the takeoffs and landings prescribed in paragraphs (b) and (c)(3) of this section shall certify that the person being observed is proficient and qualified to perform flight duty in operations under this part, and may require any additional maneuvers that are determined necessary to make this certifying statement.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-27, 61 FR 34561, July 2, 1996]

§ 125.287 Initial and recurrent pilot testing requirements.

(a) No certificate holder may use any person, nor may any person serve as a pilot, unless, since the beginning of the 12th calendar month before that service, that person has passed a written or oral test, given by the Administrator or an authorized check airman on that person's knowledge in the following areas -

(1) The appropriate provisions of parts 61, 91, and 125 of this chapter and the operations specifications and the manual of the certificate holder;

(2) For each type of airplane to be flown by the pilot, the airplane powerplant, major components and systems, major appliances, performance and operating limitations, standard and emergency operating procedures, and the contents of the approved Airplane Flight Manual or approved equivalent, as applicable;

(3) For each type of airplane to be flown by the pilot, the method of determining compliance with weight and balance limitations for takeoff, landing, and en route operations;

(4) Navigation and use of air navigation aids appropriate to the operation of pilot authorization, including, when applicable, instrument approach facilities and procedures;

(5) Air traffic control procedures, including IFR procedures when applicable;

(6) Meteorology in general, including the principles of frontal systems, icing, fog, thunderstorms, and windshear, and, if appropriate for the operation of the certificate holder, high altitude weather;

(7) Procedures for avoiding operations in thunderstorms and hail, and for operating in turbulent air or in icing conditions;

(8) New equipment, procedures, or techniques, as appropriate;

(9) Knowledge and procedures for operating during ground icing conditions, (i.e., any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the airplane), if the certificate holder expects to authorize takeoffs in ground icing conditions, including:

(i) The use of holdover times when using deicing/anti-icing fluids.

(ii) Airplane deicing/anti-icing procedures, including inspection and check procedures and responsibilities.

(iii) Communications.

(iv) Airplane surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and knowledge of how contamination adversely affects airplane performance and flight characteristics.

(v) Types and characteristics of deicing/anti-icing fluids, if used by the certificate holder.

(vi) Cold weather preflight inspection procedures.

(vii) Techniques for recognizing contamination on the airplane.

(b) No certificate holder may use any person, nor may any person serve, as a pilot in any airplane unless, since the beginning of the 12th calendar month before that service, that person has passed a competency check given by the Administrator or an authorized check airman in that type of airplane to determine that person's competence in practical skills and techniques in that airplane or type of airplane. The extent of the competency check shall be determined by the Administrator or authorized check airman conducting the competency check. The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class, and type of airplane involved. For the purposes of this paragraph, type, as to an airplane, means any one of a group of airplanes determined by the Administrator to have a similar means of propulsion, the same manufacturer, and no significantly different handling or flight characteristics.

(c) The instrument proficiency check required by § 125.291 may be substituted for the competency check required by this section for the type of airplane used in the check.

(d) For the purposes of this part, competent performance of a procedure or maneuver by a person to be used as a pilot requires that the pilot be the obvious master of the airplane with the successful outcome of the maneuver never in doubt.

(e) The Administrator or authorized check airman certifies the competency of each pilot who passes the knowledge or flight check in the certificate holder's pilot records.

(f) Portions of a required competency check may be given in an airplane simulator or other appropriate training device, if approved by the Administrator.

(g) If the certificate holder is authorized to conduct EFVS operations, the competency check in paragraph (b) of this section must include tasks appropriate to the EFVS operations the certificate holder is authorized to conduct.

[45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-18, 58 FR 69629, Dec. 30, 1993; Docket FAA-2013-0485, Amdt. 125-66, 81 FR 90176, Dec. 13, 2016]

§ 125.289 Initial and recurrent flight attendant crewmember testing requirements.

No certificate holder may use any person, nor may any person serve, as a flight attendant crewmember, unless, since the beginning of the 12th calendar month before that service, the certificate holder has determined by appropriate initial and recurrent testing that the person is knowledgeable and competent in the following areas as appropriate to assigned duties and responsibilities:

(a) Authority of the pilot in command;

(b) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety;

(c) Crewmember assignments, functions, and responsibilities during ditching and evacuation of persons who may need the assistance of another person to move expeditiously to an exit in an emergency;

(d) Briefing of passengers;

(e) Location and operation of portable fire extinguishers and other items of emergency equipment;

(f) Proper use of cabin equipment and controls;

(g) Location and operation of passenger oxygen equipment;

(h) Location and operation of all normal and emergency exits, including evacuation chutes and escape ropes; and

(i) Seating of persons who may need assistance of another person to move rapidly to an exit in an emergency as prescribed by the certificate holder's operations manual.

§ 125.291 Pilot in command: Instrument proficiency check requirements.

(a) No certificate holder may use any person, nor may any person serve, as a pilot in command of an airplane under IFR unless, since the beginning of the sixth calendar month before that service, that person has passed an instrument proficiency check and the Administrator or an authorized check airman has so certified in a letter of competency.

(b) No pilot may use any type of precision instrument approach procedure under IFR unless, since the beginning of the sixth calendar month before that use, the pilot has satisfactorily demonstrated that type of approach procedure

and has been issued a letter of competency under paragraph (g) of this section. No pilot may use any type of nonprecision approach procedure under IFR unless, since the beginning of the sixth calendar month before that use, the pilot has satisfactorily demonstrated either that type of approach procedure or any other two different types of nonprecision approach procedures and has been issued a letter of competency under paragraph (g) of this section. The instrument approach procedure or procedures must include at least one straight-in approach, one circling approach, and one missed approach. Each type of approach procedure demonstrated must be conducted to published minimums for that procedure.

(c) The instrument proficiency check required by paragraph (a) of this section consists of an oral or written equipment test and a flight check under simulated or actual IFR conditions. The equipment test includes questions on emergency procedures, engine operation, fuel and lubrication systems, power settings, stall speeds, best engine-out speed, propeller and supercharge operations, and hydraulic, mechanical, and electrical systems, as appropriate. The flight check includes navigation by instruments, recovery from simulated emergencies, and standard instrument approaches involving navigational facilities which that pilot is to be authorized to use.

(1) For a pilot in command of an airplane, the instrument proficiency check must include the procedures and maneuvers for a commercial pilot certificate with an instrument rating and, if required, for the appropriate type rating.

(2) The instrument proficiency check must be given by an authorized check airman or by the Administrator.

(d) If the pilot in command is assigned to pilot only one type of airplane, that pilot must take the instrument proficiency check required by paragraph (a) of this section in that type of airplane.

(e) If the pilot in command is assigned to pilot more than one type of airplane, that pilot must take the instrument proficiency check required by paragraph (a) of this section in each type of airplane to which that pilot is assigned, in rotation, but not more than one flight check during each period described in paragraph (a) of this section.

(f) Portions of a required flight check may be given in an airplane simulator or other appropriate training device, if approved by the Administrator.

(g) The Administrator or authorized check airman issues a letter of competency to each pilot who passes the instrument proficiency check. The letter of competency contains a list of the types of instrument approach procedures and facilities authorized.

§ 125.293 Crewmember: Tests and checks, grace provisions, accepted standards.

(a) If a crewmember who is required to take a test or a flight check under this part completes the test or flight check in the calendar month before or after the calendar month in which it

is required, that crewmember is considered to have completed the test or check in the calendar month in which it is required.

(b) If a pilot being checked under this subpart fails any of the required maneuvers, the person giving the check may give additional training to the pilot during the course of the check. In addition to repeating the maneuvers failed, the person giving the check may require the pilot being checked to repeat any other maneuvers that are necessary to determine the pilot's proficiency. If the pilot being checked is unable to demonstrate satisfactory performance to the person conducting the check, the certificate holder may not use the pilot, nor may the pilot serve, in the capacity for which the pilot is being checked in operations under this part until the pilot has satisfactorily completed the check.

§ 125.295 Check airman authorization: Application and issue.

Each certificate holder desiring FAA approval of a check airman shall submit a request in writing to the FAA Flight Standards district office charged with the overall inspection of the certificate holder. The Administrator may issue a letter of authority to each check airman if that airman passes the appropriate oral and flight test. The letter of authority lists the tests and checks in this part that the check airman is qualified to give, and the category, class and type airplane, where appropriate, for which the check airman is qualified.

§ 125.296 Training, testing, and checking conducted by training centers: Special rules.

A crewmember who has successfully completed training, testing, or checking in accordance with an approved training program that meets the requirements of this part and that is conducted in accordance with an approved course conducted by a training center certificated under part 142 of this chapter, is considered to meet applicable requirements of this part.

[Doc. No. 26933, 61 FR 34561, July 2, 1996]

§ 125.297 Approval of flight simulators and flight training devices.

(a) Flight simulators and flight training devices approved by the Administrator may be used in training, testing, and checking required by this subpart.

(b) Each flight simulator and flight training device that is used in training, testing, and checking required under this subpart must be used in accordance with an approved training course conducted by a training center certificated under part 142 of this chapter, or meet the following requirements:

(1) It must be specifically approved for -

(i) The certificate holder;

(ii) The type airplane and, if applicable, the particular variation within type for which the check is being conducted; and

(iii) The particular maneuver, procedure, or crewmember function involved.

(2) It must maintain the performance, functional, and other characteristics that are required for approval.

(3) It must be modified to conform with any modification to the airplane being simulated that changes the performance, functional, or other characteristics required for approval.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-27, 61 FR 34561, July 2, 1996]

Subpart J - Flight Operations

§ 125.311 Flight crewmembers at controls.

(a) Except as provided in paragraph (b) of this section, each required flight crewmember on flight deck duty must remain at the assigned duty station with seat belt fastened while the airplane is taking off or landing and while it is en route.

(b) A required flight crewmember may leave the assigned duty station -

(1) If the crewmember's absence is necessary for the performance of duties in connection with the operation of the airplane;

(2) If the crewmember's absence is in connection with physiological needs; or

(3) If the crewmember is taking a rest period and relief is provided -

(i) In the case of the assigned pilot in command, by a pilot qualified to act as pilot in command.

(ii) In the case of the assigned second in command, by a pilot qualified to act as second in command of that airplane during en route operations. However, the relief pilot need not meet the recent experience requirements of § 125.285.

§ 125.313 Manipulation of controls when carrying passengers.

No pilot in command may allow any person to manipulate the controls of an airplane while carrying passengers during flight, nor may any person manipulate the controls while carrying passengers during flight, unless that person is a qualified pilot of the certificate holder operating that airplane.

§ 125.315 Admission to flight deck.

(a) No person may admit any person to the flight deck of an airplane unless the person being admitted is -

(1) A crewmember;

(2) An FAA inspector or an authorized representative of the National Transportation Safety Board who is performing official duties; or

(3) Any person who has the permission of the pilot in command.

(b) No person may admit any person to the flight deck unless there is a seat available for the use of that person in the passenger compartment, except -

(1) An FAA inspector or an authorized representative of the Administrator or National Transportation Safety Board who is checking or observing flight operations; or

(2) A certificated airman employed by the certificate holder whose duties require an airman certificate.

§ 125.317 Inspector's credentials: Admission to pilots' compartment: Forward observer's seat.

(a) Whenever, in performing the duties of conducting an inspection, an FAA inspector presents an Aviation Safety Inspector credential, FAA Form 110A, to the pilot in command of an airplane operated by the certificate holder, the inspector must be given free and uninterrupted access to the pilot compartment of that airplane. However, this paragraph does not limit the emergency authority of the pilot in command to exclude any person from the pilot compartment in the interest of safety.

(b) A forward observer's seat on the flight deck, or forward passenger seat with headset or speaker, must be provided for use by the Administrator while conducting en route inspections. The suitability of the location of the seat and the headset or speaker for use in conducting en route inspections is determined by the Administrator.

§ 125.319 Emergencies.

(a) In an emergency situation that requires immediate decision and action, the pilot in command may take any action considered necessary under the circumstances. In such a case, the pilot in command may deviate from prescribed operations, procedures and methods, weather minimums, and this chapter, to the extent required in the interests of safety.

(b) In an emergency situation arising during flight that requires immediate decision and action by appropriate management personnel in the case of operations conducted with a flight following service and which is known to them, those personnel shall advise the pilot in command of the emergency, shall ascertain the decision of the pilot in command, and shall have the decision recorded. If they cannot communicate with the pilot, they shall declare an emergency and take any action that they consider necessary under the circumstances.

(c) Whenever emergency authority is exercised, the pilot in command or the appropriate management personnel shall keep the appropriate ground radio station fully informed of the progress of the flight. The person declaring the emergency shall send a written report of any deviation, through the operator's director of operations, to the Administrator within 10 days, exclusive of Saturdays, Sundays, and Federal holidays, after the flight is completed or, in the case of operations outside the United States, upon return to the home base.

§ 125.321 Reporting potentially hazardous meteorological conditions and irregularities of ground and navigation facilities.

Whenever the pilot in command encounters a meteorological condition or an irregularity in a ground facility or navigation aid in flight, the knowledge of which the pilot in

command considers essential to the safety of other flights, the pilot in command shall notify an appropriate ground station as soon as practicable.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-52, 72 FR 31683, June 7, 2007]

§ 125.323 Reporting mechanical irregularities.

The pilot in command shall ensure that all mechanical irregularities occurring during flight are entered in the maintenance log of the airplane at the next place of landing. Before each flight, the pilot in command shall ascertain the status of each irregularity entered in the log at the end of the preceding flight.

§ 125.325 Instrument approach procedures and IFR landing minimums.

Link to an amendment published at 81 FR 90176, Dec. 13, 2016.

Except as specified in §§ 91.175(l) or 91.176 of this chapter, no person may make an instrument approach at an airport except in accordance with IFR weather minimums and unless the type of instrument approach procedure to be used is listed in the certificate holder's operations specifications.

[Docket FAA-2013-0485, Amdt. 125-66, 81 FR 90176, Dec. 13, 2016]

§ 125.327 Briefing of passengers before flight.

(a) Before each takeoff, each pilot in command of an airplane carrying passengers shall ensure that all passengers have been orally briefed on -

(1) *Smoking*. Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement that the Federal Aviation Regulations require passenger compliance with the lighted passenger information signs, posted placards, areas designated for safety purposes as no smoking areas, and crewmember instructions with regard to these items.

(2) *The use of safety belts, including instructions on how to fasten and unfasten the safety belts*. Each passenger shall be briefed on when, where, and under what conditions the safety belt must be fastened about him or her. This briefing shall include a statement that the Federal Aviation Regulations require passenger compliance with lighted passenger information signs and crewmember instructions concerning the use of safety belts.

(3) The placement of seat backs in an upright position before takeoff and landing;

(4) Location and means for opening the passenger entry door and emergency exits;

(5) Location of survival equipment;

(6) If the flight involves extended overwater operation, ditching procedures and the use of required flotation equipment;

(7) If the flight involves operations above 12,000 feet MSL, the normal and emergency use of oxygen; and

(8) Location and operation of fire extinguishers.

(b) Before each takeoff, the pilot in command shall ensure that each person who may need the assistance of another person to move expeditiously to an exit if an emergency occurs and that person's attendant, if any, has received a briefing as to the procedures to be followed if an evacuation occurs. This paragraph does not apply to a person who has been given a briefing before a previous leg of a flight in the same airplane.

(c) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a member of the crew. It shall be supplemented by printed cards for the use of each passenger containing -

(1) A diagram and method of operating the emergency exits; and

(2) Other instructions necessary for the use of emergency equipment on board the airplane.

Each card used under this paragraph must be carried in the airplane in locations convenient for the use of each passenger and must contain information that is appropriate to the airplane on which it is to be used.

(d) The certificate holder shall describe in its manual the procedure to be followed in the briefing required by paragraph (a) of this section.

(e) If the airplane does not proceed directly over water after takeoff, no part of the briefing required by paragraph (a)(6) of this section has to be given before takeoff but the briefing required by paragraph (a)(6) must be given before reaching the overwater part of the flight.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-17, 57 FR 42675, Sept. 15, 1992]

§ 125.328 Prohibition on crew interference.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated under this part.

[Doc. No. FAA-1998-4954, 64 FR 1080, Jan. 7, 1999]

§ 125.329 Minimum altitudes for use of autopilot.

(a) *Definitions*. For purpose of this section -

(1) Altitudes for takeoff/initial climb and go-around/missed approach are defined as above the airport elevation.

(2) Altitudes for enroute operations are defined as above terrain elevation.

(3) Altitudes for approach are defined as above the touchdown zone elevation (TDZE), unless the altitude is specifically in reference to DA (H) or MDA, in which case the altitude is defined by reference to the DA(H) or MDA itself.

(b) *Takeoff and initial climb*. No person may use an autopilot for takeoff or initial climb below the higher of 500 feet or an altitude that is no lower than twice the altitude loss specified in the Airplane Flight Manual (AFM), except as follows -

(1) At a minimum engagement altitude specified in the AFM; or

(2) At an altitude specified by the Administrator, whichever is greater.

(c) *Enroute*. No person may use an autopilot enroute, including climb and descent, below the following -

(1) 500 feet;

(2) At an altitude that is no lower than twice the altitude loss specified in the AFM for an autopilot malfunction in cruise conditions; or

(3) At an altitude specified by the Administrator, whichever is greater.

(d) *Approach*. No person may use an autopilot at an altitude lower than 50 feet below the DA(H) or MDA for the instrument procedure being flown, except as follows -

(1) For autopilots with an AFM specified altitude loss for approach operations -

(i) An altitude no lower than twice the specified altitude loss if higher than 50 feet below the MDA or DA(H);

(ii) An altitude no lower than 50 feet higher than the altitude loss specified in the AFM, when the following conditions are met -

(A) Reported weather conditions are less than the basic VFR weather conditions in § 91.155 of this chapter;

(B) Suitable visual references specified in § 91.175 of this chapter have been established on the instrument approach procedure; and

(C) The autopilot is coupled and receiving both lateral and vertical path references;

(iii) An altitude no lower than the higher of the altitude loss specified in the AFM or 50 feet above the TDZE, when the following conditions are met -

(A) Reported weather conditions are equal to or better than the basic VFR weather conditions in § 91.155 of this chapter; and

(B) The autopilot is coupled and receiving both lateral and vertical path references; or

(iv) A greater altitude specified by the Administrator.

(2) For autopilots with AFM specified approach altitude limitations, the greater of -

(i) The minimum use altitude specified for the coupled approach mode selected;

(ii) 50 feet; or

(iii) An altitude specified by Administrator.

(3) For autopilots with an AFM specified negligible or zero altitude loss for an autopilot approach mode malfunction, the greater of -

(i) 50 feet; or

(ii) An altitude specified by Administrator.

(4) If executing an autopilot coupled go-around or missed approach using a certificated and functioning autopilot in accordance with paragraph (e) in this section.

(e) *Go-Around/Missed Approach*. No person may engage an autopilot during a go-around or missed approach below the minimum engagement altitude specified for takeoff and initial climb in paragraph (b) in this section. An autopilot minimum use altitude does not apply to a go-around/missed approach

initiated with an engaged autopilot. Performing a go-around or missed approach with an engaged autopilot must not adversely affect safe obstacle clearance.

(f) *Landing*. Notwithstanding paragraph (d) of this section, autopilot minimum use altitudes do not apply to autopilot operations when an approved automatic landing system mode is being used for landing. Automatic landing systems must be authorized in an operations specification issued to the operator.

[Doc. No. FAA-2012-1059, 79 FR 6087, Feb. 3, 2014]

§ 125.331 Carriage of persons without compliance with the passenger-carrying provisions of this part.

The following persons may be carried aboard an airplane without complying with the passenger-carrying requirements of this part:

(a) A crewmember.

(b) A person necessary for the safe handling of animals on the airplane.

(c) A person necessary for the safe handling of hazardous materials (as defined in subchapter C of title 49 CFR).

(d) A person performing duty as a security or honor guard accompanying a shipment made by or under the authority of the U.S. Government.

(e) A military courier or a military route supervisor carried by a military cargo contract operator if that carriage is specifically authorized by the appropriate military service.

(f) An authorized representative of the Administrator conducting an en route inspection.

(g) A person authorized by the Administrator.

§ 125.333 Stowage of food, beverage, and passenger service equipment during airplane movement on the surface, takeoff, and landing.

(a) No certificate holder may move an airplane on the surface, take off, or land when any food, beverage, or tableware furnished by the certificate holder is located at any passenger seat.

(b) No certificate holder may move an airplane on the surface, take off, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.

(c) No certificate holder may permit an airplane to move on the surface, take off, or land unless each passenger serving cart is secured in its stowed position.

(d) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

[Doc. No. 26142, 57 FR 42675, Sept. 15, 1992]

Subpart K - Flight Release Rules

§ 125.351 Flight release authority.

(a) No person may start a flight without authority from the person authorized by the certificate holder to exercise operational control over the flight.

(b) No person may start a flight unless the pilot in command or the person authorized by the certificate holder to exercise operational control over the flight has executed a flight release setting forth the conditions under which the flight will be conducted. The pilot in command may sign the flight release only when both the pilot in command and the person authorized to exercise operational control believe the flight can be made safely, unless the pilot in command is authorized by the certificate holder to exercise operational control and execute the flight release without the approval of any other person.

(c) No person may continue a flight from an intermediate airport without a new flight release if the airplane has been on the ground more than 6 hours.

§ 125.353 Facilities and services.

During a flight, the pilot in command shall obtain any additional available information of meteorological conditions and irregularities of facilities and services that may affect the safety of the flight.

§ 125.355 Airplane equipment.

No person may release an airplane unless it is airworthy and is equipped as prescribed.

§ 125.357 Communication and navigation facilities.

No person may release an airplane over any route or route segment unless communication and navigation facilities equal to those required by § 125.51 are in satisfactory operating condition.

§ 125.359 Flight release under VFR.

No person may release an airplane for VFR operation unless the ceiling and visibility en route, as indicated by available weather reports or forecasts, or any combination thereof, are and will remain at or above applicable VFR minimums until the airplane arrives at the airport or airports specified in the flight release.

§ 125.361 Flight release under IFR or over-the-top.

Except as provided in § 125.363, no person may release an airplane for operations under IFR or over-the-top unless appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at the airport or airports to which released.

§ 125.363 Flight release over water.

(a) No person may release an airplane for a flight that involves extended overwater operation unless appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at any airport to which released or to any required alternate airport.

(b) Each certificate holder shall conduct extended overwater operations under IFR unless it shows that operating under IFR is not necessary for safety.

(c) Each certificate holder shall conduct other overwater operations under IFR if the Administrator determines that operation under IFR is necessary for safety.

(d) Each authorization to conduct extended overwater operations under VFR and each requirement to conduct other overwater operations under IFR will be specified in the operations specifications.

§ 125.365 Alternate airport for departure.

(a) If the weather conditions at the airport of takeoff are below the landing minimums in the certificate holder's operations specifications for that airport, no person may release an airplane from that airport unless the flight release specifies an alternate airport located within the following distances from the airport of takeoff:

(1) *Airplanes having two engines.* Not more than 1 hour from the departure airport at normal cruising speed in still air with one engine inoperative.

(2) *Airplanes having three or more engines.* Not more than 2 hours from the departure airport at normal cruising speed in still air with one engine inoperative.

(b) For the purposes of paragraph (a) of this section, the alternate airport weather conditions must meet the requirements of the certificate holder's operations specifications.

(c) No person may release an airplane from an airport unless that person lists each required alternate airport in the flight release.

§ 125.367 Alternate airport for destination: IFR or over-the-top.

(a) Except as provided in paragraph (b) of this section, each person releasing an airplane for operation under IFR or over-the-top shall list at least one alternate airport for each destination airport in the flight release.

(b) An alternate airport need not be designated for IFR or over-the-top operations where the airplane carries enough fuel to meet the requirements of §§ 125.375 and 125.377 for flights outside the 48 conterminous States and the District of Columbia over routes without an available alternate airport for a particular airport of destination.

(c) For the purposes of paragraph (a) of this section, the weather requirements at the alternate airport must meet the requirements of the operator's operations specifications.

(d) No person may release a flight unless that person lists each required alternate airport in the flight release.

§ 125.369 Alternate airport weather minimums.

No person may list an airport as an alternate airport in the flight release unless the appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the alternate weather minimums specified in the certificate holder's operations specifications for that airport when the flight arrives.

§ 125.371 Continuing flight in unsafe conditions.

(a) No pilot in command may allow a flight to continue toward any airport to which it has been released if, in the opinion of the pilot in command, the flight cannot be completed safely, unless, in the opinion of the pilot in command, there is no safer procedure. In that event, continuation toward that airport is an emergency situation.

§ 125.373 Original flight release or amendment of flight release.

(a) A certificate holder may specify any airport authorized for the type of airplane as a destination for the purpose of original release.

(b) No person may allow a flight to continue to an airport to which it has been released unless the weather conditions at an alternate airport that was specified in the flight release are forecast to be at or above the alternate minimums specified in the operations specifications for that airport at the time the airplane would arrive at the alternate airport. However, the flight release may be amended en route to include any alternate airport that is within the fuel range of the airplane as specified in § 125.375 or § 125.377.

(c) No person may change an original destination or alternate airport that is specified in the original flight release to another airport while the airplane is en route unless the other airport is authorized for that type of airplane.

(d) Each person who amends a flight release en route shall record that amendment.

§ 125.375 Fuel supply: Nonturbine and turbopropeller-powered airplanes.

(a) Except as provided in paragraph (b) of this section, no person may release for flight or take off a nonturbine or turbopropeller-powered airplane unless, considering the wind and other weather conditions expected, it has enough fuel -

- (1) To fly to and land at the airport to which it is released;
- (2) Thereafter, to fly to and land at the most distant alternate airport specified in the flight release; and
- (3) Thereafter, to fly for 45 minutes at normal cruising fuel consumption.

(b) If the airplane is released for any flight other than from one point in the conterminous United States to another point in the conterminous United States, it must carry enough fuel to meet the requirements of paragraphs (a) (1) and (2) of this

section and thereafter fly for 30 minutes plus 15 percent of the total time required to fly at normal cruising fuel consumption to the airports specified in paragraphs (a) (1) and (2) of this section, or fly for 90 minutes at normal cruising fuel consumption, whichever is less.

(c) No person may release a nonturbine or turbopropeller-powered airplane to an airport for which an alternate is not specified under § 125.367(b) unless it has enough fuel, considering wind and other weather conditions expected, to fly to that airport and thereafter to fly for 3 hours at normal cruising fuel consumption.

§ 125.377 Fuel supply: Turbine-engine-powered airplanes other than turbopropeller.

(a) Except as provided in paragraph (b) of this section, no person may release for flight or takeoff a turbine-powered airplane (other than a turbopropeller-powered airplane) unless, considering the wind and other weather conditions expected, it has enough fuel -

- (1) To fly to and land at the airport to which it is released;
- (2) Thereafter, to fly to and land at the most distant alternate airport specified in the flight release; and
- (3) Thereafter, to fly for 45 minutes at normal cruising fuel consumption.

(b) For any operation outside the 48 conterminous United States and the District of Columbia, unless authorized by the Administrator in the operations specifications, no person may release for flight or take off a turbine-engine powered airplane (other than a turbopropeller-powered airplane) unless, considering wind and other weather conditions expected, it has enough fuel -

- (1) To fly and land at the airport to which it is released;
- (2) After that, to fly for a period of 10 percent of the total time required to fly from the airport of departure and land at the airport to which it was released;
- (3) After that, to fly to and land at the most distant alternate airport specified in the flight release, if an alternate is required; and

(4) After that, to fly for 30 minutes at holding speed at 1,500 feet above the alternate airport (or the destination airport if no alternate is required) under standard temperature conditions.

(c) No person may release a turbine-engine-powered airplane (other than a turbopropeller airplane) to an airport for which an alternate is not specified under § 125.367(b) unless it has enough fuel, considering wind and other weather conditions expected, to fly to that airport and thereafter to fly for at least 2 hours at normal cruising fuel consumption.

(d) The Administrator may amend the operations specifications of a certificate holder to require more fuel than any of the minimums stated in paragraph (a) or (b) of this section if the Administrator finds that additional fuel is necessary on a particular route in the interest of safety.

§ 125.379 Landing weather minimums: IFR.

(a) If the pilot in command of an airplane has not served 100 hours as pilot in command in the type of airplane being operated, the MDA or DA/DH and visibility landing minimums in the certificate holder's operations specification are increased by 100 feet and one-half mile (or the RVR equivalent). The MDA or DA/DH and visibility minimums need not be increased above those applicable to the airport when used as an alternate airport, but in no event may the landing minimums be less than a 300-foot ceiling and 1 mile of visibility.

(b) The 100 hours of pilot-in-command experience required by paragraph (a) may be reduced (not to exceed 50 percent) by substituting one landing in operations under this part in the type of airplane for 1 required hour of pilot-in-command experience if the pilot has at least 100 hours as pilot in command of another type airplane in operations under this part.

(c) Category II minimums, when authorized in the certificate holder's operations specifications, do not apply until the pilot in command subject to paragraph (a) of this section meets the requirements of that paragraph in the type of airplane the pilot is operating.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-52, 72 FR 31683, June 7, 2007]

§ 125.381 Takeoff and landing weather minimums: IFR.

Link to an amendment published at 81 FR 90177, Dec. 13, 2016.

(a) Regardless of any clearance from ATC, if the reported weather conditions are less than that specified in the certificate holder's operations specifications, no pilot may -

(1) Take off an airplane under IFR; or

(2) Except as provided in paragraphs (c) and (d) of this section, land an airplane under IFR.

(b) Except as provided in paragraphs (c) and (d) of this section, no pilot may execute an instrument approach procedure if the latest reported visibility is less than the landing minimums specified in the certificate holder's operations specifications.

(c) A pilot who initiates an instrument approach procedure based on a weather report that indicates that the specified visibility minimums exist and subsequently receives another weather report that indicates that conditions are below the minimum requirements, may continue the approach only if the requirements of § 91.175(l) or § 91.176 of this chapter, or both of the following conditions are met -

(1) The later weather report is received when the airplane is in one of the following approach phases:

(i) The airplane is on a ILS approach and has passed the final approach fix;

(ii) The airplane is on an ASR or PAR final approach and has been turned over to the final approach controller; or

(iii) The airplane is on a nonprecision final approach and the airplane -

(A) Has passed the appropriate facility or final approach fix; or

(B) Where a final approach fix is not specified, has completed the procedure turn and is established inbound toward the airport on the final approach course within the distance prescribed in the procedure; and

(2) The pilot in command finds, on reaching the authorized MDA, or DA/DH, that the actual weather conditions are at or above the minimums prescribed for the procedure being used.

(d) A pilot may execute an instrument approach procedure, or continue the approach, at an airport when the visibility is reported to be less than the visibility minimums prescribed for that procedure if the pilot uses an operable EFVS in accordance with § 91.176 of this chapter and the certificate holder's operations specifications for EFVS operations, or for a holder of a part 125 letter of deviation authority, a letter of authorization for the use of EFVS.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-2, 46 FR 24409, Apr. 30, 1981; Amdt. 125-45, 69 FR 1641, Jan. 9, 2004; Amdt. 125-52, 72 FR 31683, June 7, 2007; Docket FAA-2013-0485, Amdt. 125-66, 81 FR 90177, Dec. 13, 2016]

§ 125.383 Load manifest.

(a) Each certificate holder is responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the airplane. The manifest must be prepared before each takeoff and must include -

(1) The number of passengers;

(2) The total weight of the loaded airplane;

(3) The maximum allowable takeoff and landing weights for that flight;

(4) The center of gravity limits;

(5) The center of gravity of the loaded airplane, except that the actual center of gravity need not be computed if the airplane is loaded according to a loading schedule or other approved method that ensures that the center of gravity of the loaded airplane is within approved limits. In those cases, an entry shall be made on the manifest indicating that the center of gravity is within limits according to a loading schedule or other approved method:

(6) The registration number of the airplane;

(7) The origin and destination ; and

(8) Names of passengers.

(b) The pilot in command of an airplane for which a load manifest must be prepared shall carry a copy of the completed load manifest in the airplane to its destination. The certificate holder shall keep copies of completed load manifests for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

Subpart L - Records and Reports

§ 125.401 Crewmember record.

(a) Each certificate holder shall -

(1) Maintain current records of each crewmember that show whether or not that crewmember complies with this chapter (e.g., proficiency checks, airplane qualifications, any required physical examinations, and flight time records); and

(2) Record each action taken concerning the release from employment or physical or professional disqualification of any flight crewmember and keep the record for at least 6 months thereafter.

(b) Each certificate holder shall maintain the records required by paragraph (a) of this section at its principal operations base, or at another location used by it and approved by the Administrator.

(c) Computer record systems approved by the Administrator may be used in complying with the requirements of paragraph (a) of this section.

§ 125.403 Flight release form.

(a) The flight release may be in any form but must contain at least the following information concerning each flight:

(1) Company or organization name.

(2) Make, model, and registration number of the airplane being used.

(3) Date of flight.

(4) Name and duty assignment of each crewmember.

(5) Departure airport, destination airports, alternate airports, and route.

(6) Minimum fuel supply (in gallons or pounds).

(7) A statement of the type of operation (e.g., IFR, VFR).

(b) The airplane flight release must contain, or have attached to it, weather reports, available weather forecasts, or a combination thereof.

§ 125.405 Disposition of load manifest, flight release, and flight plans.

(a) The pilot in command of an airplane shall carry in the airplane to its destination the original or a signed copy of the -

(1) Load manifest required by § 125.383;

(2) Flight release;

(3) Airworthiness release; and

(4) Flight plan, including route.

(b) If a flight originates at the principal operations base of the certificate holder, it shall retain at that base a signed copy of each document listed in paragraph (a) of this section.

(c) Except as provided in paragraph (d) of this section, if a flight originates at a place other than the principal operations base of the certificate holder, the pilot in command (or another person not aboard the airplane who is authorized by the operator) shall, before or immediately after departure of the

flight, mail signed copies of the documents listed in paragraph (a) of this section to the principal operations base.

(d) If a flight originates at a place other than the principal operations base of the certificate holder and there is at that place a person to manage the flight departure for the operator who does not depart on the airplane, signed copies of the documents listed in paragraph (a) of this section may be retained at that place for not more than 30 days before being sent to the principal operations base of the certificate holder. However, the documents for a particular flight need not be further retained at that place or be sent to the principal operations base, if the originals or other copies of them have been previously returned to the principal operations base.

(e) The certificate holder shall:

(1) Identify in its operations manual the person having custody of the copies of documents retained in accordance with paragraph (d) of this section; and

(2) Retain at its principal operations base either the original or a copy of the records required by this section for at least 30 days.

§ 125.407 Maintenance log: Airplanes.

(a) Each person who takes corrective action or defers action concerning a reported or observed failure or malfunction of an airframe, aircraft engine, propeller, or appliance shall record the action taken in the airplane maintenance log in accordance with part 43 of this chapter.

(b) Each certificate holder shall establish a procedure for keeping copies of the airplane maintenance log required by this section in the airplane for access by appropriate personnel and shall include that procedure in the manual required by § 125.249.

§ 125.409 Service difficulty reports.

(a) Each certificate holder shall report the occurrence or detection of each failure, malfunction, or defect, in a form and manner prescribed by the Administrator.

(b) Each certificate holder shall submit each report required by this section, covering each 24-hour period beginning at 0900 local time of each day and ending at 0900 local time on the next day, to the FAA office in Oklahoma City, Oklahoma. Each report of occurrences during a 24-hour period shall be submitted to the collection point within the next 96 hours. However, a report due on Saturday or Sunday may be submitted on the following Monday, and a report due on a holiday may be submitted on the next work day.

[Doc. No. 19779, 45 FR 67235, Oct. 9, 1980, as amended by Amdt. 125-49, 70 FR 76979, Dec. 29, 2005]

§ 125.411 Airworthiness release or maintenance record entry.

(a) No certificate holder may operate an airplane after maintenance, preventive maintenance, or alteration is performed on the airplane unless the person performing that

maintenance, preventive maintenance, or alteration prepares or causes to be prepared -

(1) An airworthiness release; or

(2) An entry in the aircraft maintenance records in accordance with the certificate holder's manual.

(b) The airworthiness release or maintenance record entry required by paragraph (a) of this section must -

(1) Be prepared in accordance with the procedures set forth in the certificate holder's manual;

(2) Include a certification that -

(i) The work was performed in accordance with the requirements of the certificate holder's manual;

(ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed;

(iii) No known condition exists that would make the airplane unairworthy; and

(iv) So far as the work performed is concerned, the airplane is in condition for safe operation; and

(3) Be signed by a person authorized in part 43 of this chapter to perform maintenance, preventive maintenance, and alteration.

(c) When an airworthiness release form is prepared, the certificate holder must give a copy to the pilot in command and keep a record of it for at least 60 days.

(d) Instead of restating each of the conditions of the certification required by paragraph (b) of this section, the certificate holder may state in its manual that the signature of a person authorized in part 43 of this chapter constitutes that certification.

Subpart M - Continued Airworthiness and Safety Improvements

Source:

Amdt. 125-53, 72 FR 63412, Nov. 8, 2007, unless otherwise noted.

§ 125.501 Purpose and definition.

(a) This subpart requires operators to support the continued airworthiness of each airplane. These requirements may include, but are not limited to, revising the inspection program, incorporating design changes, and incorporating revisions to Instructions for Continued Airworthiness.

(b) For purposes of this subpart, the "FAA Oversight Office" is the aircraft certification office or office of the Transport Airplane Directorate with oversight responsibility for the relevant type certificate or supplemental type certificate, as determined by the Administrator.

§ 125.503 [Reserved]

§ 125.505 Repairs assessment for pressurized fuselages.

(a) No person may operate an Airbus Model A300 (excluding the -600 series), British Aerospace Model BAC 1-11, Boeing Model 707, 720, 727, 737 or 747, McDonnell Douglas Model DC-8, DC-9/MD-80 or DC-10, Fokker Model F28, or Lockheed Model L-1011 beyond the applicable flight cycle implementation time specified below, or May 25, 2001, whichever occurs later, unless operations specifications have been issued to reference repair assessment guidelines applicable to the fuselage pressure boundary (fuselage skin, door skin, and bulkhead webs), and those guidelines are incorporated in its maintenance program. The repair assessment guidelines must be approved by the FAA Aircraft Certification Office (ACO), or office of the Transport Airplane Directorate, having cognizance over the type certificate for the affected airplane.

(1) For the Airbus Model A300 (excluding the -600 series), the flight cycle implementation time is:

(i) Model B2: 36,000 flights.

(ii) Model B4-100 (including Model B4-2C): 30,000 flights above the window line, and 36,000 flights below the window line.

(iii) Model B4-200: 25,500 flights above the window line, and 34,000 flights below the window line.

(2) For all models of the British Aerospace BAC 1-11, the flight cycle implementation time is 60,000 flights.

(3) For all models of the Boeing 707, the flight cycle implementation time is 15,000 flights.

(4) For all models of the Boeing 720, the flight cycle implementation time is 23,000 flights.

(5) For all models of the Boeing 727, the flight cycle implementation time is 45,000 flights.

(6) For all models of the Boeing 737, the flight cycle implementation time is 60,000 flights.

(7) For all models of the Boeing 747, the flight cycle implementation time is 15,000 flights.

(8) For all models of the McDonnell Douglas DC-8, the flight cycle implementation time is 30,000 flights.

(9) For all models of the McDonnell Douglas DC-9/MD-80, the flight cycle implementation time is 60,000 flights.

(10) For all models of the McDonnell Douglas DC-10, the flight cycle implementation time is 30,000 flights.

(11) For all models of the Lockheed L-1011, the flight cycle implementation time is 27,000 flights.

(12) For the Fokker F-28 Mark, 1000, 2000, 3000, and 4000, the flight cycle implementation time is 60,000 flights.

(b) [Reserved]

[Doc. No. 29104, 65 FR 24126, Apr. 25, 2000; 65 FR 50744, Aug. 21, 2000, as amended by Amdt. 125-36, 66 FR 23131, May 7, 2001; Amdt. 125-40, 67 FR 72834, Dec. 9, 2002; Amdt. 125-46,

69 FR 45942, July 30, 2004. Redesignated by Amdt. 125-53, 72 FR 63412, Nov. 8, 2007]

§ 125.507 Fuel tank system inspection program.

(a) Except as provided in paragraph (g) of this section, this section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity, have -

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7500 pounds or more.

(b) For each airplane on which an auxiliary fuel tank is installed under a field approval, before June 16, 2008, the certificate holder must submit to the FAA Oversight Office proposed maintenance instructions for the tank that meet the requirements of Special Federal Aviation Regulation No. 88 (SFAR 88) of this chapter.

(c) After December 16, 2008, no certificate holder may operate an airplane identified in paragraph (a) of this section unless the inspection program for that airplane has been revised to include applicable inspections, procedures, and limitations for fuel tank systems.

(d) The proposed fuel tank system inspection program revisions must be based on fuel tank system Instructions for Continued Airworthiness (ICA) that have been developed in accordance with the applicable provisions of SFAR 88 of this chapter or § 25.1529 and part 25, Appendix H, of this chapter, in effect on June 6, 2001 (including those developed for auxiliary fuel tanks, if any, installed under supplemental type certificates or other design approval) and that have been approved by the FAA Oversight Office.

(e) After December 16, 2008, before returning an aircraft to service after any alteration for which fuel tank ICA are developed under SFAR 88, or under § 25.1529 in effect on June 6, 2001, the certificate holder must include in the inspection program for the airplane inspections and procedures for the fuel tank system based on those ICA.

(f) The fuel tank system inspection program changes identified in paragraphs (d) and (e) of this section and any later fuel tank system revisions must be submitted to the Principal Inspector for review and approval.

(g) This section does not apply to the following airplane models:

- (1) Bombardier CL-44
- (2) Concorde
- (3) deHavilland D.H. 106 Comet 4C
- (4) VFW-Vereinigte Flugtechnische Werk VFW-614
- (5) Ilyushin Aviation IL 96T
- (6) Bristol Aircraft Britannia 305
- (7) Handley Page Herald Type 300
- (8) Avions Marcel Dassault - Breguet Aviation Mercure 100C
- (9) Airbus Caravelle
- (10) Lockheed L-300

§ 125.509 Flammability reduction means.

(a) *Applicability.* Except as provided in paragraph (m) of this section, this section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity have:

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7,500 pounds or more.

(b) *New Production Airplanes.* Except in accordance with § 125.201, no person may operate an airplane identified in Table 1 of this section (including all-cargo airplanes) for which the State of Manufacture issued the original certificate of airworthiness or export airworthiness approval after December 27, 2010 unless an Ignition Mitigation Means (IMM) or Flammability Reduction Means (FRM) meeting the requirements of § 26.33 of this chapter is operational.

Table 1

| Model - Boeing | Model - Airbus |
|----------------|-------------------------------|
| 747 Series | A318, A319, A320, A321 Series |
| 737 Series | A330, A340 Series |
| 777 Series | |
| 767 Series | |

(c) *Auxiliary Fuel Tanks.* After the applicable date stated in paragraph (e) of this section, no person may operate any airplane subject to § 26.33 of this chapter that has an Auxiliary Fuel Tank installed pursuant to a field approval, unless the following requirements are met:

(1) The person complies with 14 CFR 26.35 by the applicable date stated in that section.

(2) The person installs Flammability Impact Mitigation Means (FIMM), if applicable, that is approved by the FAA Oversight Office.

(3) Except in accordance with § 125.201, the FIMM, if applicable, are operational.

(d) *Retrofit.* Except as provided in paragraph (j) of this section, after the dates specified in paragraph (e) of this section, no person may operate an airplane to which this

section applies unless the requirements of paragraphs (d)(1) and (d)(2) of this section are met.

(1) Ignition Mitigation Means (IMM), Flammability Reduction Means (FRM), or FIMM, if required by §§ 26.33, 26.35, or 26.37 of this chapter, that are approved by the FAA Oversight Office, are installed within the compliance times specified in paragraph (e) of this section.

(2) Except in accordance with § 125.201 of this part, the IMM, FRM or FIMM, as applicable, are operational.

(e) *Compliance Times.* The installations required by paragraph (d) of this section must be accomplished no later than the applicable dates specified in paragraph (e)(1), (e)(2) or (e)(3) of this section.

(1) Fifty percent of each person's fleet of airplanes subject to paragraph (d)(1) of this section must be modified no later than December 26, 2014.

(2) One hundred percent of each person's fleet of airplanes subject to paragraph (d)(1) of this section must be modified no later than December 26, 2017.

(3) For those persons that have only one airplane of a model identified in Table 1 of this section, the airplane must be modified no later than December 26, 2017.

(f) *Compliance after Installation.* Except in accordance with § 125.201, no person may -

(1) Operate an airplane on which IMM or FRM has been installed before the dates specified in paragraph (e) of this section unless the IMM or FRM is operational, or

(2) Deactivate or remove an IMM or FRM once installed unless it is replaced by a means that complies with paragraph (d) of this section.

(g) *Inspection Program Revisions.* No person may operate an airplane for which airworthiness limitations have been approved by the FAA Oversight Office in accordance with §§ 26.33, 26.35, or 26.37 of this chapter after the airplane is modified in accordance with paragraph (d) of this section unless the inspection program for that airplane is revised to include those applicable airworthiness limitations.

(h) After the inspection program is revised as required by paragraph (g) of this section, before returning an airplane to service after any alteration for which airworthiness limitations are required by §§ 25.981, 26.33, 26.35, or 26.37 of this chapter, the person must revise the inspection program for the airplane to include those airworthiness limitations.

(i) The inspection program changes identified in paragraphs (g) and (h) of this section must be submitted to the operator's assigned Flight Standards Office responsible for review and approval prior to incorporation.

(j) The requirements of paragraph (d) of this section do not apply to airplanes operated in all-cargo service, but those airplanes are subject to paragraph (f) of this section.

(k) After the date by which any person is required by this section to modify 100 percent of the affected fleet, no person may operate in passenger service any airplane model specified in Table 2 of this section unless the airplane has been modified to comply with § 26.33(c) of this chapter.

Table 2

| Model - Boeing | Model - Airbus |
|----------------|--------------------------------|
| 747 Series | A318, A319, A320, A321 Series. |
| 737 Series | A300, A310 Series. |
| 777 Series | A330, A340 Series. |
| 767 Series | |
| 757 Series | |

(l) No person may operate any airplane on which an auxiliary fuel tank is installed after December 26, 2017 unless the FAA has certified the tank as compliant with § 25.981 of this chapter, in effect on December 26, 2008.

(m) *Exclusions.* The requirements of this section do not apply to the following airplane models:

- (1) Convair CV-240, 340, 440, including turbine powered conversions.
- (2) Lockheed L-188 Electra.
- (3) Vickers VC-10.
- (4) Douglas DC-3, including turbine powered conversions.
- (5) Bombardier CL-44.
- (6) Mitsubishi YS-11.
- (7) BAC 1-11.
- (8) Concorde.
- (9) deHavilland D.H. 106 Comet 4C.

- (10) VFW - Vereinigte Flugtechnische VFW-614.
- (11) Ilyushin Aviation IL 96T.
- (12) Bristol Aircraft Britannia 305.
- (13) Handley Page Herald Type 300.
- (14) Avions Marcel Dassault - Breguet Aviation Mercure 100C.
- (15) Airbus Caravelle.
- (16) Fokker F-27/Fairchild Hiller FH-227.
- (17) Lockheed L-300.

[Doc. No. FAA-2005-22997, 73 FR 42502, July 21, 2008, as amended by Amdt. 125-57, 74 FR 31619, July 2, 2009]

Appendix A to Part 125 - Additional Emergency Equipment

(a) *Means for emergency evacuation.* Each passenger-carrying landplane emergency exit (other than over-the-wing)

that is more than 6 feet from the ground with the airplane on the ground and the landing gear extended must have an approved means to assist the occupants in descending to the ground. The assisting means for a floor level emergency exit must meet the requirements of § 25.809(f)(1) of this chapter in effect on April 30, 1972, except that, for any airplane for which the application for the type certificate was filed after that date, it must meet the requirements under which the airplane was type certificated. An assisting means that deploys automatically must be armed during taxiing, takeoffs, and landings. However, if the Administrator finds that the design of the exit makes compliance impractical, the Administrator may grant a deviation from the requirement of automatic deployment if the assisting means automatically erects upon deployment and, with respect to required emergency exits, if an emergency evacuation demonstration is conducted in accordance with § 125.189. This paragraph does not apply to the rear window emergency exit of DC-3 airplanes operated with less than 36 occupants, including crewmembers, and less than five exits authorized for passenger use.

(b) *Interior emergency exit marking.* The following must be complied with for each passenger-carrying airplane:

(1) Each passenger emergency exit, its means of access, and means of opening must be conspicuously marked. The identity and location of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin. The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle. There must be a locating sign -

(i) Above the aisle near each over-the-wing passenger emergency exit, or at another ceiling location if it is more practical because of low headroom;

(ii) Next to each floor level passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from that sign; and

(iii) On each bulkhead or divider that prevents fore and aft vision along the passenger cabin, to indicate emergency exits beyond and obscured by it, except that if this is not possible the sign may be placed at another appropriate location.

(2) Each passenger emergency exit marking and each locating sign must meet the following:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the requirements of § 25.812(b) of this chapter in effect on April 30, 1972. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts. The colors may be reversed if it increases the emergency illumination of the passenger compartment. However, the Administrator may authorize deviation from the 2-inch background requirements if the Administrator finds that special circumstances exist that make compliance impractical and that the proposed deviation provides an equivalent level of safety.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the interior emergency exit marking requirements under which the airplane was type certificated. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 250 microlamberts.

(c) *Lighting for interior emergency exit markings.* Each passenger-carrying airplane must have an emergency lighting system, independent of the main lighting system. However, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system. The emergency lighting system must -

(1) Illuminate each passenger exit marking and locating sign; and

(2) Provide enough general lighting in the passenger cabin so that the average illumination, when measured at 40-inch intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.05 foot-candles.

(d) *Emergency light operation.* Except for lights forming part of emergency lighting subsystems provided in compliance with § 25.812(g) of this chapter (as prescribed in paragraph (h) of this section) that serve no more than one assist means, are independent of the airplane's main emergency lighting systems, and are automatically activated when the assist means is deployed, each light required by paragraphs (c) and (h) must comply with the following:

(1) Each light must be operable manually and must operate automatically from the independent lighting system -

(i) In a crash landing; or

(ii) Whenever the airplane's normal electric power to the light is interrupted.

(2) Each light must -

(i) Be operable manually from the flightcrew station and from a point in the passenger compartment that is readily accessible to a normal flight attendant seat;

(ii) Have a means to prevent inadvertent operation of the manual controls; and

(iii) When armed or turned on at either station, remain lighted or become lighted upon interruption of the airplane's normal electric power.

Each light must be armed or turned on during taxiing, takeoff, and landing. In showing compliance with this paragraph, a transverse vertical separation of the fuselage need not be considered.

(3) Each light must provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing.

(e) *Emergency exit operating handles.* (1) For a passenger-carrying airplane for which the application for the type certificate was filed prior to May 1, 1972, the location of each passenger emergency exit operating handle and instructions

for opening the exit must be shown by a marking on or near the exit that is readable from a distance of 30 inches. In addition, for each Type I and Type II emergency exit with a locking mechanism released by rotary motion of the handle, the instructions for opening must be shown by -

(i) A red arrow with a shaft at least $\frac{1}{8}$ inch wide and a head twice the width of the shaft, extending along at least 70 degrees of arc at a radius approximately equal to $\frac{1}{2}$ of the handle length; and

(ii) The word "open" in red letters 1 inch high placed horizontally near the head of the arrow.

(2) For a passenger-carrying airplane for which the application for the type certificate was filed on or after May 1, 1972, the location of each passenger emergency exit operating handle and instructions for opening the exit must be shown in accordance with the requirements under which the airplane was type certificated. On these airplanes, no operating handle or operating handle cover may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts.

(f) *Emergency exit access.* Access to emergency exits must be provided as follows for each passenger-carrying airplane:

(1) Each passageway between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 20 inches wide.

(2) There must be enough space next to each Type I or Type II emergency exit to allow a crewmember to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in paragraph (f) (1) of this section. However, the Administrator may authorize deviation from this requirement for an airplane certificated under the provisions of part 4b of the Civil Air Regulations in effect before December 20, 1951, if the Administrator finds that special circumstances exist that provide an equivalent level of safety.

(3) There must be access from the main aisle to each Type III and Type IV exit. The access from the aisle to these exits must not be obstructed by seats, berths, or other protrusions in a manner that would reduce the effectiveness of the exit. In addition -

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the access must meet the requirements of § 25.813(c) of this chapter in effect on April 30, 1972; and

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the access must meet the emergency exit access requirements under which the airplane was certificated.

(4) If it is necessary to pass through a passageway between passenger compartments to reach any required emergency exit from any seat in the passenger cabin, the passageway must not be obstructed. However, curtains may be used if they allow free entry through the passageway.

(5) No door may be installed in any partition between passenger compartments.

(6) If it is necessary to pass through a doorway separating the passenger cabin from other areas to reach any required emergency exit from any passenger seat, the door must have a means to latch it in open position, and the door must be latched open during each takeoff and landing. The latching means must be able to withstand the loads imposed upon it when the door is subjected to the ultimate interior forces, relative to the surrounding structure, listed in § 25.561(b) of this chapter.

(g) *Exterior exit markings.* Each passenger emergency exit and the means of opening that exit from the outside must be marked on the outside of the airplane. There must be a 2-inch colored band outlining each passenger emergency exit on the side of the fuselage. Each outside marking, including the band, must be readily distinguishable from the surrounding fuselage area by contrast in color. The markings must comply with the following:

(1) If the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent. "Reflectance" is the ratio of the luminous flux reflected by a body to the luminous flux it receives.

(2) If the reflectance of the darker color is greater than 15 percent, at least a 30 percent difference between its reflectance and the reflectance of the lighter color must be provided.

(3) Exits that are not in the side of the fuselage must have the external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background color, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side.

(h) *Exterior emergency lighting and escape route.* (1) Each passenger-carrying airplane must be equipped with exterior lighting that meets the following requirements:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the requirements of § 25.812(f) and (g) of this chapter in effect on April 30, 1972.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the exterior emergency lighting requirements under which the airplane was type certificated.

(2) Each passenger-carrying airplane must be equipped with a slip-resistant escape route that meets the following requirements:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the requirements of § 25.803(e) of this chapter in effect on April 30, 1972.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the slip-resistant escape route requirements under which the airplane was type certificated.

(i) *Floor level exits.* Each floor level door or exit in the side of the fuselage (other than those leading into a cargo or baggage compartment that is not accessible from the passenger cabin) that is 44 or more inches high and 20 or more inches wide, but not wider than 46 inches, each passenger ventral exit

(except the ventral exits on M-404 and CV-240 airplanes) and each tail cone exit must meet the requirements of this section for floor level emergency exits. However, the Administrator may grant a deviation from this paragraph if the Administrator finds that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.

(j) *Additional emergency exits.* Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits must meet all of the applicable provisions of this section except paragraph (f), (1), (2), and (3) and must be readily accessible.

(k) On each large passenger-carrying turbojet-powered airplane, each ventral exit and tailcone exit must be -

(1) Designed and constructed so that it cannot be opened during flight; and

(2) Marked with a placard readable from a distance of 30 inches and installed at a conspicuous location near the means of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.

Appendix B to Part 125 - Criteria for Demonstration of Emergency Evacuation Procedures Under § 125.189

(a) *Aborted takeoff demonstration.* (1) The demonstration must be conducted either during the dark of the night or during daylight with the dark of the night simulated. If the demonstration is conducted indoors during daylight hours, it must be conducted with each window covered and each door closed to minimize the daylight effect. Illumination on the floor or ground may be used, but it must be kept low and shielded against shining into the airplane's windows or doors.

(2) The airplane must be in a normal ground attitude with landing gear extended.

(3) Stands or ramps may be used for descent from the wing to the ground. Safety equipment such as mats or inverted life rafts may be placed on the ground to protect participants. No other equipment that is not part of the airplane's emergency evacuation equipment may be used to aid the participants in reaching the ground.

(4) The airplane's normal electric power sources must be deenergized.

(5) All emergency equipment for the type of passenger-carrying operation involved must be installed in accordance with the certificate holder's manual.

(6) Each external door and exit and each internal door or curtain must be in position to simulate a normal takeoff.

(7) A representative passenger load of persons in normal health must be used. At least 30 percent must be females. At least 5 percent must be over 60 years of age with a proportionate number of females. At least 5 percent, but not more than 10 percent, must be children under 12 years of age, prorated through that age group. Three life-size dolls, not included as part of the total passenger load, must be carried by passengers to simulate live infants 2 years old or younger. Crewmembers, mechanics, and training personnel

who maintain or operate the airplane in the normal course of their duties may not be used as passengers.

(8) No passenger may be assigned a specific seat except as the Administrator may require. Except as required by item (12) of this paragraph, no employee of the certificate holder may be seated next to an emergency exit.

(9) Seat belts and shoulder harnesses (as required) must be fastened.

(10) Before the start of the demonstration, approximately one-half of the total average amount of carry-on baggage, blankets, pillows, and other similar articles must be distributed at several locations in the aisles and emergency exit access ways to create minor obstructions.

(11) The seating density and arrangement of the airplane must be representative of the highest capacity passenger version of that airplane the certificate holder operates or proposes to operate.

(12) Each crewmember must be a member of a regularly scheduled line crew, must be seated in that crewmember's normally assigned seat for takeoff, and must remain in that seat until the signal for commencement of the demonstration is received.

(13) No crewmember or passenger may be given prior knowledge of the emergency exits available for the demonstration.

(14) The certificate holder may not practice, rehearse, or describe the demonstration for the participants nor may any participant have taken part in this type of demonstration within the preceding 6 months.

(15) The pretakeoff passenger briefing required by § 125.327 may be given in accordance with the certificate holder's manual. The passengers may also be warned to follow directions of crewmembers, but may not be instructed on the procedures to be followed in the demonstration.

(16) If safety equipment as allowed by item (3) of this section is provided, either all passenger and cockpit windows must be blacked out or all of the emergency exits must have safety equipment to prevent disclosure of the available emergency exits.

(17) Not more than 50 percent of the emergency exits in the sides of the fuselage of an airplane that meet all of the requirements applicable to the required emergency exits for that airplane may be used for the demonstration. Exits that are not to be used in the demonstration must have the exit handle deactivated or must be indicated by red lights, red tape or other acceptable means, placed outside the exits to indicate fire or other reason that they are unusable. The exits to be used must be representative of all of the emergency exits on the airplane and must be designated by the certificate holder, subject to approval by the Administrator. At least one floor level exit must be used.

(18) All evacuees, except those using an over-the-wing exit, must leave the airplane by a means provided as part of the airplane's equipment.

(19) The certificate holder's approved procedures and all of the emergency equipment that is normally available, including slides, ropes, lights, and megaphones, must be fully utilized during the demonstration.

(20) The evacuation time period is completed when the last occupant has evacuated the airplane and is on the ground. Evacuees using stands or ramps allowed by item (3) above are considered to be on the ground when they are on the stand or ramp: *Provided*, That the acceptance rate of the stand or ramp is no greater than the acceptance rate of the means available on the airplane for descent from the wing during an actual crash situation.

(b) *Ditching demonstration.* The demonstration must assume that daylight hours exist outside the airplane and that all required crewmembers are available for the demonstration.

(1) If the certificate holder's manual requires the use of passengers to assist in the launching of liferafts, the needed passengers must be aboard the airplane and participate in the demonstration according to the manual.

(2) A stand must be placed at each emergency exit and wing with the top of the platform at a height simulating the water level of the airplane following a ditching.

(3) After the ditching signal has been received, each evacuee must don a life vest according to the certificate holder's manual.

(4) Each liferaft must be launched and inflated according to the certificate holder's manual and all other required emergency equipment must be placed in rafts.

(5) Each evacuee must enter a liferaft and the crewmembers assigned to each liferaft must indicate the location of emergency equipment aboard the raft and describe its use.

(6) Either the airplane, a mockup of the airplane, or a floating device simulating a passenger compartment must be used.

(i) If a mockup of the airplane is used, it must be a life-size mockup of the interior and representative of the airplane

currently used by or proposed to be used by the certificate holder and must contain adequate seats for use of the evacuees. Operation of the emergency exits and the doors must closely simulate that on the airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation.

(ii) If a floating device simulating a passenger compartment is used, it must be representative, to the extent possible, of the passenger compartment of the airplane used in operations. Operation of the emergency exits and the doors must closely simulate operation on that airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation. The device must be equipped with the same survival equipment as is installed on the airplane, to accommodate all persons participating in the demonstration.

Appendix C to Part 125 - Ice Protection

If certification with ice protection provisions is desired, compliance with the following must be shown:

(a) The recommended procedures for the use of the ice protection equipment must be set forth in the Airplane Flight Manual.

(b) An analysis must be performed to establish, on the basis of the airplane's operational needs, the adequacy of the ice protection system for the various components of the airplane. In addition, tests of the ice protection system must be conducted to demonstrate that the airplane is capable of operating safely in continuous maximum and intermittent maximum icing conditions as described in appendix C of part 25 of this chapter.

(c) Compliance with all or portions of this section may be accomplished by reference, where applicable because of similarity of the designs, to analyses and tests performed by the applicant for a type certificated model.

Appendix D to Part 125 - Airplane Flight Recorder Specification

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution 4 read out |
|--|--|---|--------------------------------|--------------------------|
| Time (GMT or Frame Counter) (range 0 to 4095, sampled 1 per frame) | 24 Hrs | ±0.125% Per Hour | 0.25 (1 per 4 seconds) | 1 sec. |
| Altitude | #1,000 ft to max certificated altitude of aircraft | ±100 to ±700 ft (See Table 1, TSO-C51a) | 1 | 5# to 35# 1 |
| Airspeed | 50 KIAS to V _{SO} and V _{SO} to 1.2 V _D | ±5%, ±3% | 1 | 1 kt. |
| Heading | 360° | ±2° | 1 | 0.5° |
| Normal Acceleration (Vertical) | #3g to + 6g | ±1% of max range excluding datum error of ±5% | 8 | 0.01g. |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution ⁴ read out |
|--|--|---|--------------------------------|----------------------------------|
| Pitch Attitude | ±75° | ±2° | 1 | 0.5°. |
| Roll Attitude | ±180° | ±2° | 1 | 0.5°. |
| Radio Transmitter Keying | On-Off (Discrete) | | 1 | |
| Thrust/Power on Each Engine | Full range forward | ±2% | 1 | 0.2% 2 |
| Trailing Edge Flap or Cockpit Control Selection | Full range or each discrete position | ±3° or as pilot's Indicator | 0.5 | 0.5% 2 |
| Leading Edge Flap or Cockpit Control Selection | Full range or each discrete position | ±3° or as pilot's indicator | 0.5 | 0.5% 2 |
| Thrust Reverser Position | Stowed, in transit, and reverse (Discrete) | | 1 (per 4 seconds per engine) | |
| Ground Spoiler Position/ Speed Brake Selection | Full range or each discrete position | ±2% unless higher accuracy uniquely required | 1 | 0.2% 2. |
| Marker Beacon Passage | Discrete | | 1 | |
| Autopilot Engagement | Discrete | | 1 | |
| Longitudinal Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g |
| Pilot Input and/or Surface Position-Primary Controls (Pitch, Roll, Yaw) 3 | Full range | ±2° unless higher accuracy uniquely required | 1 | 0.2% 2. |
| Lateral Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g. |
| Pitch Trim Position | Full range | ±3% unless higher accuracy uniquely required | 1 | 0.3% 2 |
| Glideslope Deviation | ±400 Microamps | ±3% | 1 | 0.3% 2 |
| Localizer Deviation | ±400 Microamps | ±3% | 1 | 0.3% 2. |
| AFCS Mode and Engagement Status | Discrete | | 1 | |
| Radio Altitude | #20 ft to 2,500 ft | ±2 Ft or ±3% Whichever is Greater Below 500 Ft and ±5% Above 500 Ft | | 1 ft + 5% 2 above 500#. |
| Master Warning | Discrete | | 1 | |
| Main Gear Squat Switch Status | Discrete | | 1 | |
| Angle of Attack (if recorded directly) | As installed | As installed | 2 | 0.3% 2. |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution ⁴ read out |
|--|-------------------|--|--------------------------------|----------------------------------|
| Outside Air Temperature or Total Air Temperature | #50 °C to + 90 °C | ±2 °C | 0.5 | 0.3 °C |
| Hydraulics, Each System Low Pressure | Discrete | | 0.5 | or 0.5% 2. |
| Groundspeed | As Installed | Most Accurate Systems Installed (IMS Equipped Aircraft Only) | 1 | 0.2% 2. |

If additional recording capacity is available, recording of the following parameters is recommended. The parameters are listed in order of significance:

| | | | | |
|---|------------------------------|--------------|------------------------|-------|
| Drift Angle | When available. As installed | As installed | 4 | |
| Wind Speed and Direction | When available. As installed | As installed | 4 | |
| Latitude and Longitude | When available. As installed | As installed | 4 | |
| Brake pressure/Brake pedal position | As installed | As installed | 1 | |
| Additional engine parameters: | | | | |
| EPR | As installed | As installed | 1 (per engine) | |
| N 1 | As installed | As installed | 1 (per engine) | |
| N 2 | As installed | As installed | 1 (per engine) | |
| EGT | As installed | As installed | 1 (per engine) | |
| Throttle Lever Position | As installed | As installed | 1 (per engine) | |
| Fuel Flow | As installed | As installed | 1 (per engine) | |
| TCAS: | | | | |
| TA | As installed | As installed | 1 | |
| RA | As installed | As installed | 1 | |
| Sensitivity level (as selected by crew) | As installed | As installed | 2 | |
| GPWS (ground proximity warning system) | Discrete | | 1 | |
| Landing gear or gear selector position | Discrete | | 0.25 (1 per 4 seconds) | |
| DME 1 and 2 Distance | 0-200 NM; | As installed | 0.25 | 1 mi. |
| Nav 1 and 2 Frequency Selection | Full range | As installed | 0.25 | |

¹ When altitude rate is recorded. Altitude rate must have sufficient resolution and sampling to permit the derivation of altitude to 5 feet.

² Percent of full range.

³ For airplanes that can demonstrate the capability of deriving either the control input on control movement (one from the other) for all modes of operation and flight regimes, the “or” applies. For airplanes with non-mechanical control systems (fly-by-wire) the “and” applies. In airplanes with split surfaces, suitable combination of inputs is acceptable in lieu of recording each surface separately.

⁴ This column applies to aircraft manufactured after October 11, 1991.

[Doc. No. 25530, 53 FR 26150, July 11, 1988; 53 FR 30906, Aug. 16, 1988]

Appendix E to Part 125 - Airplane Flight Recorder Specifications

The recorded values must meet the designated range, resolution and accuracy requirements during static and dynamic conditions. Dynamic condition means the parameter is experiencing change at the maximum rate attainable, including the maximum rate of reversal. All data recorded must be correlated in time to within one second.

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|---|--|---|------------|---|
| 1. Time or Relative Times Counts. 1 | 24 Hrs, 0 to 4095 | ±0.125% Per Hour | 4 | 1 sec | UTC time preferred when available. Count increments each 4 seconds of system operation. |
| 2. Pressure Altitude | #1000 ft to max certificated altitude of aircraft. + 5000 ft | ±100 to ±700 ft (see table, TSO C124a or TSO C51a) | 1 | 5# to 35# | Data should be obtained from the air data computer when practicable. |
| 3. Indicated airspeed or Calibrated airspeed | 50 KIAS or minimum value to Max V _{SO} , to 1.2 V _D | ±5% and ±3% | 1 | 1 kt | Data should be obtained from the air data computer when practicable. |
| 4. Heading (Primary flight crew reference) | 0-360° and Discrete “true” or “mag” | ±2° | 1 | 0.5° | When true or magnetic heading can be selected as the primary heading reference, a discrete indicating selection must be recorded. |
| 5. Normal Acceleration (Vertical) 9 | #3g to + 6g | ±1% of max range excluding datum error of ±5% | 0.125 | 0.004g. | |
| 6. Pitch Attitude | ±75° | ±2° | 1 or 0.25 for airplanes operated under § 125.226(f) | 0.5° | A sampling rate of 0.25 is recommended. |
| 7. Roll Attitude 2 | ±180° | ±2° | 1 or 0.5 for airplanes operated under § 121.344(f) | 0.5° | A sampling rate of 0.5 is recommended. |
| 8. Manual Radio Transmitter Keying or CVR/DFDR synchronization reference | On-Off (Discrete) None. | | 1 | | Preferably each crew member but one discrete acceptable for all transmission provided the CVR/FDR system complies with |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|------------------------|---|---|--------------------|---|
| | | | | | TSO C124a CVR synchronization requirements (paragraph 4.2.1 ED-55). |
| 9. Thrust/Power on each engine - primary flight crew reference | Full Range Forward | ±2% | 1 (per engine) | 0.3% of full range | Sufficient parameters (e.g., EPR, N1 or Torque, NP) as appropriate to the particular engine being recorded to determine power in forward and reverse thrust, including potential overspeed condition. |
| 10. Autopilot Engagement | Discrete “on” or “off” | | 1. | | |
| 11. Longitudinal Acceleration | ±1g | ±1.5% max. range excluding datum error of ±5% | 0.25 | 0.004g. | |
| 12a. Pitch control(s) position (nonfly-by-wire systems) 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 125.226(f) | 0.5% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 12b. Pitch control(s) position (fly-by-wire systems) 3 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 125.226(f) | 0.2% of full range | |
| 13a. Lateral control position(s) (nonfly-by-wire) 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 125.226(f) | 0.2% of full range | For airplanes that have a flight control break away capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|------------|--|---|--------------------|--|
| | | | | | to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 13b. Lateral control position(s) (fly-by-wire) 4 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 125.226(f) | 0.2% of full range | |
| 14a. Yaw control position(s) (nonfly-by-wire) 5 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 | 0.3% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5. |
| 14b. Yaw control position(s) (fly-by-wire) 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 | 0.2% of full range | |
| 15. Pitch control surface(s) position 6 18 | Full range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 125.226(f) | 0.3% of full range | For airplanes fitted with multiple or split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 16. Lateral control surface(s) position 7 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 125.226(f) | 0.2% of full range | A suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|--|--|--------------------|---|
| | | | | | of 0.5 or 0.25, as applicable. |
| 17. Yaw control surface(s) position 8 18 | Full range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 | 0.2% of full range | For airplanes fitted with multiple or split surfaces, a suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5. |
| 18. Lateral Acceleration | $\pm 1g$ | $\pm 1.5\%$ max. range excluding datum error of $\pm 5\%$ | 0.25 | 0.004g. | |
| 19. Pitch Trim Surface Position | Full Range | $\pm 3^\circ$ Unless Higher Accuracy Uniquely Required | 1 | 0.6% of full range | |
| 20. Trailing Edge Flap or Cockpit Control Selection. 10 | Full Range or Each Position (discrete) | $\pm 3^\circ$ or as Pilot's indicator | 2 | 0.5% of full range | Flap position and cockpit control may each be sampled at 4 second intervals, to give a data point every 2 seconds. |
| 21. Leading Edge Flap or Cockpit Control Selection. 11 | Full Range or Each Discrete Position | $\pm 3^\circ$ or as Pilot's indicator and sufficient to determine each discrete position | 2 | 0.5% of full range | Left and right sides, or flap position and cockpit control may each be sampled at 4 second intervals, so as to give a data point every 2 seconds. |
| 22. Each Thrust Reverser Position (or equivalent for propeller airplane) | Stowed, In Transit, and Reverse (Discrete) | | 1 (per engine). | | Turbo-jet - 2 discretes enable the 3 states to be determined. Turbo-prop - 1 discrete. |
| 23. Ground Spoiler Position or Speed Brake Selection 12 | Full Range or Each Position (discrete) | $\pm 2^\circ$ Unless higher accuracy uniquely required | 1 or 0.5 for airplanes operated under § 125.226(f) | 0.2% of full range | |
| 24. Outside Air Temperature or Total Air Temperature. | #50 °C to + 90 °C | $\pm 2^\circ\text{C}$ | 2 | 0.3 °C. | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---|---|-------------------------------|------------------------|---|
| 13 | | | | | |
| 25. Autopilot/ Autothrottle/ AFCS Mode and Engagement Status | A suitable combination of discretets | | 1 | | Discretets should show which systems are engaged and which primary modes are controlling the flight path and speed of the aircraft. |
| 26. Radio Altitude 14 | #20 ft to 2,500 ft | ± 2 ft or $\pm 3\%$ Whichever is Greater Below 500 ft and $\pm 5\%$ above 500 ft | 1 | 1 ft + 5% Above 500 ft | For autoland/ category 3 operations. Each radio altimeter should be recorded, but arranged so that at least one is recorded each second. |
| 27. Localizer Deviation, MLS Azimuth, or GPS Lateral Deviation | ± 400 Microamps or available sensor range as installed $\pm 62^\circ$ | As installed. $\pm 3\%$ recommended | 1 | 0.3% of full range | For autoland/ category 3 operations. each system should be recorded but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded. |
| 28. Glideslope Deviation, MLS Elevation, or GPS Vertical Deviation | ± 400 Microamps or available sensor range as installed. 0.9 to $+ 30^\circ$ | As installed $\pm 3\%$ recommended | 1 | 0.3% of full range | For autoland/ category 3 operations. each system should be recorded but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded. |
| 29. Marker Beacon Passage | Discrete "on" or "off" | | 1 | | A single discrete is acceptable for all markers. |
| 30. Master Warning | Discrete | | 1 | | Record the master warning and record each 'red' warning that cannot be determined from |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---|---------------------------------|--|-------------------------|---|
| | | | | | other parameters or from the cockpit voice recorder. |
| 31. Air/ground sensor (primary airplane system reference nose or main gear) | Discrete “air” or “ground” | | 1 (0.25 recommended). | | |
| 32. Angle of Attack (If measured directly) | As installed | As Installed | 2 or 0.5 for airplanes operated under § 125.226(f) | 0.3% of full range | If left and right sensors are available, each may be recorded at 4 or 1 second intervals, as appropriate, so as to give a data point at 2 seconds or 0.5 second, as required. |
| 33. Hydraulic Pressure Low, Each System | Discrete or available sensor range, “low” or “normal” | ±5% | 2 | 0.5% of full range. | |
| 34. Groundspeed | As Installed | Most Accurate Systems Installed | 1 | 0.2% of full range. | |
| 35. GPWS (ground proximity warning system) | Discrete “warning” or “off” | | 1 | | A suitable combination of discrettes unless recorder capacity is limited in which case a single discrete for all modes is acceptable. |
| 36. Landing Gear Position or Landing gear cockpit control selection | Discrete | | 4 | | A suitable combination of discrettes should be recorded. |
| 37. Drift Angle. 15 | As installed | As installed | 4 | 0.1%. | |
| 38. Wind Speed and Direction | As installed | As installed | 4 | 1 knot, and 1.0°. | |
| 39. Latitude and Longitude | As installed | As installed | 4 | 0.002°, or as installed | Provided by the Primary Navigation System Reference. Where capacity permits Latitude/ longitude resolution should be 0.0002°. |
| 40. Stick shaker and pusher activation | Discrete(s) “on” or “off” | | 1 | | A suitable combination of discrettes to determine activation. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|-----------------------------|-------------------------|-------------------------------|---------------------|--|
| 41. Windshear Detection | Discrete “warning” or “off” | | 1 | | |
| 42. Throttle/power lever position. 16 | Full Range | ±2% | 1 for each lever | 2% of full range | For airplanes with non-mechanically linked cockpit engine controls. |
| 43. Additional Engine Parameters | As installed | As installed | Each engine each second | 2% of full range | Where capacity permits, the preferred priority is indicated vibration level, N2, EGT, Fuel Flow, Fuel Cut-off lever position and N3, unless engine manufacturer recommends otherwise. |
| 44. Traffic Alert and Collision Avoidance System (TCAS) | Discrettes | As installed | 1 | | A suitable combination of discrettes should be recorded to determine the status of-Combined Control, Vertical Control, Up Advisory, and Down Advisory. (ref. ARINC Characteristic 735 Attachment 6E, TCAS VERTICAL RA DATA OUTPUT WORD.) |
| 45. DME 1 and 2 Distance | 0-200 NM | As installed | 4 | 1 NM | 1 mile. |
| 46. Nav 1 and 2 Selected Frequency | Full range | As installed | 4 | | Sufficient to determine selected frequency |
| 47. Selected barometric setting | Full range | ±5% | (1 per 64 sec.) | 0.2% of full range. | |
| 48. Selected Altitude | Full range | ±5% | 1 | 100 ft. | |
| 49. Selected speed | Full range | ±5% | 1 | 1 knot. | |
| 50. Selected Mach | Full range | ±5% | 1 | .01. | |
| 51. Selected vertical speed | Full range | ±5% | 1 | 100 ft/min. | |
| 52. Selected heading | Full range | ±5% | 1 | 1°. | |
| 53. Selected flight path | Full range | ±5% | 1 | 1°. | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|---|--|-------------------------------|---------------------|--|
| 54. Selected decision height | Full range | ±5% | 64 | 1 ft. | |
| 55. EFIS display format | Discrete(s) | | 4 | | Discretes should show the display system status (e.g., off, normal, fail, composite, sector, plan, nav aids, weather radar, range, copy). |
| 56. Multi-function/ Engine Alerts Display format | Discrete(s) | | 4 | | Discretes should show the display system status (e.g., off, normal, fail, and the identity of display pages for emergency procedures, need not be recorded). |
| 57. Thrust command. 17 | Full Range | ±2% | 2 | 2% of full range | |
| 58. Thrust target | Full range | ±2% | 4 | 2% of full range. | |
| 59. Fuel quantity in CG trim tank | Full range | ±5% | (1 per 64 sec.) | 1% of full range. | |
| 60. Primary Navigation System Reference | Discrete GPS, INS, VOR/DME, MLS, Localizer Glideslope | | 4 | | A suitable combination of discretes to determine the Primary Navigation System reference. |
| 61. Ice Detection | Discrete "ice" or "no ice" | | 4 | | |
| 62. Engine warning each engine vibration | Discrete | | 1 | | |
| 63. Engine warning each engine over temp | Discrete | | 1 | | |
| 64. Engine warning each engine oil pressure low | Discrete | | 1 | | |
| 65. Engine warning each engine over speed | Discrete | | 1 | | |
| 66. Yaw Trim Surface Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 2 | 0.3% of full range. | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---------------------------------------|--|-------------------------------|---------------------|---|
| 67. Roll Trim Surface Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 2 | 0.3% of full range. | |
| 68. Brake Pressure (left and right) | As installed | ±5% | 1 | | To determine braking effort applied by pilots or by autobrakes. |
| 69. Brake Pedal Application (left and right) | Discrete or Analog "applied" or "off" | ±5% (Analog) | 1 | | To determine braking applied by pilots. |
| 70. Yaw or sideslip angle | Full Range | ±5% | 1 | 0,5°. | |
| 71. Engine bleed valve position | Discrete "open" or "closed" | | 4 | | |
| 72. De-icing or anti-icing system selection | Discrete "on" or "off" | | 4 | | |
| 73. Computed center of gravity | Full Range | ±5% | (1 per 64 sec.) | 1% of full range. | |
| 74. AC electrical bus status | Discrete "power" or "off" | | 4 | | Each bus. |
| 75. DC electrical bus status | Discrete "power" or "off" | | 4 | | Each bus. |
| 76. APU bleed valve position | Discrete "open" or "closed" | | 4. | | |
| 77. Hydraulic Pressure (each system) | Full range | ±5% | 2 | 100 psi. | |
| 78. Loss of cabin pressure | Discrete "loss" or "normal" | | 1. | | |
| 79. Computer failure (critical flight and engine control systems) | Discrete "fail" or "normal" | | 4. | | |
| 80. Heads-up display (when an information source is installed) | Discrete(s) "on" or "off" | | 4. | | |
| 81. Para-visual display (when an information source is installed) | Discrete(s) "on" or "off" | | 1. | | |
| 82. Cockpit trim control input position - pitch | Full Range | ±5% | 1 | 0.2% of full range | Where mechanical means for control inputs are not available, cockpit display trim positions should be recorded. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|-------------------------|-------------------------------|---------------------|---|
| 83. Cockpit trim control input position - roll | Full Range | ±5% | 1 | 0.7% of full range | Where mechanical means for control inputs are not available, cockpit display trim position should be recorded. |
| 84. Cockpit trim control input position - yaw | Full Range | ±5% | 1 | 0.3% of full range | Where mechanical means for control input are not available, cockpit display trim positions should be recorded. |
| 85. Trailing edge flap and cockpit flap control position | Full Range | ±5% | 2 | 0.5% of full range | Trailing edge flaps and cockpit flap control position may each be sampled alternately at 4 second intervals to provide a sample each 0.5 second. |
| 86. Leading edge flap and cockpit flap control position | Full Range or Discrete | ±5% | 1 | 0.5% of full range. | |
| 87. Ground spoiler position and speed brake selection | Full Range or Discrete | ±5% | 0.5 | 0.3% of full range | |
| 88. All cockpit flight control input forces (control wheel, control column, rudder pedal) 18,19 | Full range Control wheel ±70 lbs Control column ±85 lbs Rudder pedal ±165 lbs | ±5% | 1 | 0.3% of full range | For fly-by-wire flight control systems, where flight control surface position is a function of the displacement of the control input device only, it is not necessary to record this parameter. For airplanes that have a flight control break away capability that allows either pilot to operate the control independently, record both control force inputs. The control force inputs may be sampled alternately once per 2 seconds to produce the sampling interval of 1. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---------------------------------|-------------------|-------------------------|-------------------------------|------------------|---------|
| 89. Yaw damper status | Discrete (on/off) | 0.5 | | | |
| 90. Yaw damper command | Full range | As installed | 0.5 | 1% of full range | |
| 91. Standby rudder valve status | Discrete | 0.5 | | | |

¹ For A300 B2/B4 airplanes, resolution = 6 seconds.

² For A330/A340 series airplanes, resolution = 0.703°.

³ For A318/A319/A320/A321 series airplanes, resolution = 0.275% (0.088°>0.064°)

For A330/A340 series airplanes, resolution = 2.20% (0.703°>0.064°)

⁴ For A318/A319/A320/A321 series airplanes, resolution = 0.22% (0.088°>0.080°)

For A330/A340 series airplanes, resolution = 1.76% (0.703°>0.080°)

⁵ For A330/A340 series airplanes, resolution = 1.18% (0.703° >0.120°).

For A330/A340 series airplanes, seconds per sampling interval = 1.

⁶ For A330/A340 series airplanes, resolution = 0.783% (0.352°>0.090°)

⁷ For A330/A340 series airplanes, aileron resolution = 0.704% (0.352°>0.100°). For A330/A340 series airplanes, spoiler resolution = 1.406% (0.703°>0.100°).

⁸ For A330/A340 series airplanes, resolution = 0.30% (0.176°>0.12°)

For A330/A340 series airplanes, seconds per sampling interval = 1

⁹ For B-717 series airplanes, resolution = .005g. For Dassault F900C/F900EX airplanes, resolution = .007g.

¹⁰ For A330/A340 series airplanes, resolution = 1.05% (0.250°>0.120°)

¹¹ For A330/A340 series airplanes, resolution = 1.05% (0.250°>0.120°). For A330 B2/B4 series airplanes, resolution = 0.92% (0.230°>0.125°).

¹² For A330/A340 series airplanes, spoiler resolution = 1.406% (0.703°>0.100°).

¹³ For A330/A340 series airplanes, resolution = 0.5°C.

¹⁴ For Dassault F900C/F900EX airplanes, Radio Altitude resolution = 1.25 ft.

¹⁵ For A330/A340 series airplanes, resolution = 0.352 degrees.

¹⁶ For A318/A319/A320/A321 series airplanes, resolution = 4.32%. For A330/A340 series airplanes, resolution is 3.27%

of full range for throttle lever angle (TLA); for reverse thrust, reverse throttle lever angle (RLA) resolution is nonlinear over the active reverse thrust range, which is 51.54 degrees to 96.14 degrees. The resolved element is 2.8 degrees uniformly over the entire active reverse thrust range, or 2.9% of the full range value of 96.14 degrees.

¹⁷ For A318/A319/A320/A321 series airplanes, with IAE engines, resolution = 2.58%.

¹⁸ For all aircraft manufactured on or after December 6, 2010, the seconds per sampling interval is 0.125. Each input must be recorded at this rate. Alternately sampling inputs (interleaving) to meet this sampling interval is prohibited.

¹⁹ For all 737 model airplanes manufactured between August 19, 2000, and April 6, 2010: The seconds per sampling interval is 0.5 per control input; the remarks regarding the sampling rate do not apply; a single control wheel force transducer installed on the left cable control is acceptable provided the left and right control wheel positions also are recorded.

[Doc. No. 28109, 62 FR 38390, July 17, 1997; 62 FR 48135, Sept. 12, 1997, as amended by Amdt. 125-32, 64 FR 46121, Aug. 24, 1999; 65 FR 2295, Jan. 14, 2000; Amdt. 125-32, 65 FR 2295, Jan. 14, 2000; Amdt. 125-34, 65 FR 51745, Aug. 24, 2000; 65 FR 81735, Dec. 27, 2000; Amdt. 125-39, 67 FR 54323, Aug. 21, 2002; Amdt. 125-42, 68 FR 42937, July 18, 2003; 68 FR 50069, Aug. 20, 2003; 68 FR 53877, Sept. 15, 2003; Amdt. 125-54, 73 FR 12568, Mar. 7, 2008; Amdt. 125-56, 73 FR 73180, Dec. 2, 2008; Amdt. 125-60, 75 FR 17046, Apr. 5, 2010; Amdt. 125-59, 75 FR 7357, Feb. 19, 2010; Amdt. 125-62, 78 FR 39971, July 3, 2013; Docket FAA-2017-0733, Amdt. 125-67, 82 FR 34399, July 25, 2017]

PART 133 - ROTORCRAFT EXTERNAL-LOAD OPERATIONS

Authority:

49 U.S.C. 106(g), 40113, 44701-44702.

Source:

Docket No. 1529, 29 FR 603, Jan. 24, 1964, unless otherwise noted.

Subpart A - Applicability

§ 133.1 Applicability.

Except for aircraft subject to part 107 of this chapter, this part prescribes -

(a) Airworthiness certification rules for rotorcraft used in; and

(b) Operating and certification rules governing the conduct of rotorcraft external-load operations in the United States by any person.

(c) The certification rules of this part do not apply to -

(1) Rotorcraft manufacturers when developing external-load attaching means;

(2) Rotorcraft manufacturers demonstrating compliance of equipment utilized under this part or appropriate portions of part 27 or 29 of this chapter;

(3) Operations conducted by a person demonstrating compliance for the issuance of a certificate or authorization under this part;

(4) Training flights conducted in preparation for the demonstration of compliance with this part; or

(5) A Federal, State, or local government conducting operations with public aircraft.

(d) For the purpose of this part, a person other than a crewmember or a person who is essential and directly connected with the external-load operation may be carried only in approved Class D rotorcraft-load combinations.

[Doc. No. 15176, 42 FR 24198, May 12, 1977, as amended by Amdt. 133-9, 51 FR 40707, Nov. 7, 1986; Docket FAA-2015-0150, Amdt. 133-15, 81 FR 42214, June 28, 2016]

Subpart B - Certification Rules

§ 133.11 Certificate required.

(a) No person subject to this part may conduct rotorcraft external-load operations within the United States without, or in violation of the terms of, a Rotorcraft External-Load Operator Certificate issued by the Administrator under § 133.17.

(b) No person holding a Rotorcraft External-Load Operator Certificate may conduct rotorcraft external-load operations subject to this part under a business name that is not on that certificate.

[Doc. No. 15176, 42 FR 24198, May 12, 1977, as amended by Amdt. 133-7, 42 FR 32531, June 27, 1977; Amdt. 133-9, 51 FR 40707, Nov. 7, 1986]

§ 133.13 Duration of certificate.

Unless sooner surrendered, suspended, or revoked, a Rotorcraft External-Load Operator Certificate expires at the end of the twenty-fourth month after the month in which it is issued or renewed.

[Doc. No. 15176, 42 FR 24198, May 12, 1977, as amended by Amdt. 133-7, 42 FR 32531, June 27, 1977; Amdt. 133-9, 51 FR 40707, Nov. 7, 1986]

§ 133.14 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

If the holder of a certificate issued under this part permits any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of § 91.19(a) of this chapter, that operation is a basis for suspending or revoking the certificate.

[Doc. No. 12035, 38 FR 17493, July 2, 1973, as amended by Amdt. 133-10, 54 FR 34332, Aug. 18, 1989]

§ 133.15 Application for certificate issuance or renewal.

Application for an original certificate or renewal of a certificate issued under this part is made on a form, and in a manner, prescribed by the Administrator. The form may be obtained from an FAA Flight Standards District Office. The completed application is sent to the district office that has jurisdiction over the area in which the applicant's home base of operation is located.

[Doc. No. 15176, 42 FR 24198, May 12, 1977, as amended by Amdt. 133-11, 54 FR 39294, Sept. 25, 1989]

§ 133.17 Requirements for issuance of a rotorcraft external-load operator certificate.

If an applicant shows that he complies with §§ 133.19, 133.21, and 133.23, the Administrator issues a Rotorcraft External-Load Operator Certificate to him with an authorization to operate specified rotorcraft with those classes of rotorcraft-load combinations for which he complies with the applicable provisions of subpart D of this part.

§ 133.19 Rotorcraft.

(a) The applicant must have the exclusive use of at least one rotorcraft that -

(1) Was type certificated under, and meets the requirements of, part 27 or 29 of this chapter (but not necessarily with external-load-carrying attaching means installed) or of § 21.25 of this chapter for the special purpose of rotorcraft external-load operations;

(2) Complies with the certification provisions in subpart D of this part that apply to the rotorcraft-load combinations for which authorization is requested; and

(3) Has a valid standard or restricted category airworthiness certificate.

(b) For the purposes of paragraph (a) of this section, a person has exclusive use of a rotorcraft if he has the sole possession, control, and use of it for flight, as owner, or has a written agreement (including arrangements for the performance of required maintenance) giving him that possession, control, and use for at least six consecutive months.

[Doc. No. 15176, 42 FR 24198, May 12, 1977]

§ 133.21 Personnel.

(a) The applicant must hold, or have available the services of at least one person who holds, a current commercial or airline transport pilot certificate, with a rating appropriate for the rotorcraft prescribed in § 133.19, issued by the Administrator.

(b) The applicant must designate one pilot, who may be the applicant, as chief pilot for rotorcraft external-load operations. The applicant also may designate qualified pilots as assistant chief pilots to perform the functions of the chief pilot when the chief pilot is not readily available. The chief pilot and assistant chief pilots must be acceptable to the Administrator and each must hold a current Commercial or Airline Transport Pilot Certificate, with a rating appropriate for the rotorcraft prescribed in § 133.19.

(c) The holder of a Rotorcraft External-Load Operator Certificate shall report any change in designation of chief pilot or assistant chief pilot immediately to the FAA certificate-holding office. The new chief pilot must be designated and must comply with § 133.23 within 30 days or the operator may not conduct further operations under the Rotorcraft External-Load Operator Certificate unless otherwise authorized by the FAA certificate-holding office.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133-9, 51 FR 40707, Nov. 7, 1986]

§ 133.22 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no certificate holder may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

- (1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and
- (2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the certificate holder.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a certificate holder in a matter before the agency if the individual makes any written or oral communication on behalf of the certificate holder to the agency (or any of its officers or employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a certificate holder from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual

was employed by the certificate holder before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52236, Aug. 22, 2011]

§ 133.23 Knowledge and skill.

(a) Except as provided in paragraph (d) of this section, the applicant, or the chief pilot designated in accordance with § 133.21(b), must demonstrate to the Administrator satisfactory knowledge and skill regarding rotorcraft external-load operations as set forth in paragraphs (b) and (c) of this section.

(b) The test of knowledge (which may be oral or written, at the option of the applicant) covers the following subjects:

- (1) Steps to be taken before starting operations, including a survey of the flight area.
- (2) Proper method of loading, rigging, or attaching the external load.
- (3) Performance capabilities, under approved operating procedures and limitations, of the rotorcraft to be used.
- (4) Proper instructions of flight crew and ground workers.
- (5) Appropriate rotorcraft-load combination flight manual.

(c) The test of skill requires appropriate maneuvers for each class requested. The appropriate maneuvers for each load class must be demonstrated in the rotorcraft prescribed in § 133.19.

- (1) Takeoffs and landings.
- (2) Demonstration of directional control while hovering.
- (3) Acceleration from a hover.
- (4) Flight at operational airspeeds.
- (5) Approaches to landing or working area.
- (6) Maneuvering the external load into the release position.
- (7) Demonstration of winch operation, if a winch is installed to hoist the external load.

(d) Compliance with paragraphs (b) and (c) of this section need not be shown if the Administrator finds, on the basis of the applicant's (or his designated chief pilot's) previous experience and safety record in rotorcraft external-load operations, that his knowledge and skill are adequate.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133-9, 51 FR 40707, Nov. 7, 1986]

§ 133.25 Amendment of certificate.

(a) The holder of a Rotorcraft External-Load Certificate may apply to the FAA Flight Standards District Office having jurisdiction over the area in which the applicant's home base of operation is located, or to the Flight Standards District Office nearest the area in which operations are to be conducted, for an amendment of the applicant's certificate, to add or delete a rotorcraft-load combination authorization, by executing the appropriate portion of the form used in applying for a Rotorcraft External-Load Operator Certificate. If the applicant for the amendment shows compliance with §§ 133.19, and 133.49, the Flight Standards District Office issues an amended Rotorcraft External-Load Operator Certificate to the applicant with authorization to operate with those classes of rotorcraft-

load combinations for which the applicant complies with the applicable provisions of subpart D of this part.

(b) The holder of a rotorcraft external-load certificate may apply for an amendment to add or delete a rotorcraft authorization by submitting to the certificate-holding FAA Flight Standards District Office a new list of rotorcraft, by registration number, with the classes of rotorcraft-load combinations for which authorization is requested.

[Doc. No. 18434, 43 FR 52206, Nov. 9, 1978, as amended by Amdt. 133-9, 51 FR 40707, Nov. 7, 1986; Amdt. 133-11, 54 FR 39294, Sept. 25, 1989]

§ 133.27 Availability, transfer, and surrender of certificate.

(a) Each holder of a rotorcraft external-load operator certificate shall keep that certificate and a list of authorized rotorcraft at the home base of operations and shall make it available for inspection by the Administrator upon request.

(b) Each person conducting a rotorcraft external-load operation shall carry a facsimile of the Rotorcraft External-Load Operator Certificate in each rotorcraft used in the operation.

(c) If the Administrator suspends or revokes a Rotorcraft External-Load Operator Certificate, the holder of that certificate shall return it to the Administrator. If the certificate holder, for any other reason, discontinues operations under his certificate, and does not resume operations within two years, he shall return the certificate to the FAA Flight Standards District Office having jurisdiction over the area in which his home base of operations is located.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133-9, 51 FR 40708, Nov. 7, 1986; Amdt. 133-11, 54 FR 39294, Sept. 25, 1989]

Subpart C - Operating Rules and Related Requirements

§ 133.31 Emergency operations.

(a) In an emergency involving the safety of persons or property, the certificate holder may deviate from the rules of this part to the extent required to meet that emergency.

(b) Each person who, under the authority of this section, deviates from a rule of this part shall notify the Administrator within 10 days after the deviation. Upon the request of the Administrator, that person shall provide the certificate-holding FAA Flight Standards District Office a complete report of the aircraft operation involved, including a description of the deviation and reasons for it.

[Doc. No. 24550, 51 FR 40708, Nov. 7, 1986, as amended by Amdt. 133-11, 54 FR 39294, Sept. 25, 1989]

§ 133.33 Operating rules.

(a) No person may conduct a rotorcraft external-load operation without, or contrary to, the Rotorcraft-Load Combination Flight Manual prescribed in § 133.47.

(b) No person may conduct a rotorcraft external-load operation unless -

(1) The rotorcraft complies with § 133.19; and

(2) The rotorcraft and rotorcraft-load combination is authorized under the Rotorcraft External-Load Operator Certificate.

(c) Before a person may operate a rotorcraft with an external-load configuration that differs substantially from any that person has previously carried with that type of rotorcraft (whether or not the rotorcraft-load combination is of the same class), that person must conduct, in a manner that will not endanger persons or property on the surface, such of the following flight-operational checks as the Administrator determines are appropriate to the rotorcraft-load combination:

(1) A determination that the weight of the rotorcraft-load combination and the location of its center of gravity are within approved limits, that the external load is securely fastened, and that the external load does not interfere with devices provided for its emergency release.

(2) Make an initial liftoff and verify that controllability is satisfactory.

(3) While hovering, verify that directional control is adequate.

(4) Accelerate into forward flight to verify that no attitude (whether of the rotorcraft or of the external load) is encountered in which the rotorcraft is uncontrollable or which is otherwise hazardous.

(5) In forward flight, check for hazardous oscillations of the external load, but if the external load is not visible to the pilot, other crewmembers or ground personnel may make this check and signal the pilot.

(6) Increase the forward airspeed and determine an operational airspeed at which no hazardous oscillation or hazardous aerodynamic turbulence is encountered.

(d) Notwithstanding the provisions of part 91 of this chapter, the holder of a Rotorcraft External-Load Operator Certificate may conduct (in rotorcraft type certificated under and meeting the requirements of part 27 or 29 of this chapter, including the external-load attaching means) rotorcraft external-load operations over congested areas if those operations are conducted without hazard to persons or property on the surface and comply with the following:

(1) The operator must develop a plan for each complete operation, coordinate this plan with the FAA Flight Standards District Office having jurisdiction over the area in which the operation will be conducted, and obtain approval for the operation from that district office. The plan must include an agreement with the appropriate political subdivision that local officials will exclude unauthorized persons from the area in which the operation will be conducted, coordination with air

traffic control, if necessary, and a detailed chart depicting the flight routes and altitudes.

(2) Each flight must be conducted at an altitude, and on a route, that will allow a jettisonable external load to be released, and the rotorcraft landed, in an emergency without hazard to persons or property on the surface.

(e) Notwithstanding the provisions of part 91 of this chapter, and except as provided in § 133.45(d), the holder of a Rotorcraft External-Load Operator Certificate may conduct external-load operations, including approaches, departures, and load positioning maneuvers necessary for the operation, below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are conducted without creating a hazard to persons or property on the surface.

(f) No person may conduct rotorcraft external-load operations under IFR unless specifically approved by the Administrator. However, under no circumstances may a person be carried as part of the external-load under IFR.

[Doc. No. 24550, 51 FR 40708, Nov. 7, 1986, as amended by Amdt. 133-11, 54 FR 39294, Sept. 25, 1989]

§ 133.35 Carriage of persons.

(a) No certificate holder may allow a person to be carried during rotorcraft external-load operations unless that person -

- (1) Is a flight crewmember;
- (2) Is a flight crewmember trainee;
- (3) Performs an essential function in connection with the external-load operation; or
- (4) Is necessary to accomplish the work activity directly associated with that operation.

(b) The pilot in command shall ensure that all persons are briefed before takeoff on all pertinent procedures to be followed (including normal, abnormal, and emergency procedures) and equipment to be used during the external-load operation.

[Doc. No. 24550, 51 FR 40708, Nov. 7, 1986]

§ 133.37 Crewmember training, currency, and testing requirements.

(a) No certificate holder may use, nor may any person serve, as a pilot in operations conducted under this part unless that person -

(1) Has successfully demonstrated, to the Administrator knowledge and skill with respect to the rotorcraft-load combination in accordance with § 133.23 (in the case of a pilot other than the chief pilot or an assistant chief pilot who has been designated in accordance with § 133.21(b), this demonstration may be made to the chief pilot or assistant chief pilot); and

(2) Has in his or her personal possession a letter of competency or an appropriate logbook entry indicating compliance with paragraph (a)(1) of this section.

(b) No certificate holder may use, nor may any person serve as, a crewmember or other operations personnel in Class

D operations conducted under this part unless, within the preceding 12 calendar months, that person has successfully completed either an approved initial or a recurrent training program.

(c) Notwithstanding the provisions of paragraph (b) of this section, a person who has performed a rotorcraft external-load operation of the same class and in an aircraft of the same type within the past 12 calendar months need not undergo recurrent training.

[Doc. No. 24550, 51 FR 40708, Nov. 7, 1986]

§ 133.39 Inspection authority.

Each person conducting an operation under this part shall allow the Administrator to make any inspections or tests that he considers necessary to determine compliance with the Federal Aviation Regulations and the Rotorcraft External-Load Operator Certificate.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964. Redesignated by Amdt. 133-9, 51 FR 40708, Nov. 7, 1986]

Subpart D - Airworthiness Requirements

§ 133.41 Flight characteristics requirements.

(a) The applicant must demonstrate to the Administrator, by performing the operational flight checks prescribed in paragraphs (b), (c), and (d) of this section, as applicable, that the rotorcraft-load combination has satisfactory flight characteristics, unless these operational flight checks have been demonstrated previously and the rotorcraft-load combination flight characteristics were satisfactory. For the purposes of this demonstration, the external-load weight (including the external-load attaching means) is the maximum weight for which authorization is requested.

(b) Class A rotorcraft-load combinations: The operational flight check must consist of at least the following maneuvers:

- (1) Take off and landing.
- (2) Demonstration of adequate directional control while hovering.
- (3) Acceleration from a hover.
- (4) Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.

(c) Class B and D rotorcraft-load combinations: The operational flight check must consist of at least the following maneuvers:

- (1) Pickup of the external load.
- (2) Demonstration of adequate directional control while hovering.
- (3) Acceleration from a hover.
- (4) Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.
- (5) Demonstrating appropriate lifting device operation.
- (6) Maneuvering of the external load into release position and its release, under probable flight operation conditions, by

means of each of the quick-release controls installed on the rotorcraft.

(d) Class C rotorcraft-load combinations: For Class C rotorcraft-load combinations used in wire-stringing, cable-laying, or similar operations, the operational flight check must consist of the maneuvers, as applicable, prescribed in paragraph (c) of this section.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133-5, 41 FR 55475, Dec. 20, 1976; Amdt. 133-9, 51 FR 40709, Nov. 7, 1986]

§ 133.43 Structures and design.

(a) *External-load attaching means.* Each external-load attaching means must have been approved under -

(1) Part 8 of the Civil Air Regulations on or before January 17, 1964;

(2) Part 133, before February 1, 1977;

(3) Part 27 or 29 of this chapter, as applicable, irrespective of the date of approval; or

(4) Section 21.25 of this chapter.

(b) *Quick release devices.* Each quick release device must have been approved under -

(1) Part 27 or 29 of this chapter, as applicable;

(2) Part 133, before February 1, 1977; or

(3) Section 21.25 of this chapter, except the device must comply with §§ 27.865(b) and 29.865(b), as applicable, of this chapter.

(c) *Weight and center of gravity -*

(1) *Weight.* The total weight of the rotorcraft-load combination must not exceed the total weight approved for the rotorcraft during its type certification.

(2) *Center of gravity.* The location of the center of gravity must, for all loading conditions, be within the range established for the rotorcraft during its type certification. For Class C rotorcraft-load combinations, the magnitude and direction of the loading force must be established at those values for which the effective location of the center of gravity remains within its established range.

[Doc. No. 14324, 41 FR 55475, Dec. 20, 1976, as amended by Amdt. 133-12, 55 FR 8006, Mar. 6, 1990]

§ 133.45 Operating limitations.

In addition to the operating limitations set forth in the approved Rotorcraft Flight Manual, and to any other limitations the Administrator may prescribe, the operator shall establish at least the following limitations and set them forth in the Rotorcraft-Load Combination Flight Manual for rotorcraft-load combination operations:

(a) The rotorcraft-load combination may be operated only within the weight and center of gravity limitations established in accordance with § 133.43(c).

(b) The rotorcraft-load combination may not be operated with an external load weight exceeding that used in showing compliance with §§ 133.41 and 133.43.

(c) The rotorcraft-load combination may not be operated at airspeeds greater than those established in accordance with § 133.41 (b), (c), and (d).

(d) No person may conduct an external-load operation under this part with a rotorcraft type certificated in the restricted category under § 21.25 of this chapter over a densely populated area, in a congested airway, or near a busy airport where passenger transport operations are conducted.

(e) The rotorcraft-load combination of Class D may be conducted only in accordance with the following:

(1) The rotorcraft to be used must have been type certificated under transport Category A for the operating weight and provide hover capability with one engine inoperative at that operating weight and altitude.

(2) The rotorcraft must be equipped to allow direct radio intercommunication among required crewmembers.

(3) The personnel lifting device must be FAA approved.

(4) The lifting device must have an emergency release requiring two distinct actions.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133-1, 30 FR 883, Jan. 28, 1965; Amdt. 133-5, 41 FR 55476, Dec. 20, 1976; Amdt. 133-6, 42 FR 24198, May 12, 1977; Amdt. 133-9, 51 FR 40709, Nov. 7, 1986]

§ 133.47 Rotorcraft-load combination flight manual.

The applicant must prepare a Rotorcraft-Load Combination Flight Manual and submit it for approval by the Administrator. The manual must be prepared in accordance with the rotorcraft flight manual provisions of subpart G of part 27 or 29 of this chapter, whichever is applicable. The limiting height-speed envelope data need not be listed as operating limitations. The manual must set forth -

(a) Operating limitations, procedures (normal and emergency), performance, and other information established under this subpart;

(b) The class of rotorcraft-load combinations for which the airworthiness of the rotorcraft has been demonstrated in accordance with §§ 133.41 and 133.43; and

(c) In the information section of the Rotorcraft-Load Combination Flight Manual -

(1) Information on any peculiarities discovered when operating particular rotorcraft-load combinations;

(2) Precautionary advice regarding static electricity discharges for Class B, Class C, and Class D rotorcraft-load combinations; and

(3) Any other information essential for safe operation with external loads.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133-9, 51 FR 40709, Nov. 7, 1986]

§ 133.49 Markings and placards.

The following markings and placards must be displayed conspicuously and must be such that they cannot be easily erased, disfigured, or obscured:

(a) A placard (displayed in the cockpit or cabin) stating the class of rotorcraft-load combination for which the rotorcraft has been approved and the occupancy limitation prescribed in § 133.35(a).

(b) A placard, marking, or instruction (displayed next to the external-load attaching means) stating the maximum external load prescribed as an operating limitation in § 133.45(b).

[Docket 1529, Amdt. 133-9A, 81 FR 85138, Nov. 25, 2016]

§ 133.51 Airworthiness certification.

A Rotorcraft External-Load Operator Certificate is a current and valid airworthiness certificate for each rotorcraft type certificated under part 27 or 29 of this chapter (or their predecessor parts) and listed by registration number on a list attached to the certificate, when the rotorcraft is being used in operations conducted under this part.

[Doc. No. 24550, 51 FR 40709, Nov. 7, 1986]

PART 135 - OPERATING REQUIREMENTS: COMMUTER AND ON DEMAND OPERATIONS AND RULES GOVERNING PERSONS ON BOARD SUCH AIRCRAFT

Authority:

49 U.S.C. 106(f), 106(g), 41706, 40113, 44701-44702, 44705, 44709, 44711-44713, 44715-44717, 44722, 44730, 45101-45105; Pub. L. 112-95, 126 Stat. 58 (49 U.S.C. 44730).

Source:

Docket No. 16097, 43 FR 46783, Oct. 10, 1978, unless otherwise noted.

Special Federal Aviation Regulation No. 50-2

Editorial Note:

For the text of SFAR No. 50-2, see part 91 of this chapter.

Special Federal Aviation Regulation No. 71

Editorial Note:

For the text of SFAR No. 71, see part 91 of this chapter.

Special Federal Aviation Regulation No. 89

Editorial Note:

For the text of SFAR No. 89, see part 121 of this chapter.

Special Federal Aviation Regulation No. 97

Editorial Note:

For the text of SFAR No. 97, see part 91 of this chapter.

Subpart A - General

§ 135.1 Applicability.

(a) This part prescribes rules governing -

(1) The commuter or on-demand operations of each person who holds or is required to hold an Air Carrier Certificate or Operating Certificate under part 119 of this chapter.

(2) Each person employed or used by a certificate holder conducting operations under this part including the maintenance, preventative maintenance and alteration of an aircraft.

(3) The transportation of mail by aircraft conducted under a postal service contract awarded under 39 U.S.C. 5402c.

(4) Each person who applies for provisional approval of an Advanced Qualification Program curriculum, curriculum segment, or portion of a curriculum segment under subpart Y of part 121 of this chapter of 14 CFR part 121 and each person employed or used by an air carrier or commercial operator under this part to perform training, qualification, or evaluation functions under an Advanced Qualification Program under subpart Y of part 121 of this chapter of 14 CFR part 121.

(5) Nonstop Commercial Air Tour flights conducted for compensation or hire in accordance with § 119.1(e)(2) of this chapter that begin and end at the same airport and are conducted within a 25-statute-mile radius of that airport; provided further that these operations must comply only with the drug and alcohol testing requirements in §§ 120.31, 120.33, 120.35, 120.37, and 120.39 of this chapter; and with the provisions of part 136, subpart A, and § 91.147 of this chapter by September 11, 2007.

(6) Each person who is on board an aircraft being operated under this part.

(7) Each person who is an applicant for an Air Carrier Certificate or an Operating Certificate under 119 of this chapter, when conducting proving tests.

(8) Commercial Air tours conducted by holders of operations specifications issued under this part must comply with the provisions of part 136, Subpart A of this chapter by September 11, 2007.

(9) Helicopter air ambulance operations as defined in § 135.601(b)(1).

(b) [Reserved]

(c) An operator who does not hold a part 119 certificate and who operates under the provisions of § 91.147 of this chapter is permitted to use a person who is otherwise authorized to perform aircraft maintenance or preventive maintenance duties and who is not subject to anti-drug and alcohol misuse prevent programs to perform -

(1) Aircraft maintenance or preventive maintenance on the operator's aircraft if the operator would otherwise be required to transport the aircraft more than 50 nautical miles further than the repair point closest to operator's principal place of operation to obtain these services; or

(2) Emergency repairs on the operator's aircraft if the aircraft cannot be safely operated to a location where an employee subject to FAA-approved programs can perform the repairs.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978]

Editorial Note:

For Federal Register citations affecting § 135.1, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 135.2 Compliance schedule for operators that transition to part 121 of this chapter; certain new entrant operators.

(a) *Applicability.* This section applies to the following:

(1) Each certificate holder that was issued an air carrier or operating certificate and operations specifications under the requirements of part 135 of this chapter or under SFAR No. 38-2 of 14 CFR part 121 before January 19, 1996, and that conducts scheduled passenger-carrying operations with:

(i) Nontransport category turbopropeller powered airplanes type certificated after December 31, 1964, that have a passenger seat configuration of 10-19 seats;

(ii) Transport category turbopropeller powered airplanes that have a passenger seat configuration of 20-30 seats; or

(iii) Turbojet engine powered airplanes having a passenger seat configuration of 1-30 seats.

(2) Each person who, after January 19, 1996, applies for or obtains an initial air carrier or operating certificate and operations specifications to conduct scheduled passenger-carrying operations in the kinds of airplanes described in paragraphs (a)(1)(i), (a)(1)(ii), or paragraph (a)(1)(iii) of this section.

(b) *Obtaining operations specifications.* A certificate holder described in paragraph (a)(1) of this section may not, after March 20, 1997, operate an airplane described in paragraphs (a)(1)(i), (a)(1)(ii), or (a)(1)(iii) of this section in scheduled passenger-carrying operations, unless it obtains operations specifications to conduct its scheduled operations under part 121 of this chapter on or before March 20, 1997.

(c) *Regular or accelerated compliance.* Except as provided in paragraphs (d), and (e) of this section, each certificate holder described in paragraph (a)(1) of this section shall comply with each applicable requirement of part 121 of this chapter on and after March 20, 1997 or on and after the date on which the certificate holder is issued operations specifications under this part, whichever occurs first. Except as provided in paragraphs (d) and (e) of this section, each person described in paragraph (a)(2) of this section shall comply with each

applicable requirement of part 121 of this chapter on and after the date on which that person is issued a certificate and operations specifications under part 121 of this chapter.

(d) *Delayed compliance dates.* Unless paragraph (e) of this section specifies an earlier compliance date, no certificate holder that is covered by paragraph (a) of this section may operate an airplane in 14 CFR part 121 operations on or after a date listed in this paragraph unless that airplane meets the applicable requirement of this paragraph:

(1) *Nontransport category turbopropeller powered airplanes type certificated after December 31, 1964, that have a passenger seat configuration of 10-19 seats.* No certificate holder may operate under this part an airplane that is described in paragraph (a)(1)(i) of this section on or after a date listed in paragraph (d)(1) of this section unless that airplane meets the applicable requirement listed in paragraph (d)(1) of this section:

(i) December 20, 1997:

(A) Section 121.289, Landing gear aural warning.

(B) Section 121.308, Lavatory fire protection.

(C) Section 121.310(e), Emergency exit handle illumination.

(D) Section 121.337(b)(8), Protective breathing equipment.

(E) Section 121.340, Emergency flotation means.

(ii) December 20, 1999: Section 121.342, Pitot heat indication system.

(iii) December 20, 2010:

(A) For airplanes described in § 121.157(f), the Airplane Performance Operating Limitations in §§ 121.189 through 121.197.

(B) Section 121.161(b), Ditching approval.

(C) Section 121.305(j), Third attitude indicator.

(D) Section 121.312(c), Passenger seat cushion flammability.

(iv) March 12, 1999: Section 121.310(b)(1), Interior emergency exit locating sign.

(2) *Transport category turbopropeller powered airplanes that have a passenger seat configuration of 20-30 seats.* No certificate holder may operate under this part an airplane that is described in paragraph (a)(1)(ii) of this section on or after a date listed in paragraph (d)(2) of this section unless that airplane meets the applicable requirement listed in paragraph (d)(2) of this section:

(i) December 20, 1997:

(A) Section 121.308, Lavatory fire protection.

(B) Section 121.337(b) (8) and (9), Protective breathing equipment.

(C) Section 121.340, Emergency flotation means.

(ii) December 20, 2010: Section 121.305(j), Third attitude indicator.

(e) *Newly manufactured airplanes.* No certificate holder that is described in paragraph (a) of this section may operate under part 121 of this chapter an airplane manufactured on

or after a date listed in this paragraph (e) unless that airplane meets the applicable requirement listed in this paragraph (e).

(1) For nontransport category turbopropeller powered airplanes type certificated after December 31, 1964, that have a passenger seat configuration of 10-19 seats:

(i) Manufactured on or after March 20, 1997:

(A) Section 121.305(j), Third attitude indicator.

(B) Section 121.311(f), Safety belts and shoulder harnesses.

(ii) Manufactured on or after December 20, 1997: Section 121.317(a), Fasten seat belt light.

(iii) Manufactured on or after December 20, 1999: Section 121.293, Takeoff warning system.

(iv) Manufactured on or after March 12, 1999: Section 121.310(b)(1), Interior emergency exit locating sign.

(2) For transport category turbopropeller powered airplanes that have a passenger seat configuration of 20-30 seats manufactured on or after March 20, 1997: Section 121.305(j), Third attitude indicator.

(f) *New type certification requirements.* No person may operate an airplane for which the application for a type certificate was filed after March 29, 1995, in 14 CFR part 121 operations unless that airplane is type certificated under part 25 of this chapter.

(g) *Transition plan.* Before March 19, 1996 each certificate holder described in paragraph (a)(1) of this section must submit to the FAA a transition plan (containing a calendar of events) for moving from conducting its scheduled operations under the commuter requirements of part 135 of this chapter to the requirements for domestic or flag operations under part 121 of this chapter. Each transition plan must contain details on the following:

(1) Plans for obtaining new operations specifications authorizing domestic or flag operations;

(2) Plans for being in compliance with the applicable requirements of part 121 of this chapter on or before March 20, 1997; and

(3) Plans for complying with the compliance date schedules contained in paragraphs (d) and (e) of this section.

[Doc. No. 28154, 60 FR 65938, Dec. 20, 1995, as amended by Amdt. 135-65, 61 FR 30435, June 14, 1996; Amdt. 135-66, 62 FR 13257, Mar. 19, 1997]

§ 135.3 Rules applicable to operations subject to this part.

(a) Each person operating an aircraft in operations under this part shall -

(1) While operating inside the United States, comply with the applicable rules of this chapter; and

(2) While operating outside the United States, comply with Annex 2, Rules of the Air, to the Convention on International Civil Aviation or the regulations of any foreign country, whichever applies, and with any rules of parts 61 and 91 of this chapter and this part that are more restrictive than that Annex or those regulations and that can be complied with

without violating that Annex or those regulations. Annex 2 is incorporated by reference in § 91.703(b) of this chapter.

(b) Each certificate holder that conducts commuter operations under this part with airplanes in which two pilots are required by the type certification rules of this chapter shall comply with subparts N and O of part 121 of this chapter instead of the requirements of subparts E, G, and H of this part. Notwithstanding the requirements of this paragraph, a pilot serving under this part as second in command in a commuter operation with airplanes in which two pilots are required by the type certification rules of this chapter may meet the requirements of § 135.245 instead of the requirements of § 121.436.

(c) If authorized by the Administrator upon application, each certificate holder that conducts operations under this part to which paragraph (b) of this section does not apply, may comply with the applicable sections of subparts N and O of part 121 instead of the requirements of subparts E, G, and H of this part, except that those authorized certificate holders may choose to comply with the operating experience requirements of § 135.244, instead of the requirements of § 121.434 of this chapter. Notwithstanding the requirements of this paragraph, a pilot serving under this part as second in command may meet the requirements of § 135.245 instead of the requirements of § 121.436.

[Doc. No. 27993, 60 FR 65949, Dec. 20, 1995, as amended by Amdt. 135-65, 61 FR 30435, June 14, 1996; Amdt. 135-127A, 78 FR 77574, Dec. 24, 2013; Docket FAA-2010-0100, Amdt. 135-127B, 81 FR 2, Jan. 4, 2016]

§ 135.4 Applicability of rules for eligible on-demand operations.

(a) An “eligible on-demand operation” is an on-demand operation conducted under this part that meets the following requirements:

(1) *Two-pilot crew.* The flightcrew must consist of at least two qualified pilots employed or contracted by the certificate holder.

(2) *Flight crew experience.* The crewmembers must have met the applicable requirements of part 61 of this chapter and have the following experience and ratings:

(i) Total flight time for all pilots:

(A) Pilot in command - A minimum of 1,500 hours.

(B) Second in command - A minimum of 500 hours.

(ii) For multi-engine turbine-powered fixed-wing and powered-lift aircraft, the following FAA certification and ratings requirements:

(A) Pilot in command - Airline transport pilot and applicable type ratings.

(B) Second in command - Commercial pilot and instrument ratings.

(iii) For all other aircraft, the following FAA certification and rating requirements:

(A) Pilot in command - Commercial pilot and instrument ratings.

(B) Second in command - Commercial pilot and instrument ratings.

(3) *Pilot operating limitations.* If the second in command of a fixed-wing aircraft has fewer than 100 hours of flight time as second in command flying in the aircraft make and model and, if a type rating is required, in the type aircraft being flown, and the pilot in command is not an appropriately qualified check pilot, the pilot in command shall make all takeoffs and landings in any of the following situations:

(i) Landings at the destination airport when a Destination Airport Analysis is required by § 135.385(f); and

(ii) In any of the following conditions:

(A) The prevailing visibility for the airport is at or below mile.

(B) The runway visual range for the runway to be used is at or below 4,000 feet.

(C) The runway to be used has water, snow, slush, ice, or similar contamination that may adversely affect aircraft performance.

(D) The braking action on the runway to be used is reported to be less than "good."

(E) The crosswind component for the runway to be used is in excess of 15 knots.

(F) Windshear is reported in the vicinity of the airport.

(G) Any other condition in which the pilot in command determines it to be prudent to exercise the pilot in command's authority.

(4) *Crew pairing.* Either the pilot in command or the second in command must have at least 75 hours of flight time in that aircraft make or model and, if a type rating is required, for that type aircraft, either as pilot in command or second in command.

(b) The Administrator may authorize deviations from paragraphs (a)(2)(i) or (a)(4) of this section if the Flight Standards District Office that issued the certificate holder's operations specifications finds that the crewmember has comparable experience, and can effectively perform the functions associated with the position in accordance with the requirements of this chapter. The Administrator may, at any time, terminate any grant of deviation authority issued under this paragraph. Grants of deviation under this paragraph may be granted after consideration of the size and scope of the operation, the qualifications of the intended personnel and the following circumstances:

(1) A newly authorized certificate holder does not employ any pilots who meet the minimum requirements of paragraphs (a)(2)(i) or (a)(4) of this section.

(2) An existing certificate holder adds to its fleet a new category and class aircraft not used before in its operation.

(3) An existing certificate holder establishes a new base to which it assigns pilots who will be required to become qualified on the aircraft operated from that base.

(c) An eligible on-demand operation may comply with alternative requirements specified in §§ 135.225(b),

135.385(f), and 135.387(b) instead of the requirements that apply to other on-demand operations.

[Doc. No. FAA-2001-10047, 68 FR 54585, Sept. 17, 2003]

§ 135.7 Applicability of rules to unauthorized operators.

The rules in this part which apply to a person certificated under part 119 of this chapter also apply to a person who engages in any operation governed by this part without an appropriate certificate and operations specifications required by part 119 of this chapter.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-58, 60 FR 65939, Dec. 20, 1995]

§ 135.12 Previously trained crewmembers.

A certificate holder may use a crewmember who received the certificate holder's training in accordance with subparts E, G, and H of this part before March 19, 1997 without complying with initial training and qualification requirements of subparts N and O of part 121 of this chapter. The crewmember must comply with the applicable recurrent training requirements of part 121 of this chapter.

[Doc. No. 27993, 60 FR 65950, Dec. 20, 1995]

§ 135.19 Emergency operations.

(a) In an emergency involving the safety of persons or property, the certificate holder may deviate from the rules of this part relating to aircraft and equipment and weather minimums to the extent required to meet that emergency.

(b) In an emergency involving the safety of persons or property, the pilot in command may deviate from the rules of this part to the extent required to meet that emergency.

(c) Each person who, under the authority of this section, deviates from a rule of this part shall, within 10 days, excluding Saturdays, Sundays, and Federal holidays, after the deviation, send to the FAA Flight Standards District Office charged with the overall inspection of the certificate holder a complete report of the aircraft operation involved, including a description of the deviation and reasons for it.

§ 135.21 Manual requirements.

(a) Each certificate holder, other than one who uses only one pilot in the certificate holder's operations, shall prepare and keep current a manual setting forth the certificate holder's procedures and policies acceptable to the Administrator. This manual must be used by the certificate holder's flight, ground, and maintenance personnel in conducting its operations. However, the Administrator may authorize a deviation from this paragraph if the Administrator finds that, because of the limited size of the operation, all or part of the manual is not necessary for guidance of flight, ground, or maintenance personnel.

(b) Each certificate holder shall maintain at least one copy of the manual at its principal base of operations.

(c) The manual must not be contrary to any applicable Federal regulations, foreign regulation applicable to the certificate holder's operations in foreign countries, or the certificate holder's operating certificate or operations specifications.

(d) A copy of the manual, or appropriate portions of the manual (and changes and additions) shall be made available to maintenance and ground operations personnel by the certificate holder and furnished to -

(1) Its flight crewmembers; and

(2) Representatives of the Administrator assigned to the certificate holder.

(e) Each employee of the certificate holder to whom a manual or appropriate portions of it are furnished under paragraph (d)(1) of this section shall keep it up to date with the changes and additions furnished to them.

(f) Except as provided in paragraph (h) of this section, each certificate holder must carry appropriate parts of the manual on each aircraft when away from the principal operations base. The appropriate parts must be available for use by ground or flight personnel.

(g) For the purpose of complying with paragraph (d) of this section, a certificate holder may furnish the persons listed therein with all or part of its manual in printed form or other form, acceptable to the Administrator, that is retrievable in the English language. If the certificate holder furnishes all or part of the manual in other than printed form, it must ensure there is a compatible reading device available to those persons that provides a legible image of the information and instructions, or a system that is able to retrieve the information and instructions in the English language.

(h) If a certificate holder conducts aircraft inspections or maintenance at specified stations where it keeps the approved inspection program manual, it is not required to carry the manual aboard the aircraft en route to those stations.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-18, 47 FR 33396, Aug. 2, 1982; Amdt. 135-58, 60 FR 65939, Dec. 20, 1995; Amdt. 135-66, 62 FR 13257, Mar. 19, 1997; Amdt. 135-91, 68 FR 54585, Sept. 17, 2003]

§ 135.23 Manual contents.

Each manual shall have the date of the last revision on each revised page. The manual must include -

(a) The name of each management person required under § 119.69(a) of this chapter who is authorized to act for the certificate holder, the person's assigned area of responsibility, the person's duties, responsibilities, and authority, and the name and title of each person authorized to exercise operational control under § 135.77;

(b) Procedures for ensuring compliance with aircraft weight and balance limitations and, for multiengine aircraft, for determining compliance with § 135.185;

(c) Copies of the certificate holder's operations specifications or appropriate extracted information, including area of operations authorized, category and class of aircraft

authorized, crew complements, and types of operations authorized;

(d) Procedures for complying with accident notification requirements;

(e) Procedures for ensuring that the pilot in command knows that required airworthiness inspections have been made and that the aircraft has been approved for return to service in compliance with applicable maintenance requirements;

(f) Procedures for reporting and recording mechanical irregularities that come to the attention of the pilot in command before, during, and after completion of a flight;

(g) Procedures to be followed by the pilot in command for determining that mechanical irregularities or defects reported for previous flights have been corrected or that correction has been deferred;

(h) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the aircraft at a place where previous arrangements have not been made by the operator, when the pilot is authorized to so act for the operator;

(i) Procedures under § 135.179 for the release for, or continuation of, flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route;

(j) Procedures for refueling aircraft, eliminating fuel contamination, protecting from fire (including electrostatic protection), and supervising and protecting passengers during refueling;

(k) Procedures to be followed by the pilot in command in the briefing under § 135.117;

(l) Flight locating procedures, when applicable;

(m) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned each category of required crewmembers in connection with an emergency and emergency evacuation duties under § 135.123;

(n) En route qualification procedures for pilots, when applicable;

(o) The approved aircraft inspection program, when applicable;

(p)(1) Procedures and information, as described in paragraph (p)(2) of this section, to assist each crewmember and person performing or directly supervising the following job functions involving items for transport on an aircraft:

(i) Acceptance;

(ii) Rejection;

(iii) Handling;

(iv) Storage incidental to transport;

(v) Packaging of company material; or

(vi) Loading.

(2) Ensure that the procedures and information described in this paragraph are sufficient to assist a person in identifying packages that are marked or labeled as containing hazardous materials or that show signs of containing undeclared hazardous materials. The procedures and information must include:

(i) Procedures for rejecting packages that do not conform to the Hazardous Materials Regulations in 49 CFR parts 171 through 180 or that appear to contain undeclared hazardous materials;

(ii) Procedures for complying with the hazardous materials incident reporting requirements of 49 CFR 171.15 and 171.16 and discrepancy reporting requirements of 49 CFR 175.31.

(iii) The certificate holder's hazmat policies and whether the certificate holder is authorized to carry, or is prohibited from carrying, hazardous materials; and

(iv) If the certificate holder's operations specifications permit the transport of hazardous materials, procedures and information to ensure the following:

(A) That packages containing hazardous materials are properly offered and accepted in compliance with 49 CFR parts 171 through 180;

(B) That packages containing hazardous materials are properly handled, stored, packaged, loaded and carried on board an aircraft in compliance with 49 CFR parts 171 through 180;

(C) That the requirements for Notice to the Pilot in Command (49 CFR 175.33) are complied with; and

(D) That aircraft replacement parts, consumable materials or other items regulated by 49 CFR parts 171 through 180 are properly handled, packaged, and transported.

(q) Procedures for the evacuation of persons who may need the assistance of another person to move expeditiously to an exit if an emergency occurs; and

(r) If required by § 135.385, an approved Destination Airport Analysis establishing runway safety margins at destination airports, taking into account the following factors as supported by published aircraft performance data supplied by the aircraft manufacturer for the appropriate runway conditions -

(1) Pilot qualifications and experience;

(2) Aircraft performance data to include normal, abnormal and emergency procedures as supplied by the aircraft manufacturer;

(3) Airport facilities and topography;

(4) Runway conditions (including contamination);

(5) Airport or area weather reporting;

(6) Appropriate additional runway safety margins, if required;

(7) Airplane inoperative equipment;

(8) Environmental conditions; and

(9) Other criteria affecting aircraft performance.

(s) Other procedures and policy instructions regarding the certificate holder's operations issued by the certificate holder.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-20, 51 FR 40709, Nov. 7, 1986; Amdt. 135-58, 60 FR 65939, Dec. 20, 1995; Amdt. 135-91, 68 FR 54586, Sept. 17, 2003; Amdt. 135-101, 70 FR 58829, Oct. 7, 2005]

§ 135.25 Aircraft requirements.

(a) Except as provided in paragraph (d) of this section, no certificate holder may operate an aircraft under this part unless that aircraft -

(1) Is registered as a civil aircraft of the United States and carries an appropriate and current airworthiness certificate issued under this chapter; and

(2) Is in an airworthy condition and meets the applicable airworthiness requirements of this chapter, including those relating to identification and equipment.

(b) Each certificate holder must have the exclusive use of at least one aircraft that meets the requirements for at least one kind of operation authorized in the certificate holder's operations specifications. In addition, for each kind of operation for which the certificate holder does not have the exclusive use of an aircraft, the certificate holder must have available for use under a written agreement (including arrangements for performing required maintenance) at least one aircraft that meets the requirements for that kind of operation. However, this paragraph does not prohibit the operator from using or authorizing the use of the aircraft for other than operations under this part and does not require the certificate holder to have exclusive use of all aircraft that the certificate holder uses.

(c) For the purposes of paragraph (b) of this section, a person has exclusive use of an aircraft if that person has the sole possession, control, and use of it for flight, as owner, or has a written agreement (including arrangements for performing required maintenance), in effect when the aircraft is operated, giving the person that possession, control, and use for at least 6 consecutive months.

(d) A certificate holder may operate in common carriage, and for the carriage of mail, a civil aircraft which is leased or chartered to it without crew and is registered in a country which is a party to the Convention on International Civil Aviation if -

(1) The aircraft carries an appropriate airworthiness certificate issued by the country of registration and meets the registration and identification requirements of that country;

(2) The aircraft is of a type design which is approved under a U.S. type certificate and complies with all of the requirements of this chapter (14 CFR chapter I) that would be applicable to that aircraft were it registered in the United States, including the requirements which must be met for issuance of a U.S. standard airworthiness certificate (including type design conformity, condition for safe operation, and the noise, fuel venting, and engine emission requirements of this chapter), except that a U.S. registration certificate and a U.S. standard airworthiness certificate will not be issued for the aircraft;

(3) The aircraft is operated by U.S.-certificated airmen employed by the certificate holder; and

(4) The certificate holder files a copy of the aircraft lease or charter agreement with the FAA Aircraft Registry,

Department of Transportation, 6400 South MacArthur Boulevard, Oklahoma City, OK (Mailing address: P.O. Box 25504, Oklahoma City, OK 73125).

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-8, 45 FR 68649, Oct. 16, 1980; Amdt. 135-66, 62 FR 13257, Mar. 19, 1997]

§ 135.41 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

If the holder of a certificate operating under this part allows any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of § 91.19(a) of this chapter, that operation is a basis for suspending or revoking the certificate.

[Doc. No. 28154, 60 FR 65939, Dec. 20, 1995]

§ 135.43 Crewmember certificates: International operations.

(a) This section describes the certificates that were issued to United States citizens who were employed by air carriers at the time of issuance as flight crewmembers on United States registered aircraft engaged in international air commerce. The purpose of the certificate is to facilitate the entry and clearance of those crewmembers into ICAO contracting states. They were issued under Annex 9, as amended, to the Convention on International Civil Aviation.

(b) The holder of a certificate issued under this section, or the air carrier by whom the holder is employed, shall surrender the certificate for cancellation at the nearest FAA Flight Standards District Office at the termination of the holder's employment with that air carrier.

[Doc. No. 28154, 61 FR 30435, June 14, 1996]

Subpart B - Flight Operations

§ 135.61 General.

This subpart prescribes rules, in addition to those in part 91 of this chapter, that apply to operations under this part.

§ 135.63 Recordkeeping requirements.

(a) Each certificate holder shall keep at its principal business office or at other places approved by the Administrator, and shall make available for inspection by the Administrator the following -

- (1) The certificate holder's operating certificate;
- (2) The certificate holder's operations specifications;
- (3) A current list of the aircraft used or available for use in operations under this part and the operations for which each is equipped;
- (4) An individual record of each pilot used in operations under this part, including the following information:
 - (i) The full name of the pilot.
 - (ii) The pilot certificate (by type and number) and ratings that the pilot holds.

(iii) The pilot's aeronautical experience in sufficient detail to determine the pilot's qualifications to pilot aircraft in operations under this part.

(iv) The pilot's current duties and the date of the pilot's assignment to those duties.

(v) The effective date and class of the medical certificate that the pilot holds.

(vi) The date and result of each of the initial and recurrent competency tests and proficiency and route checks required by this part and the type of aircraft flown during that test or check.

(vii) The pilot's flight time in sufficient detail to determine compliance with the flight time limitations of this part.

(viii) The pilot's check pilot authorization, if any.

(ix) Any action taken concerning the pilot's release from employment for physical or professional disqualification.

(x) The date of the completion of the initial phase and each recurrent phase of the training required by this part; and

(5) An individual record for each flight attendant who is required under this part, maintained in sufficient detail to determine compliance with the applicable portions of § 135.273 of this part.

(b) Each certificate holder must keep each record required by paragraph (a)(3) of this section for at least 6 months, and must keep each record required by paragraphs (a)(4) and (a)(5) of this section for at least 12 months.

(c) For multiengine aircraft, each certificate holder is responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest must be prepared before each takeoff and must include:

- (1) The number of passengers;
- (2) The total weight of the loaded aircraft;
- (3) The maximum allowable takeoff weight for that flight;
- (4) The center of gravity limits;
- (5) The center of gravity of the loaded aircraft, except that the actual center of gravity need not be computed if the aircraft is loaded according to a loading schedule or other approved method that ensures that the center of gravity of the loaded aircraft is within approved limits. In those cases, an entry shall be made on the manifest indicating that the center of gravity is within limits according to a loading schedule or other approved method;
- (6) The registration number of the aircraft or flight number;
- (7) The origin and destination; and
- (8) Identification of crew members and their crew position assignments.

(d) The pilot in command of an aircraft for which a load manifest must be prepared shall carry a copy of the completed load manifest in the aircraft to its destination. The certificate holder shall keep copies of completed load manifests for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-52, 59 FR 42993, Aug. 19, 1994]

**§ 135.64 Retention of contracts and amendments:
Commercial operators who conduct intrastate
operations for compensation or hire.**

Each commercial operator who conducts intrastate operations for compensation or hire shall keep a copy of each written contract under which it provides services as a commercial operator for a period of at least one year after the date of execution of the contract. In the case of an oral contract, it shall keep a memorandum stating its elements, and of any amendments to it, for a period of at least one year after the execution of that contract or change.

[Doc. No. 28154, 60 FR 65939, Dec. 20, 1995, as amended by Amdt. 135-65, 61 FR 30435, June 14, 1996; Amdt. 135-66, 62 FR 13257, Mar. 19, 1997]

§ 135.65 Reporting mechanical irregularities.

(a) Each certificate holder shall provide an aircraft maintenance log to be carried on board each aircraft for recording or deferring mechanical irregularities and their correction.

(b) The pilot in command shall enter or have entered in the aircraft maintenance log each mechanical irregularity that comes to the pilot's attention during flight time. Before each flight, the pilot in command shall, if the pilot does not already know, determine the status of each irregularity entered in the maintenance log at the end of the preceding flight.

(c) Each person who takes corrective action or defers action concerning a reported or observed failure or malfunction of an airframe, powerplant, propeller, rotor, or appliance, shall record the action taken in the aircraft maintenance log under the applicable maintenance requirements of this chapter.

(d) Each certificate holder shall establish a procedure for keeping copies of the aircraft maintenance log required by this section in the aircraft for access by appropriate personnel and shall include that procedure in the manual required by § 135.21.

**§ 135.67 Reporting potentially hazardous
meteorological conditions and irregularities of
ground facilities or navigation aids.**

Whenever a pilot encounters a potentially hazardous meteorological condition or an irregularity in a ground facility or navigation aid in flight, the knowledge of which the pilot considers essential to the safety of other flights, the pilot shall notify an appropriate ground radio station as soon as practicable.

[Doc. No. 16097, 43 FR 46783, Oct. 1, 1978, as amended at Amdt. 135-1, 44 FR 26737, May 7, 1979; Amdt. 135-110, 72 FR 31684, June 7, 2007]

**§ 135.69 Restriction or suspension of operations:
Continuation of flight in an emergency.**

(a) During operations under this part, if a certificate holder or pilot in command knows of conditions, including airport

and runway conditions, that are a hazard to safe operations, the certificate holder or pilot in command, as the case may be, shall restrict or suspend operations as necessary until those conditions are corrected.

(b) No pilot in command may allow a flight to continue toward any airport of intended landing under the conditions set forth in paragraph (a) of this section, unless, in the opinion of the pilot in command, the conditions that are a hazard to safe operations may reasonably be expected to be corrected by the estimated time of arrival or, unless there is no safer procedure. In the latter event, the continuation toward that airport is an emergency situation under § 135.19.

§ 135.71 Airworthiness check.

The pilot in command may not begin a flight unless the pilot determines that the airworthiness inspections required by § 91.409 of this chapter, or § 135.419, whichever is applicable, have been made.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-32, 54 FR 34332, Aug. 18, 1989]

§ 135.73 Inspections and tests.

Each certificate holder and each person employed by the certificate holder shall allow the Administrator, at any time or place, to make inspections or tests (including en route inspections) to determine the holder's compliance with the Federal Aviation Act of 1958, applicable regulations, and the certificate holder's operating certificate, and operations specifications.

**§ 135.75 Inspectors credentials: Admission to pilots'
compartment: Forward observer's seat.**

(a) Whenever, in performing the duties of conducting an inspection, an FAA inspector presents an Aviation Safety Inspector credential, FAA Form 110A, to the pilot in command of an aircraft operated by the certificate holder, the inspector must be given free and uninterrupted access to the pilot compartment of that aircraft. However, this paragraph does not limit the emergency authority of the pilot in command to exclude any person from the pilot compartment in the interest of safety.

(b) A forward observer's seat on the flight deck, or forward passenger seat with headset or speaker must be provided for use by the Administrator while conducting en route inspections. The suitability of the location of the seat and the headset or speaker for use in conducting en route inspections is determined by the Administrator.

**§ 135.76 DOD Commercial Air Carrier Evaluator's
Credentials: Admission to pilots compartment:
Forward observer's seat.**

(a) Whenever, in performing the duties of conducting an evaluation, a DOD commercial air carrier evaluator presents S&A Form 110B, "DOD Commercial Air Carrier Evaluator's Credential," to the pilot in command of an aircraft operated

by the certificate holder, the evaluator must be given free and uninterrupted access to the pilot's compartment of that aircraft. However, this paragraph does not limit the emergency authority of the pilot in command to exclude any person from the pilot compartment in the interest of safety.

(b) A forward observer's seat on the flight deck or forward passenger seat with headset or speaker must be provided for use by the evaluator while conducting en route evaluations. The suitability of the location of the seat and the headset or speaker for use in conducting en route evaluations is determined by the FAA.

[Doc. No. FAA-2003-15571, 68 FR 41218, July 10, 2003]

§ 135.77 Responsibility for operational control.

Each certificate holder is responsible for operational control and shall list, in the manual required by § 135.21, the name and title of each person authorized by it to exercise operational control.

§ 135.78 Instrument approach procedures and IFR landing minimums.

No person may make an instrument approach at an airport except in accordance with IFR weather minimums and instrument approach procedures set forth in the certificate holder's operations specifications.

[Doc. No. FAA-2002-14002, 72 FR 31684, June 7, 2007]

§ 135.79 Flight locating requirements.

(a) Each certificate holder must have procedures established for locating each flight, for which an FAA flight plan is not filed, that -

(1) Provide the certificate holder with at least the information required to be included in a VFR flight plan;

(2) Provide for timely notification of an FAA facility or search and rescue facility, if an aircraft is overdue or missing; and

(3) Provide the certificate holder with the location, date, and estimated time for reestablishing communications, if the flight will operate in an area where communications cannot be maintained.

(b) Flight locating information shall be retained at the certificate holder's principal place of business, or at other places designated by the certificate holder in the flight locating procedures, until the completion of the flight.

(c) Each certificate holder shall furnish the representative of the Administrator assigned to it with a copy of its flight locating procedures and any changes or additions, unless those procedures are included in a manual required under this part.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-110, 72 FR 31684, June 7, 2007]

§ 135.81 Informing personnel of operational information and appropriate changes.

Each certificate holder shall inform each person in its employment of the operations specifications that apply to that

person's duties and responsibilities and shall make available to each pilot in the certificate holder's employ the following materials in current form:

(a) Airman's Information Manual (Alaska Supplement in Alaska and Pacific Chart Supplement in Pacific-Asia Regions) or a commercial publication that contains the same information.

(b) This part and part 91 of this chapter.

(c) Aircraft Equipment Manuals, and Aircraft Flight Manual or equivalent.

(d) For foreign operations, the International Flight Information Manual or a commercial publication that contains the same information concerning the pertinent operational and entry requirements of the foreign country or countries involved.

§ 135.83 Operating information required.

(a) The operator of an aircraft must provide the following materials, in current and appropriate form, accessible to the pilot at the pilot station, and the pilot shall use them:

(1) A cockpit checklist.

(2) For multiengine aircraft or for aircraft with retractable landing gear, an emergency cockpit checklist containing the procedures required by paragraph (c) of this section, as appropriate.

(3) Pertinent aeronautical charts.

(4) For IFR operations, each pertinent navigational en route, terminal area, and approach and letdown chart.

(5) For multiengine aircraft, one-engine-inoperative climb performance data and if the aircraft is approved for use in IFR or over-the-top operations, that data must be sufficient to enable the pilot to determine compliance with § 135.181(a)(2).

(b) Each cockpit checklist required by paragraph (a)(1) of this section must contain the following procedures:

(1) Before starting engines;

(2) Before takeoff;

(3) Cruise;

(4) Before landing;

(5) After landing;

(6) Stopping engines.

(c) Each emergency cockpit checklist required by paragraph (a)(2) of this section must contain the following procedures, as appropriate:

(1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.

(2) Emergency operation of instruments and controls.

(3) Engine inoperative procedures.

(4) Any other emergency procedures necessary for safety.

§ 135.85 Carriage of persons without compliance with the passenger-carrying provisions of this part.

The following persons may be carried aboard an aircraft without complying with the passenger-carrying requirements of this part:

(a) A crewmember or other employee of the certificate holder.

(b) A person necessary for the safe handling of animals on the aircraft.

(c) A person necessary for the safe handling of hazardous materials (as defined in subchapter C of title 49 CFR).

(d) A person performing duty as a security or honor guard accompanying a shipment made by or under the authority of the U.S. Government.

(e) A military courier or a military route supervisor carried by a military cargo contract air carrier or commercial operator in operations under a military cargo contract, if that carriage is specifically authorized by the appropriate military service.

(f) An authorized representative of the Administrator conducting an en route inspection.

(g) A person, authorized by the Administrator, who is performing a duty connected with a cargo operation of the certificate holder.

(h) A DOD commercial air carrier evaluator conducting an en route evaluation.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-88, 68 FR 41218, July 10, 2003]

§ 135.87 Carriage of cargo including carry-on baggage.

No person may carry cargo, including carry-on baggage, in or on any aircraft unless -

(a) It is carried in an approved cargo rack, bin, or compartment installed in or on the aircraft;

(b) It is secured by an approved means; or

(c) It is carried in accordance with each of the following:

(1) For cargo, it is properly secured by a safety belt or other tie-down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions, or for carry-on baggage, it is restrained so as to prevent its movement during air turbulence.

(2) It is packaged or covered to avoid possible injury to occupants.

(3) It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components.

(4) It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided.

(5) It is not carried directly above seated occupants.

(6) It is stowed in compliance with this section for takeoff and landing.

(7) For cargo only operations, paragraph (c)(4) of this section does not apply if the cargo is loaded so that at least one emergency or regular exit is available to provide all occupants

of the aircraft a means of unobstructed exit from the aircraft if an emergency occurs.

(d) Each passenger seat under which baggage is stowed shall be fitted with a means to prevent articles of baggage stowed under it from sliding under crash impacts severe enough to induce the ultimate inertia forces specified in the emergency landing condition regulations under which the aircraft was type certificated.

(e) When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

§ 135.89 Pilot requirements: Use of oxygen.

(a) *Unpressurized aircraft.* Each pilot of an unpressurized aircraft shall use oxygen continuously when flying -

(1) At altitudes above 10,000 feet through 12,000 feet MSL for that part of the flight at those altitudes that is of more than 30 minutes duration; and

(2) Above 12,000 feet MSL.

(b) *Pressurized aircraft.* (1) Whenever a pressurized aircraft is operated with the cabin pressure altitude more than 10,000 feet MSL, each pilot shall comply with paragraph (a) of this section.

(2) Whenever a pressurized aircraft is operated at altitudes above 25,000 feet through 35,000 feet MSL, unless each pilot has an approved quick-donning type oxygen mask -

(i) At least one pilot at the controls shall wear, secured and sealed, an oxygen mask that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude exceeds 12,000 feet MSL; and

(ii) During that flight, each other pilot on flight deck duty shall have an oxygen mask, connected to an oxygen supply, located so as to allow immediate placing of the mask on the pilot's face sealed and secured for use.

(3) Whenever a pressurized aircraft is operated at altitudes above 35,000 feet MSL, at least one pilot at the controls shall wear, secured and sealed, an oxygen mask required by paragraph (b)(2)(i) of this section.

(4) If one pilot leaves a pilot duty station of an aircraft when operating at altitudes above 25,000 feet MSL, the remaining pilot at the controls shall put on and use an approved oxygen mask until the other pilot returns to the pilot duty station of the aircraft.

§ 135.91 Oxygen and portable oxygen concentrators for medical use by passengers.

(a) Except as provided in paragraphs (d) and (e) of this section, no certificate holder may allow the carriage or operation of equipment for the storage, generation or dispensing of medical oxygen unless the conditions in paragraphs (a) through (c) of this section are satisfied. Beginning August 22, 2016, a certificate holder may allow a

passenger to carry and operate a portable oxygen concentrator when the conditions in paragraphs (b) and (f) of this section are satisfied.

(1) The equipment must be -

(i) Of an approved type or in conformity with the manufacturing, packaging, marking, labeling, and maintenance requirements of title 49 CFR parts 171, 172, and 173, except § 173.24(a)(1);

(ii) When owned by the certificate holder, maintained under the certificate holder's approved maintenance program;

(iii) Free of flammable contaminants on all exterior surfaces;

(iv) Constructed so that all valves, fittings, and gauges are protected from damage during carriage or operation; and

(v) Appropriately secured.

(2) When the oxygen is stored in the form of a liquid, the equipment must have been under the certificate holder's approved maintenance program since its purchase new or since the storage container was last purged.

(3) When the oxygen is stored in the form of a compressed gas as defined in title 49 CFR 173.115(b) -

(i) When owned by the certificate holder, it must be maintained under its approved maintenance program; and

(ii) The pressure in any oxygen cylinder must not exceed the rated cylinder pressure.

(4) The pilot in command must be advised when the equipment is on board, and when it is intended to be used.

(5) The equipment must be stowed, and each person using the equipment must be seated, so as not to restrict access to or use of any required emergency or regular exit, or of the aisle in the passenger compartment.

(b) No person may smoke or create an open flame and no certificate holder may allow any person to smoke or create an open flame within 10 feet of oxygen storage and dispensing equipment carried under paragraph (a) of this section or a portable oxygen concentrator carried and operated under paragraph (f) of this section.

(c) No certificate holder may allow any person other than a person trained in the use of medical oxygen equipment to connect or disconnect oxygen bottles or any other ancillary component while any passenger is aboard the aircraft.

(d) Paragraph (a)(1)(i) of this section does not apply when that equipment is furnished by a professional or medical emergency service for use on board an aircraft in a medical emergency when no other practical means of transportation (including any other properly equipped certificate holder) is reasonably available and the person carried under the medical emergency is accompanied by a person trained in the use of medical oxygen.

(e) Each certificate holder who, under the authority of paragraph (d) of this section, deviates from paragraph (a)(1)(i) of this section under a medical emergency shall, within 10 days, excluding Saturdays, Sundays, and Federal holidays, after the deviation, send to the certificate-holding district

office a complete report of the operation involved, including a description of the deviation and the reasons for it.

(f) *Portable oxygen concentrators* - (1) *Acceptance criteria*. A passenger may carry or operate a portable oxygen concentrator for personal use on board an aircraft and a certificate holder may allow a passenger to carry or operate a portable oxygen concentrator on board an aircraft operated under this part during all phases of flight if the portable oxygen concentrator satisfies all of the requirements of this paragraph (f):

(i) Is legally marketed in the United States in accordance with Food and Drug Administration requirements in title 21 of the CFR;

(ii) Does not radiate radio frequency emissions that interfere with aircraft systems;

(iii) Generates a maximum oxygen pressure of less than 200 kPa gauge (29.0 psig/43.8 psia) at 20 °C (68 °F);

(iv) Does not contain any hazardous materials subject to the Hazardous Materials Regulations (49 CFR parts 171 through 180) except as provided in 49 CFR 175.10 for batteries used to power portable electronic devices and that do not require aircraft operator approval; and

(v) Bears a label on the exterior of the device applied in a manner that ensures the label will remain affixed for the life of the device and containing the following certification statement in red lettering: "The manufacturer of this POC has determined this device conforms to all applicable FAA acceptance criteria for POC carriage and use on board aircraft." The label requirements in this paragraph (f)(1)(v) do not apply to the following portable oxygen concentrators approved by the FAA for use on board aircraft prior to May 24, 2016:

(A) AirSep Focus;

(B) AirSep FreeStyle;

(C) AirSep FreeStyle 5;

(D) AirSep LifeStyle;

(E) Delphi RS-00400;

(F) DeVilbiss Healthcare iGo;

(G) Inogen One;

(H) Inogen One G2;

(I) Inogen One G3;

(J) Inova Labs LifeChoice;

(K) Inova Labs LifeChoice Activox;

(L) International Biophysics LifeChoice;

(M) Invacare Solo2;

(N) Invacare XPO2;

(O) Oxlife Independence Oxygen Concentrator;

(P) Oxus RS-00400;

(Q) Precision Medical EasyPulse;

(R) Respironics EverGo;

(S) Respironics SimplyGo;

(T) SeQual Eclipse;

(U) SeQual eQuinox Oxygen System (model 4000);

(V) SeQual Oxywell Oxygen System (model 4000);

(W) SeQual SAROS; and

(X) VBox Trooper Oxygen Concentrator.

(2) *Operating requirements.* Portable oxygen concentrators that satisfy the acceptance criteria identified in paragraph (f)(1) of this section may be carried on or operated by a passenger on board an aircraft provided the aircraft operator ensures that all of the conditions in this paragraph (f) (2) are satisfied:

(i) *Exit seats.* No person operating a portable oxygen concentrator is permitted to occupy an exit seat.

(ii) *Stowage of device.* During movement on the surface, takeoff and landing, the device must be stowed under the seat in front of the user, or in another approved stowage location so that it does not block the aisle way or the entryway to the row. If the device is to be operated by the user, it must be operated only at a seat location that does not restrict any passenger's access to, or use of, any required emergency or regular exit, or the aisle(s) in the passenger compartment.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-60, 61 FR 2616, Jan. 26, 1996; Docket FAA-2014-0554, Amdt. 135-133, 81 FR 33119, May 24, 2016]

§ 135.93 Minimum altitudes for use of autopilot.

(a) *Definitions.* For purpose of this section -

(1) Altitudes for takeoff/initial climb and go-around/missed approach are defined as above the airport elevation.

(2) Altitudes for enroute operations are defined as above terrain elevation.

(3) Altitudes for approach are defined as above the touchdown zone elevation (TDZE), unless the altitude is specifically in reference to DA (H) or MDA, in which case the altitude is defined by reference to the DA(H) or MDA itself.

(b) *Takeoff and initial climb.* No person may use an autopilot for takeoff or initial climb below the higher of 500 feet or an altitude that is no lower than twice the altitude loss specified in the Airplane Flight Manual (AFM), except as follows -

(1) At a minimum engagement altitude specified in the AFM; or

(2) At an altitude specified by the Administrator, whichever is greater.

(c) *Enroute.* No person may use an autopilot enroute, including climb and descent, below the following -

(1) 500 feet;

(2) At an altitude that is no lower than twice the altitude loss specified in the AFM for an autopilot malfunction in cruise conditions; or

(3) At an altitude specified by the Administrator, whichever is greater.

(d) *Approach.* No person may use an autopilot at an altitude lower than 50 feet below the DA(H) or MDA for the instrument procedure being flown, except as follows -

(1) For autopilots with an AFM specified altitude loss for approach operations -

(i) An altitude no lower than twice the specified altitude loss if higher than 50 feet below the MDA or DA(H);

(ii) An altitude no lower than 50 feet higher than the altitude loss specified in the AFM, when the following conditions are met -

(A) Reported weather conditions are less than the basic VFR weather conditions in § 91.155 of this chapter;

(B) Suitable visual references specified in § 91.175 of this chapter have been established on the instrument approach procedure; and

(C) The autopilot is coupled and receiving both lateral and vertical path references;

(iii) An altitude no lower than the higher of the altitude loss specified in the AFM or 50 feet above the TDZE, when the following conditions are met -

(A) Reported weather conditions are equal to or better than the basic VFR weather conditions in § 91.155 of this chapter; and

(B) The autopilot is coupled and receiving both lateral and vertical path references; or

(iv) A greater altitude specified by the Administrator.

(2) For autopilots with AFM specified approach altitude limitations, the greater of -

(i) The minimum use altitude specified for the coupled approach mode selected;

(ii) 50 feet; or

(iii) An altitude specified by Administrator.

(3) For autopilots with an AFM specified negligible or zero altitude loss for an autopilot approach mode malfunction, the greater of -

(i) 50 feet; or

(ii) An altitude specified by Administrator.

(4) If executing an autopilot coupled go-around or missed approach using a certificated and functioning autopilot in accordance with paragraph (e) in this section.

(e) *Go-Around/Missed Approach.* No person may engage an autopilot during a go-around or missed approach below the minimum engagement altitude specified for takeoff and initial climb in paragraph (b) in this section. An autopilot minimum use altitude does not apply to a go-around/missed approach initiated with an engaged autopilot. Performing a go-around or missed approach with an engaged autopilot must not adversely affect safe obstacle clearance.

(f) *Landing.* Notwithstanding paragraph (d) of this section, autopilot minimum use altitudes do not apply to autopilot operations when an approved automatic landing system mode is being used for landing. Automatic landing systems must be authorized in an operations specification issued to the operator.

(g) This section does not apply to operations conducted in rotorcraft.

[Doc. No. FAA-2012-1059, 79 FR 6088, Feb. 3, 2014]

§ 135.95 Airmen: Limitations on use of services.

No certificate holder may use the services of any person as an airman unless the person performing those services -

(a) Holds an appropriate and current airman certificate; and

(b) Is qualified, under this chapter, for the operation for which the person is to be used.

§ 135.97 Aircraft and facilities for recent flight experience.

Each certificate holder shall provide aircraft and facilities to enable each of its pilots to maintain and demonstrate the pilot's ability to conduct all operations for which the pilot is authorized.

§ 135.98 Operations in the North Polar Area.

After August 13, 2008, no certificate holder may operate an aircraft in the region north of 78° N latitude ("North Polar Area"), other than intrastate operations wholly within the state of Alaska, unless authorized by the FAA. The certificate holder's operation specifications must include the following:

(a) The designation of airports that may be used for en-route diversions and the requirements the airports must meet at the time of diversion.

(b) Except for all-cargo operations, a recovery plan for passengers at designated diversion airports.

(c) A fuel-freeze strategy and procedures for monitoring fuel freezing for operations in the North Polar Area.

(d) A plan to ensure communication capability for operations in the North Polar Area.

(e) An MEL for operations in the North Polar Area.

(f) A training plan for operations in the North Polar Area.

(g) A plan for mitigating crew exposure to radiation during solar flare activity.

(h) A plan for providing at least two cold weather anti-exposure suits in the aircraft, to protect crewmembers during outside activity at a diversion airport with extreme climatic conditions. The FAA may relieve the certificate holder from this requirement if the season of the year makes the equipment unnecessary.

[Doc. No. FAA-2002-6717, 72 FR 1885, Jan. 16, 2007, as amended by Amdt. 135-112, 73 FR 8798, Feb. 15, 2008]

§ 135.99 Composition of flight crew.

(a) No certificate holder may operate an aircraft with less than the minimum flight crew specified in the aircraft operating limitations or the Aircraft Flight Manual for that aircraft and required by this part for the kind of operation being conducted.

(b) No certificate holder may operate an aircraft without a second in command if that aircraft has a passenger seating configuration, excluding any pilot seat, of ten seats or more.

§ 135.100 Flight crewmember duties.

(a) No certificate holder shall require, nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft. Duties such as company required calls made for such nonsafety related purposes as ordering galley supplies and confirming passenger connections, announcements made

to passengers promoting the air carrier or pointing out sights of interest, and filling out company payroll and related records are not required for the safe operation of the aircraft.

(b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft.

(c) For the purposes of this section, critical phases of flight includes all ground operations involving taxi, takeoff and landing, and all other flight operations conducted below 10,000 feet, except cruise flight.

Note:

Taxi is defined as "movement of an airplane under its own power on the surface of an airport."

[Doc. No. 20661, 46 FR 5502, Jan. 19, 1981]

§ 135.101 Second in command required under IFR.

Except as provided in § 135.105, no person may operate an aircraft carrying passengers under IFR unless there is a second in command in the aircraft.

[Doc. No. 28743, 62 FR 42374, Aug. 6, 1997]

§ 135.103 [Reserved]

§ 135.105 Exception to second in command requirement: Approval for use of autopilot system.

(a) Except as provided in §§ 135.99 and 135.111, unless two pilots are required by this chapter for operations under VFR, a person may operate an aircraft without a second in command, if it is equipped with an operative approved autopilot system and the use of that system is authorized by appropriate operations specifications. No certificate holder may use any person, nor may any person serve, as a pilot in command under this section of an aircraft operated in a commuter operation, as defined in part 119 of this chapter unless that person has at least 100 hours pilot in command flight time in the make and model of aircraft to be flown and has met all other applicable requirements of this part.

(b) The certificate holder may apply for an amendment of its operations specifications to authorize the use of an autopilot system in place of a second in command.

(c) The Administrator issues an amendment to the operations specifications authorizing the use of an autopilot system, in place of a second in command, if -

(1) The autopilot is capable of operating the aircraft controls to maintain flight and maneuver it about the three axes; and

(2) The certificate holder shows, to the satisfaction of the Administrator, that operations using the autopilot system can be conducted safely and in compliance with this part.

The amendment contains any conditions or limitations on the use of the autopilot system that the Administrator determines are needed in the interest of safety.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-3, 45 FR 7542, Feb. 4, 1980; Amdt. 135-58, 60 FR 65939, Dec. 20, 1995]

§ 135.107 Flight attendant crewmember requirement.

No certificate holder may operate an aircraft that has a passenger seating configuration, excluding any pilot seat, of more than 19 unless there is a flight attendant crewmember on board the aircraft.

§ 135.109 Pilot in command or second in command: Designation required.

(a) Each certificate holder shall designate a -

- (1) Pilot in command for each flight; and
- (2) Second in command for each flight requiring two pilots.

(b) The pilot in command, as designated by the certificate holder, shall remain the pilot in command at all times during that flight.

§ 135.111 Second in command required in Category II operations.

No person may operate an aircraft in a Category II operation unless there is a second in command of the aircraft.

§ 135.113 Passenger occupancy of pilot seat.

No certificate holder may operate an aircraft type certificated after October 15, 1971, that has a passenger seating configuration, excluding any pilot seat, of more than eight seats if any person other than the pilot in command, a second in command, a company check airman, or an authorized representative of the Administrator, the National Transportation Safety Board, or the United States Postal Service occupies a pilot seat.

§ 135.115 Manipulation of controls.

No pilot in command may allow any person to manipulate the flight controls of an aircraft during flight conducted under this part, nor may any person manipulate the controls during such flight unless that person is -

(a) A pilot employed by the certificate holder and qualified in the aircraft; or

(b) An authorized safety representative of the Administrator who has the permission of the pilot in command, is qualified in the aircraft, and is checking flight operations.

§ 135.117 Briefing of passengers before flight.

(a) Before each takeoff each pilot in command of an aircraft carrying passengers shall ensure that all passengers have been orally briefed on -

(1) *Smoking.* Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited (including, but not limited to, any applicable requirements of part 252 of this title). This briefing shall include a statement that the Federal Aviation Regulations require passenger compliance with the lighted passenger information signs (if such signs are required), posted placards, areas designated for safety purposes as no smoking areas, and crewmember instructions with regard to these items. The briefing shall also include a statement (if the aircraft is equipped with a lavatory) that Federal law prohibits: tampering with, disabling, or destroying any smoke detector installed in an aircraft lavatory; smoking in lavatories; and, when applicable, smoking in passenger compartments.

(2) The use of safety belts, including instructions on how to fasten and unfasten the safety belts. Each passenger shall be briefed on when, where, and under what conditions the safety belt must be fastened about that passenger. This briefing shall include a statement that the Federal Aviation Regulations require passenger compliance with lighted passenger information signs and crewmember instructions concerning the use of safety belts.

(3) The placement of seat backs in an upright position before takeoff and landing;

(4) Location and means for opening the passenger entry door and emergency exits;

(5) Location of survival equipment;

(6) If the flight involves extended overwater operation, ditching procedures and the use of required flotation equipment;

(7) If the flight involves operations above 12,000 feet MSL, the normal and emergency use of oxygen; and

(8) Location and operation of fire extinguishers.

(9) If a rotorcraft operation involves flight beyond autorotational distance from the shoreline, as defined in § 135.168(a), use of life preservers, ditching procedures and emergency exit from the rotorcraft in the event of a ditching; and the location and use of life rafts and other life preserver devices if applicable.

(b) Before each takeoff the pilot in command shall ensure that each person who may need the assistance of another person to move expeditiously to an exit if an emergency occurs and that person's attendant, if any, has received a briefing as to the procedures to be followed if an evacuation occurs. This paragraph does not apply to a person who has been given a briefing before a previous leg of a flight in the same aircraft.

(c) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a crewmember.

(d) Notwithstanding the provisions of paragraph (c) of this section, for aircraft certificated to carry 19 passengers or less, the oral briefing required by paragraph (a) of this section shall be given by the pilot in command, a crewmember, or other qualified person designated by the certificate holder and approved by the Administrator.

(e) The oral briefing required by paragraph (a) of this section must be supplemented by printed cards which must be carried in the aircraft in locations convenient for the use of each passenger. The cards must -

(1) Be appropriate for the aircraft on which they are to be used;

(2) Contain a diagram of, and method of operating, the emergency exits;

(3) Contain other instructions necessary for the use of emergency equipment on board the aircraft; and

(4) No later than June 12, 2005, for scheduled Commuter passenger-carrying flights, include the sentence, "Final assembly of this aircraft was completed in [INSERT NAME OF COUNTRY]."

(f) The briefing required by paragraph (a) may be delivered by means of an approved recording playback device that is audible to each passenger under normal noise levels.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-9, 51 FR 40709, Nov. 7, 1986; Amdt. 135-25, 53 FR 12362, Apr. 13, 1988; Amdt. 135-44, 57 FR 42675, Sept. 15, 1992; 57 FR 43776, Sept. 22, 1992; 69 FR 39294, June 29, 2004; Amdt. 135-129, 79 FR 9973, Feb. 21, 2014]

§ 135.119 Prohibition against carriage of weapons.

No person may, while on board an aircraft being operated by a certificate holder, carry on or about that person a deadly or dangerous weapon, either concealed or unconcealed. This section does not apply to -

(a) Officials or employees of a municipality or a State, or of the United States, who are authorized to carry arms; or

(b) Crewmembers and other persons authorized by the certificate holder to carry arms.

§ 135.120 Prohibition on interference with crewmembers.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated under this part.

[Doc. No. FAA-1998-4954, 64 FR 1080, Jan. 7, 1999]

§ 135.121 Alcoholic beverages.

(a) No person may drink any alcoholic beverage aboard an aircraft unless the certificate holder operating the aircraft has served that beverage.

(b) No certificate holder may serve any alcoholic beverage to any person aboard its aircraft if that person appears to be intoxicated.

(c) No certificate holder may allow any person to board any of its aircraft if that person appears to be intoxicated.

§ 135.122 Stowage of food, beverage, and passenger service equipment during aircraft movement on the surface, takeoff, and landing.

(a) No certificate holder may move an aircraft on the surface, take off, or land when any food, beverage, or tableware furnished by the certificate holder is located at any passenger seat.

(b) No certificate holder may move an aircraft on the surface, take off, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.

(c) No certificate holder may permit an aircraft to move on the surface, take off, or land unless each passenger serving cart is secured in its stowed position.

(d) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

[Doc. No. 26142, 57 FR 42675, Sept. 15, 1992]

§ 135.123 Emergency and emergency evacuation duties.

(a) Each certificate holder shall assign to each required crewmember for each type of aircraft as appropriate, the necessary functions to be performed in an emergency or in a situation requiring emergency evacuation. The certificate holder shall ensure that those functions can be practicably accomplished, and will meet any reasonably anticipated emergency including incapacitation of individual crewmembers or their inability to reach the passenger cabin because of shifting cargo in combination cargo-passenger aircraft.

(b) The certificate holder shall describe in the manual required under § 135.21 the functions of each category of required crewmembers assigned under paragraph (a) of this section.

§ 135.125 Aircraft security.

Certificate holders conducting operations under this part must comply with the applicable security requirements in 49 CFR chapter XII.

[67 FR 8350, Feb. 22, 2002]

§ 135.127 Passenger information requirements and smoking prohibitions.

(a) No person may conduct a scheduled flight on which smoking is prohibited by part 252 of this title unless the "No Smoking" passenger information signs are lighted during the entire flight, or one or more "No Smoking" placards meeting the requirements of § 25.1541 of this chapter are posted during the entire flight. If both the lighted signs and the placards are used, the signs must remain lighted during the entire flight segment.

(b) No person may smoke while a "No Smoking" sign is lighted or while "No Smoking" placards are posted, except as follows:

(1) *On-demand operations.* The pilot in command of an aircraft engaged in an on-demand operation may authorize smoking on the flight deck (if it is physically separated from any passenger compartment), except in any of the following situations:

(i) During aircraft movement on the surface or during takeoff or landing;

(ii) During scheduled passenger-carrying public charter operations conducted under part 380 of this title;

(iii) During on-demand operations conducted interstate that meet paragraph (2) of the definition “On-demand operation” in § 110.2 of this chapter, unless permitted under paragraph (b)(2) of this section; or

(iv) During any operation where smoking is prohibited by part 252 of this title or by international agreement.

(2) *Certain intrastate commuter operations and certain intrastate on-demand operations.* Except during aircraft movement on the surface or during takeoff or landing, a pilot in command of an aircraft engaged in a commuter operation or an on-demand operation that meets paragraph (2) of the definition of “On-demand operation” in § 110.2 of this chapter may authorize smoking on the flight deck (if it is physically separated from the passenger compartment, if any) if -

(i) Smoking on the flight deck is not otherwise prohibited by part 252 of this title;

(ii) The flight is conducted entirely within the same State of the United States (a flight from one place in Hawaii to another place in Hawaii through the airspace over a place outside Hawaii is not entirely within the same State); and

(iii) The aircraft is either not turbojet-powered or the aircraft is not capable of carrying at least 30 passengers.

(c) No person may smoke in any aircraft lavatory.

(d) No person may operate an aircraft with a lavatory equipped with a smoke detector unless there is in that lavatory a sign or placard which reads: “Federal law provides for a penalty of up to \$2,000 for tampering with the smoke detector installed in this lavatory.”

(e) No person may tamper with, disable, or destroy any smoke detector installed in any aircraft lavatory.

(f) On flight segments other than those described in paragraph (a) of this section, the “No Smoking” sign required by § 135.177(a)(3) of this part must be turned on during any movement of the aircraft on the surface, for each takeoff or landing, and at any other time considered necessary by the pilot in command.

(g) The passenger information requirements prescribed in § 91.517 (b) and (d) of this chapter are in addition to the requirements prescribed in this section.

(h) Each passenger shall comply with instructions given him or her by crewmembers regarding compliance with paragraphs (b), (c), and (e) of this section.

[Doc. No. 25590, 55 FR 8367, Mar. 7, 1990, as amended by Amdt. 135-35, 55 FR 20135, May 15, 1990; Amdt. 135-44, 57 FR 42675, Sept. 15, 1992; Amdt. 135-60, 61 FR 2616, Jan. 26, 1996; Amdt.

135-76, 65 FR 36780, June 9, 2000; Amdt. 135-124, 76 FR 7491, Feb. 10, 2011]

§ 135.128 Use of safety belts and child restraint systems.

(a) Except as provided in this paragraph, each person on board an aircraft operated under this part shall occupy an approved seat or berth with a separate safety belt properly secured about him or her during movement on the surface, takeoff, and landing. For seaplane and float equipped rotorcraft operations during movement on the surface, the person pushing off the seaplane or rotorcraft from the dock and the person mooring the seaplane or rotorcraft at the dock are excepted from the preceding seating and safety belt requirements. A safety belt provided for the occupant of a seat may not be used by more than one person who has reached his or her second birthday. Notwithstanding the preceding requirements, a child may:

(1) Be held by an adult who is occupying an approved seat or berth, provided the child has not reached his or her second birthday and the child does not occupy or use any restraining device; or

(2) Notwithstanding any other requirement of this chapter, occupy an approved child restraint system furnished by the certificate holder or one of the persons described in paragraph (a)(2)(i) of this section, provided:

(i) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to attend to the safety of the child during the flight;

(ii) Except as provided in paragraph (a)(2)(ii)(D) of this section, the approved child restraint system bears one or more labels as follows:

(A) Seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: “This child restraint system conforms to all applicable Federal motor vehicle safety standards”;

(B) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels:

(1) “This child restraint system conforms to all applicable Federal motor vehicle safety standards”; and

(2) “THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT” in red lettering;

(C) Seats that do not qualify under paragraphs (a)(2)(ii)(A) and (a)(2)(ii)(B) of this section must bear a label or markings showing:

(1) That the seat was approved by a foreign government;

(2) That the seat was manufactured under the standards of the United Nations;

(3) That the seat or child restraint device furnished by the certificate holder was approved by the FAA through Type Certificate or Supplemental Type Certificate; or

(4) That the seat or child restraint device furnished by the certificate holder, or one of the persons described in paragraph (a)(2)(i) of this section, was approved by the FAA in accordance with § 21.8(d) of this chapter or Technical

Standard Order C-100b, or a later version. The child restraint device manufactured by AmSafe, Inc. (CARES, Part No. 4082) and approved by the FAA in accordance with § 21.305(d) (2010 ed.) of this chapter may continue to bear a label or markings showing FAA approval in accordance with § 21.305(d) (2010 ed.) of this chapter.

(D) Except as provided in § 135.128(a)(2)(ii)(C)(3) and § 135.128(a)(2)(ii)(C)(4), booster-type child restraint systems (as defined in Federal Motor Vehicle Safety Standard No. 213 (49 CFR 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft; and

(iii) The certificate holder complies with the following requirements:

(A) The restraint system must be properly secured to an approved forward-facing seat or berth;

(B) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system; and

(C) The restraint system must bear the appropriate label(s).

(b) Except as provided in paragraph (b)(3) of this section, the following prohibitions apply to certificate holders:

(1) Except as provided in § 135.128 (a)(2)(ii)(C)(3) and § 135.128 (a)(2)(ii)(C)(4), no certificate holder may permit a child, in an aircraft, to occupy a booster-type child restraint system, a vest-type child restraint system, a harness-type child restraint system, or a lap held child restraint system during take off, landing, and movement on the surface.

(2) Except as required in paragraph (b)(1) of this section, no certificate holder may prohibit a child, if requested by the child's parent, guardian, or designated attendant, from occupying a child restraint system furnished by the child's parent, guardian, or designated attendant provided:

(i) The child holds a ticket for an approved seat or berth or such seat or berth is otherwise made available by the certificate holder for the child's use;

(ii) The requirements of paragraph (a)(2)(i) of this section are met;

(iii) The requirements of paragraph (a)(2)(iii) of this section are met; and

(iv) The child restraint system has one or more of the labels described in paragraphs (a)(2)(ii)(A) through (a)(2)(ii)(C) of this section.

(3) This section does not prohibit the certificate holder from providing child restraint systems authorized by this or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.

[Doc. No. 26142, 57 FR 42676, Sept. 15, 1992, as amended by Amdt. 135-62, 61 FR 28422, June 4, 1996; Amdt. 135-100, 70 FR 50907, Aug. 26, 2005; Amdt. 135-106, 71 FR 40010, July 14, 2006; 71 FR 59374, Oct. 10, 2006; Amdt. 135-130, 79 FR 28812, May 20, 2014]

§ 135.129 Exit seating.

(a)(1) *Applicability.* This section applies to all certificate holders operating under this part, except for on-demand operations with aircraft having 19 or fewer passenger seats and commuter operations with aircraft having 9 or fewer passenger seats.

(2) *Duty to make determination of suitability.* Each certificate holder shall determine, to the extent necessary to perform the applicable functions of paragraph (d) of this section, the suitability of each person it permits to occupy an exit seat. For the purpose of this section -

(i) *Exit seat* means -

(A) Each seat having direct access to an exit; and

(B) Each seat in a row of seats through which passengers would have to pass to gain access to an exit, from the first seat inboard of the exit to the first aisle inboard of the exit.

(ii) A passenger seat having *direct access* means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.

(3) *Persons designated to make determination.* Each certificate holder shall make the passenger exit seating determinations required by this paragraph in a non-discriminatory manner consistent with the requirements of this section, by persons designated in the certificate holder's required operations manual.

(4) *Submission of designation for approval.* Each certificate holder shall designate the exit seats for each passenger seating configuration in its fleet in accordance with the definitions in this paragraph and submit those designations for approval as part of the procedures required to be submitted for approval under paragraphs (n) and (p) of this section.

(b) No certificate holder may seat a person in a seat affected by this section if the certificate holder determines that it is likely that the person would be unable to perform one or more of the applicable functions listed in paragraph (d) of this section because -

(1) The person lacks sufficient mobility, strength, or dexterity in both arms and hands, and both legs:

(i) To reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanisms;

(ii) To grasp and push, pull, turn, or otherwise manipulate those mechanisms;

(iii) To push, shove, pull, or otherwise open emergency exits;

(iv) To lift out, hold, deposit on nearby seats, or maneuver over the seatbacks to the next row objects the size and weight of over-wing window exit doors;

(v) To remove obstructions of size and weight similar over-wing exit doors;

(vi) To reach the emergency exit expeditiously;

(vii) To maintain balance while removing obstructions;

(viii) To exit expeditiously;

(ix) To stabilize an escape slide after deployment; or

- (x) To assist others in getting off an escape slide;
- (2) The person is less than 15 years of age or lacks the capacity to perform one or more of the applicable functions listed in paragraph (d) of this section without the assistance of an adult companion, parent, or other relative;
- (3) The person lacks the ability to read and understand instructions required by this section and related to emergency evacuation provided by the certificate holder in printed or graphic form or the ability to understand oral crew commands.
- (4) The person lacks sufficient visual capacity to perform one or more of the applicable functions in paragraph (d) of this section without the assistance of visual aids beyond contact lenses or eyeglasses;
- (5) The person lacks sufficient aural capacity to hear and understand instructions shouted by flight attendants, without assistance beyond a hearing aid;
- (6) The person lacks the ability adequately to impart information orally to other passengers; or,
- (7) The person has:
 - (i) A condition or responsibilities, such as caring for small children, that might prevent the person from performing one or more of the applicable functions listed in paragraph (d) of this section; or
 - (ii) A condition that might cause the person harm if he or she performs one or more of the applicable functions listed in paragraph (d) of this section.
- (c) Each passenger shall comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section.
- (d) Each certificate holder shall include on passenger information cards, presented in the language in which briefings and oral commands are given by the crew, at each exit seat affected by this section, information that, in the event of an emergency in which a crewmember is not available to assist, a passenger occupying an exit seat may use if called upon to perform the following functions:
 - (1) Locate the emergency exit;
 - (2) Recognize the emergency exit opening mechanism;
 - (3) Comprehend the instructions for operating the emergency exit;
 - (4) Operate the emergency exit;
 - (5) Assess whether opening the emergency exit will increase the hazards to which passengers may be exposed;
 - (6) Follow oral directions and hand signals given by a crewmember;
 - (7) Stow or secure the emergency exit door so that it will not impede use of the exit;
 - (8) Assess the condition of an escape slide, activate the slide, and stabilize the slide after deployment to assist others in getting off the slide;
 - (9) Pass expeditiously through the emergency exit; and
 - (10) Assess, select, and follow a safe path away from the emergency exit.

(e) Each certificate holder shall include on passenger information cards, at each exit seat -

- (1) In the primary language in which emergency commands are given by the crew, the selection criteria set forth in paragraph (b) of this section, and a request that a passenger identify himself or herself to allow reseating if he or she -
 - (i) Cannot meet the selection criteria set forth in paragraph (b) of this section;
 - (ii) Has a nondiscernible condition that will prevent him or her from performing the applicable functions listed in paragraph (d) of this section;
 - (iii) May suffer bodily harm as the result of performing one or more of those functions; or
 - (iv) Does not wish to perform those functions; and,
- (2) In each language used by the certificate holder for passenger information cards, a request that a passenger identify himself or herself to allow reseating if he or she lacks the ability to read, speak, or understand the language or the graphic form in which instructions required by this section and related to emergency evacuation are provided by the certificate holder, or the ability to understand the specified language in which crew commands will be given in an emergency;
- (3) May suffer bodily harm as the result of performing one or more of those functions; or,
- (4) Does not wish to perform those functions.

A certificate holder shall not require the passenger to disclose his or her reason for needing reseating.

(f) Each certificate holder shall make available for inspection by the public at all passenger loading gates and ticket counters at each airport where it conducts passenger operations, written procedures established for making determinations in regard to exit row seating.

(g) No certificate holder may allow taxi or pushback unless at least one required crewmember has verified that no exit seat is occupied by a person the crewmember determines is likely to be unable to perform the applicable functions listed in paragraph (d) of this section.

(h) Each certificate holder shall include in its passenger briefings a reference to the passenger information cards, required by paragraphs (d) and (e), the selection criteria set forth in paragraph (b), and the functions to be performed, set forth in paragraph (d) of this section.

(i) Each certificate holder shall include in its passenger briefings a request that a passenger identify himself or herself to allow reseating if he or she -

- (1) Cannot meet the selection criteria set forth in paragraph (b) of this section;
- (2) Has a nondiscernible condition that will prevent him or her from performing the applicable functions listed in paragraph (d) of this section;
- (3) May suffer bodily harm as the result of performing one or more of those functions; or,
- (4) Does not wish to perform those functions.

A certificate holder shall not require the passenger to disclose his or her reason for needing reseating.

(j) [Reserved]

(k) In the event a certificate holder determines in accordance with this section that it is likely that a passenger assigned to an exit seat would be unable to perform the functions listed in paragraph (d) of this section or a passenger requests a non-exit seat, the certificate holder shall expeditiously relocate the passenger to a non-exit seat.

(l) In the event of full booking in the non-exit seats and if necessary to accommodate a passenger being relocated from an exit seat, the certificate holder shall move a passenger who is willing and able to assume the evacuation functions that may be required, to an exit seat.

(m) A certificate holder may deny transportation to any passenger under this section only because -

(1) The passenger refuses to comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section, or

(2) The only seat that will physically accommodate the person's handicap is an exit seat.

(n) In order to comply with this section certificate holders shall -

(1) Establish procedures that address:

(i) The criteria listed in paragraph (b) of this section;

(ii) The functions listed in paragraph (d) of this section;

(iii) The requirements for airport information, passenger information cards, crewmember verification of appropriate seating in exit seats, passenger briefings, seat assignments, and denial of transportation as set forth in this section;

(iv) How to resolve disputes arising from implementation of this section, including identification of the certificate holder employee on the airport to whom complaints should be addressed for resolution; and,

(2) Submit their procedures for preliminary review and approval to the principal operations inspectors assigned to them at the certificate-holding district office.

(o) Certificate holders shall assign seats prior to boarding consistent with the criteria listed in paragraph (b) and the functions listed in paragraph (d) of this section, to the maximum extent feasible.

(p) The procedures required by paragraph (n) of this section will not become effective until final approval is granted by the Director, Flight Standards Service, Washington, DC. Approval will be based solely upon the safety aspects of the certificate holder's procedures.

[Doc. No. 25821, 55 FR 8073, Mar. 6, 1990, as amended by Amdt. 135-45, 57 FR 48664, Oct. 27, 1992; Amdt. 135-50, 59 FR 33603, June 29, 1994; Amdt. 135-60, 61 FR 2616, Jan. 26, 1996]

Subpart C - Aircraft and Equipment

§ 135.141 Applicability.

This subpart prescribes aircraft and equipment requirements for operations under this part. The requirements

of this subpart are in addition to the aircraft and equipment requirements of part 91 of this chapter. However, this part does not require the duplication of any equipment required by this chapter.

§ 135.143 General requirements.

(a) No person may operate an aircraft under this part unless that aircraft and its equipment meet the applicable regulations of this chapter.

(b) Except as provided in § 135.179, no person may operate an aircraft under this part unless the required instruments and equipment in it have been approved and are in an operable condition.

(c) ATC transponder equipment installed within the time periods indicated below must meet the performance and environmental requirements of the following TSO's:

(1) *Through January 1, 1992:* (i) Any class of TSO-C74b or any class of TSO-C74c as appropriate, provided that the equipment was manufactured before January 1, 1990; or

(ii) The appropriate class of TSO-C112 (Mode S).

(2) *After January 1, 1992:* The appropriate class of TSO-C112 (Mode S). For purposes of paragraph (c)(2) of this section, "installation" does not include -

(i) Temporary installation of TSO-C74b or TSO-C74c substitute equipment, as appropriate, during maintenance of the permanent equipment;

(ii) Reinstallation of equipment after temporary removal for maintenance; or

(iii) For fleet operations, installation of equipment in a fleet aircraft after removal of the equipment for maintenance from another aircraft in the same operator's fleet.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-22, 52 FR 3392, Feb. 3, 1987]

§ 135.144 Portable electronic devices.

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any U.S.-registered civil aircraft operating under this part.

(b) Paragraph (a) of this section does not apply to -

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers;

(5) Portable oxygen concentrators that comply with the requirements in § 135.91; or

(6) Any other portable electronic device that the part 119 certificate holder has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c). The determination required by paragraph (b)(6) of this section shall be made by that part 119 certificate holder operating the aircraft on which the particular device is to be used.

[Doc. No. FAA-1998-4954, 64 FR 1080, Jan. 7, 1999, as amended by Docket FAA-2014-0554, Amdt. 135-133, 81 FR 33120, May 24, 2016]

§ 135.145 Aircraft proving and validation tests.

(a) No certificate holder may operate an aircraft, other than a turbojet aircraft, for which two pilots are required by this chapter for operations under VFR, if it has not previously proved such an aircraft in operations under this part in at least 25 hours of proving tests acceptable to the Administrator including -

- (1) Five hours of night time, if night flights are to be authorized;
- (2) Five instrument approach procedures under simulated or actual conditions, if IFR flights are to be authorized; and
- (3) Entry into a representative number of en route airports as determined by the Administrator.

(b) No certificate holder may operate a turbojet airplane if it has not previously proved a turbojet airplane in operations under this part in at least 25 hours of proving tests acceptable to the Administrator including -

- (1) Five hours of night time, if night flights are to be authorized;
- (2) Five instrument approach procedures under simulated or actual conditions, if IFR flights are to be authorized; and
- (3) Entry into a representative number of en route airports as determined by the Administrator.

(c) No certificate holder may carry passengers in an aircraft during proving tests, except those needed to make the tests and those designated by the Administrator to observe the tests. However, pilot flight training may be conducted during the proving tests.

(d) Validation testing is required to determine that a certificate holder is capable of conducting operations safely and in compliance with applicable regulatory standards. Validation tests are required for the following authorizations:

- (1) The addition of an aircraft for which two pilots are required for operations under VFR or a turbojet airplane, if that aircraft or an aircraft of the same make or similar design has not been previously proved or validated in operations under this part.
 - (2) Operations outside U.S. airspace.
 - (3) Class II navigation authorizations.
 - (4) Special performance or operational authorizations.
- (e) Validation tests must be accomplished by test methods acceptable to the Administrator. Actual flights may not be required when an applicant can demonstrate competence and compliance with appropriate regulations without conducting a flight.

(f) Proving tests and validation tests may be conducted simultaneously when appropriate.

(g) The Administrator may authorize deviations from this section if the Administrator finds that special circumstances make full compliance with this section unnecessary.

[Doc. No. FAA-2001-10047, 68 FR 54586, Sept. 17, 2003]

§ 135.147 Dual controls required.

No person may operate an aircraft in operations requiring two pilots unless it is equipped with functioning dual controls. However, if the aircraft type certification operating limitations do not require two pilots, a throwover control wheel may be used in place of two control wheels.

§ 135.149 Equipment requirements: General.

No person may operate an aircraft unless it is equipped with -

- (a) A sensitive altimeter that is adjustable for barometric pressure;
- (b) Heating or deicing equipment for each carburetor or, for a pressure carburetor, an alternate air source;
- (c) For turbojet airplanes, in addition to two gyroscopic bank-and-pitch indicators (artificial horizons) for use at the pilot stations, a third indicator that is installed in accordance with the instrument requirements prescribed in § 121.305(j) of this chapter.
- (d) [Reserved]
- (e) For turbine powered aircraft, any other equipment as the Administrator may require.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-1, 44 FR 26737, May 7, 1979; Amdt. 135-34, 54 FR 43926, Oct. 27, 1989; Amdt. 135-38, 55 FR 43310, Oct. 26, 1990]

§ 135.150 Public address and crewmember interphone systems.

No person may operate an aircraft having a passenger seating configuration, excluding any pilot seat, of more than 19 unless it is equipped with -

- (a) A public address system which -
 - (1) Is capable of operation independent of the crewmember interphone system required by paragraph (b) of this section, except for handsets, headsets, microphones, selector switches, and signaling devices;
 - (2) Is approved in accordance with § 21.305 of this chapter;
 - (3) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
 - (4) For each required floor-level passenger emergency exit which has an adjacent flight attendant seat, has a microphone which is readily accessible to the seated flight attendant, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants;
 - (5) Is capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible;
 - (6) Is audible at all passenger seats, lavatories, and flight attendant seats and work stations; and
 - (7) For transport category airplanes manufactured on or after November 27, 1990, meets the requirements of § 25.1423 of this chapter.
- (b) A crewmember interphone system which -

(1) Is capable of operation independent of the public address system required by paragraph (a) of this section, except for handsets, headsets, microphones, selector switches, and signaling devices;

(2) Is approved in accordance with § 21.305 of this chapter;

(3) Provides a means of two-way communication between the pilot compartment and -

(i) Each passenger compartment; and

(ii) Each galley located on other than the main passenger deck level;

(4) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;

(5) Is accessible for use from at least one normal flight attendant station in each passenger compartment;

(6) Is capable of operation within 10 seconds by a flight attendant at each of those stations in each passenger compartment from which its use is accessible; and

(7) For large turbojet-powered airplanes -

(i) Is accessible for use at enough flight attendant stations so that all floor-level emergency exits (or entryways to those exits in the case of exits located within galleys) in each passenger compartment are observable from one or more of those stations so equipped;

(ii) Has an alerting system incorporating aural or visual signals for use by flight crewmembers to alert flight attendants and for use by flight attendants to alert flight crewmembers;

(iii) For the alerting system required by paragraph (b)(7)(ii) of this section, has a means for the recipient of a call to determine whether it is a normal call or an emergency call; and

(iv) When the airplane is on the ground, provides a means of two-way communication between ground personnel and either of at least two flight crewmembers in the pilot compartment. The interphone system station for use by ground personnel must be so located that personnel using the system may avoid visible detection from within the airplane.

[Doc. No. 24995, 54 FR 43926, Oct. 27, 1989]

§ 135.151 Cockpit voice recorders.

(a) No person may operate a multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration of six or more and for which two pilots are required by certification or operating rules unless it is equipped with an approved cockpit voice recorder that:

(1) Is installed in compliance with § 23.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g); § 25.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g), § 27.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g); or § 29.1457(a)(1) and (2), (b), (c), (d)(1)(i), (2) and (3), (e), (f), and (g) of this chapter, as applicable; and

(2) Is operated continuously from the use of the check list before the flight to completion of the final check list at the end of the flight.

(b) No person may operate a multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration

of 20 or more seats unless it is equipped with an approved cockpit voice recorder that -

(1) Is installed in accordance with the requirements of § 23.1457 (except paragraphs (a)(6), (d)(1)(ii), (4), and (5)); § 25.1457 (except paragraphs (a)(6), (d)(1)(ii), (4), and (5)); § 27.1457 (except paragraphs (a)(6), (d)(1)(ii), (4), and (5)); or § 29.1457 (except paragraphs (a)(6), (d)(1)(ii), (4), and (5)) of this chapter, as applicable; and

(2) Is operated continuously from the use of the check list before the flight to completion of the final check list at the end of the flight.

(c) In the event of an accident, or occurrence requiring immediate notification of the National Transportation Safety Board which results in termination of the flight, the certificate holder shall keep the recorded information for at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record may be used to assist in determining the cause of accidents or occurrences in connection with investigations. The Administrator does not use the record in any civil penalty or certificate action.

(d) For those aircraft equipped to record the uninterrupted audio signals received by a boom or a mask microphone the flight crewmembers are required to use the boom microphone below 18,000 feet mean sea level. No person may operate a large turbine engine powered airplane manufactured after October 11, 1991, or on which a cockpit voice recorder has been installed after October 11, 1991, unless it is equipped to record the uninterrupted audio signal received by a boom or mask microphone in accordance with § 25.1457(c)(5) of this chapter.

(e) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that during the operation of the recorder, information:

(1) Recorded in accordance with paragraph (a) of this section and recorded more than 15 minutes earlier; or

(2) Recorded in accordance with paragraph (b) of this section and recorded more than 30 minutes earlier; may be erased or otherwise obliterated.

(f) By April 7, 2012, all airplanes subject to paragraph (a) or paragraph (b) of this section that are manufactured before April 7, 2010, and that are required to have a flight data recorder installed in accordance with § 135.152, must have a cockpit voice recorder that also -

(1) Meets the requirements in § 23.1457(d)(6) or § 25.1457(d)(6) of this chapter, as applicable; and

(2) If transport category, meet the requirements in § 25.1457(a)(3), (a)(4), and (a)(5) of this chapter.

(g)(1) No person may operate a multiengine, turbine-powered airplane or rotorcraft that is manufactured on or after April 7, 2010, that has a passenger seating configuration of six or more seats, for which two pilots are required by certification or operating rules, and that is required to have a flight data recorder under § 135.152, unless it is equipped with an approved cockpit voice recorder that also -

(i) Is installed in accordance with the requirements of § 23.1457 (except for paragraph (a)(6)); § 25.1457 (except for paragraph (a)(6)); § 27.1457 (except for paragraph (a)(6)); or § 29.1457 (except for paragraph (a)(6)) of this chapter, as applicable; and

(ii) Is operated continuously from the use of the check list before the flight, to completion of the final check list at the end of the flight; and

(iii) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision.

(iv) For all airplanes or rotorcraft manufactured on or after December 6, 2010, also meets the requirements of § 23.1457(a)(6); § 25.1457(a)(6); § 27.1457(a)(6); or § 29.457(a)(6) of this chapter, as applicable.

(2) No person may operate a multiengine, turbine-powered airplane or rotorcraft that is manufactured on or after April 7, 2010, has a passenger seating configuration of 20 or more seats, and that is required to have a flight data recorder under § 135.152, unless it is equipped with an approved cockpit voice recorder that also -

(i) Is installed in accordance with the requirements of § 23.1457 (except for paragraph (a)(6)); § 25.1457 (except for paragraph (a)(6)); § 27.1457 (except for paragraph (a)(6)); or § 29.1457 (except for paragraph (a)(6)) of this chapter, as applicable; and

(ii) Is operated continuously from the use of the check list before the flight, to completion of the final check list at the end of the flight; and

(iii) Retains at least the last 2 hours of recorded information using a recorder that meets the standards of TSO-C123a, or later revision.

(iv) For all airplanes or rotorcraft manufactured on or after December 6, 2010, also meets the requirements of § 23.1457(a)(6); § 25.1457(a)(6); § 27.1457(a)(6); or § 29.457(a)(6) of this chapter, as applicable.

(h) All airplanes or rotorcraft required by this part to have a cockpit voice recorder and a flight data recorder, that install datalink communication equipment on or after December 6, 2010, must record all datalink messages as required by the certification rule applicable to the aircraft.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-23, 52 FR 9637, Mar. 25, 1987; Amdt. 135-26, 53 FR 26151, July 11, 1988; Amdt. 135-60, 61 FR 2616, Jan. 26, 1996; Amdt. 135-113, 73 FR 12570, Mar. 7, 2008; Amdt. 135-113, 74 FR 32801, July 9, 2009; Amdt. 135-121, 75 FR 17046, Apr. 5, 2010]

§ 135.152 Flight data recorders.

(a) Except as provided in paragraph (k) of this section, no person may operate under this part a multi-engine, turbine-engine powered airplane or rotorcraft having a passenger seating configuration, excluding any required crewmember seat, of 10 to 19 seats, that was either brought onto the U.S. register after, or was registered outside the United States and

added to the operator's U.S. operations specifications after, October 11, 1991, unless it is equipped with one or more approved flight recorders that use a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The parameters specified in either Appendix B or C of this part, as applicable must be recorded within the range, accuracy, resolution, and recording intervals as specified. The recorder shall retain no less than 25 hours of aircraft operation.

(b) After October 11, 1991, no person may operate a multiengine, turbine-powered airplane having a passenger seating configuration of 20 to 30 seats or a multiengine, turbine-powered rotorcraft having a passenger seating configuration of 20 or more seats unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data, and a method of readily retrieving that data from the storage medium. The parameters in appendix D or E of this part, as applicable, that are set forth below, must be recorded within the ranges, accuracies, resolutions, and sampling intervals as specified.

(1) Except as provided in paragraph (b)(3) of this section for aircraft type certificated before October 1, 1969, the following parameters must be recorded:

- (i) Time;
- (ii) Altitude;
- (iii) Airspeed;
- (iv) Vertical acceleration;
- (v) Heading;
- (vi) Time of each radio transmission to or from air traffic control;
- (vii) Pitch attitude;
- (viii) Roll attitude;
- (ix) Longitudinal acceleration;
- (x) Control column or pitch control surface position; and
- (xi) Thrust of each engine.

(2) Except as provided in paragraph (b)(3) of this section for aircraft type certificated after September 30, 1969, the following parameters must be recorded:

- (i) Time;
- (ii) Altitude;
- (iii) Airspeed;
- (iv) Vertical acceleration;
- (v) Heading;
- (vi) Time of each radio transmission either to or from air traffic control;
- (vii) Pitch attitude;
- (viii) Roll attitude;
- (ix) Longitudinal acceleration;
- (x) Pitch trim position;
- (xi) Control column or pitch control surface position;
- (xii) Control wheel or lateral control surface position;
- (xiii) Rudder pedal or yaw control surface position;
- (xiv) Thrust of each engine;
- (xv) Position of each thrust reverser;
- (xvi) Trailing edge flap or cockpit flap control position; and

(xvii) Leading edge flap or cockpit flap control position.

(3) For aircraft manufactured after October 11, 1991, all of the parameters listed in appendix D or E of this part, as applicable, must be recorded.

(c) Whenever a flight recorder required by this section is installed, it must be operated continuously from the instant the airplane begins the takeoff roll or the rotorcraft begins the lift-off until the airplane has completed the landing roll or the rotorcraft has landed at its destination.

(d) Except as provided in paragraph (c) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed in paragraph (a) of this section until the aircraft has been operating for at least 25 hours of the operating time specified in paragraph (c) of this section. In addition, each certificate holder shall keep the recorded data prescribed in paragraph (b) of this section for an airplane until the airplane has been operating for at least 25 hours, and for a rotorcraft until the rotorcraft has been operating for at least 10 hours, of the operating time specified in paragraph (c) of this section. A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (c) of this section, no record need be kept more than 60 days.

(e) In the event of an accident or occurrence that requires the immediate notification of the National Transportation Safety Board under 49 CFR part 830 of its regulations and that results in termination of the flight, the certificate holder shall remove the recording media from the aircraft and keep the recorded data required by paragraphs (a) and (b) of this section for at least 60 days or for a longer period upon request of the Board or the Administrator.

(f)(1) For airplanes manufactured on or before August 18, 2000, and all other aircraft, each flight recorder required by this section must be installed in accordance with the requirements of § 23.1459 (except paragraphs (a)(3)(ii) and (6)), § 25.1459 (except paragraphs (a)(3)(ii) and (7)), § 27.1459 (except paragraphs (a)(3)(ii) and (6)), or § 29.1459 (except paragraphs (a)(3)(ii) and (6)), as appropriate, of this chapter. The correlation required by paragraph (c) of §§ 23.1459, 25.1459, 27.1459, or 29.1459 of this chapter, as appropriate, need be established only on one aircraft of a group of aircraft:

(i) That are of the same type;

(ii) On which the flight recorder models and their installations are the same; and

(iii) On which there are no differences in the type designs with respect to the installation of the first pilot's instruments associated with the flight recorder. The most recent instrument calibration, including the recording medium from which this calibration is derived, and the recorder correlation must be retained by the certificate holder.

(2) For airplanes manufactured after August 18, 2000, each flight data recorder system required by this section must be installed in accordance with the requirements of § 23.1459(a) (except paragraphs (a)(3)(ii) and (6)), (b), (d) and (e), or § 25.1459(a) (except paragraphs (a)(3)(ii) and (7)), (b), (d) and (e) of this chapter. A correlation must be established between the values recorded by the flight data recorder and the corresponding values being measured. The correlation must contain a sufficient number of correlation points to accurately establish the conversion from the recorded values to engineering units or discrete state over the full operating range of the parameter. Except for airplanes having separate altitude and airspeed sensors that are an integral part of the flight data recorder system, a single correlation may be established for any group of airplanes -

(i) That are of the same type;

(ii) On which the flight recorder system and its installation are the same; and

(iii) On which there is no difference in the type design with respect to the installation of those sensors associated with the flight data recorder system. Documentation sufficient to convert recorded data into the engineering units and discrete values specified in the applicable appendix must be maintained by the certificate holder.

(g) Each flight recorder required by this section that records the data specified in paragraphs (a) and (b) of this section must have an approved device to assist in locating that recorder under water.

(h) The operational parameters required to be recorded by digital flight data recorders required by paragraphs (i) and (j) of this section are as follows, the phrase "when an information source is installed" following a parameter indicates that recording of that parameter is not intended to require a change in installed equipment.

(1) Time;

(2) Pressure altitude;

(3) Indicated airspeed;

(4) Heading - primary flight crew reference (if selectable, record discrete, true or magnetic);

(5) Normal acceleration (Vertical);

(6) Pitch attitude;

(7) Roll attitude;

(8) Manual radio transmitter keying, or CVR/DFDR synchronization reference;

(9) Thrust/power of each engine - primary flight crew reference;

(10) Autopilot engagement status;

(11) Longitudinal acceleration;

(12) Pitch control input;

(13) Lateral control input;

(14) Rudder pedal input;

(15) Primary pitch control surface position;

(16) Primary lateral control surface position;

(17) Primary yaw control surface position;

(18) Lateral acceleration;

- (19) Pitch trim surface position or parameters of paragraph (h)(82) of this section if currently recorded;
- (20) Trailing edge flap or cockpit flap control selection (except when parameters of paragraph (h)(85) of this section apply);
- (21) Leading edge flap or cockpit flap control selection (except when parameters of paragraph (h)(86) of this section apply);
- (22) Each Thrust reverser position (or equivalent for propeller airplane);
- (23) Ground spoiler position or speed brake selection (except when parameters of paragraph (h)(87) of this section apply);
- (24) Outside or total air temperature;
- (25) Automatic Flight Control System (AFCS) modes and engagement status, including autothrottle;
- (26) Radio altitude (when an information source is installed);
- (27) Localizer deviation, MLS Azimuth;
- (28) Glideslope deviation, MLS Elevation;
- (29) Marker beacon passage;
- (30) Master warning;
- (31) Air/ground sensor (primary airplane system reference nose or main gear);
- (32) Angle of attack (when information source is installed);
- (33) Hydraulic pressure low (each system);
- (34) Ground speed (when an information source is installed);
- (35) Ground proximity warning system;
- (36) Landing gear position or landing gear cockpit control selection;
- (37) Drift angle (when an information source is installed);
- (38) Wind speed and direction (when an information source is installed);
- (39) Latitude and longitude (when an information source is installed);
- (40) Stick shaker/pusher (when an information source is installed);
- (41) Windshear (when an information source is installed);
- (42) Throttle/power lever position;
- (43) Additional engine parameters (as designated in appendix F of this part);
- (44) Traffic alert and collision avoidance system;
- (45) DME 1 and 2 distances;
- (46) Nav 1 and 2 selected frequency;
- (47) Selected barometric setting (when an information source is installed);
- (48) Selected altitude (when an information source is installed);
- (49) Selected speed (when an information source is installed);
- (50) Selected mach (when an information source is installed);
- (51) Selected vertical speed (when an information source is installed);
- (52) Selected heading (when an information source is installed);
- (53) Selected flight path (when an information source is installed);
- (54) Selected decision height (when an information source is installed);
- (55) EFIS display format;
- (56) Multi-function/engine/alerts display format;
- (57) Thrust command (when an information source is installed);
- (58) Thrust target (when an information source is installed);
- (59) Fuel quantity in CG trim tank (when an information source is installed);
- (60) Primary Navigation System Reference;
- (61) Icing (when an information source is installed);
- (62) Engine warning each engine vibration (when an information source is installed);
- (63) Engine warning each engine over temp. (when an information source is installed);
- (64) Engine warning each engine oil pressure low (when an information source is installed);
- (65) Engine warning each engine over speed (when an information source is installed);
- (66) Yaw trim surface position;
- (67) Roll trim surface position;
- (68) Brake pressure (selected system);
- (69) Brake pedal application (left and right);
- (70) Yaw or sideslip angle (when an information source is installed);
- (71) Engine bleed valve position (when an information source is installed);
- (72) De-icing or anti-icing system selection (when an information source is installed);
- (73) Computed center of gravity (when an information source is installed);
- (74) AC electrical bus status;
- (75) DC electrical bus status;
- (76) APU bleed valve position (when an information source is installed);
- (77) Hydraulic pressure (each system);
- (78) Loss of cabin pressure;
- (79) Computer failure;
- (80) Heads-up display (when an information source is installed);
- (81) Para-visual display (when an information source is installed);
- (82) Cockpit trim control input position - pitch;
- (83) Cockpit trim control input position - roll;
- (84) Cockpit trim control input position - yaw;
- (85) Trailing edge flap and cockpit flap control position;
- (86) Leading edge flap and cockpit flap control position;
- (87) Ground spoiler position and speed brake selection; and
- (88) All cockpit flight control input forces (control wheel, control column, rudder pedal).

(i) For all turbine-engine powered airplanes with a seating configuration, excluding any required crewmember seat, of 10 to 30 passenger seats, manufactured after August 18, 2000 -

(1) The parameters listed in paragraphs (h)(1) through (h)(57) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix F of this part.

(2) Commensurate with the capacity of the recording system, all additional parameters for which information sources are installed and which are connected to the recording system must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified in Appendix F of this part.

(j) For all turbine-engine-powered airplanes with a seating configuration, excluding any required crewmember seat, of 10 to 30 passenger seats, that are manufactured after August 19, 2002 the parameters listed in paragraph (a)(1) through (a)(88) of this section must be recorded within the ranges, accuracies, resolutions, and recording intervals specified in Appendix F of this part.

(k) For aircraft manufactured before August 18, 1997, the following aircraft types need not comply with this section: Bell 212, Bell 214ST, Bell 412, Bell 412SP, Boeing Chinook (BV-234), Boeing/Kawasaki Vertol 107 (BV/KV-107-II), deHavilland DHC-6, Eurocopter Puma 330J, Sikorsky 58, Sikorsky 61N, Sikorsky 76A.

(l) By April 7, 2012, all aircraft manufactured before April 7, 2010, must also meet the requirements in § 23.1459(a)(7), § 25.1459(a)(8), § 27.1459(e), or § 29.1459(e) of this chapter, as applicable.

(m) All aircraft manufactured on or after April 7, 2010, must have a flight data recorder installed that also -

(1) Meets the requirements of § 23.1459(a)(3), (a)(6), and (a)(7), § 25.1459(a)(3), (a)(7), and (a)(8), § 27.1459(a)(3), (a)(6), and (e), or § 29.1459(a)(3), (a)(6), and (e) of this chapter, as applicable; and

(2) Retains the 25 hours of recorded information required in paragraph (d) of this section using a recorder that meets the standards of TSO-C124a, or later revision.

[Doc. No. 25530, 53 FR 26151, July 11, 1988, as amended by Amdt. 135-69, 62 FR 38396, July 17, 1997; 62 FR 48135, Sept. 12, 1997; Amdt. 135-89, 68 FR 42939, July 18, 2003; Amdt. 135-113, 73 FR 12570, Mar. 7, 2008; Amdt. 135-113, 74 FR 32801, July 9, 2009]

§ 135.153 [Reserved]

§ 135.154 Terrain awareness and warning system.

(a) *Airplanes manufactured after March 29, 2002:*

(1) No person may operate a turbine-powered airplane configured with 10 or more passenger seats, excluding any pilot seat, unless that airplane is equipped with an approved terrain awareness and warning system that meets the requirements for Class A equipment in Technical Standard

Order (TSO)-C151. The airplane must also include an approved terrain situational awareness display.

(2) No person may operate a turbine-powered airplane configured with 6 to 9 passenger seats, excluding any pilot seat, unless that airplane is equipped with an approved terrain awareness and warning system that meets as a minimum the requirements for Class B equipment in Technical Standard Order (TSO)-C151.

(b) *Airplanes manufactured on or before March 29, 2002:*

(1) No person may operate a turbine-powered airplane configured with 10 or more passenger seats, excluding any pilot seat, after March 29, 2005, unless that airplane is equipped with an approved terrain awareness and warning system that meets the requirements for Class A equipment in Technical Standard Order (TSO)-C151. The airplane must also include an approved terrain situational awareness display.

(2) No person may operate a turbine-powered airplane configured with 6 to 9 passenger seats, excluding any pilot seat, after March 29, 2005, unless that airplane is equipped with an approved terrain awareness and warning system that meets as a minimum the requirements for Class B equipment in Technical Standard Order (TSO)-C151.

(Approved by the Office of Management and Budget under control number 2120-0631)

(c) *Airplane Flight Manual.* The Airplane Flight Manual shall contain appropriate procedures for -

(1) The use of the terrain awareness and warning system; and

(2) Proper flight crew reaction in response to the terrain awareness and warning system audio and visual warnings.

[Doc. No. 29312, 65 FR 16755, Mar. 29, 2000]

§ 135.155 Fire extinguishers: Passenger-carrying aircraft.

No person may operate an aircraft carrying passengers unless it is equipped with hand fire extinguishers of an approved type for use in crew and passenger compartments as follows -

(a) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur;

(b) At least one hand fire extinguisher must be provided and conveniently located on the flight deck for use by the flight crew; and

(c) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each aircraft having a passenger seating configuration, excluding any pilot seat, of at least 10 seats but less than 31 seats.

§ 135.156 Flight data recorders: filtered data.

(a) A flight data signal is filtered when an original sensor signal has been changed in any way, other than changes necessary to:

(1) Accomplish analog to digital conversion of the signal;

(2) Format a digital signal to be DFDR compatible; or
 (3) Eliminate a high frequency component of a signal that is outside the operational bandwidth of the sensor.

(b) An original sensor signal for any flight recorder parameter required to be recorded under § 135.152 may be filtered only if the recorded signal value continues to meet the requirements of Appendix D or F of this part, as applicable.

(c) For a parameter described in § 135.152(h)(12) through (17), (42), or (88), or the corresponding parameter in Appendix D of this part, if the recorded signal value is filtered and does not meet the requirements of Appendix D or F of this part, as applicable, the certificate holder must:

(1) Remove the filtering and ensure that the recorded signal value meets the requirements of Appendix D or F of this part, as applicable; or

(2) Demonstrate by test and analysis that the original sensor signal value can be reconstructed from the recorded data. This demonstration requires that:

(i) The FAA determine that the procedure and test results submitted by the certificate holder as its compliance with paragraph (c)(2) of this section are repeatable; and

(ii) The certificate holder maintains documentation of the procedure required to reconstruct the original sensor signal value. This documentation is also subject to the requirements of § 135.152(e).

(d) *Compliance.* Compliance is required as follows:

(1) No later than October 20, 2011, each operator must determine, for each aircraft on its operations specifications, whether the aircraft's DFDR system is filtering any of the parameters listed in paragraph (c) of this section. The operator must create a record of this determination for each aircraft it operates, and maintain it as part of the correlation documentation required by § 135.152 (f)(1)(iii) or (f)(2)(iii) of this part as applicable.

(2) For aircraft that are not filtering any listed parameter, no further action is required unless the aircraft's DFDR system is modified in a manner that would cause it to meet the definition of filtering on any listed parameter.

(3) For aircraft found to be filtering a parameter listed in paragraph (c) of this section the operator must either:

(i) No later than April 21, 2014, remove the filtering; or

(ii) No later than April 22, 2013, submit the necessary procedure and test results required by paragraph (c)(2) of this section.

(4) After April 21, 2014, no aircraft flight data recording system may filter any parameter listed in paragraph (c) of this section that does not meet the requirements of Appendix D or F of this part, unless the certificate holder possesses test and analysis procedures and the test results that have been approved by the FAA. All records of tests, analysis and procedures used to comply with this section must be maintained as part of the correlation documentation required by § 135.152 (f)(1)(iii) or (f)(2)(iii) of this part as applicable.

[Doc. No. FAA-2006-26135, 75 FR 7357, Feb. 19, 2010]

§ 135.157 Oxygen equipment requirements.

(a) *Unpressurized aircraft.* No person may operate an unpressurized aircraft at altitudes prescribed in this section unless it is equipped with enough oxygen dispensers and oxygen to supply the pilots under § 135.89(a) and to supply, when flying -

(1) At altitudes above 10,000 feet through 15,000 feet MSL, oxygen to at least 10 percent of the occupants of the aircraft, other than the pilots, for that part of the flight at those altitudes that is of more than 30 minutes duration; and

(2) Above 15,000 feet MSL, oxygen to each occupant of the aircraft other than the pilots.

(b) *Pressurized aircraft.* No person may operate a pressurized aircraft -

(1) At altitudes above 25,000 feet MSL, unless at least a 10-minute supply of supplemental oxygen is available for each occupant of the aircraft, other than the pilots, for use when a descent is necessary due to loss of cabin pressurization; and

(2) Unless it is equipped with enough oxygen dispensers and oxygen to comply with paragraph (a) of this section whenever the cabin pressure altitude exceeds 10,000 feet MSL and, if the cabin pressurization fails, to comply with § 135.89 (a) or to provide a 2-hour supply for each pilot, whichever is greater, and to supply when flying -

(i) At altitudes above 10,000 feet through 15,000 feet MSL, oxygen to at least 10 percent of the occupants of the aircraft, other than the pilots, for that part of the flight at those altitudes that is of more than 30 minutes duration; and

(ii) Above 15,000 feet MSL, oxygen to each occupant of the aircraft, other than the pilots, for one hour unless, at all times during flight above that altitude, the aircraft can safely descend to 15,000 feet MSL within four minutes, in which case only a 30-minute supply is required.

(c) The equipment required by this section must have a means -

(1) To enable the pilots to readily determine, in flight, the amount of oxygen available in each source of supply and whether the oxygen is being delivered to the dispensing units; or

(2) In the case of individual dispensing units, to enable each user to make those determinations with respect to that person's oxygen supply and delivery; and

(3) To allow the pilots to use undiluted oxygen at their discretion at altitudes above 25,000 feet MSL.

§ 135.158 Pitot heat indication systems.

(a) Except as provided in paragraph (b) of this section, after April 12, 1981, no person may operate a transport category airplane equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot heat indication system that complies with § 25.1326 of this chapter in effect on April 12, 1978.

(b) A certificate holder may obtain an extension of the April 12, 1981, compliance date specified in paragraph (a) of

this section, but not beyond April 12, 1983, from the Director, Flight Standards Service if the certificate holder -

(1) Shows that due to circumstances beyond its control it cannot comply by the specified compliance date; and

(2) Submits by the specified compliance date a schedule for compliance, acceptable to the Director, indicating that compliance will be achieved at the earliest practicable date.

[Doc. No. 18094, Amdt. 135-17, 46 FR 48306, Aug. 31, 1981, as amended by Amdt. 135-33, 54 FR 39294, Sept. 25, 1989]

§ 135.159 Equipment requirements: Carrying passengers under VFR at night or under VFR over-the-top conditions.

No person may operate an aircraft carrying passengers under VFR at night or under VFR over-the-top, unless it is equipped with -

(a) A gyroscopic rate-of-turn indicator except on the following aircraft:

(1) Airplanes with a third attitude instrument system usable through flight attitudes of 360 degrees of pitch-and-roll and installed in accordance with the instrument requirements prescribed in § 121.305(j) of this chapter.

(2) Helicopters with a third attitude instrument system usable through flight attitudes of ±80 degrees of pitch and ±120 degrees of roll and installed in accordance with § 29.1303(g) of this chapter.

(3) Helicopters with a maximum certificated takeoff weight of 6,000 pounds or less.

(b) A slip skid indicator.

(c) A gyroscopic bank-and-pitch indicator.

(d) A gyroscopic direction indicator.

(e) A generator or generators able to supply all probable combinations of continuous in-flight electrical loads for required equipment and for recharging the battery.

(f) For night flights -

(1) An anticollision light system;

(2) Instrument lights to make all instruments, switches, and gauges easily readable, the direct rays of which are shielded from the pilots' eyes; and

(3) A flashlight having at least two size "D" cells or equivalent.

(g) For the purpose of paragraph (e) of this section, a continuous in-flight electrical load includes one that draws current continuously during flight, such as radio equipment and electrically driven instruments and lights, but does not include occasional intermittent loads.

(h) Notwithstanding provisions of paragraphs (b), (c), and (d), helicopters having a maximum certificated takeoff weight of 6,000 pounds or less may be operated until January 6, 1988, under visual flight rules at night without a slip skid indicator, a gyroscopic bank-and-pitch indicator, or a gyroscopic direction indicator.

[Doc. No. 24550, 51 FR 40709, Nov. 7, 1986, as amended by Amdt. 135-38, 55 FR 43310, Oct. 26, 1990]

§ 135.160 Radio altimeters for rotorcraft operations.

(a) After April 24, 2017, no person may operate a rotorcraft unless that rotorcraft is equipped with an operable FAA-approved radio altimeter, or an FAA-approved device that incorporates a radio altimeter, unless otherwise authorized in the certificate holder's approved minimum equipment list.

(b) Deviation authority. The Administrator may authorize deviations from paragraph (a) of this section for rotorcraft that are unable to incorporate a radio altimeter. This deviation will be issued as a Letter of Deviation Authority. The deviation may be terminated or amended at any time by the Administrator. The request for deviation authority is applicable to rotorcraft with a maximum gross takeoff weight no greater than 2,950 pounds. The request for deviation authority must contain a complete statement of the circumstances and justification, and must be submitted to the nearest Flight Standards District Office, not less than 60 days prior to the date of intended operations.

[Doc. No. FAA-2010-0982, 79 FR 9973, Feb. 21, 2014]

§ 135.161 Communication and navigation equipment for aircraft operations under VFR over routes navigated by pilotage.

(a) No person may operate an aircraft under VFR over routes that can be navigated by pilotage unless the aircraft is equipped with the two-way radio communication equipment necessary under normal operating conditions to fulfill the following:

(1) Communicate with at least one appropriate station from any point on the route, except in remote locations and areas of mountainous terrain where geographical constraints make such communication impossible.

(2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D airspace, or within a Class E surface area designated for an airport in which flights are intended; and

(3) Receive meteorological information from any point en route, except in remote locations and areas of mountainous terrain where geographical constraints make such communication impossible.

(b) No person may operate an aircraft at night under VFR over routes that can be navigated by pilotage unless that aircraft is equipped with -

(1) Two-way radio communication equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section; and

(2) Navigation equipment suitable for the route to be flown.

[Doc. No. FAA-2002-14002, 72 FR 31684, June 7, 2007, as amended by Amdt. 135-116, 74 FR 20205, May 1, 2009]

§ 135.163 Equipment requirements: Aircraft carrying passengers under IFR.

No person may operate an aircraft under IFR, carrying passengers, unless it has -

(a) A vertical speed indicator;
 (b) A free-air temperature indicator;
 (c) A heated pitot tube for each airspeed indicator;
 (d) A power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source;

(e) An alternate source of static pressure for the altimeter and the airspeed and vertical speed indicators;

(f) For a single-engine aircraft:

(1) Two independent electrical power generating sources each of which is able to supply all probable combinations of continuous inflight electrical loads for required instruments and equipment; or

(2) In addition to the primary electrical power generating source, a standby battery or an alternate source of electric power that is capable of supplying 150% of the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft for at least one hour;

(g) For multi-engine aircraft, at least two generators or alternators each of which is on a separate engine, of which any combination of one-half of the total number are rated sufficiently to supply the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft except that for multi-engine helicopters, the two required generators may be mounted on the main rotor drive train; and

(h) Two independent sources of energy (with means of selecting either) of which at least one is an engine-driven pump or generator, each of which is able to drive all required gyroscopic instruments powered by, or to be powered by, that particular source and installed so that failure of one instrument or source, does not interfere with the energy supply to the remaining instruments or the other energy source unless, for single-engine aircraft in all cargo operations only, the rate of turn indicator has a source of energy separate from the bank and pitch and direction indicators. For the purpose of this paragraph, for multi-engine aircraft, each engine-driven source of energy must be on a different engine.

(i) For the purpose of paragraph (f) of this section, a continuous inflight electrical load includes one that draws current continuously during flight, such as radio equipment, electrically driven instruments, and lights, but does not include occasional intermittent loads.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-70, 62 FR 42374, Aug. 6, 1997; Amdt. 135-72, 63 FR 25573, May 8, 1998]

§ 135.165 Communication and navigation equipment: Extended over-water or IFR operations.

(a) *Aircraft navigation equipment requirements - General.* Except as provided in paragraph (g) of this section, no person may conduct operations under IFR or extended over-water unless -

(1) The en route navigation aids necessary for navigating the aircraft along the route (e.g., ATS routes, arrival and departure routes, and instrument approach procedures, including missed approach procedures if a missed approach routing is specified in the procedure) are available and suitable for use by the navigation systems required by this section:

(2) The aircraft used in extended over-water operations is equipped with at least two-approved independent navigation systems suitable for navigating the aircraft along the route to be flown within the degree of accuracy required for ATC.

(3) The aircraft used for IFR operations is equipped with at least -

(i) One marker beacon receiver providing visual and aural signals; and

(ii) One ILS receiver.

(4) Any RNAV system used to meet the navigation equipment requirements of this section is authorized in the certificate holder's operations specifications.

(b) *Use of a single independent navigation system for IFR operations.* The aircraft may be equipped with a single independent navigation system suitable for navigating the aircraft along the route to be flown within the degree of accuracy required for ATC if:

(1) It can be shown that the aircraft is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single independent navigation system permitted by this paragraph at any point along the route, for proceeding safely to a suitable airport and completing an instrument approach; and

(2) The aircraft has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(c) *VOR navigation equipment.* Whenever VOR navigation equipment is required by paragraph (a) or (b) of this section, no person may operate an aircraft unless it is equipped with at least one approved DME or suitable RNAV system.

(d) *Airplane communication equipment requirements.* Except as permitted in paragraph (e) of this section, no person may operate a turbojet airplane having a passenger seat configuration, excluding any pilot seat, of 10 seats or more, or a multiengine airplane in a commuter operation, as defined in part 119 of this chapter, under IFR or in extended over-water operations unless the airplane is equipped with -

(1) At least two independent communication systems necessary under normal operating conditions to fulfill the functions specified in § 121.347(a) of this chapter; and

(2) At least one of the communication systems required by paragraph (d)(1) of this section must have two-way voice communication capability.

(e) *IFR or extended over-water communications equipment requirements.* A person may operate an aircraft other than that specified in paragraph (d) of this section under IFR or in extended over-water operations if it meets all of the requirements of this section, with the exception that only one

communication system transmitter is required for operations other than extended over-water operations.

(f) *Additional aircraft communication equipment requirements.* In addition to the requirements in paragraphs (d) and (e) of this section, no person may operate an aircraft under IFR or in extended over-water operations unless it is equipped with at least:

- (1) Two microphones; and
- (2) Two headsets or one headset and one speaker.

(g) *Extended over-water exceptions.* Notwithstanding the requirements of paragraphs (a), (d), and (e) of this section, installation and use of a single long-range navigation system and a single long-range communication system for extended over-water operations in certain geographic areas may be authorized by the Administrator and approved in the certificate holder's operations specifications. The following are among the operational factors the Administrator may consider in granting an authorization:

- (1) The ability of the flight crew to navigate the airplane along the route within the degree of accuracy required for ATC;
- (2) The length of the route being flown; and
- (3) The duration of the very high frequency communications gap.

[Doc. No. FAA-2002-14002, 72 FR 31684, June 7, 2007]

§ 135.167 Emergency equipment: Extended overwater operations.

(a) Except where the Administrator, by amending the operations specifications of the certificate holder, requires the carriage of all or any specific items of the equipment listed below for any overwater operation, or, upon application of the certificate holder, the Administrator allows deviation for a particular extended overwater operation, no person may operate an aircraft in extended overwater operations unless it carries, installed in conspicuously marked locations easily accessible to the occupants if a ditching occurs, the following equipment:

- (1) An approved life preserver equipped with an approved survivor locator light for each occupant of the aircraft. The life preserver must be easily accessible to each seated occupant.
- (2) Enough approved liferafts of a rated capacity and buoyancy to accommodate the occupants of the aircraft.
- (b) Each liferaft required by paragraph (a) of this section must be equipped with or contain at least the following:
 - (1) One approved survivor locator light.
 - (2) One approved pyrotechnic signaling device.
 - (3) Either -
 - (i) One survival kit, appropriately equipped for the route to be flown; or
 - (ii) One canopy (for sail, sunshade, or rain catcher);
 - (iii) One radar reflector;
 - (iv) One liferaft repair kit;
 - (v) One bailing bucket;

- (vi) One signaling mirror;
- (vii) One police whistle;
- (viii) One raft knife;
- (ix) One CO₂ bottle for emergency inflation;
- (x) One inflation pump;
- (xi) Two oars;
- (xii) One 75-foot retaining line;
- (xiii) One magnetic compass;
- (xiv) One dye marker;
- (xv) One flashlight having at least two size "D" cells or equivalent;
- (xvi) A 2-day supply of emergency food rations supplying at least 1,000 calories per day for each person;
- (xvii) For each two persons the raft is rated to carry, two pints of water or one sea water desalting kit;
- (xviii) One fishing kit; and
- (xix) One book on survival appropriate for the area in which the aircraft is operated.

(c) No person may operate an airplane in extended overwater operations unless there is attached to one of the life rafts required by paragraph (a) of this section, an approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the batteries are rechargeable) when the transmitter has been in use for more than 1 cumulative hour, or, when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-4, 45 FR 38348, June 30, 1980; Amdt. 135-20, 51 FR 40710, Nov. 7, 1986; Amdt. 135-49, 59 FR 32058, June 21, 1994; Amdt. 135-91, 68 FR 54586, Sept. 17, 2003]

§ 135.168 Emergency equipment: Overwater rotorcraft operations.

(a) *Definitions.* For the purposes of this section, the following definitions apply -

Autorotational distance refers to the distance a rotorcraft can travel in autorotation as described by the manufacturer in the approved Rotorcraft Flight Manual.

Shoreline means that area of the land adjacent to the water of an ocean, sea, lake, pond, river, or tidal basin that is above the high-water mark at which a rotorcraft could be landed safely. This does not include land areas which are unsuitable for landing such as vertical cliffs or land intermittently under water.

(b) *Required equipment.* After April 24, 2017, except as provided for in paragraph (c), when authorized by the certificate holder's operations specifications, or when necessary only for takeoff or landing, no person may operate

a rotorcraft beyond autorotational distance from the shoreline unless it carries:

(1) An approved life preserver equipped with an approved survivor locator light for each occupant of the rotorcraft. The life preserver must be worn by each occupant while the rotorcraft is beyond autorotational distance from the shoreline, except for a patient transported during a helicopter air ambulance operation, as defined in § 135.601(b)(1), when wearing a life preserver would be inadvisable for medical reasons; and

(2) An approved and installed 406 MHz emergency locator transmitter (ELT) with 121.5 MHz homing capability. Batteries used in ELTs must be maintained in accordance with the following -

(i) Non-rechargeable batteries must be replaced when the transmitter has been in use for more than 1 cumulative hour or when 50% of their useful lives have expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing the batteries must be legibly marked on the outside of the transmitter. The battery useful life requirements of this paragraph (b)(2) do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals; or

(ii) Rechargeable batteries used in the transmitter must be recharged when the transmitter has been in use for more than 1 cumulative hour or when 50% of their useful-life-of-charge has expired, as established by the transmitter manufacturer under its approval. The new expiration date for recharging the batteries must be legibly marked on the outside of the transmitter. The battery useful-life-of-charge requirements of this paragraph (b)(2) do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

(c) *Maintenance.* The equipment required by this section must be maintained in accordance with § 135.419.

(d) *ELT standards.* The ELT required by paragraph (b)(2) of this section must meet the requirements in:

(1) TSO-C126, TSO-C126a, or TSO-C126b; and

(2) Section 2 of either RTCA DO-204 or RTCA DO-204A, as specified by the TSO complied with in paragraph (d)(1) of this section.

(e) *ELT alternative compliance.* Operators with an ELT required by paragraph (b)(2) of this section, or an ELT with an approved deviation under § 21.618 of this chapter, are in compliance with this section.

(f) *Incorporation by reference.* The standards required in this section are incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the FAA must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the FAA's Office of Rulemaking (ARM-1), 800 Independence Avenue SW., Washington, DC 20591 (telephone (202)

267-9677) and from the sources indicated below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(1) U.S. Department of Transportation, Subsequent Distribution Office, DOT Warehouse M30, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785; telephone (301) 322-5377. Copies are also available on the FAA's Web site. Use the following link and type the TSO number in the search box: http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgTSO.nsf/Frameset?OpenPage.

(i) TSO-C126, 406 MHz Emergency Locator Transmitter (ELT), Dec. 23, 1992,

(ii) TSO-C126a, 406 MHz Emergency Locator Transmitter (ELT), Dec. 17, 2008, and

(iii) TSO-C126b, 406 MHz Emergency Locator Transmitter (ELT), Nov. 26, 2012.

(2) RTCA, Inc., 1150 18th Street NW., Suite 910, Washington, DC 20036, telephone (202) 833-9339, and are also available on RTCA's Web site at <http://www.rtca.org/onlinecart/index.cfm>.

(i) RTCA DO-204, Minimum Operational Performance Standards (MOPS) 406 MHz Emergency Locator Transmitters (ELTs), Sept. 29, 1989, and

(ii) RTCA DO-204A, Minimum Operational Performance Standards (MOPS) 406 MHz Emergency Locator Transmitters (ELT), Dec. 6, 2007.

[Doc. No. FAA-2010-0982, 79 FR 9973, Feb. 21, 2014]

§ 135.169 Additional airworthiness requirements.

Link to an amendment published at 81 FR 96701, Dec. 30, 2016.

(a) Except for commuter category airplanes, no person may operate a large airplane unless it meets the additional airworthiness requirements of §§ 121.213 through 121.283 and 121.307 of this chapter.

(b) No person may operate a reciprocating-engine or turbopropeller-powered small airplane that has a passenger seating configuration, excluding pilot seats, of 10 seats or more unless it is type certificated -

(1) In the transport category;

(2) Before July 1, 1970, in the normal category and meets special conditions issued by the Administrator for airplanes intended for use in operations under this part;

(3) Before July 19, 1970, in the normal category and meets the additional airworthiness standards in Special Federal Aviation Regulation No. 23;

(4) In the normal category and meets the additional airworthiness standards in appendix A;

(5) In the normal category and complies with section 1.(a) of Special Federal Aviation Regulation No. 41;

(6) In the normal category and complies with section 1.(b) of Special Federal Aviation Regulation No. 41; or

(7) In the commuter category.

(c) No person may operate a small airplane with a passenger seating configuration, excluding any pilot seat, of 10 seats or more, with a seating configuration greater than the maximum seating configuration used in that type airplane in operations under this part before August 19, 1977. This paragraph does not apply to -

(1) An airplane that is type certificated in the transport category; or

(2) An airplane that complies with -

(i) Appendix A of this part provided that its passenger seating configuration, excluding pilot seats, does not exceed 19 seats; or

(ii) Special Federal Aviation Regulation No. 41.

(d) Cargo or baggage compartments:

(1) After March 20, 1991, each Class C or D compartment, as defined in § 25.857 of part 25 of this chapter, greater than 200 cubic feet in volume in a transport category airplane type certificated after January 1, 1958, must have ceiling and sidewall panels which are constructed of:

(i) Glass fiber reinforced resin;

(ii) Materials which meet the test requirements of part 25, appendix F, part III of this chapter; or

(iii) In the case of liner installations approved prior to March 20, 1989, aluminum.

(2) For compliance with this paragraph, the term "liner" includes any design feature, such as a joint or fastener, which would affect the capability of the liner to safely contain a fire.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-2, 44 FR 53731, Sept. 17, 1979; Amdt. 135-21, 52 FR 1836, Jan. 15, 1987; 52 FR 34745, Sept. 14, 1987; Amdt. 135-31, 54 FR 7389, Feb. 17, 1989; Amdt. 135-55, 60 FR 6628, Feb. 2, 1995]

§ 135.170 Materials for compartment interiors.

(a) No person may operate an airplane that conforms to an amended or supplemental type certificate issued in accordance with SFAR No. 41 for a maximum certificated takeoff weight in excess of 12,500 pounds unless within one year after issuance of the initial airworthiness certificate under that SFAR, the airplane meets the compartment interior requirements set forth in § 25.853(a) in effect March 6, 1995 (formerly § 25.853 (a), (b), (b-1), (b-2), and (b-3) of this chapter in effect on September 26, 1978).

(b) Except for commuter category airplanes and airplanes certificated under Special Federal Aviation Regulation No. 41, no person may operate a large airplane unless it meets the following additional airworthiness requirements:

(1) Except for those materials covered by paragraph (b)(2) of this section, all materials in each compartment used by the crewmembers or passengers must meet the requirements of § 25.853 of this chapter in effect as follows or later amendment thereto:

(i) Except as provided in paragraph (b)(1)(iv) of this section, each airplane with a passenger capacity of 20 or more and manufactured after August 19, 1988, but prior to August 20, 1990, must comply with the heat release rate testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986), except that the total heat release over the first 2 minutes of sample exposure rate must not exceed 100 kilowatt minutes per square meter and the peak heat release rate must not exceed 100 kilowatts per square meter.

(ii) Each airplane with a passenger capacity of 20 or more and manufactured after August 19, 1990, must comply with the heat release rate and smoke testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.83(a-1) in effect on September 26, 1988).

(iii) Except as provided in paragraph (b)(1) (v) or (vi) of this section, each airplane for which the application for type certificate was filed prior to May 1, 1972, must comply with the provisions of § 25.853 in effect on April 30, 1972, regardless of the passenger capacity, if there is a substantially complete replacement of the cabin interior after April 30, 1972.

(iv) Except as provided in paragraph (b)(1) (v) or (vi) of this section, each airplane for which the application for type certificate was filed after May 1, 1972, must comply with the material requirements under which the airplane was type certificated regardless of the passenger capacity if there is a substantially complete replacement of the cabin interior after that date.

(v) Except as provided in paragraph (b)(1)(vi) of this section, each airplane that was type certificated after January 1, 1958, must comply with the heat release testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986), if there is a substantially complete replacement of the cabin interior components identified in that paragraph on or after that date, except that the total heat release over the first 2 minutes of sample exposure shall not exceed 100 kilowatt-minutes per square meter and the peak heat release rate shall not exceed 100 kilowatts per square meter.

(vi) Each airplane that was type certificated after January 1, 1958, must comply with the heat release rate and smoke testing provisions of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986), if there is a substantially complete replacement of the cabin interior components identified in that paragraph after August 19, 1990.

(vii) Contrary provisions of this section notwithstanding, the Manager of the Transport Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, may authorize deviation from the requirements of paragraph (b) (1)(i), (b)(1)(ii), (b)(1)(v), or (b)(1)(vi) of this section for specific components of the cabin interior that do not meet applicable flammability and smoke emission requirements, if the determination is made that special circumstances exist that make compliance impractical. Such grants of deviation will be limited to those airplanes manufactured within 1 year after

the applicable date specified in this section and those airplanes in which the interior is replaced within 1 year of that date. A request for such grant of deviation must include a thorough and accurate analysis of each component subject to § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986), the steps being taken to achieve compliance, and, for the few components for which timely compliance will not be achieved, credible reasons for such noncompliance.

(viii) Contrary provisions of this section notwithstanding, galley carts and standard galley containers that do not meet the flammability and smoke emission requirements of § 25.853(d) in effect March 6, 1995 (formerly § 25.853(a-1) in effect on August 20, 1986), may be used in airplanes that must meet the requirements of paragraph (b)(1)(i), (b)(1)(ii), (b)(1)(iv) or (b)(1)(vi) of this section provided the galley carts or standard containers were manufactured prior to March 6, 1995.

(2) For airplanes type certificated after January 1, 1958, seat cushions, except those on flight crewmember seats, in any compartment occupied by crew or passengers must comply with the requirements pertaining to fire protection of seat cushions in § 25.853(c) effective November 26, 1984.

(c) Thermal/acoustic insulation materials. For transport category airplanes type certificated after January 1, 1958:

(1) For airplanes manufactured before September 2, 2005, when thermal/acoustic insulation is installed in the fuselage as replacements after September 2, 2005, the insulation must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003, if it is:

- (i) Of a blanket construction, or
- (ii) Installed around air ducting.

(2) For airplanes manufactured after September 2, 2005, thermal/acoustic insulation materials installed in the fuselage must meet the flame propagation requirements of § 25.856 of this chapter, effective September 2, 2003.

[Doc. No. 26192, 60 FR 6628, Feb. 2, 1995; Amdt. 135-55, 60 FR 11194, Mar. 1, 1995; Amdt. 135-56, 60 FR 13011, Mar. 9, 1995; Amdt. 135-90, 68 FR 45084, July 31, 2003; Amdt. 135-103, 70 FR 77752, Dec. 30, 2005]

§ 135.171 Shoulder harness installation at flight crewmember stations.

(a) No person may operate a turbojet aircraft or an aircraft having a passenger seating configuration, excluding any pilot seat, of 10 seats or more unless it is equipped with an approved shoulder harness installed for each flight crewmember station.

(b) Each flight crewmember occupying a station equipped with a shoulder harness must fasten the shoulder harness during takeoff and landing, except that the shoulder harness may be unfastened if the crewmember cannot perform the required duties with the shoulder harness fastened.

§ 135.173 Airborne thunderstorm detection equipment requirements.

(a) No person may operate an aircraft that has a passenger seating configuration, excluding any pilot seat, of 10 seats

or more in passenger-carrying operations, except a helicopter operating under day VFR conditions, unless the aircraft is equipped with either approved thunderstorm detection equipment or approved airborne weather radar equipment.

(b) No person may operate a helicopter that has a passenger seating configuration, excluding any pilot seat, of 10 seats or more in passenger-carrying operations, under night VFR when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions that can be detected with airborne thunderstorm detection equipment may reasonably be expected along the route to be flown, unless the helicopter is equipped with either approved thunderstorm detection equipment or approved airborne weather radar equipment.

(c) No person may begin a flight under IFR or night VFR conditions when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions that can be detected with airborne thunderstorm detection equipment, required by paragraph (a) or (b) of this section, may reasonably be expected along the route to be flown, unless the airborne thunderstorm detection equipment is in satisfactory operating condition.

(d) If the airborne thunderstorm detection equipment becomes inoperative en route, the aircraft must be operated under the instructions and procedures specified for that event in the manual required by § 135.21.

(e) This section does not apply to aircraft used solely within the State of Hawaii, within the State of Alaska, within that part of Canada west of longitude 130 degrees W, between latitude 70 degrees N, and latitude 53 degrees N, or during any training, test, or ferry flight.

(f) Without regard to any other provision of this part, an alternate electrical power supply is not required for airborne thunderstorm detection equipment.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-20, 51 FR 40710, Nov. 7, 1986; Amdt. 135-60, 61 FR 2616, Jan. 26, 1996]

§ 135.175 Airborne weather radar equipment requirements.

(a) No person may operate a large, transport category aircraft in passenger-carrying operations unless approved airborne weather radar equipment is installed in the aircraft.

(b) No person may begin a flight under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar equipment, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment required by paragraph (a) of this section is in satisfactory operating condition.

(c) If the airborne weather radar equipment becomes inoperative en route, the aircraft must be operated under the instructions and procedures specified for that event in the manual required by § 135.21.

(d) This section does not apply to aircraft used solely within the State of Hawaii, within the State of Alaska, within that part of Canada west of longitude 130 degrees W, between latitude 70 degrees N, and latitude 53 degrees N, or during any training, test, or ferry flight.

(e) Without regard to any other provision of this part, an alternate electrical power supply is not required for airborne weather radar equipment.

§ 135.177 Emergency equipment requirements for aircraft having a passenger seating configuration of more than 19 passengers.

(a) No person may operate an aircraft having a passenger seating configuration, excluding any pilot seat, of more than

19 seats unless it is equipped with the following emergency equipment:

(1) At least one approved first-aid kit for treatment of injuries likely to occur in flight or in a minor accident that must:

(i) Be readily accessible to crewmembers.

(ii) Be stored securely and kept free from dust, moisture, and damaging temperatures.

(iii) Contain at least the following appropriately maintained contents in the specified quantities:

| Contents | Quantity |
|--|----------|
| Adhesive bandage compresses, 1-inch | 16 |
| Antiseptic swabs | 20 |
| Ammonia inhalants | 10 |
| Bandage compresses, 4-inch | 8 |
| Triangular bandage compresses, 40-inch | 5 |
| Arm splint, noninflatable | 1 |
| Leg splint, noninflatable | 1 |
| Roller bandage, 4-inch | 4 |
| Adhesive tape, 1-inch standard roll | 2 |
| Bandage scissors | 1 |
| Protective nonpermeable gloves or equivalent | 1 pair |

(2) A crash axe carried so as to be accessible to the crew but inaccessible to passengers during normal operations.

(3) Signs that are visible to all occupants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be constructed so that they can be turned on during any movement of the aircraft on the surface, for each takeoff or landing, and at other times considered necessary by the pilot in command. "No smoking" signs shall be turned on when required by § 135.127.

(4) [Reserved]

(b) Each item of equipment must be inspected regularly under inspection periods established in the operations specifications to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-25, 53 FR 12362, Apr. 13, 1988; Amdt. 135-43, 57 FR 19245, May 4, 1992; Amdt. 135-44, 57 FR 42676, Sept. 15, 1992; Amdt. 135-47, 59 FR 1781, Jan. 12, 1994; Amdt. 135-53, 59 FR 52643, Oct. 18, 1994; 59 FR 55208, Nov. 4, 1994; Amdt. 121-281, 66 FR 19045, Apr. 12, 2001]

§ 135.178 Additional emergency equipment.

No person may operate an airplane having a passenger seating configuration of more than 19 seats, unless it has the additional emergency equipment specified in paragraphs (a) through (l) of this section.

(a) *Means for emergency evacuation.* Each passenger-carrying landplane emergency exit (other than over-the-wing) that is more than 6 feet from the ground, with the airplane on the ground and the landing gear extended, must have an approved means to assist the occupants in descending to the ground. The assisting means for a floor-level emergency exit must meet the requirements of § 25.809(f)(1) of this chapter in effect on April 30, 1972, except that, for any airplane for which the application for the type certificate was filed after that date, it must meet the requirements under which the airplane was type certificated. An assisting means that deploys automatically must be armed during taxiing, takeoffs, and landings; however, the Administrator may grant a deviation from the requirement of automatic deployment if he finds that the design of the exit makes compliance impractical, if the assisting means automatically erects upon deployment and, with respect to required emergency exits,

if an emergency evacuation demonstration is conducted in accordance with § 121.291(a) of this chapter. This paragraph does not apply to the rear window emergency exit of Douglas DC-3 airplanes operated with fewer than 36 occupants, including crewmembers, and fewer than five exits authorized for passenger use.

(b) *Interior emergency exit marking.* The following must be complied with for each passenger-carrying airplane:

(1) Each passenger emergency exit, its means of access, and its means of opening must be conspicuously marked. The identity and locating of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin. The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle. There must be a locating sign -

(i) Above the aisle near each over-the-wing passenger emergency exit, or at another ceiling location if it is more practical because of low headroom;

(ii) Next to each floor level passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from that sign; and

(iii) On each bulkhead or divider that prevents fore and aft vision along the passenger cabin, to indicate emergency exits beyond and obscured by it, except that if this is not possible, the sign may be placed at another appropriate location.

(2) Each passenger emergency exit marking and each locating sign must meet the following:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the requirements of § 25.812(b) of this chapter in effect on April 30, 1972. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts. The colors may be reversed if it increases the emergency illumination of the passenger compartment. However, the Administrator may authorize deviation from the 2-inch background requirements if he finds that special circumstances exist that make compliance impractical and that the proposed deviation provides an equivalent level of safety.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the interior emergency exit marking requirements under which the airplane was type certificated. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 250 microlamberts.

(c) *Lighting for interior emergency exit markings.* Each passenger-carrying airplane must have an emergency lighting system, independent of the main lighting system; however, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of

the power supply to the main lighting system. The emergency lighting system must -

(1) Illuminate each passenger exit marking and locating sign;

(2) Provide enough general lighting in the passenger cabin so that the average illumination when measured at 40-inch intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.05 foot-candles; and

(3) For airplanes type certificated after January 1, 1958, include floor proximity emergency escape path marking which meets the requirements of § 25.812(e) of this chapter in effect on November 26, 1984.

(d) *Emergency light operation.* Except for lights forming part of emergency lighting subsystems provided in compliance with § 25.812(h) of this chapter (as prescribed in paragraph (h) of this section) that serve no more than one assist means, are independent of the airplane's main emergency lighting systems, and are automatically activated when the assist means is deployed, each light required by paragraphs (c) and (h) of this section must:

(1) Be operable manually both from the flightcrew station and from a point in the passenger compartment that is readily accessible to a normal flight attendant seat;

(2) Have a means to prevent inadvertent operation of the manual controls;

(3) When armed or turned on at either station, remain lighted or become lighted upon interruption of the airplane's normal electric power;

(4) Be armed or turned on during taxiing, takeoff, and landing. In showing compliance with this paragraph, a transverse vertical separation of the fuselage need not be considered;

(5) Provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing; and

(6) Have a cockpit control device that has an "on," "off," and "armed" position.

(e) *Emergency exit operating handles.* (1) For a passenger-carrying airplane for which the application for the type certificate was filed prior to May 1, 1972, the location of each passenger emergency exit operating handle, and instructions for opening the exit, must be shown by a marking on or near the exit that is readable from a distance of 30 inches. In addition, for each Type I and Type II emergency exit with a locking mechanism released by rotary motion of the handle, the instructions for opening must be shown by -

(i) A red arrow with a shaft at least three-fourths inch wide and a head twice the width of the shaft, extending along at least 70° of arc at a radius approximately equal to three-fourths of the handle length; and

(ii) The word "open" in red letters 1 inch high placed horizontally near the head of the arrow.

(2) For a passenger-carrying airplane for which the application for the type certificate was filed on or after May 1, 1972, the location of each passenger emergency exit

operating handle and instructions for opening the exit must be shown in accordance with the requirements under which the airplane was type certificated. On these airplanes, no operating handle or operating handle cover may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts.

(f) *Emergency exit access.* Access to emergency exits must be provided as follows for each passenger-carrying airplane:

(1) Each passageway between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 20 inches wide.

(2) There must be enough space next to each Type I or Type II emergency exit to allow a crewmember to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in paragraph (f) (1) of this section; however, the Administrator may authorize deviation from this requirement for an airplane certificated under the provisions of part 4b of the Civil Air Regulations in effect before December 20, 1951, if he finds that special circumstances exist that provide an equivalent level of safety.

(3) There must be access from the main aisle to each Type III and Type IV exit. The access from the aisle to these exits must not be obstructed by seats, berths, or other protrusions in a manner that would reduce the effectiveness of the exit. In addition, for a transport category airplane type certificated after January 1, 1958, there must be placards installed in accordance with § 25.813(c)(3) of this chapter for each Type III exit after December 3, 1992.

(4) If it is necessary to pass through a passageway between passenger compartments to reach any required emergency exit from any seat in the passenger cabin, the passageway must not be obstructed. Curtains may, however, be used if they allow free entry through the passageway.

(5) No door may be installed in any partition between passenger compartments.

(6) If it is necessary to pass through a doorway separating the passenger cabin from other areas to reach a required emergency exit from any passenger seat, the door must have a means to latch it in the open position, and the door must be latched open during each takeoff and landing. The latching means must be able to withstand the loads imposed upon it when the door is subjected to the ultimate inertia forces, relative to the surrounding structure, listed in § 25.561(b) of this chapter.

(g) *Exterior exit markings.* Each passenger emergency exit and the means of opening that exit from the outside must be marked on the outside of the airplane. There must be a 2-inch colored band outlining each passenger emergency exit on the side of the fuselage. Each outside marking, including the band, must be readily distinguishable from the surrounding fuselage area by contrast in color. The markings must comply with the following:

(1) If the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent.

(2) If the reflectance of the darker color is greater than 15 percent, at least a 30 percent difference between its reflectance and the reflectance of the lighter color must be provided.

(3) Exits that are not in the side of the fuselage must have the external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background color, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side. "Reflectance" is the ratio of the luminous flux reflected by a body to the luminous flux it receives.

(h) *Exterior emergency lighting and escape route.* (1) Each passenger-carrying airplane must be equipped with exterior lighting that meets the following requirements:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the requirements of § 25.812 (f) and (g) of this chapter in effect on April 30, 1972.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the exterior emergency lighting requirements under which the airplane was type certificated.

(2) Each passenger-carrying airplane must be equipped with a slip-resistant escape route that meets the following requirements:

(i) For an airplane for which the application for the type certificate was filed prior to May 1, 1972, the requirements of § 25.803(e) of this chapter in effect on April 30, 1972.

(ii) For an airplane for which the application for the type certificate was filed on or after May 1, 1972, the slip-resistant escape route requirements under which the airplane was type certificated.

(i) *Floor level exits.* Each floor level door or exit in the side of the fuselage (other than those leading into a cargo or baggage compartment that is not accessible from the passenger cabin) that is 44 or more inches high and 20 or more inches wide, but not wider than 46 inches, each passenger ventral exit (except the ventral exits on Martin 404 and Convair 240 airplanes), and each tail cone exit, must meet the requirements of this section for floor level emergency exits. However, the Administrator may grant a deviation from this paragraph if he finds that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.

(j) *Additional emergency exits.* Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits must meet all of the applicable provisions of this section, except paragraphs (f) (1), (2), and (3) of this section, and must be readily accessible.

(k) On each large passenger-carrying turbojet-powered airplane, each ventral exit and tailcone exit must be -

(1) Designed and constructed so that it cannot be opened during flight; and

(2) Marked with a placard readable from a distance of 30 inches and installed at a conspicuous location near the means

of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.

(1) *Portable lights.* No person may operate a passenger-carrying airplane unless it is equipped with flashlight stowage provisions accessible from each flight attendant seat.

[Doc. No. 26530, 57 FR 19245, May 4, 1992; 57 FR 29120, June 30, 1992, as amended at 57 FR 34682, Aug. 6, 1992]

§ 135.179 Inoperable instruments and equipment.

(a) No person may take off an aircraft with inoperable instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that aircraft.

(2) The certificate-holding district office has issued the certificate holder operations specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Administrator in the certificate holders operations specifications. An approved Minimum Equipment List, as authorized by the operations specifications, constitutes an approved change to the type design without requiring recertification.

(3) The approved Minimum Equipment List must:

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section.

(ii) Provide for the operation of the aircraft with certain instruments and equipment in an inoperable condition.

(4) Records identifying the inoperable instruments and equipment and the information required by (a)(3)(ii) of this section must be available to the pilot.

(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the operations specifications authorizing use of the Minimum Equipment List.

(b) The following instruments and equipment may not be included in the Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) Notwithstanding paragraphs (b)(1) and (b)(3) of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit under §§ 21.197 and 21.199 of this chapter.

[Doc. No. 25780, 56 FR 12311, Mar. 22, 1991; 56 FR 14920, Apr. 8, 1991, as amended by Amdt. 135-60, 61 FR 2616, Jan. 26, 1996; Amdt. 135-91, 68 FR 54586, Sept. 17, 2003]

§ 135.180 Traffic Alert and Collision Avoidance System.

(a) Unless otherwise authorized by the Administrator, after December 31, 1995, no person may operate a turbine powered airplane that has a passenger seat configuration, excluding any pilot seat, of 10 to 30 seats unless it is equipped with an approved traffic alert and collision avoidance system. If a TCAS II system is installed, it must be capable of coordinating with TCAS units that meet TSO C-119.

(b) The airplane flight manual required by § 135.21 of this part shall contain the following information on the TCAS I system required by this section:

(1) Appropriate procedures for -

(i) The use of the equipment; and

(ii) Proper flightcrew action with respect to the equipment operation.

(2) An outline of all input sources that must be operating for the TCAS to function properly.

[Doc. No. 25355, 54 FR 951, Jan. 10, 1989, as amended by Amdt. 135-54, 59 FR 67587, Dec. 29, 1994]

§ 135.181 Performance requirements: Aircraft operated over-the-top or in IFR conditions.

(a) Except as provided in paragraphs (b) and (c) of this section, no person may -

(1) Operate a single-engine aircraft carrying passengers over-the-top; or

(2) Operate a multiengine aircraft carrying passengers over-the-top or in IFR conditions at a weight that will not allow it to climb, with the critical engine inoperative, at least 50 feet a minute when operating at the MEAs of the route to be flown or 5,000 feet MSL, whichever is higher.

(b) Notwithstanding the restrictions in paragraph (a)(2) of this section, multiengine helicopters carrying passengers offshore may conduct such operations in over-the-top or in IFR conditions at a weight that will allow the helicopter to climb at least 50 feet per minute with the critical engine inoperative when operating at the MEA of the route to be flown or 1,500 feet MSL, whichever is higher.

(c) Without regard to paragraph (a) of this section, if the latest weather reports or forecasts, or any combination of them, indicate that the weather along the planned route (including takeoff and landing) allows flight under VFR under the ceiling (if a ceiling exists) and that the weather is forecast to remain so until at least 1 hour after the estimated time of arrival at the destination, a person may operate an aircraft over-the-top.

(d) Without regard to paragraph (a) of this section, a person may operate an aircraft over-the-top under conditions allowing -

(1) For multiengine aircraft, descent or continuance of the flight under VFR if its critical engine fails; or

(2) For single-engine aircraft, descent under VFR if its engine fails.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-20, 51 FR 40710, Nov. 7, 1986; Amdt. 135-70, 62 FR 42374, Aug. 6, 1997]

§ 135.183 Performance requirements: Land aircraft operated over water.

No person may operate a land aircraft carrying passengers over water unless -

- (a) It is operated at an altitude that allows it to reach land in the case of engine failure;
- (b) It is necessary for takeoff or landing;
- (c) It is a multiengine aircraft operated at a weight that will allow it to climb, with the critical engine inoperative, at least 50 feet a minute, at an altitude of 1,000 feet above the surface; or
- (d) It is a helicopter equipped with helicopter flotation devices.

§ 135.185 Empty weight and center of gravity: Currency requirement.

(a) No person may operate a multiengine aircraft unless the current empty weight and center of gravity are calculated from values established by actual weighing of the aircraft within the preceding 36 calendar months.

- (b) Paragraph (a) of this section does not apply to -
 - (1) Aircraft issued an original airworthiness certificate within the preceding 36 calendar months; and
 - (2) Aircraft operated under a weight and balance system approved in the operations specifications of the certificate holder.

Subpart D - VFR/IFR Operating Limitations and Weather Requirements

§ 135.201 Applicability.

This subpart prescribes the operating limitations for VFR/IFR flight operations and associated weather requirements for operations under this part.

§ 135.203 VFR: Minimum altitudes.

Except when necessary for takeoff and landing, no person may operate under VFR -

- (a) An airplane -
 - (1) During the day, below 500 feet above the surface or less than 500 feet horizontally from any obstacle; or
 - (2) At night, at an altitude less than 1,000 feet above the highest obstacle within a horizontal distance of 5 miles from the course intended to be flown or, in designated mountainous terrain, less than 2,000 feet above the highest obstacle within a horizontal distance of 5 miles from the course intended to be flown; or
- (b) A helicopter over a congested area at an altitude less than 300 feet above the surface.

§ 135.205 VFR: Visibility requirements.

(a) No person may operate an airplane under VFR in uncontrolled airspace when the ceiling is less than 1,000 feet unless flight visibility is at least 2 miles.

(b) No person may operate a helicopter under VFR in Class G airspace at an altitude of 1,200 feet or less above the surface or within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport unless the visibility is at least -

- (1) During the day - 1 mile; or
- (2) At night - 1 mile.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-41, 56 FR 65663, Dec. 17, 1991]

§ 135.207 VFR: Helicopter surface reference requirements.

No person may operate a helicopter under VFR unless that person has visual surface reference or, at night, visual surface light reference, sufficient to safely control the helicopter.

§ 135.209 VFR: Fuel supply.

(a) No person may begin a flight operation in an airplane under VFR unless, considering wind and forecast weather conditions, it has enough fuel to fly to the first point of intended landing and, assuming normal cruising fuel consumption -

- (1) During the day, to fly after that for at least 30 minutes; or
- (2) At night, to fly after that for at least 45 minutes.

(b) No person may begin a flight operation in a helicopter under VFR unless, considering wind and forecast weather conditions, it has enough fuel to fly to the first point of intended landing and, assuming normal cruising fuel consumption, to fly after that for at least 20 minutes.

§ 135.211 VFR: Over-the-top carrying passengers: Operating limitations.

Subject to any additional limitations in § 135.181, no person may operate an aircraft under VFR over-the-top carrying passengers, unless -

(a) Weather reports or forecasts, or any combination of them, indicate that the weather at the intended point of termination of over-the-top flight -

- (1) Allows descent to beneath the ceiling under VFR and is forecast to remain so until at least 1 hour after the estimated time of arrival at that point; or
- (2) Allows an IFR approach and landing with flight clear of the clouds until reaching the prescribed initial approach altitude over the final approach facility, unless the approach is made with the use of radar under § 91.175(i) of this chapter; or

(b) It is operated under conditions allowing -

- (1) For multiengine aircraft, descent or continuation of the flight under VFR if its critical engine fails; or
- (2) For single-engine aircraft, descent under VFR if its engine fails.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-32, 54 FR 34332, Aug. 18, 1989; 73 FR 20164, Apr. 15, 2008]

§ 135.213 Weather reports and forecasts.

(a) Whenever a person operating an aircraft under this part is required to use a weather report or forecast, that person shall use that of the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the Administrator. However, for operations under VFR, the pilot in command may, if such a report is not available, use weather information based on that pilot's own observations or on those of other persons competent to supply appropriate observations.

(b) For the purposes of paragraph (a) of this section, weather observations made and furnished to pilots to conduct IFR operations at an airport must be taken at the airport where those IFR operations are conducted, unless the Administrator issues operations specifications allowing the use of weather observations taken at a location not at the airport where the IFR operations are conducted. The Administrator issues such operations specifications when, after investigation by the U.S. National Weather Service and the certificate-holding district office, it is found that the standards of safety for that operation would allow the deviation from this paragraph for a particular operation for which an air carrier operating certificate or operating certificate has been issued.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-60, 61 FR 2616, Jan. 26, 1996]

§ 135.215 IFR: Operating limitations.

(a) Except as provided in paragraphs (b), (c) and (d) of this section, no person may operate an aircraft under IFR outside of controlled airspace or at any airport that does not have an approved standard instrument approach procedure.

(b) The Administrator may issue operations specifications to the certificate holder to allow it to operate under IFR over routes outside controlled airspace if -

(1) The certificate holder shows the Administrator that the flight crew is able to navigate, without visual reference to the ground, over an intended track without deviating more than 5 degrees or 5 miles, whichever is less, from that track; and

(2) The Administrator determines that the proposed operations can be conducted safely.

(c) A person may operate an aircraft under IFR outside of controlled airspace if the certificate holder has been approved for the operations and that operation is necessary to -

(1) Conduct an instrument approach to an airport for which there is in use a current approved standard or special instrument approach procedure; or

(2) Climb into controlled airspace during an approved missed approach procedure; or

(3) Make an IFR departure from an airport having an approved instrument approach procedure.

(d) The Administrator may issue operations specifications to the certificate holder to allow it to depart at an airport that does not have an approved standard instrument approach procedure when the Administrator determines that it is necessary to make an IFR departure from that airport and that the proposed operations can be conducted safely. The approval to operate at that airport does not include an approval to make an IFR approach to that airport.

§ 135.217 IFR: Takeoff limitations.

No person may takeoff an aircraft under IFR from an airport where weather conditions are at or above takeoff minimums but are below authorized IFR landing minimums unless there is an alternate airport within 1 hour's flying time (at normal cruising speed, in still air) of the airport of departure.

§ 135.219 IFR: Destination airport weather minimums.

No person may take off an aircraft under IFR or begin an IFR or over-the-top operation unless the latest weather reports or forecasts, or any combination of them, indicate that weather conditions at the estimated time of arrival at the next airport of intended landing will be at or above authorized IFR landing minimums.

§ 135.221 IFR: Alternate airport weather minimums.

(a) *Aircraft other than rotorcraft.* No person may designate an alternate airport unless the weather reports or forecasts, or any combination of them, indicate that the weather conditions will be at or above authorized alternate airport landing minimums for that airport at the estimated time of arrival.

(b) *Rotorcraft.* Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless appropriate weather reports or weather forecasts, or a combination of them, indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following weather minimums -

(1) If, for the alternate airport, an instrument approach procedure has been published in part 97 of this chapter or a special instrument approach procedure has been issued by the FAA to the certificate holder, the ceiling is 200 feet above the minimum for the approach to be flown, and visibility is at least 1 statute mile but never less than the minimum visibility for the approach to be flown.

(2) If, for the alternate airport, no instrument approach procedure has been published in part 97 of this chapter and no special instrument approach procedure has been issued by the FAA to the certificate holder, the ceiling and visibility minimums are those allowing descent from the minimum enroute altitude (MEA), approach, and landing under basic VFR.

[Doc. No. FAA-2010-0982, 79 FR 9974, Feb. 21, 2014]

§ 135.223 IFR: Alternate airport requirements.

(a) Except as provided in paragraph (b) of this section, no person may operate an aircraft in IFR conditions unless it carries enough fuel (considering weather reports or forecasts or any combination of them) to -

(1) Complete the flight to the first airport of intended landing;

(2) Fly from that airport to the alternate airport; and

(3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if part 97 of this chapter prescribes a standard instrument approach procedure for the first airport of intended landing and, for at least one hour before and after the estimated time of arrival, the appropriate weather reports or forecasts, or any combination of them, indicate that -

(1) The ceiling will be at least 1,500 feet above the lowest circling approach MDA; or

(2) If a circling instrument approach is not authorized for the airport, the ceiling will be at least 1,500 feet above the lowest published minimum or 2,000 feet above the airport elevation, whichever is higher; and

(3) Visibility for that airport is forecast to be at least three miles, or two miles more than the lowest applicable visibility minimums, whichever is the greater, for the instrument approach procedure to be used at the destination airport.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-20, 51 FR 40710, Nov. 7, 1986]

§ 135.225 IFR: Takeoff, approach and landing minimums.

Link to an amendment published at 81 FR 90177, Dec. 13, 2016.

(a) Except to the extent permitted by paragraphs (b) and (j) of this section, no pilot may begin an instrument approach procedure to an airport unless -

(1) That airport has a weather reporting facility operated by the U.S. National Weather Service, a source approved by U.S. National Weather Service, or a source approved by the Administrator; and

(2) The latest weather report issued by that weather reporting facility indicates that weather conditions are at or above the authorized IFR landing minimums for that airport.

(b) A pilot conducting an eligible on-demand operation may begin and conduct an instrument approach procedure to an airport that does not have a weather reporting facility operated by the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the Administrator if -

(1) The alternate airport has a weather reporting facility operated by the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the Administrator; and

(2) The latest weather report issued by the weather reporting facility includes a current local altimeter setting for the destination airport. If no local altimeter setting for the destination airport is available, the pilot may use the current altimeter setting provided by the facility designated on the approach chart for the destination airport.

(c) Except as provided in paragraph (j) of this section, no pilot may begin the final approach segment of an instrument approach procedure to an airport unless the latest weather reported by the facility described in paragraph (a)(1) of this section indicates that weather conditions are at or above the authorized IFR landing minimums for that procedure.

(d) A pilot who has begun the final approach segment of an instrument approach to an airport under paragraph (c) of this section, and receives a later weather report indicating that conditions have worsened to below the minimum requirements, may continue the approach only if the requirements of § 91.175(l) of this chapter, paragraph (j) of this section, or both of the following conditions are met -

(1) The later weather report is received when the aircraft is in one of the following approach phases:

(i) The aircraft is on an ILS final approach and has passed the final approach fix;

(ii) The aircraft is on an ASR or PAR final approach and has been turned over to the final approach controller; or

(iii) The aircraft is on a non-precision final approach and the aircraft -

(A) Has passed the appropriate facility or final approach fix; or

(B) Where a final approach fix is not specified, has completed the procedure turn and is established inbound toward the airport on the final approach course within the distance prescribed in the procedure; and

(2) The pilot in command finds, on reaching the authorized MDA or DA/DH, that the actual weather conditions are at or above the minimums prescribed for the procedure being used.

(e) The MDA or DA/DH and visibility landing minimums prescribed in part 97 of this chapter or in the operator's operations specifications are increased by 100 feet and mile respectively, but not to exceed the ceiling and visibility minimums for that airport when used as an alternate airport, for each pilot in command of a turbine-powered airplane who has not served at least 100 hours as pilot in command in that type of airplane.

(f) Each pilot making an IFR takeoff or approach and landing at a military or foreign airport shall comply with applicable instrument approach procedures and weather minimums prescribed by the authority having jurisdiction over that airport. In addition, unless authorized by the certificate holder's operations specifications, no pilot may, at that airport -

(1) Take off under IFR when the visibility is less than 1 mile; or

(2) Make an instrument approach when the visibility is less than mile.

(g) If takeoff minimums are specified in part 97 of this chapter for the take-off airport, no pilot may take off an aircraft under IFR when the weather conditions reported by the facility described in paragraph (a)(1) of this section are less than the takeoff minimums specified for the takeoff airport in part 97 or in the certificate holder's operations specifications.

(h) Except as provided in paragraph (i) of this section, if takeoff minimums are not prescribed in part 97 of this chapter for the takeoff airport, no pilot may takeoff an aircraft under IFR when the weather conditions reported by the facility described in paragraph (a)(1) of this section are less than that prescribed in part 91 of this chapter or in the certificate holder's operations specifications.

(i) At airports where straight-in instrument approach procedures are authorized, a pilot may takeoff an aircraft under IFR when the weather conditions reported by the facility described in paragraph (a)(1) of this section are equal to or better than the lowest straight-in landing minimums, unless otherwise restricted, if -

(1) The wind direction and velocity at the time of takeoff are such that a straight-in instrument approach can be made to the runway served by the instrument approach;

(2) The associated ground facilities upon which the landing minimums are predicated and the related airborne equipment are in normal operation; and

(3) The certificate holder has been approved for such operations.

(j) A pilot may begin an instrument approach procedure, or continue an approach, at an airport when the visibility is reported to be less than the visibility minimums prescribed for that procedure if the pilot uses an operable EFVS in accordance with § 91.176 of this chapter and the certificate holder's operations specifications for EFVS operations.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-91, 68 FR 54586, Sept. 17, 2003; Amdt. 135-93, 69 FR 1641, Jan. 9, 2004; Amdt. 135-110, 72 FR 31685, June 7, 2007; Amdt. 135-126, 77 FR 1632, Jan. 11, 2012; Docket FAA-2013-0485, Amdt. 135-135, 81 FR 90177, Dec. 13, 2016]

§ 135.227 Icing conditions: Operating limitations.

(a) No pilot may take off an aircraft that has frost, ice, or snow adhering to any rotor blade, propeller, windshield, stabilizing or control surface; to a powerplant installation; or to an airspeed, altimeter, rate of climb, flight attitude instrument system, or wing, except that takeoffs may be made with frost under the wing in the area of the fuel tanks if authorized by the FAA.

(b) No certificate holder may authorize an airplane to take off and no pilot may take off an airplane any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the airplane unless the pilot has completed all applicable training as required by § 135.341 and unless one of the following requirements is met:

(1) A pretakeoff contamination check, that has been established by the certificate holder and approved by the

Administrator for the specific airplane type, has been completed within 5 minutes prior to beginning takeoff. A pretakeoff contamination check is a check to make sure the wings and control surfaces are free of frost, ice, or snow.

(2) The certificate holder has an approved alternative procedure and under that procedure the airplane is determined to be free of frost, ice, or snow.

(3) The certificate holder has an approved deicing/anti-icing program that complies with § 121.629(c) of this chapter and the takeoff complies with that program.

(c) No pilot may fly under IFR into known or forecast light or moderate icing conditions or under VFR into known light or moderate icing conditions, unless -

(1) The aircraft has functioning deicing or anti-icing equipment protecting each rotor blade, propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system;

(2) The airplane has ice protection provisions that meet section 34 of appendix A of this part; or

(3) The airplane meets transport category airplane type certification provisions, including the requirements for certification for flight in icing conditions.

(d) No pilot may fly a helicopter under IFR into known or forecast icing conditions or under VFR into known icing conditions unless it has been type certificated and appropriately equipped for operations in icing conditions.

(e) Except for an airplane that has ice protection provisions that meet section 34 of appendix A, or those for transport category airplane type certification, no pilot may fly an aircraft into known or forecast severe icing conditions.

(f) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing condition that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraphs (c), (d), and (e) of this section based on forecast conditions do not apply.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 133-20, 51 FR 40710, Nov. 7, 1986; Amdt. 135-46, 58 FR 69629, Dec. 30, 1993; Amdt. 135-60, 61 FR 2616, Jan. 26, 1996; Amdt. 135-119, 74 FR 62696, Dec. 1, 2009]

§ 135.229 Airport requirements.

(a) No certificate holder may use any airport unless it is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting.

(b) No pilot of an aircraft carrying passengers at night may takeoff from, or land on, an airport unless -

(1) That pilot has determined the wind direction from an illuminated wind direction indicator or local ground communications or, in the case of takeoff, that pilot's personal observations; and

(2) The limits of the area to be used for landing or takeoff are clearly shown -

(i) For airplanes, by boundary or runway marker lights;

(ii) For helicopters, by boundary or runway marker lights or reflective material.

(c) For the purpose of paragraph (b) of this section, if the area to be used for takeoff or landing is marked by flare pots or lanterns, their use must be approved by the Administrator.

Subpart E - Flight Crewmember Requirements

§ 135.241 Applicability.

Except as provided in § 135.3, this subpart prescribes the flight crewmember requirements for operations under this part.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 121-250, 60 FR 65950, Dec. 20, 1995]

§ 135.243 Pilot in command qualifications.

(a) No certificate holder may use a person, nor may any person serve, as pilot in command in passenger-carrying operations -

(1) Of a turbojet airplane, of an airplane having a passenger-seat configuration, excluding each crewmember seat, of 10 seats or more, or of a multiengine airplane in a commuter operation as defined in part 119 of this chapter, unless that person holds an airline transport pilot certificate with appropriate category and class ratings and, if required, an appropriate type rating for that airplane.

(2) Of a helicopter in a scheduled interstate air transportation operation by an air carrier within the 48 contiguous states unless that person holds an airline transport pilot certificate, appropriate type ratings, and an instrument rating.

(b) Except as provided in paragraph (a) of this section, no certificate holder may use a person, nor may any person serve, as pilot in command of an aircraft under VFR unless that person -

(1) Holds at least a commercial pilot certificate with appropriate category and class ratings and, if required, an appropriate type rating for that aircraft; and

(2) Has had at least 500 hours time as a pilot, including at least 100 hours of cross-country flight time, at least 25 hours of which were at night; and

(3) For an airplane, holds an instrument rating or an airline transport pilot certificate with an airplane category rating; or

(4) For helicopter operations conducted VFR over-the-top, holds a helicopter instrument rating, or an airline transport pilot certificate with a category and class rating for that aircraft, not limited to VFR.

(c) Except as provided in paragraph (a) of this section, no certificate holder may use a person, nor may any person serve, as pilot in command of an aircraft under IFR unless that person -

(1) Holds at least a commercial pilot certificate with appropriate category and class ratings and, if required, an appropriate type rating for that aircraft; and

(2) Has had at least 1,200 hours of flight time as a pilot, including 500 hours of cross country flight time, 100 hours of night flight time, and 75 hours of actual or simulated instrument time at least 50 hours of which were in actual flight; and

(3) For an airplane, holds an instrument rating or an airline transport pilot certificate with an airplane category rating; or

(4) For a helicopter, holds a helicopter instrument rating, or an airline transport pilot certificate with a category and class rating for that aircraft, not limited to VFR.

(d) Paragraph (b)(3) of this section does not apply when -

(1) The aircraft used is a single reciprocating-engine-powered airplane;

(2) The certificate holder does not conduct any operation pursuant to a published flight schedule which specifies five or more round trips a week between two or more points and places between which the round trips are performed, and does not transport mail by air under a contract or contracts with the United States Postal Service having total amount estimated at the beginning of any semiannual reporting period (January 1-June 30; July 1-December 31) to be in excess of \$20,000 over the 12 months commencing with the beginning of the reporting period;

(3) The area, as specified in the certificate holder's operations specifications, is an isolated area, as determined by the Flight Standards district office, if it is shown that -

(i) The primary means of navigation in the area is by pilotage, since radio navigational aids are largely ineffective; and

(ii) The primary means of transportation in the area is by air;

(4) Each flight is conducted under day VFR with a ceiling of not less than 1,000 feet and visibility not less than 3 statute miles;

(5) Weather reports or forecasts, or any combination of them, indicate that for the period commencing with the planned departure and ending 30 minutes after the planned arrival at the destination the flight may be conducted under VFR with a ceiling of not less than 1,000 feet and visibility of not less than 3 statute miles, except that if weather reports and forecasts are not available, the pilot in command may use that pilot's observations or those of other persons competent to supply weather observations if those observations indicate the flight may be conducted under VFR with the ceiling and visibility required in this paragraph;

(6) The distance of each flight from the certificate holder's base of operation to destination does not exceed 250 nautical miles for a pilot who holds a commercial pilot certificate with an airplane rating without an instrument rating, provided the pilot's certificate does not contain any limitation to the contrary; and

(7) The areas to be flown are approved by the certificate-holding FAA Flight Standards district office and are listed in the certificate holder's operations specifications.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978; Amdt. 135-1, 43 FR 49975, Oct. 26, 1978, as amended by Amdt. 135-15, 46 FR 30971, June 11, 1981; Amdt. 135-58, 60 FR 65939, Dec. 20, 1995]

§ 135.244 Operating experience.

(a) No certificate holder may use any person, nor may any person serve, as a pilot in command of an aircraft operated in a commuter operation, as defined in part 119 of this chapter unless that person has completed, prior to designation as pilot in command, on that make and basic model aircraft and in that crewmember position, the following operating experience in each make and basic model of aircraft to be flown:

- (1) Aircraft, single engine - 10 hours.
- (2) Aircraft multiengine, reciprocating engine-powered - 15 hours.
- (3) Aircraft multiengine, turbine engine-powered - 20 hours.
- (4) Airplane, turbojet-powered - 25 hours.

(b) In acquiring the operating experience, each person must comply with the following:

(1) The operating experience must be acquired after satisfactory completion of the appropriate ground and flight training for the aircraft and crewmember position. Approved provisions for the operating experience must be included in the certificate holder's training program.

(2) The experience must be acquired in flight during commuter passenger-carrying operations under this part. However, in the case of an aircraft not previously used by the certificate holder in operations under this part, operating experience acquired in the aircraft during proving flights or ferry flights may be used to meet this requirement.

(3) Each person must acquire the operating experience while performing the duties of a pilot in command under the supervision of a qualified check pilot.

(4) The hours of operating experience may be reduced to not less than 50 percent of the hours required by this section by the substitution of one additional takeoff and landing for each hour of flight.

[Doc. No. 20011, 45 FR 7541, Feb. 4, 1980, as amended by Amdt. 135-9, 45 FR 80461, Dec. 14, 1980; Amdt. 135-58, 60 FR 65940, Dec. 20, 1995]

§ 135.245 Second in command qualifications.

(a) Except as provided in paragraph (b), no certificate holder may use any person, nor may any person serve, as second in command of an aircraft unless that person holds at least a commercial pilot certificate with appropriate category and class ratings and an instrument rating. For flight under IFR, that person must meet the recent instrument experience requirements of part 61 of this chapter.

(b) A second in command of a helicopter operated under VFR, other than over-the-top, must have at least a commercial pilot certificate with an appropriate aircraft category and class rating.

[44 FR 26738, May 7, 1979]

§ 135.247 Pilot qualifications: Recent experience.

(a) No certificate holder may use any person, nor may any person serve, as pilot in command of an aircraft carrying passengers unless, within the preceding 90 days, that person has -

(1) Made three takeoffs and three landings as the sole manipulator of the flight controls in an aircraft of the same category and class and, if a type rating is required, of the same type in which that person is to serve; or

(2) For operation during the period beginning 1 hour after sunset and ending 1 hour before sunrise (as published in the Air Almanac), made three takeoffs and three landings during that period as the sole manipulator of the flight controls in an aircraft of the same category and class and, if a type rating is required, of the same type in which that person is to serve.

A person who complies with paragraph (a)(2) of this section need not comply with paragraph (a)(1) of this section.

(3) Paragraph (a)(2) of this section does not apply to a pilot in command of a turbine-powered airplane that is type certificated for more than one pilot crewmember, provided that pilot has complied with the requirements of paragraph (a)(3)(i) or (ii) of this section:

(i) The pilot in command must hold at least a commercial pilot certificate with the appropriate category, class, and type rating for each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, and:

(A) That pilot must have logged at least 1,500 hours of aeronautical experience as a pilot;

(B) In each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, that pilot must have accomplished and logged the daytime takeoff and landing recent flight experience of paragraph (a) of this section, as the sole manipulator of the flight controls;

(C) Within the preceding 90 days prior to the operation of that airplane that is type certificated for more than one pilot crewmember, the pilot must have accomplished and logged at least 15 hours of flight time in the type of airplane that the pilot seeks to operate under this alternative; and

(D) That pilot has accomplished and logged at least 3 takeoffs and 3 landings to a full stop, as the sole manipulator of the flight controls, in a turbine-powered airplane that requires more than one pilot crewmember. The pilot must have performed the takeoffs and landings during the period beginning 1 hour after sunset and ending 1 hour before sunrise within the preceding 6 months prior to the month of the flight.

(ii) The pilot in command must hold at least a commercial pilot certificate with the appropriate category, class, and type rating for each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, and:

(A) That pilot must have logged at least 1,500 hours of aeronautical experience as a pilot;

(B) In each airplane that is type certificated for more than one pilot crewmember that the pilot seeks to operate under this alternative, that pilot must have accomplished and logged the daytime takeoff and landing recent flight experience of paragraph (a) of this section, as the sole manipulator of the flight controls;

(C) Within the preceding 90 days prior to the operation of that airplane that is type certificated for more than one pilot crewmember, the pilot must have accomplished and logged at least 15 hours of flight time in the type of airplane that the pilot seeks to operate under this alternative; and

(D) Within the preceding 12 months prior to the month of the flight, the pilot must have completed a training program that is approved under part 142 of this chapter. The approved training program must have required and the pilot must have performed, at least 6 takeoffs and 6 landings to a full stop as the sole manipulator of the controls in a flight simulator that is representative of a turbine-powered airplane that requires more than one pilot crewmember. The flight simulator's visual system must have been adjusted to represent the period beginning 1 hour after sunset and ending 1 hour before sunrise.

(b) For the purpose of paragraph (a) of this section, if the aircraft is a tailwheel airplane, each takeoff must be made in a tailwheel airplane and each landing must be made to a full stop in a tailwheel airplane.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-91, 68 FR 54587, Sept. 17, 2003]

§§ 135.249-135.255 [Reserved]

Subpart F - Crewmember Flight Time and Duty Period Limitations and Rest Requirements

Source:

Docket No. 23634, 50 FR 29320, July 18, 1985, unless otherwise noted.

§ 135.261 Applicability.

Sections 135.263 through 135.273 of this part prescribe flight time limitations, duty period limitations, and rest requirements for operations conducted under this part as follows:

(a) Section 135.263 applies to all operations under this subpart.

(b) Section 135.265 applies to:

(1) Scheduled passenger-carrying operations except those conducted solely within the state of Alaska. "Scheduled passenger-carrying operations" means passenger-carrying operations that are conducted in accordance with a published schedule which covers at least five round trips per week on at least one route between two or more points, includes dates or

times (or both), and is openly advertised or otherwise made readily available to the general public, and

(2) Any other operation under this part, if the operator elects to comply with § 135.265 and obtains an appropriate operations specification amendment.

(c) Sections 135.267 and 135.269 apply to any operation that is not a scheduled passenger-carrying operation and to any operation conducted solely within the State of Alaska, unless the operator elects to comply with § 135.265 as authorized under paragraph (b)(2) of this section.

(d) Section 135.271 contains special daily flight time limits for operations conducted under the helicopter emergency medical evacuation service (HEMES).

(e) Section 135.273 prescribes duty period limitations and rest requirements for flight attendants in all operations conducted under this part.

[Doc. No. 23634, 50 FR 29320, July 18, 1985, as amended by Amdt. 135-52, 59 FR 42993, Aug. 19, 1994]

§ 135.263 Flight time limitations and rest requirements: All certificate holders.

(a) A certificate holder may assign a flight crewmember and a flight crewmember may accept an assignment for flight time only when the applicable requirements of §§ 135.263 through 135.271 are met.

(b) No certificate holder may assign any flight crewmember to any duty with the certificate holder during any required rest period.

(c) Time spent in transportation, not local in character, that a certificate holder requires of a flight crewmember and provides to transport the crewmember to an airport at which he is to serve on a flight as a crewmember, or from an airport at which he was relieved from duty to return to his home station, is not considered part of a rest period.

(d) A flight crewmember is not considered to be assigned flight time in excess of flight time limitations if the flights to which he is assigned normally terminate within the limitations, but due to circumstances beyond the control of the certificate holder or flight crewmember (such as adverse weather conditions), are not at the time of departure expected to reach their destination within the planned flight time.

§ 135.265 Flight time limitations and rest requirements: Scheduled operations.

(a) No certificate holder may schedule any flight crewmember, and no flight crewmember may accept an assignment, for flight time in scheduled operations or in other commercial flying if that crewmember's total flight time in all commercial flying will exceed -

(1) 1,200 hours in any calendar year.

(2) 120 hours in any calendar month.

(3) 34 hours in any 7 consecutive days.

(4) 8 hours during any 24 consecutive hours for a flight crew consisting of one pilot.

(5) 8 hours between required rest periods for a flight crew consisting of two pilots qualified under this part for the operation being conducted.

(b) Except as provided in paragraph (c) of this section, no certificate holder may schedule a flight crewmember, and no flight crewmember may accept an assignment, for flight time during the 24 consecutive hours preceding the scheduled completion of any flight segment without a scheduled rest period during that 24 hours of at least the following:

(1) 9 consecutive hours of rest for less than 8 hours of scheduled flight time.

(2) 10 consecutive hours of rest for 8 or more but less than 9 hours of scheduled flight time.

(3) 11 consecutive hours of rest for 9 or more hours of scheduled flight time.

(c) A certificate holder may schedule a flight crewmember for less than the rest required in paragraph (b) of this section or may reduce a scheduled rest under the following conditions:

(1) A rest required under paragraph (b)(1) of this section may be scheduled for or reduced to a minimum of 8 hours if the flight crewmember is given a rest period of at least 10 hours that must begin no later than 24 hours after the commencement of the reduced rest period.

(2) A rest required under paragraph (b)(2) of this section may be scheduled for or reduced to a minimum of 8 hours if the flight crewmember is given a rest period of at least 11 hours that must begin no later than 24 hours after the commencement of the reduced rest period.

(3) A rest required under paragraph (b)(3) of this section may be scheduled for or reduced to a minimum of 9 hours if the flight crewmember is given a rest period of at least 12 hours that must begin no later than 24 hours after the commencement of the reduced rest period.

(d) Each certificate holder shall relieve each flight crewmember engaged in scheduled air transportation from all further duty for at least 24 consecutive hours during any 7 consecutive days.

§ 135.267 Flight time limitations and rest

requirements: Unscheduled one- and two-pilot crews.

(a) No certificate holder may assign any flight crewmember, and no flight crewmember may accept an assignment, for flight time as a member of a one- or two-pilot crew if that crewmember's total flight time in all commercial flying will exceed -

(1) 500 hours in any calendar quarter.

(2) 800 hours in any two consecutive calendar quarters.

(3) 1,400 hours in any calendar year.

(b) Except as provided in paragraph (c) of this section, during any 24 consecutive hours the total flight time of the assigned flight when added to any other commercial flying by that flight crewmember may not exceed -

(1) 8 hours for a flight crew consisting of one pilot; or

(2) 10 hours for a flight crew consisting of two pilots qualified under this part for the operation being conducted.

(c) A flight crewmember's flight time may exceed the flight time limits of paragraph (b) of this section if the assigned flight time occurs during a regularly assigned duty period of no more than 14 hours and -

(1) If this duty period is immediately preceded by and followed by a required rest period of at least 10 consecutive hours of rest;

(2) If flight time is assigned during this period, that total flight time when added to any other commercial flying by the flight crewmember may not exceed -

(i) 8 hours for a flight crew consisting of one pilot; or

(ii) 10 hours for a flight crew consisting of two pilots; and

(3) If the combined duty and rest periods equal 24 hours.

(d) Each assignment under paragraph (b) of this section must provide for at least 10 consecutive hours of rest during the 24-hour period that precedes the planned completion time of the assignment.

(e) When a flight crewmember has exceeded the daily flight time limitations in this section, because of circumstances beyond the control of the certificate holder or flight crewmember (such as adverse weather conditions), that flight crewmember must have a rest period before being assigned or accepting an assignment for flight time of at least -

(1) 11 consecutive hours of rest if the flight time limitation is exceeded by not more than 30 minutes;

(2) 12 consecutive hours of rest if the flight time limitation is exceeded by more than 30 minutes, but not more than 60 minutes; and

(3) 16 consecutive hours of rest if the flight time limitation is exceeded by more than 60 minutes.

(f) The certificate holder must provide each flight crewmember at least 13 rest periods of at least 24 consecutive hours each in each calendar quarter.

[Doc. No. 23634, 50 FR 29320, July 18, 1985, as amended by Amdt. 135-33, 54 FR 39294, Sept. 25, 1989; Amdt. 135-60, 61 FR 2616, Jan. 26, 1996]

§ 135.269 Flight time limitations and rest

requirements: Unscheduled three- and four-pilot crews.

(a) No certificate holder may assign any flight crewmember, and no flight crewmember may accept an assignment, for flight time as a member of a three- or four-pilot crew if that crewmember's total flight time in all commercial flying will exceed -

(1) 500 hours in any calendar quarter.

(2) 800 hours in any two consecutive calendar quarters.

(3) 1,400 hours in any calendar year.

(b) No certificate holder may assign any pilot to a crew of three or four pilots, unless that assignment provides -

(1) At least 10 consecutive hours of rest immediately preceding the assignment;

(2) No more than 8 hours of flight deck duty in any 24 consecutive hours;

(3) No more than 18 duty hours for a three-pilot crew or 20 duty hours for a four-pilot crew in any 24 consecutive hours;

(4) No more than 12 hours aloft for a three-pilot crew or 16 hours aloft for a four-pilot crew during the maximum duty hours specified in paragraph (b)(3) of this section;

(5) Adequate sleeping facilities on the aircraft for the relief pilot;

(6) Upon completion of the assignment, a rest period of at least 12 hours;

(7) For a three-pilot crew, a crew which consists of at least the following:

(i) A pilot in command (PIC) who meets the applicable flight crewmember requirements of subpart E of part 135;

(ii) A PIC who meets the applicable flight crewmember requirements of subpart E of part 135, except those prescribed in §§ 135.244 and 135.247; and

(iii) A second in command (SIC) who meets the SIC qualifications of § 135.245.

(8) For a four-pilot crew, at least three pilots who meet the conditions of paragraph (b)(7) of this section, plus a fourth pilot who meets the SIC qualifications of § 135.245.

(c) When a flight crewmember has exceeded the daily flight deck duty limitation in this section by more than 60 minutes, because of circumstances beyond the control of the certificate holder or flight crewmember, that flight crewmember must have a rest period before the next duty period of at least 16 consecutive hours.

(d) A certificate holder must provide each flight crewmember at least 13 rest periods of at least 24 consecutive hours each in each calendar quarter.

§ 135.271 Helicopter hospital emergency medical evacuation service (HEMES).

(a) No certificate holder may assign any flight crewmember, and no flight crewmember may accept an assignment for flight time if that crewmember's total flight time in all commercial flight will exceed -

(1) 500 hours in any calendar quarter.

(2) 800 hours in any two consecutive calendar quarters.

(3) 1,400 hours in any calendar year.

(b) No certificate holder may assign a helicopter flight crewmember, and no flight crewmember may accept an assignment, for hospital emergency medical evacuation service helicopter operations unless that assignment provides for at least 10 consecutive hours of rest immediately preceding reporting to the hospital for availability for flight time.

(c) No flight crewmember may accrue more than 8 hours of flight time during any 24-consecutive hour period of a HEMES assignment, unless an emergency medical evacuation operation is prolonged. Each flight crewmember who exceeds the daily 8 hour flight time limitation in this paragraph must be relieved of the HEMES assignment immediately upon the completion of that emergency medical evacuation operation

and must be given a rest period in compliance with paragraph (h) of this section.

(d) Each flight crewmember must receive at least 8 consecutive hours of rest during any 24 consecutive hour period of a HEMES assignment. A flight crewmember must be relieved of the HEMES assignment if he or she has not or cannot receive at least 8 consecutive hours of rest during any 24 consecutive hour period of a HEMES assignment.

(e) A HEMES assignment may not exceed 72 consecutive hours at the hospital.

(f) An adequate place of rest must be provided at, or in close proximity to, the hospital at which the HEMES assignment is being performed.

(g) No certificate holder may assign any other duties to a flight crewmember during a HEMES assignment.

(h) Each pilot must be given a rest period upon completion of the HEMES assignment and prior to being assigned any further duty with the certificate holder of -

(1) At least 12 consecutive hours for an assignment of less than 48 hours.

(2) At least 16 consecutive hours for an assignment of more than 48 hours.

(i) The certificate holder must provide each flight crewmember at least 13 rest periods of at least 24 consecutive hours each in each calendar quarter.

§ 135.273 Duty period limitations and rest time requirements.

(a) For purposes of this section -

Calendar day means the period of elapsed time, using Coordinated Universal Time or local time, that begins at midnight and ends 24 hours later at the next midnight.

Duty period means the period of elapsed time between reporting for an assignment involving flight time and release from that assignment by the certificate holder. The time is calculated using either Coordinated Universal Time or local time to reflect the total elapsed time.

Flight attendant means an individual, other than a flight crewmember, who is assigned by the certificate holder, in accordance with the required minimum crew complement under the certificate holder's operations specifications or in addition to that minimum complement, to duty in an aircraft during flight time and whose duties include but are not necessarily limited to cabin-safety-related responsibilities.

Rest period means the period free of all responsibility for work or duty should the occasion arise.

(b) Except as provided in paragraph (c) of this section, a certificate holder may assign a duty period to a flight attendant only when the applicable duty period limitations and rest requirements of this paragraph are met.

(1) Except as provided in paragraphs (b)(4), (b)(5), and (b) (6) of this section, no certificate holder may assign a flight attendant to a scheduled duty period of more than 14 hours.

(2) Except as provided in paragraph (b)(3) of this section, a flight attendant scheduled to a duty period of 14 hours or less as

provided under paragraph (b)(1) of this section must be given a scheduled rest period of at least 9 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(3) The rest period required under paragraph (b)(2) of this section may be scheduled or reduced to 8 consecutive hours if the flight attendant is provided a subsequent rest period of at least 10 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(4) A certificate holder may assign a flight attendant to a scheduled duty period of more than 14 hours, but no more than 16 hours, if the certificate holder has assigned to the flight or flights in that duty period at least one flight attendant in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(5) A certificate holder may assign a flight attendant to a scheduled duty period of more than 16 hours, but no more than 18 hours, if the certificate holder has assigned to the flight or flights in that duty period at least two flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(6) A certificate holder may assign a flight attendant to a scheduled duty period of more than 18 hours, but no more than 20 hours, if the scheduled duty period includes one or more flights that land or take off outside the 48 contiguous states and the District of Columbia, and if the certificate holder has assigned to the flight or flights in that duty period at least three flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(7) Except as provided in paragraph (b)(8) of this section, a flight attendant scheduled to a duty period of more than 14 hours but no more than 20 hours, as provided in paragraphs (b) (4), (b)(5), and (b)(6) of this section, must be given a scheduled rest period of at least 12 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(8) The rest period required under paragraph (b)(7) of this section may be scheduled or reduced to 10 consecutive hours if the flight attendant is provided a subsequent rest period of at least 14 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

(9) Notwithstanding paragraphs (b)(4), (b)(5), and (b)(6) of this section, if a certificate holder elects to reduce the rest period to 10 hours as authorized by paragraph (b)(8) of this section, the certificate holder may not schedule a flight

attendant for a duty period of more than 14 hours during the 24-hour period commencing after the beginning of the reduced rest period.

(10) No certificate holder may assign a flight attendant any duty period with the certificate holder unless the flight attendant has had at least the minimum rest required under this section.

(11) No certificate holder may assign a flight attendant to perform any duty with the certificate holder during any required rest period.

(12) Time spent in transportation, not local in character, that a certificate holder requires of a flight attendant and provides to transport the flight attendant to an airport at which that flight attendant is to serve on a flight as a crewmember, or from an airport at which the flight attendant was relieved from duty to return to the flight attendant's home station, is not considered part of a rest period.

(13) Each certificate holder must relieve each flight attendant engaged in air transportation from all further duty for at least 24 consecutive hours during any 7 consecutive calendar days.

(14) A flight attendant is not considered to be scheduled for duty in excess of duty period limitations if the flights to which the flight attendant is assigned are scheduled and normally terminate within the limitations but due to circumstances beyond the control of the certificate holder (such as adverse weather conditions) are not at the time of departure expected to reach their destination within the scheduled time.

(c) Notwithstanding paragraph (b) of this section, a certificate holder may apply the flight crewmember flight time and duty limitations and rest requirements of this part to flight attendants for all operations conducted under this part provided that -

(1) The certificate holder establishes written procedures that -

(i) Apply to all flight attendants used in the certificate holder's operation;

(ii) Include the flight crewmember requirements contained in subpart F of this part, as appropriate to the operation being conducted, except that rest facilities on board the aircraft are not required; and

(iii) Include provisions to add one flight attendant to the minimum flight attendant complement for each flight crewmember who is in excess of the minimum number required in the aircraft type certificate data sheet and who is assigned to the aircraft under the provisions of subpart F of this part, as applicable.

(iv) Are approved by the Administrator and described or referenced in the certificate holder's operations specifications; and

(2) Whenever the Administrator finds that revisions are necessary for the continued adequacy of duty period limitation and rest requirement procedures that are required by paragraph (c)(1) of this section and that had been granted final approval, the certificate holder must, after notification

by the Administrator, make any changes in the procedures that are found necessary by the Administrator. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the certificate-holding district office. The filing of a petition to reconsider stays the notice, pending decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety, the Administrator may, upon a statement of the reasons, require a change effective without stay.

[Amdt. 135-52, 59 FR 42993, Aug. 19, 1994, as amended by Amdt. 135-60, 61 FR 2616, Jan. 26, 1996]

Subpart G - Crewmember Testing Requirements

§ 135.291 Applicability.

Except as provided in § 135.3, this subpart -

(a) Prescribes the tests and checks required for pilot and flight attendant crewmembers and for the approval of check pilots in operations under this part; and

(b) Permits training center personnel authorized under part 142 of this chapter who meet the requirements of §§ 135.337 and 135.339 to conduct training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this subpart.

[Doc. No. 26933, 61 FR 34561, July 2, 1996, as amended by Amdt. 135-91, 68 FR 54587, Sept. 17, 2003]

§ 135.293 Initial and recurrent pilot testing requirements.

(a) No certificate holder may use a pilot, nor may any person serve as a pilot, unless, since the beginning of the 12th calendar month before that service, that pilot has passed a written or oral test, given by the Administrator or an authorized check pilot, on that pilot's knowledge in the following areas -

(1) The appropriate provisions of parts 61, 91, and 135 of this chapter and the operations specifications and the manual of the certificate holder;

(2) For each type of aircraft to be flown by the pilot, the aircraft powerplant, major components and systems, major appliances, performance and operating limitations, standard and emergency operating procedures, and the contents of the approved Aircraft Flight Manual or equivalent, as applicable;

(3) For each type of aircraft to be flown by the pilot, the method of determining compliance with weight and balance limitations for takeoff, landing and en route operations;

(4) Navigation and use of air navigation aids appropriate to the operation or pilot authorization, including, when applicable, instrument approach facilities and procedures;

(5) Air traffic control procedures, including IFR procedures when applicable;

(6) Meteorology in general, including the principles of frontal systems, icing, fog, thunderstorms, and windshear, and, if appropriate for the operation of the certificate holder, high altitude weather;

(7) Procedures for -

(i) Recognizing and avoiding severe weather situations;

(ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be tested on escaping from low-altitude windshear);

(iii) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions; and

(8) New equipment, procedures, or techniques, as appropriate; and

(9) For rotorcraft pilots, procedures for aircraft handling in flat-light, whiteout, and brownout conditions, including methods for recognizing and avoiding those conditions.

(b) No certificate holder may use a pilot, nor may any person serve as a pilot, in any aircraft unless, since the beginning of the 12th calendar month before that service, that pilot has passed a competency check given by the Administrator or an authorized check pilot in that class of aircraft, if single-engine airplane other than turbojet, or that type of aircraft, if helicopter, multiengine airplane, or turbojet airplane, to determine the pilot's competence in practical skills and techniques in that aircraft or class of aircraft. The extent of the competency check shall be determined by the Administrator or authorized check pilot conducting the competency check. The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class and type of aircraft involved. For the purposes of this paragraph, type, as to an airplane, means any one of a group of airplanes determined by the Administrator to have a similar means of propulsion, the same manufacturer, and no significantly different handling or flight characteristics. For the purposes of this paragraph, type, as to a helicopter, means a basic make and model.

(c) Each competency check given in a rotorcraft must include a demonstration of the pilot's ability to maneuver the rotorcraft solely by reference to instruments. The check must determine the pilot's ability to safely maneuver the rotorcraft into visual meteorological conditions following an inadvertent encounter with instrument meteorological conditions. For competency checks in non-IFR-certified rotorcraft, the pilot must perform such maneuvers as are appropriate to the rotorcraft's installed equipment, the certificate holder's operations specifications, and the operating environment.

(d) The instrument proficiency check required by § 135.297 may be substituted for the competency check required by this section for the type of aircraft used in the check.

(e) For the purpose of this part, competent performance of a procedure or maneuver by a person to be used as a pilot requires that the pilot be the obvious master of the aircraft, with the successful outcome of the maneuver never in doubt.

(f) The Administrator or authorized check pilot certifies the competency of each pilot who passes the knowledge or flight check in the certificate holder's pilot records.

(g) Portions of a required competency check may be given in an aircraft simulator or other appropriate training device, if approved by the Administrator.

(h) Rotorcraft pilots must be tested on the subjects in paragraph (a)(9) of this section when taking a written or oral knowledge test after April 22, 2015. Rotorcraft pilots must be checked on the maneuvers and procedures in paragraph (c) of this section when taking a competency check after April 22, 2015.

(i) If the certificate holder is authorized to conduct EFVS operations, the competency check in paragraph (b) of this section must include tasks appropriate to the EFVS operations the certificate holder is authorized to conduct.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-27, 53 FR 37697, Sept. 27, 1988; Amdt. 135-129, 79 FR 9974, Feb. 21, 2014; 79 FR 22012, Apr. 21, 2014; Docket FAA-2013-0485, Amdt. 135-135, 81 FR 90177, Dec. 13, 2016]

§ 135.295 Initial and recurrent flight attendant crewmember testing requirements.

No certificate holder may use a flight attendant crewmember, nor may any person serve as a flight attendant crewmember unless, since the beginning of the 12th calendar month before that service, the certificate holder has determined by appropriate initial and recurrent testing that the person is knowledgeable and competent in the following areas as appropriate to assigned duties and responsibilities -

- (a) Authority of the pilot in command;
- (b) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety;
- (c) Crewmember assignments, functions, and responsibilities during ditching and evacuation of persons who may need the assistance of another person to move expeditiously to an exit in an emergency;
- (d) Briefing of passengers;
- (e) Location and operation of portable fire extinguishers and other items of emergency equipment;
- (f) Proper use of cabin equipment and controls;
- (g) Location and operation of passenger oxygen equipment;
- (h) Location and operation of all normal and emergency exits, including evacuation chutes and escape ropes; and
- (i) Seating of persons who may need assistance of another person to move rapidly to an exit in an emergency as prescribed by the certificate holder's operations manual.

§ 135.297 Pilot in command: Instrument proficiency check requirements.

(a) No certificate holder may use a pilot, nor may any person serve, as a pilot in command of an aircraft under IFR unless, since the beginning of the 6th calendar month before that service, that pilot has passed an instrument proficiency check under this section administered by the Administrator or an authorized check pilot.

(b) No pilot may use any type of precision instrument approach procedure under IFR unless, since the beginning of the 6th calendar month before that use, the pilot satisfactorily demonstrated that type of approach procedure. No pilot may use any type of nonprecision approach procedure under IFR unless, since the beginning of the 6th calendar month before that use, the pilot has satisfactorily demonstrated either that type of approach procedure or any other two different types of nonprecision approach procedures. The instrument approach procedure or procedures must include at least one straight-in approach, one circling approach, and one missed approach. Each type of approach procedure demonstrated must be conducted to published minimums for that procedure.

(c) The instrument proficiency check required by paragraph (a) of this section consists of an oral or written equipment test and a flight check under simulated or actual IFR conditions. The equipment test includes questions on emergency procedures, engine operation, fuel and lubrication systems, power settings, stall speeds, best engine-out speed, propeller and supercharger operations, and hydraulic, mechanical, and electrical systems, as appropriate. The flight check includes navigation by instruments, recovery from simulated emergencies, and standard instrument approaches involving navigational facilities which that pilot is to be authorized to use. Each pilot taking the instrument proficiency check must show that standard of competence required by § 135.293(e).

(1) The instrument proficiency check must -

- (i) For a pilot in command of an airplane under § 135.243(a), include the procedures and maneuvers for an airline transport pilot certificate in the particular type of airplane, if appropriate; and
- (ii) For a pilot in command of an airplane or helicopter under § 135.243(c), include the procedures and maneuvers for a commercial pilot certificate with an instrument rating and, if required, for the appropriate type rating.

(2) The instrument proficiency check must be given by an authorized check airman or by the Administrator.

(d) If the pilot in command is assigned to pilot only one type of aircraft, that pilot must take the instrument proficiency check required by paragraph (a) of this section in that type of aircraft.

(e) If the pilot in command is assigned to pilot more than one type of aircraft, that pilot must take the instrument proficiency check required by paragraph (a) of this section in each type of aircraft to which that pilot is assigned, in

rotation, but not more than one flight check during each period described in paragraph (a) of this section.

(f) If the pilot in command is assigned to pilot both single-engine and multiengine aircraft, that pilot must initially take the instrument proficiency check required by paragraph (a) of this section in a multiengine aircraft, and each succeeding check alternately in single-engine and multiengine aircraft, but not more than one flight check during each period described in paragraph (a) of this section. Portions of a required flight check may be given in an aircraft simulator or other appropriate training device, if approved by the Administrator.

(g) If the pilot in command is authorized to use an autopilot system in place of a second in command, that pilot must show, during the required instrument proficiency check, that the pilot is able (without a second in command) both with and without using the autopilot to -

- (1) Conduct instrument operations competently; and
- (2) Properly conduct air-ground communications and comply with complex air traffic control instructions.
- (3) Each pilot taking the autopilot check must show that, while using the autopilot, the airplane can be operated as proficiently as it would be if a second in command were present to handle air-ground communications and air traffic control instructions. The autopilot check need only be demonstrated once every 12 calendar months during the instrument proficiency check required under paragraph (a) of this section.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-15, 46 FR 30971, June 11, 1981; Amdt. 135-129, 79 FR 9975, Feb. 21, 2014]

§ 135.299 Pilot in command: Line checks: Routes and airports.

(a) No certificate holder may use a pilot, nor may any person serve, as a pilot in command of a flight unless, since the beginning of the 12th calendar month before that service, that pilot has passed a flight check in one of the types of aircraft which that pilot is to fly. The flight check shall -

- (1) Be given by an approved check pilot or by the Administrator;
- (2) Consist of at least one flight over one route segment; and
- (3) Include takeoffs and landings at one or more representative airports. In addition to the requirements of this paragraph, for a pilot authorized to conduct IFR operations, at least one flight shall be flown over a civil airway, an approved off-airway route, or a portion of either of them.

(b) The pilot who conducts the check shall determine whether the pilot being checked satisfactorily performs the duties and responsibilities of a pilot in command in operations under this part, and shall so certify in the pilot training record.

(c) Each certificate holder shall establish in the manual required by § 135.21 a procedure which will ensure that each pilot who has not flown over a route and into an airport within the preceding 90 days will, before beginning the flight, become

familiar with all available information required for the safe operation of that flight.

§ 135.301 Crewmember: Tests and checks, grace provisions, training to accepted standards.

(a) If a crewmember who is required to take a test or a flight check under this part, completes the test or flight check in the calendar month before or after the calendar month in which it is required, that crewmember is considered to have completed the test or check in the calendar month in which it is required.

(b) If a pilot being checked under this subpart fails any of the required maneuvers, the person giving the check may give additional training to the pilot during the course of the check. In addition to repeating the maneuvers failed, the person giving the check may require the pilot being checked to repeat any other maneuvers that are necessary to determine the pilot's proficiency. If the pilot being checked is unable to demonstrate satisfactory performance to the person conducting the check, the certificate holder may not use the pilot, nor may the pilot serve, as a flight crewmember in operations under this part until the pilot has satisfactorily completed the check.

Subpart H - Training

§ 135.321 Applicability and terms used.

(a) Except as provided in § 135.3, this subpart prescribes the requirements applicable to -

(1) A certificate holder under this part which contracts with, or otherwise arranges to use the services of a training center certificated under part 142 to perform training, testing, and checking functions;

(2) Each certificate holder for establishing and maintaining an approved training program for crewmembers, check airmen and instructors, and other operations personnel employed or used by that certificate holder; and

(3) Each certificate holder for the qualification, approval, and use of aircraft simulators and flight training devices in the conduct of the program.

(b) For the purposes of this subpart, the following terms and definitions apply:

(1) *Initial training.* The training required for crewmembers who have not qualified and served in the same capacity on an aircraft.

(2) *Transition training.* The training required for crewmembers who have qualified and served in the same capacity on another aircraft.

(3) *Upgrade training.* The training required for crewmembers who have qualified and served as second in command on a particular aircraft type, before they serve as pilot in command on that aircraft.

(4) *Differences training.* The training required for crewmembers who have qualified and served on a particular type aircraft, when the Administrator finds differences training

is necessary before a crewmember serves in the same capacity on a particular variation of that aircraft.

(5) *Recurrent training.* The training required for crewmembers to remain adequately trained and currently proficient for each aircraft, crewmember position, and type of operation in which the crewmember serves.

(6) *In flight.* The maneuvers, procedures, or functions that must be conducted in the aircraft.

(7) *Training center.* An organization governed by the applicable requirements of part 142 of this chapter that conducts training, testing, and checking under contract or other arrangement to certificate holders subject to the requirements of this part.

(8) *Requalification training.* The training required for crewmembers previously trained and qualified, but who have become unqualified due to not having met within the required period the -

(i) Recurrent pilot testing requirements of § 135.293;

(ii) Instrument proficiency check requirements of § 135.297; or

(iii) Line checks required by § 135.299.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 121-250, 60 FR 65950, Dec. 20, 1995; Amdt. 135-63, 61 FR 34561, July 2, 1996; Amdt. 135-91, 68 FR 54588, Sept. 17, 2003]

§ 135.323 Training program: General.

(a) Each certificate holder required to have a training program under § 135.341 shall:

(1) Establish and implement a training program that satisfies the requirements of this subpart and that ensures that each crewmember, aircraft dispatcher, flight instructor and check airman is adequately trained to perform his or her assigned duties. Prior to implementation, the certificate holder must obtain initial and final FAA approval of the training program.

(2) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart.

(3) Provide and keep current for each aircraft type used and, if applicable, the particular variations within the aircraft type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this subpart.

(4) Provide enough flight instructors, check airmen, and simulator instructors to conduct required flight training and flight checks, and simulator training courses allowed under this subpart.

(b) Whenever a crewmember who is required to take recurrent training under this subpart completes the training in the calendar month before, or the calendar month after, the month in which that training is required, the crewmember is considered to have completed it in the calendar month in which it was required.

(c) Each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this part shall certify as to the proficiency and knowledge of the crewmember, flight instructor, or check airman concerned upon completion of that training or check. That certification shall be made a part of the crewmember's record. When the certification required by this paragraph is made by an entry in a computerized recordkeeping system, the certifying instructor, supervisor, or check airman, must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman, is not required for computerized entries.

(d) Training subjects that apply to more than one aircraft or crewmember position and that have been satisfactorily completed during previous training while employed by the certificate holder for another aircraft or another crewmember position, need not be repeated during subsequent training other than recurrent training.

(e) Aircraft simulators and other training devices may be used in the certificate holder's training program if approved by the Administrator.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-101, 70 FR 58829, Oct. 7, 2005]

§ 135.324 Training program: Special rules.

(a) Other than the certificate holder, only another certificate holder certificated under this part or a training center certificated under part 142 of this chapter is eligible under this subpart to conduct training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this subpart.

(b) A certificate holder may contract with, or otherwise arrange to use the services of, a training center certificated under part 142 of this chapter to conduct training, testing, and checking required by this part only if the training center -

(1) Holds applicable training specifications issued under part 142 of this chapter;

(2) Has facilities, training equipment, and courseware meeting the applicable requirements of part 142 of this chapter;

(3) Has approved curriculums, curriculum segments, and portions of curriculum segments applicable for use in training courses required by this subpart; and

(4) Has sufficient instructor and check airmen qualified under the applicable requirements of §§ 135.337 through 135.340 to provide training, testing, and checking to persons subject to the requirements of this subpart.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 135-67, 62 FR 13791, Mar. 21, 1997; Amdt. 135-91, 68 FR 54588, Sept. 17, 2003]

§ 135.325 Training program and revision: Initial and final approval.

(a) To obtain initial and final approval of a training program, or a revision to an approved training program, each certificate holder must submit to the Administrator -

(1) An outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revision; and

(2) Additional relevant information that may be requested by the Administrator.

(b) If the proposed training program or revision complies with this subpart, the Administrator grants initial approval in writing after which the certificate holder may conduct the training under that program. The Administrator then evaluates the effectiveness of the training program and advises the certificate holder of deficiencies, if any, that must be corrected.

(c) The Administrator grants final approval of the proposed training program or revision if the certificate holder shows that the training conducted under the initial approval in paragraph (b) of this section ensures that each person who successfully completes the training is adequately trained to perform that person's assigned duties.

(d) Whenever the Administrator finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, the certificate holder shall, after notification by the Administrator, make any changes in the program that are found necessary by the Administrator. Within 30 days after the certificate holder receives the notice, it may file a petition to reconsider the notice with the Administrator. The filing of a petition to reconsider stays the notice pending a decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety, the Administrator may, upon a statement of the reasons, require a change effective without stay.

§ 135.327 Training program: Curriculum.

(a) Each certificate holder must prepare and keep current a written training program curriculum for each type of aircraft for each crewmember required for that type aircraft. The curriculum must include ground and flight training required by this subpart.

(b) Each training program curriculum must include the following:

(1) A list of principal ground training subjects, including emergency training subjects, that are provided.

(2) A list of all the training devices, mockups, systems trainers, procedures trainers, or other training aids that the certificate holder will use.

(3) Detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those

maneuvers, procedures and functions that are to be performed during the inflight portions of flight training and flight checks.

§ 135.329 Crewmember training requirements.

(a) Each certificate holder must include in its training program the following initial and transition ground training as appropriate to the particular assignment of the crewmember:

(1) Basic indoctrination ground training for newly hired crewmembers including instruction in at least the -

(i) Duties and responsibilities of crewmembers as applicable;

(ii) Appropriate provisions of this chapter;

(iii) Contents of the certificate holder's operating certificate and operations specifications (not required for flight attendants); and

(iv) Appropriate portions of the certificate holder's operating manual.

(2) The initial and transition ground training in §§ 135.345 and 135.349, as applicable.

(3) Emergency training in § 135.331.

(4) Crew resource management training in § 135.330.

(b) Each training program must provide the initial and transition flight training in § 135.347, as applicable.

(c) Each training program must provide recurrent ground and flight training in § 135.351.

(d) Upgrade training in §§ 135.345 and 135.347 for a particular type aircraft may be included in the training program for crewmembers who have qualified and served as second in command on that aircraft.

(e) In addition to initial, transition, upgrade and recurrent training, each training program must provide ground and flight training, instruction, and practice necessary to ensure that each crewmember -

(1) Remains adequately trained and currently proficient for each aircraft, crewmember position, and type of operation in which the crewmember serves; and

(2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to aircraft.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-122, 76 FR 3837, Jan. 21, 2011]

§ 135.330 Crew resource management training.

(a) Each certificate holder must have an approved crew resource management training program that includes initial and recurrent training. The training program must include at least the following:

(1) Authority of the pilot in command;

(2) Communication processes, decisions, and coordination, to include communication with Air Traffic Control, personnel performing flight locating and other operational functions, and passengers;

(3) Building and maintenance of a flight team;

(4) Workload and time management;

(5) Situational awareness;

(6) Effects of fatigue on performance, avoidance strategies and countermeasures;

(7) Effects of stress and stress reduction strategies; and

(8) Aeronautical decision-making and judgment training tailored to the operator's flight operations and aviation environment.

(b) After March 22, 2013, no certificate holder may use a person as a flightcrew member or flight attendant unless that person has completed approved crew resource management initial training with that certificate holder.

(c) For flightcrew members and flight attendants, the Administrator, at his or her discretion, may credit crew resource management training completed with that certificate holder before March 22, 2013, toward all or part of the initial CRM training required by this section.

(d) In granting credit for initial CRM training, the Administrator considers training aids, devices, methods and procedures used by the certificate holder in a voluntary CRM program included in a training program required by § 135.341, § 135.345, or § 135.349.

[Doc. No. FAA-2009-0023, 76 FR 3837, Jan. 21, 2011]

§ 135.331 Crewmember emergency training.

(a) Each training program must provide emergency training under this section for each aircraft type, model, and configuration, each crewmember, and each kind of operation conducted, as appropriate for each crewmember and the certificate holder.

(b) Emergency training must provide the following:

(1) Instruction in emergency assignments and procedures, including coordination among crewmembers.

(2) Individual instruction in the location, function, and operation of emergency equipment including -

(i) Equipment used in ditching and evacuation;

(ii) First aid equipment and its proper use; and

(iii) Portable fire extinguishers, with emphasis on the type of extinguisher to be used on different classes of fires.

(3) Instruction in the handling of emergency situations including -

(i) Rapid decompression;

(ii) Fire in flight or on the surface and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas;

(iii) Ditching and evacuation;

(iv) Illness, injury, or other abnormal situations involving passengers or crewmembers; and

(v) Hijacking and other unusual situations.

(4) Review of the certificate holder's previous aircraft accidents and incidents involving actual emergency situations.

(c) Each crewmember must perform at least the following emergency drills, using the proper emergency equipment and procedures, unless the Administrator finds that, for a particular drill, the crewmember can be adequately trained by demonstration:

(1) Ditching, if applicable.

(2) Emergency evacuation.

(3) Fire extinguishing and smoke control.

(4) Operation and use of emergency exits, including deployment and use of evacuation chutes, if applicable.

(5) Use of crew and passenger oxygen.

(6) Removal of life rafts from the aircraft, inflation of the life rafts, use of life lines, and boarding of passengers and crew, if applicable.

(7) Donning and inflation of life vests and the use of other individual flotation devices, if applicable.

(d) Crewmembers who serve in operations above 25,000 feet must receive instruction in the following:

(1) Respiration.

(2) Hypoxia.

(3) Duration of consciousness without supplemental oxygen at altitude.

(4) Gas expansion.

(5) Gas bubble formation.

(6) Physical phenomena and incidents of decompression.

§ 135.335 Approval of aircraft simulators and other training devices.

(a) Training courses using aircraft simulators and other training devices may be included in the certificate holder's training program if approved by the Administrator.

(b) Each aircraft simulator and other training device that is used in a training course or in checks required under this subpart must meet the following requirements:

(1) It must be specifically approved for -

(i) The certificate holder; and

(ii) The particular maneuver, procedure, or crewmember function involved.

(2) It must maintain the performance, functional, and other characteristics that are required for approval.

(3) Additionally, for aircraft simulators, it must be -

(i) Approved for the type aircraft and, if applicable, the particular variation within type for which the training or check is being conducted; and

(ii) Modified to conform with any modification to the aircraft being simulated that changes the performance, functional, or other characteristics required for approval.

(c) A particular aircraft simulator or other training device may be used by more than one certificate holder.

(d) In granting initial and final approval of training programs or revisions to them, the Administrator considers the training devices, methods and procedures listed in the certificate holder's curriculum under § 135.327.

[Doc. No. 16907, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-1, 44 FR 26738, May 7, 1979]

§ 135.336 Airline transport pilot certification training program.

(a) A certificate holder may obtain approval to establish and implement a training program to satisfy the requirements of § 61.156 of this chapter. The training program must be

separate from the air carrier training program required by this part.

(b) No certificate holder may use a person nor may any person serve as an instructor in a training program approved to meet the requirements of § 61.156 of this chapter unless the instructor:

(1) Holds an airline transport pilot certificate with an airplane category multiengine class rating;

(2) Has at least 2 years of experience as a pilot in command in operations conducted under § 91.1053(a)(2)(i) of this chapter, § 135.243(a)(1) of this part, or as a pilot in command or second in command in any operation conducted under part 121 of this chapter;

(3) Except for the holder of a flight instructor certificate, receives initial training on the following topics:

(i) The fundamental principles of the learning process;

(ii) Elements of effective teaching, instruction methods, and techniques;

(iii) Instructor duties, privileges, responsibilities, and limitations;

(iv) Training policies and procedures; and

(v) Evaluation.

(4) If providing training in a flight simulation training device, holds an aircraft type rating for the aircraft represented by the flight simulation training device utilized in the training program and have received training and evaluation within the preceding 12 months from the certificate holder on:

(i) Proper operation of flight simulator and flight training device controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation;

(iv) Minimum equipment requirements for each curriculum; and

(v) The maneuvers that will be demonstrated in the flight simulation training device.

(c) A certificate holder may not issue a graduation certificate to a student unless that student has completed all the curriculum requirements of the course.

(d) A certificate holder must conduct evaluations to ensure that training techniques, procedures, and standards are acceptable to the Administrator.

[Doc. No. FAA-2010-0100, 78 FR 42379, July 15, 2013]

§ 135.337 Qualifications: Check airmen (aircraft) and check airmen (simulator).

(a) For the purposes of this section and § 135.339:

(1) A check airman (aircraft) is a person who is qualified to conduct flight checks in an aircraft, in a flight simulator, or in a flight training device for a particular type aircraft.

(2) A check airman (simulator) is a person who is qualified to conduct flight checks, but only in a flight simulator, in a flight training device, or both, for a particular type aircraft.

(3) Check airmen (aircraft) and check airmen (simulator) are those check airmen who perform the functions described in §§ 135.321 (a) and 135.323(a)(4) and (c).

(b) No certificate holder may use a person, nor may any person serve as a check airman (aircraft) in a training program established under this subpart unless, with respect to the aircraft type involved, that person -

(1) Holds the airman certificates and ratings required to serve as a pilot in command in operations under this part;

(2) Has satisfactorily completed the training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this part;

(3) Has satisfactorily completed the proficiency or competency checks that are required to serve as a pilot in command in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of § 135.339;

(5) Holds at least a Class III medical certificate unless serving as a required crewmember, in which case holds a Class I or Class II medical certificate as appropriate.

(6) Has satisfied the recency of experience requirements of § 135.247; and

(7) Has been approved by the Administrator for the check airman duties involved.

(c) No certificate holder may use a person, nor may any person serve as a check airman (simulator) in a training program established under this subpart unless, with respect to the aircraft type involved, that person meets the provisions of paragraph (b) of this section, or -

(1) Holds the applicable airman certificates and ratings, except medical certificate, required to serve as a pilot in command in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of § 135.339; and

(5) Has been approved by the Administrator for the check airman (simulator) duties involved.

(d) Completion of the requirements in paragraphs (b) (2), (3), and (4) or (c) (2), (3), and (4) of this section, as applicable, shall be entered in the individual's training record maintained by the certificate holder.

(e) Check airmen who do not hold an appropriate medical certificate may function as check airmen (simulator), but may not serve as flightcrew members in operations under this part.

(f) A check airman (simulator) must accomplish the following -

(1) Fly at least two flight segments as a required crewmember for the type, class, or category aircraft involved

within the 12-month preceding the performance of any check airman duty in a flight simulator; or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program and that must precede the performance of any check airman duty in a flight simulator.

(g) The flight segments or line-observation program required in paragraph (f) of this section are considered to be completed in the month required if completed in the calendar month before or the calendar month after the month in which they are due.

[Doc. No. 28471, 61 FR 30744, June 17, 1996]

§ 135.338 Qualifications: Flight instructors (aircraft) and flight instructors (simulator).

(a) For the purposes of this section and § 135.340:

(1) A flight instructor (aircraft) is a person who is qualified to instruct in an aircraft, in a flight simulator, or in a flight training device for a particular type, class, or category aircraft.

(2) A flight instructor (simulator) is a person who is qualified to instruct in a flight simulator, in a flight training device, or in both, for a particular type, class, or category aircraft.

(3) Flight instructors (aircraft) and flight instructors (simulator) are those instructors who perform the functions described in § 135.321(a) and 135.323 (a)(4) and (c).

(b) No certificate holder may use a person, nor may any person serve as a flight instructor (aircraft) in a training program established under this subpart unless, with respect to the type, class, or category aircraft involved, that person -

(1) Holds the airman certificates and ratings required to serve as a pilot in command in operations under this part;

(2) Has satisfactorily completed the training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this part;

(3) Has satisfactorily completed the proficiency or competency checks that are required to serve as a pilot in command in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of § 135.340;

(5) Holds at least a Class III medical certificate; and

(6) Has satisfied the recency of experience requirements of § 135.247.

(c) No certificate holder may use a person, nor may any person serve as a flight instructor (simulator) in a training program established under this subpart, unless, with respect to the type, class, or category aircraft involved, that person meets the provisions of paragraph (b) of this section, or -

(1) Holds the airman certificates and ratings, except medical certificate, required to serve as a pilot in command in operations under this part except before March 19, 1997 that person need not hold a type rating for the type, class, or category of aircraft involved.

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command in operations under this part; and

(4) Has satisfactorily completed the applicable training requirements of § 135.340.

(d) Completion of the requirements in paragraphs (b) (2), (3), and (4) or (c) (2), (3), and (4) of this section, as applicable, shall be entered in the individual's training record maintained by the certificate holder.

(e) An airman who does not hold a medical certificate may function as a flight instructor in an aircraft if functioning as a non-required crewmember, but may not serve as a flightcrew member in operations under this part.

(f) A flight instructor (simulator) must accomplish the following -

(1) Fly at least two flight segments as a required crewmember for the type, class, or category aircraft involved within the 12-month period preceding the performance of any flight instructor duty in a flight simulator; or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program preceding the performance of any flight instructor duty in a flight simulator.

(g) The flight segments or line-observation program required in paragraph (f) of this section are considered completed in the month required if completed in the calendar month before, or in the calendar month after, the month in which they are due.

[Doc. No. 28471, 61 FR 30744, June 17, 1996; 62 FR 3739, Jan. 24, 1997, as amended by Amdt. 135-125, 76 FR 35104, June 16, 2011]

§ 135.339 Initial and transition training and checking: Check airmen (aircraft), check airmen (simulator).

(a) No certificate holder may use a person nor may any person serve as a check airman unless -

(1) That person has satisfactorily completed initial or transition check airman training; and

(2) Within the preceding 24 calendar months, that person satisfactorily conducts a proficiency or competency check under the observation of an FAA inspector or an aircrew designated examiner employed by the operator. The observation check may be accomplished in part or in full in an aircraft, in a flight simulator, or in a flight training device. This paragraph applies after March 19, 1997.

(b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the calendar month before or the calendar month after the month in which it is due.

(c) The initial ground training for check airmen must include the following:

- (1) Check airman duties, functions, and responsibilities.
- (2) The applicable Code of Federal Regulations and the certificate holder's policies and procedures.
- (3) The applicable methods, procedures, and techniques for conducting the required checks.
- (4) Proper evaluation of student performance including the detection of -
 - (i) Improper and insufficient training; and
 - (ii) Personal characteristics of an applicant that could adversely affect safety.
- (5) The corrective action in the case of unsatisfactory checks.
- (6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.

(d) The transition ground training for check airmen must include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the check airman is in transition.

(e) The initial and transition flight training for check airmen (aircraft) must include the following -

- (1) The safety measures for emergency situations that are likely to develop during a check;
- (2) The potential results of improper, untimely, or nonexecution of safety measures during a check;
- (3) Training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence to conduct the pilot flight checks required by this part; and
- (4) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during checking.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(g) The initial and transition flight training for check airmen (simulator) must include the following:

- (1) Training and practice in conducting flight checks in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight checks required by this part. This training and practice must be accomplished in a flight simulator or in a flight training device.
- (2) Training in the operation of flight simulators, flight training devices, or both, to ensure competence to conduct the flight checks required by this part.

[Doc. No. 28471, 61 FR 30745, June 17, 1996; 62 FR 3739, Jan. 24, 1997]

§ 135.340 Initial and transition training and checking: Flight instructors (aircraft), flight instructors (simulator).

(a) No certificate holder may use a person nor may any person serve as a flight instructor unless -

- (1) That person has satisfactorily completed initial or transition flight instructor training; and
- (2) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an FAA inspector, an operator check airman, or an aircrew designated examiner employed by the operator. The observation check may be accomplished in part or in full in an aircraft, in a flight simulator, or in a flight training device. This paragraph applies after March 19, 1997.

(b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the calendar month before, or the calendar month after, the month in which it is due.

(c) The initial ground training for flight instructors must include the following:

- (1) Flight instructor duties, functions, and responsibilities.
- (2) The applicable Code of Federal Regulations and the certificate holder's policies and procedures.
- (3) The applicable methods, procedures, and techniques for conducting flight instruction.
- (4) Proper evaluation of student performance including the detection of -
 - (i) Improper and insufficient training; and
 - (ii) Personal characteristics of an applicant that could adversely affect safety.
- (5) The corrective action in the case of unsatisfactory training progress.

(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.

(7) Except for holders of a flight instructor certificate -

- (i) The fundamental principles of the teaching-learning process;

- (ii) Teaching methods and procedures; and
- (iii) The instructor-student relationship.
- (d) The transition ground training for flight instructors must include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the type, class, or category aircraft to which the flight instructor is in transition.

(e) The initial and transition flight training for flight instructors (aircraft) must include the following -

- (1) The safety measures for emergency situations that are likely to develop during instruction;
- (2) The potential results of improper or untimely safety measures during instruction;
- (3) Training and practice from the left and right pilot seats in the required normal, abnormal, and emergency maneuvers

to ensure competence to conduct the flight instruction required by this part; and

(4) The safety measures to be taken from either the left or right pilot seat for emergency situations that are likely to develop during instruction.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(g) The initial and transition flight training for a flight instructor (simulator) must include the following:

(1) Training and practice in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight instruction required by this part. These maneuvers and procedures must be accomplished in full or in part in a flight simulator or in a flight training device.

(2) Training in the operation of flight simulators, flight training devices, or both, to ensure competence to conduct the flight instruction required by this part.

[Doc. No. 28471, 61 FR 30745, June 17, 1996; 61 FR 34927, July 3, 1996; 62 FR 3739, Jan. 24, 1997]

§ 135.341 Pilot and flight attendant crewmember training programs.

(a) Each certificate holder, other than one who uses only one pilot in the certificate holder's operations, shall establish and maintain an approved pilot training program, and each certificate holder who uses a flight attendant crewmember shall establish and maintain an approved flight attendant training program, that is appropriate to the operations to which each pilot and flight attendant is to be assigned, and will ensure that they are adequately trained to meet the applicable knowledge and practical testing requirements of §§ 135.293 through 135.301. However, the Administrator may authorize a deviation from this section if the Administrator finds that, because of the limited size and scope of the operation, safety will allow a deviation from these requirements. This deviation authority does not extend to the training provided under § 135.336.

(b) Each certificate holder required to have a training program by paragraph (a) of this section shall include in that program ground and flight training curriculums for -

- (1) Initial training;
- (2) Transition training;
- (3) Upgrade training;
- (4) Differences training; and
- (5) Recurrent training.

(c) Each certificate holder required to have a training program by paragraph (a) of this section shall provide current and appropriate study materials for use by each required pilot and flight attendant.

(d) The certificate holder shall furnish copies of the pilot and flight attendant crewmember training program, and all changes and additions, to the assigned representative of the Administrator. If the certificate holder uses training facilities of other persons, a copy of those training programs or

appropriate portions used for those facilities shall also be furnished. Curricula that follow FAA published curricula may be cited by reference in the copy of the training program furnished to the representative of the Administrator and need not be furnished with the program.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-18, 47 FR 33396, Aug. 2, 1982; Amdt. 135-127, 78 FR 42379, July 15, 2013; Amdt. 135-127A, 78 FR 77574, Dec. 24, 2013]

§ 135.343 Crewmember initial and recurrent training requirements.

No certificate holder may use a person, nor may any person serve, as a crewmember in operations under this part unless that crewmember has completed the appropriate initial or recurrent training phase of the training program appropriate to the type of operation in which the crewmember is to serve since the beginning of the 12th calendar month before that service. This section does not apply to a certificate holder that uses only one pilot in the certificate holder's operations.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-18, 47 FR 33396, Aug. 2, 1982]

§ 135.345 Pilots: Initial, transition, and upgrade ground training.

Initial, transition, and upgrade ground training for pilots must include instruction in at least the following, as applicable to their duties:

- (a) General subjects -
 - (1) The certificate holder's flight locating procedures;
 - (2) Principles and methods for determining weight and balance, and runway limitations for takeoff and landing;
 - (3) Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, windshear and, if appropriate, high altitude weather situations;
 - (4) Air traffic control systems, procedures, and phraseology;
 - (5) Navigation and the use of navigational aids, including instrument approach procedures;
 - (6) Normal and emergency communication procedures;
 - (7) Visual cues before and during descent below DA/DH or MDA;
 - (8) ETOPS, if applicable;
 - (9) After August 13, 2008, passenger recovery plan for any passenger-carrying operation (other than intrastate operations wholly within the state of Alaska) in the North Polar area; and
 - (10) Other instructions necessary to ensure the pilot's competence.
- (b) For each aircraft type -
 - (1) A general description;
 - (2) Performance characteristics;
 - (3) Engines and propellers;
 - (4) Major components;

(5) Major aircraft systems (i.e., flight controls, electrical, and hydraulic), other systems, as appropriate, principles of normal, abnormal, and emergency operations, appropriate procedures and limitations;

(6) Knowledge and procedures for -

(i) Recognizing and avoiding severe weather situations;

(ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be trained in escaping from low-altitude windshear);

(iii) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions; and

(iv) Operating airplanes during ground icing conditions, (i.e., any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the airplane), if the certificate holder expects to authorize takeoffs in ground icing conditions, including:

(A) The use of holdover times when using deicing/anti-icing fluids;

(B) Airplane deicing/anti-icing procedures, including inspection and check procedures and responsibilities;

(C) Communications;

(D) Airplane surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and knowledge of how contamination adversely affects airplane performance and flight characteristics;

(E) Types and characteristics of deicing/anti-icing fluids, if used by the certificate holder;

(F) Cold weather preflight inspection procedures;

(G) Techniques for recognizing contamination on the airplane;

(7) Operating limitations;

(8) Fuel consumption and cruise control;

(9) Flight planning;

(10) Each normal and emergency procedure; and

(11) The approved Aircraft Flight Manual, or equivalent.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-27, 53 FR 37697, Sept. 27, 1988; Amdt. 135-46, 58 FR 69630, Dec. 30, 1993; Amdt. 135-108, 72 FR 1885, Jan. 16, 2007; Amdt. 135-110, 72 FR 31685, June 7, 2007; Amdt. 135-112, 73 FR 8798, Feb. 15, 2008]

§ 135.347 Pilots: Initial, transition, upgrade, and differences flight training.

(a) Initial, transition, upgrade, and differences training for pilots must include flight and practice in each of the maneuvers and procedures in the approved training program curriculum.

(b) The maneuvers and procedures required by paragraph (a) of this section must be performed in flight, except to the extent that certain maneuvers and procedures may be performed in an aircraft simulator, or an appropriate training device, as allowed by this subpart.

(c) If the certificate holder's approved training program includes a course of training using an aircraft simulator or other training device, each pilot must successfully complete -

(1) Training and practice in the simulator or training device in at least the maneuvers and procedures in this subpart that are capable of being performed in the aircraft simulator or training device; and

(2) A flight check in the aircraft or a check in the simulator or training device to the level of proficiency of a pilot in command or second in command, as applicable, in at least the maneuvers and procedures that are capable of being performed in an aircraft simulator or training device.

§ 135.349 Flight attendants: Initial and transition ground training.

Initial and transition ground training for flight attendants must include instruction in at least the following -

(a) General subjects -

(1) The authority of the pilot in command; and

(2) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety.

(b) For each aircraft type -

(1) A general description of the aircraft emphasizing physical characteristics that may have a bearing on ditching, evacuation, and inflight emergency procedures and on other related duties;

(2) The use of both the public address system and the means of communicating with other flight crewmembers, including emergency means in the case of attempted hijacking or other unusual situations; and

(3) Proper use of electrical galley equipment and the controls for cabin heat and ventilation.

§ 135.351 Recurrent training.

(a) Each certificate holder must ensure that each crewmember receives recurrent training and is adequately trained and currently proficient for the type aircraft and crewmember position involved.

(b) Recurrent ground training for crewmembers must include at least the following:

(1) A quiz or other review to determine the crewmember's knowledge of the aircraft and crewmember position involved.

(2) Instruction as necessary in the subjects required for initial ground training by this subpart, as appropriate, including low-altitude windshear training and training on operating during ground icing conditions as prescribed in § 135.341 and described in § 135.345, crew resource management training as prescribed in § 135.330, and emergency training as prescribed in § 135.331.

(c) Recurrent flight training for pilots must include, at least, flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by § 135.293 within the preceding 12 calendar months may be substituted for recurrent flight training.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-27, 53 FR 37698, Sept. 27, 1988; Amdt. 135-46, 58 FR 69630, Dec. 30, 1993; Amdt. 135-122, 76 FR 3837, Jan. 21, 2011]

§ 135.353 [Reserved]

Subpart I - Airplane Performance Operating Limitations

§ 135.361 Applicability.

(a) This subpart prescribes airplane performance operating limitations applicable to the operation of the categories of airplanes listed in § 135.363 when operated under this part.

(b) For the purpose of this subpart, *effective length of the runway*, for landing means the distance from the point at which the obstruction clearance plane associated with the approach end of the runway intersects the centerline of the runway to the far end of the runway.

(c) For the purpose of this subpart, *obstruction clearance plane* means a plane sloping upward from the runway at a slope of 1:20 to the horizontal, and tangent to or clearing all obstructions within a specified area surrounding the runway as shown in a profile view of that area. In the plan view, the centerline of the specified area coincides with the centerline of the runway, beginning at the point where the obstruction clearance plane intersects the centerline of the runway and proceeding to a point at least 1,500 feet from the beginning point. After that the centerline coincides with the takeoff path over the ground for the runway (in the case of takeoffs) or with the instrument approach counterpart (for landings), or, where the applicable one of these paths has not been established, it proceeds consistent with turns of at least 4,000-foot radius until a point is reached beyond which the obstruction clearance plane clears all obstructions. This area extends laterally 200 feet on each side of the centerline at the point where the obstruction clearance plane intersects the runway and continues at this width to the end of the runway; then it increases uniformly to 500 feet on each side of the centerline at a point 1,500 feet from the intersection of the obstruction clearance plane with the runway; after that it extends laterally 500 feet on each side of the centerline.

§ 135.363 General.

(a) Each certificate holder operating a reciprocating engine powered large transport category airplane shall comply with §§ 135.365 through 135.377.

(b) Each certificate holder operating a turbine engine powered large transport category airplane shall comply with §§ 135.379 through 135.387, except that when it operates a turbopropeller-powered large transport category airplane certificated after August 29, 1959, but previously type certificated with the same number of reciprocating engines, it may comply with §§ 135.365 through 135.377.

(c) Each certificate holder operating a large nontransport category airplane shall comply with §§ 135.389 through 135.395 and any determination of compliance must be based only on approved performance data. For the purpose of this subpart, a large nontransport category airplane is an airplane that was type certificated before July 1, 1942.

(d) Each certificate holder operating a small transport category airplane shall comply with § 135.397.

(e) Each certificate holder operating a small nontransport category airplane shall comply with § 135.399.

(f) The performance data in the Airplane Flight Manual applies in determining compliance with §§ 135.365 through 135.387. Where conditions are different from those on which the performance data is based, compliance is determined by interpolation or by computing the effects of change in the specific variables, if the results of the interpolation or computations are substantially as accurate as the results of direct tests.

(g) No person may take off a reciprocating engine powered large transport category airplane at a weight that is more than the allowable weight for the runway being used (determined under the runway takeoff limitations of the transport category operating rules of this subpart) after taking into account the temperature operating correction factors in section 4a.749a-T or section 4b.117 of the Civil Air Regulations in effect on January 31, 1965, and in the applicable Airplane Flight Manual.

(h) The Administrator may authorize in the operations specifications deviations from this subpart if special circumstances make a literal observance of a requirement unnecessary for safety.

(i) The 10-mile width specified in §§ 135.369 through 135.373 may be reduced to 5 miles, for not more than 20 miles, when operating under VFR or where navigation facilities furnish reliable and accurate identification of high ground and obstructions located outside of 5 miles, but within 10 miles, on each side of the intended track.

(j) Each certificate holder operating a commuter category airplane shall comply with § 135.398.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-21, 52 FR 1836, Jan. 15, 1987]

§ 135.364 Maximum flying time outside the United States.

After August 13, 2008, no certificate holder may operate an airplane, other than an all-cargo airplane with more than two engines, on a planned route that exceeds 180 minutes flying time (at the one-engine-inoperative cruise speed under standard conditions in still air) from an Adequate Airport outside the continental United States unless the operation is approved by the FAA in accordance with Appendix G of this part, Extended Operations (ETOPS).

[Doc. No. FAA-1999-6717, 73 FR 8798, Feb. 15, 2008]

**§ 135.365 Large transport category airplanes:
Reciprocating engine powered: Weight
limitations.**

(a) No person may take off a reciprocating engine powered large transport category airplane from an airport located at an elevation outside of the range for which maximum takeoff weights have been determined for that airplane.

(b) No person may take off a reciprocating engine powered large transport category airplane for an airport of intended destination that is located at an elevation outside of the range for which maximum landing weights have been determined for that airplane.

(c) No person may specify, or have specified, an alternate airport that is located at an elevation outside of the range for which maximum landing weights have been determined for the reciprocating engine powered large transport category airplane concerned.

(d) No person may take off a reciprocating engine powered large transport category airplane at a weight more than the maximum authorized takeoff weight for the elevation of the airport.

(e) No person may take off a reciprocating engine powered large transport category airplane if its weight on arrival at the airport of destination will be more than the maximum authorized landing weight for the elevation of that airport, allowing for normal consumption of fuel and oil en route.

**§ 135.367 Large transport category airplanes:
Reciprocating engine powered: Takeoff
limitations.**

(a) No person operating a reciprocating engine powered large transport category airplane may take off that airplane unless it is possible -

(1) To stop the airplane safely on the runway, as shown by the accelerate-stop distance data, at any time during takeoff until reaching critical-engine failure speed;

(2) If the critical engine fails at any time after the airplane reaches critical-engine failure speed V_1 , to continue the takeoff and reach a height of 50 feet, as indicated by the takeoff path data, before passing over the end of the runway; and

(3) To clear all obstacles either by at least 50 feet vertically (as shown by the takeoff path data) or 200 feet horizontally within the airport boundaries and 300 feet horizontally beyond the boundaries, without banking before reaching a height of 50 feet (as shown by the takeoff path data) and after that without banking more than 15 degrees.

(b) In applying this section, corrections must be made for any runway gradient. To allow for wind effect, takeoff data based on still air may be corrected by taking into account not more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component.

**§ 135.369 Large transport category airplanes:
Reciprocating engine powered: En route
limitations: All engines operating.**

(a) No person operating a reciprocating engine powered large transport category airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb (in feet per minute), with all engines operating, of at least $6.90 V_{s_0}$ (that is, the number of feet per minute obtained by multiplying the number of knots by 6.90) at an altitude of at least 1,000 feet above the highest ground or obstruction within ten miles of each side of the intended track.

(b) This section does not apply to large transport category airplanes certificated under part 4a of the Civil Air Regulations.

**§ 135.371 Large transport category airplanes:
Reciprocating engine powered: En route
limitations: One engine inoperative.**

(a) Except as provided in paragraph (b) of this section, no person operating a reciprocating engine powered large transport category airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb (in feet per minute), with one engine inoperative, of at least $(0.079\#0.106/N) V_{s_0}^2$ (where N is the number of engines installed and V_{s_0} is expressed in knots) at an altitude of at least 1,000 feet above the highest ground or obstruction within 10 miles of each side of the intended track. However, for the purposes of this paragraph the rate of climb for transport category airplanes certificated under part 4a of the Civil Air Regulations is $0.026 V_{s_0}^2$.

(b) In place of the requirements of paragraph (a) of this section, a person may, under an approved procedure, operate a reciprocating engine powered large transport category airplane at an all-engines-operating altitude that allows the airplane to continue, after an engine failure, to an alternate airport where a landing can be made under § 135.377, allowing for normal consumption of fuel and oil. After the assumed failure, the flight path must clear the ground and any obstruction within five miles on each side of the intended track by at least 2,000 feet.

(c) If an approved procedure under paragraph (b) of this section is used, the certificate holder shall comply with the following:

(1) The rate of climb (as prescribed in the Airplane Flight Manual for the appropriate weight and altitude) used in calculating the airplane's flight path shall be diminished by an amount in feet per minute, equal to $(0.079\#0.106/N) V_{s_0}^2$ (when N is the number of engines installed and V_{s_0} is expressed in knots) for airplanes certificated under part 25 of this chapter and by $0.026 V_{s_0}^2$ for airplanes certificated under part 4a of the Civil Air Regulations.

(2) The all-engines-operating altitude shall be sufficient so that in the event the critical engine becomes inoperative at any point along the route, the flight will be able to proceed to a predetermined alternate airport by use of this procedure. In determining the takeoff weight, the airplane is assumed to pass over the critical obstruction following engine failure at a point no closer to the critical obstruction than the nearest approved navigational fix, unless the Administrator approves a procedure established on a different basis upon finding that adequate operational safeguards exist.

(3) The airplane must meet the provisions of paragraph (a) of this section at 1,000 feet above the airport used as an alternate in this procedure.

(4) The procedure must include an approved method of accounting for winds and temperatures that would otherwise adversely affect the flight path.

(5) In complying with this procedure, fuel jettisoning is allowed if the certificate holder shows that it has an adequate training program, that proper instructions are given to the flight crew, and all other precautions are taken to ensure a safe procedure.

(6) The certificate holder and the pilot in command shall jointly elect an alternate airport for which the appropriate weather reports or forecasts, or any combination of them, indicate that weather conditions will be at or above the alternate weather minimum specified in the certificate holder's operations specifications for that airport when the flight arrives.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-110, 72 FR 31685, June 7, 2007]

§ 135.373 Part 25 transport category airplanes with four or more engines: Reciprocating engine powered: En route limitations: Two engines inoperative.

(a) No person may operate an airplane certificated under part 25 and having four or more engines unless -

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets § 135.377; or

(2) It is operated at a weight allowing the airplane, with the two critical engines inoperative, to climb at $0.013 V_{S0}^2$ feet per minute (that is, the number of feet per minute obtained by multiplying the number of knots squared by 0.013) at an altitude of 1,000 feet above the highest ground or obstruction within 10 miles on each side of the intended track, or at an altitude of 5,000 feet, whichever is higher.

(b) For the purposes of paragraph (a)(2) of this section, it is assumed that -

(1) The two engines fail at the point that is most critical with respect to the takeoff weight;

(2) Consumption of fuel and oil is normal with all engines operating up to the point where the two engines fail with two engines operating beyond that point;

(3) Where the engines are assumed to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb at the prescribed minimum altitude need not be shown during the descent from the cruising altitude to the prescribed minimum altitude, if those requirements can be met once the prescribed minimum altitude is reached, and assuming descent to be along a net flight path and the rate of descent to be $0.013 V_{S0}^2$ greater than the rate in the approved performance data; and

(4) If fuel jettisoning is provided, the airplane's weight at the point where the two engines fail is considered to be not less than that which would include enough fuel to proceed to an airport meeting § 135.377 and to arrive at an altitude of at least 1,000 feet directly over that airport.

§ 135.375 Large transport category airplanes: Reciprocating engine powered: Landing limitations: Destination airports.

(a) Except as provided in paragraph (b) of this section, no person operating a reciprocating engine powered large transport category airplane may take off that airplane, unless its weight on arrival, allowing for normal consumption of fuel and oil in flight, would allow a full stop landing at the intended destination within 60 percent of the effective length of each runway described below from a point 50 feet directly above the intersection of the obstruction clearance plane and the runway. For the purposes of determining the allowable landing weight at the destination airport the following is assumed:

(1) The airplane is landed on the most favorable runway and in the most favorable direction in still air.

(2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction (forecast for the expected time of arrival), the ground handling characteristics of the type of airplane, and other conditions such as landing aids and terrain, and allowing for the effect of the landing path and roll of not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.

(b) An airplane that would be prohibited from being taken off because it could not meet paragraph (a)(2) of this section may be taken off if an alternate airport is selected that meets all of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

§ 135.377 Large transport category airplanes: Reciprocating engine powered: Landing limitations: Alternate airports.

No person may list an airport as an alternate airport in a flight plan unless the airplane (at the weight anticipated at the time of arrival at the airport), based on the assumptions in § 135.375(a) (1) and (2), can be brought to a full stop landing within 70 percent of the effective length of the runway.

**§ 135.379 Large transport category airplanes:
Turbine engine powered: Takeoff limitations.**

(a) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight greater than that listed in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at take-off.

(b) No person operating a turbine engine powered large transport category airplane certificated after August 26, 1957, but before August 30, 1959 (SR422, 422A), may take off that airplane at a weight greater than that listed in the Airplane Flight Manual for the minimum distance required for takeoff. In the case of an airplane certificated after September 30, 1958 (SR422A, 422B), the takeoff distance may include a clearway distance but the clearway distance included may not be greater than one-half of the takeoff run.

(c) No person operating a turbine engine powered large transport category airplane certificated after August 29, 1959 (SR422B), may take off that airplane at a weight greater than that listed in the Airplane Flight Manual at which compliance with the following may be shown:

(1) The accelerate-stop distance, as defined in § 25.109 of this chapter, must not exceed the length of the runway plus the length of any stopway.

(2) The takeoff distance must not exceed the length of the runway plus the length of any clearway except that the length of any clearway included must not be greater than one-half the length of the runway.

(3) The takeoff run must not be greater than the length of the runway.

(d) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight greater than that listed in the Airplane Flight Manual -

(1) For an airplane certificated after August 26, 1957, but before October 1, 1958 (SR422), that allows a takeoff path that clears all obstacles either by at least $(35 + 0.01 D)$ feet vertically (D is the distance along the intended flight path from the end of the runway in feet), or by at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries; or

(2) For an airplane certificated after September 30, 1958 (SR422A, 422B), that allows a net takeoff flight path that clears all obstacles either by a height of at least 35 feet vertically, or by at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries.

(e) In determining maximum weights, minimum distances, and flight paths under paragraphs (a) through (d) of this section, correction must be made for the runway to be used, the elevation of the airport, the effective runway gradient, the ambient temperature and wind component at the time of takeoff, and, if operating limitations exist for the minimum distances required for takeoff from wet runways, the runway surface condition (dry or wet). Wet runway distances

associated with grooved or porous friction course runways, if provided in the Airplane Flight Manual, may be used only for runways that are grooved or treated with a porous friction course (PFC) overlay, and that the operator determines are designed, constructed, and maintained in a manner acceptable to the Administrator.

(f) For the purposes of this section, it is assumed that the airplane is not banked before reaching a height of 50 feet, as shown by the takeoff path or net takeoff flight path data (as appropriate) in the Airplane Flight Manual, and after that the maximum bank is not more than 15 degrees.

(g) For the purposes of this section, the terms, *takeoff distance*, *takeoff run*, *net takeoff flight path*, have the same meanings as set forth in the rules under which the airplane was certificated.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-71, 63 FR 8321, Feb. 18, 1998]

**§ 135.381 Large transport category airplanes:
Turbine engine powered: En route limitations:
One engine inoperative.**

(a) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that is greater than that which (under the approved, one engine inoperative, en route net flight path data in the Airplane Flight Manual for that airplane) will allow compliance with paragraph (a) (1) or (2) of this section, based on the ambient temperatures expected en route.

(1) There is a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within five statute miles on each side of the intended track, and, in addition, if that airplane was certificated after August 29, 1958 (SR422B), there is a positive slope at 1,500 feet above the airport where the airplane is assumed to land after an engine fails.

(2) The net flight path allows the airplane to continue flight from the cruising altitude to an airport where a landing can be made under § 135.387 clearing all terrain and obstructions within five statute miles of the intended track by at least 2,000 feet vertically and with a positive slope at 1,000 feet above the airport where the airplane lands after an engine fails, or, if that airplane was certificated after September 30, 1958 (SR422A, 422B), with a positive slope at 1,500 feet above the airport where the airplane lands after an engine fails.

(b) For the purpose of paragraph (a)(2) of this section, it is assumed that -

(1) The engine fails at the most critical point en route;

(2) The airplane passes over the critical obstruction, after engine failure at a point that is no closer to the obstruction than the approved navigation fix, unless the Administrator authorizes a different procedure based on adequate operational safeguards;

(3) An approved method is used to allow for adverse winds;

(4) Fuel jettisoning will be allowed if the certificate holder shows that the crew is properly instructed, that the training program is adequate, and that all other precautions are taken to ensure a safe procedure;

(5) The alternate airport is selected and meets the prescribed weather minimums; and

(6) The consumption of fuel and oil after engine failure is the same as the consumption that is allowed for in the approved net flight path data in the Airplane Flight Manual.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-110, 72 FR 31685, June 7, 2007]

§ 135.383 Large transport category airplanes:

Turbine engine powered: En route limitations:

Two engines inoperative.

(a) Airplanes certificated after August 26, 1957, but before October 1, 1958 (SR422). No person may operate a turbine engine powered large transport category airplane along an intended route unless that person complies with either of the following:

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets § 135.387.

(2) Its weight, according to the two-engine-inoperative, en route, net flight path data in the Airplane Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets § 135.387, with a net flight path (considering the ambient temperature anticipated along the track) having a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within five statute miles on each side of the intended track, or at an altitude of 5,000 feet, whichever is higher.

For the purposes of paragraph (a)(2) of this section, it is assumed that the two engines fail at the most critical point en route, that if fuel jettisoning is provided, the airplane's weight at the point where the engines fail includes enough fuel to continue to the airport and to arrive at an altitude of at least 1,000 feet directly over the airport, and that the fuel and oil consumption after engine failure is the same as the consumption allowed for in the net flight path data in the Airplane Flight Manual.

(b) Airplanes certificated after September 30, 1958, but before August 30, 1959 (SR422A). No person may operate a turbine engine powered large transport category airplane along an intended route unless that person complies with either of the following:

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets § 135.387.

(2) Its weight, according to the two-engine-inoperative, en route, net flight path data in the Airplane Flight Manual allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets

§ 135.387 with a net flight path (considering the ambient temperatures anticipated along the track) having a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within five statute miles on each side of the intended track, or at an altitude of 2,000 feet, whichever is higher.

For the purpose of paragraph (b)(2) of this section, it is assumed that the two engines fail at the most critical point en route, that the airplane's weight at the point where the engines fail includes enough fuel to continue to the airport, to arrive at an altitude of at least 1,500 feet directly over the airport, and after that to fly for 15 minutes at cruise power or thrust, or both, and that the consumption of fuel and oil after engine failure is the same as the consumption allowed for in the net flight path data in the Airplane Flight Manual.

(c) Aircraft certificated after August 29, 1959 (SR422B). No person may operate a turbine engine powered large transport category airplane along an intended route unless that person complies with either of the following:

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets § 135.387.

(2) Its weight, according to the two-engine-inoperative, en route, net flight path data in the Airplane Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets § 135.387, with the net flight path (considering the ambient temperatures anticipated along the track) clearing vertically by at least 2,000 feet all terrain and obstructions within five statute miles on each side of the intended track. For the purposes of this paragraph, it is assumed that -

(i) The two engines fail at the most critical point en route;

(ii) The net flight path has a positive slope at 1,500 feet above the airport where the landing is assumed to be made after the engines fail;

(iii) Fuel jettisoning will be approved if the certificate holder shows that the crew is properly instructed, that the training program is adequate, and that all other precautions are taken to ensure a safe procedure;

(iv) The airplane's weight at the point where the two engines are assumed to fail provides enough fuel to continue to the airport, to arrive at an altitude of at least 1,500 feet directly over the airport, and after that to fly for 15 minutes at cruise power or thrust, or both; and

(v) The consumption of fuel and oil after the engines fail is the same as the consumption that is allowed for in the net flight path data in the Airplane Flight Manual.

§ 135.385 Large transport category airplanes:

Turbine engine powered: Landing limitations:

Destination airports.

(a) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight that (allowing for normal consumption of fuel and oil in flight to the destination or alternate airport) the weight of

the airplane on arrival would exceed the landing weight in the Airplane Flight Manual for the elevation of the destination or alternate airport and the ambient temperature anticipated at the time of landing.

(b) Except as provided in paragraph (c), (d), (e), or (f) of this section, no person operating a turbine engine powered large transport category airplane may take off that airplane unless its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions expected there at the time of landing), would allow a full stop landing at the intended destination airport within 60 percent of the effective length of each runway described below from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport the following is assumed:

(1) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.

(2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.

(c) A turbopropeller powered airplane that would be prohibited from being taken off because it could not meet paragraph (b)(2) of this section, may be taken off if an alternate airport is selected that meets all of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

(d) Unless, based on a showing of actual operating landing techniques on wet runways, a shorter landing distance (but never less than that required by paragraph (b) of this section) has been approved for a specific type and model airplane and included in the Airplane Flight Manual, no person may take off a turbojet airplane when the appropriate weather reports or forecasts, or any combination of them, indicate that the runways at the destination airport may be wet or slippery at the estimated time of arrival unless the effective runway length at the destination airport is at least 115 percent of the runway length required under paragraph (b) of this section.

(e) A turbojet airplane that would be prohibited from being taken off because it could not meet paragraph (b)(2) of this section may be taken off if an alternate airport is selected that meets all of paragraph (b) of this section.

(f) An eligible on-demand operator may take off a turbine engine powered large transport category airplane on an on-demand flight if all of the following conditions exist:

(1) The operation is permitted by an approved Destination Airport Analysis in that person's operations manual.

(2) The airplane's weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions expected there at the time of landing), would allow a full

stop landing at the intended destination airport within 80 percent of the effective length of each runway described below from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport, the following is assumed:

(i) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.

(ii) The airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.

(3) The operation is authorized by operations specifications.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-91, 68 FR 54588, Sept. 17, 2003]

**§ 135.387 Large transport category airplanes:
Turbine engine powered: Landing limitations:
Alternate airports.**

(a) Except as provided in paragraph (b) of this section, no person may select an airport as an alternate airport for a turbine engine powered large transport category airplane unless (based on the assumptions in § 135.385(b)) that airplane, at the weight expected at the time of arrival, can be brought to a full stop landing within 70 percent of the effective length of the runway for turbo-propeller-powered airplanes and 60 percent of the effective length of the runway for turbojet airplanes, from a point 50 feet above the intersection of the obstruction clearance plane and the runway.

(b) Eligible on-demand operators may select an airport as an alternate airport for a turbine engine powered large transport category airplane if (based on the assumptions in § 135.385(f)) that airplane, at the weight expected at the time of arrival, can be brought to a full stop landing within 80 percent of the effective length of the runway from a point 50 feet above the intersection of the obstruction clearance plane and the runway.

[Doc. No. FAA-2001-10047, 68 FR 54588, Sept. 17, 2003]

**§ 135.389 Large nontransport category airplanes:
Takeoff limitations.**

(a) No person operating a large nontransport category airplane may take off that airplane at a weight greater than the weight that would allow the airplane to be brought to a safe stop within the effective length of the runway, from any point during the takeoff before reaching 105 percent of minimum control speed (the minimum speed at which an airplane can be safely controlled in flight after an engine becomes inoperative) or 115 percent of the power off stalling speed in the takeoff configuration, whichever is greater.

(b) For the purposes of this section -

(1) It may be assumed that takeoff power is used on all engines during the acceleration;

(2) Not more than 50 percent of the reported headwind component, or not less than 150 percent of the reported tailwind component, may be taken into account;

(3) The average runway gradient (the difference between the elevations of the endpoints of the runway divided by the total length) must be considered if it is more than one-half of one percent;

(4) It is assumed that the airplane is operating in standard atmosphere; and

(5) For takeoff, *effective length of the runway* means the distance from the end of the runway at which the takeoff is started to a point at which the obstruction clearance plane associated with the other end of the runway intersects the runway centerline.

**§ 135.391 Large nontransport category airplanes:
En route limitations: One engine inoperative.**

(a) Except as provided in paragraph (b) of this section, no person operating a large nontransport category airplane may take off that airplane at a weight that does not allow a rate of climb of at least 50 feet a minute, with the critical engine inoperative, at an altitude of at least 1,000 feet above the highest obstruction within five miles on each side of the intended track, or 5,000 feet, whichever is higher.

(b) Without regard to paragraph (a) of this section, if the Administrator finds that safe operations are not impaired, a person may operate the airplane at an altitude that allows the airplane, in case of engine failure, to clear all obstructions within five miles on each side of the intended track by 1,000 feet. If this procedure is used, the rate of descent for the appropriate weight and altitude is assumed to be 50 feet a minute greater than the rate in the approved performance data. Before approving such a procedure, the Administrator considers the following for the route, route segment, or area concerned:

- (1) The reliability of wind and weather forecasting.
 - (2) The location and kinds of navigation aids.
 - (3) The prevailing weather conditions, particularly the frequency and amount of turbulence normally encountered.
 - (4) Terrain features.
 - (5) Air traffic problems.
 - (6) Any other operational factors that affect the operations.
- (c) For the purposes of this section, it is assumed that -
- (1) The critical engine is inoperative;
 - (2) The propeller of the inoperative engine is in the minimum drag position;
 - (3) The wing flaps and landing gear are in the most favorable position;
 - (4) The operating engines are operating at the maximum continuous power available;
 - (5) The airplane is operating in standard atmosphere; and
 - (6) The weight of the airplane is progressively reduced by the anticipated consumption of fuel and oil.

**§ 135.393 Large nontransport category airplanes:
Landing limitations: Destination airports.**

(a) No person operating a large nontransport category airplane may take off that airplane at a weight that -

(1) Allowing for anticipated consumption of fuel and oil, is greater than the weight that would allow a full stop landing within 60 percent of the effective length of the most suitable runway at the destination airport; and

(2) Is greater than the weight allowable if the landing is to be made on the runway -

- (i) With the greatest effective length in still air; and
- (ii) Required by the probable wind, taking into account not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.

(b) For the purpose of this section, it is assumed that -

(1) The airplane passes directly over the intersection of the obstruction clearance plane and the runway at a height of 50 feet in a steady gliding approach at a true indicated airspeed of at least $1.3 V_{SO}$;

- (2) The landing does not require exceptional pilot skill; and
- (3) The airplane is operating in standard atmosphere.

**§ 135.395 Large nontransport category airplanes:
Landing limitations: Alternate airports.**

No person may select an airport as an alternate airport for a large nontransport category airplane unless that airplane (at the weight anticipated at the time of arrival), based on the assumptions in § 135.393(b), can be brought to a full stop landing within 70 percent of the effective length of the runway.

**§ 135.397 Small transport category airplane
performance operating limitations.**

(a) No person may operate a reciprocating engine powered small transport category airplane unless that person complies with the weight limitations in § 135.365, the takeoff limitations in § 135.367 (except paragraph (a)(3)), and the landing limitations in §§ 135.375 and 135.377.

(b) No person may operate a turbine engine powered small transport category airplane unless that person complies with the takeoff limitations in § 135.379 (except paragraphs (d) and (f)) and the landing limitations in §§ 135.385 and 135.387.

**§ 135.398 Commuter category airplanes
performance operating limitations.**

(a) No person may operate a commuter category airplane unless that person complies with the takeoff weight limitations in the approved Airplane Flight Manual.

(b) No person may take off an airplane type certificated in the commuter category at a weight greater than that listed in the Airplane Flight Manual that allows a net takeoff flight path that clears all obstacles either by a height of at least 35 feet vertically, or at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries.

(c) No person may operate a commuter category airplane unless that person complies with the landing limitations prescribed in §§ 135.385 and 135.387 of this part. For purposes of this paragraph, §§ 135.385 and 135.387 are applicable to all commuter category airplanes notwithstanding their stated applicability to turbine-engine-powered large transport category airplanes.

(d) In determining maximum weights, minimum distances and flight paths under paragraphs (a) through (c) of this section, correction must be made for the runway to be used, the elevation of the airport, the effective runway gradient, and ambient temperature, and wind component at the time of takeoff.

(e) For the purposes of this section, the assumption is that the airplane is not banked before reaching a height of 50 feet as shown by the net takeoff flight path data in the Airplane Flight Manual and thereafter the maximum bank is not more than 15 degrees.

[Doc. No. 23516, 52 FR 1836, Jan. 15, 1987]

§ 135.399 Small nontransport category airplane performance operating limitations.

(a) No person may operate a reciprocating engine or turbopropeller-powered small airplane that is certificated under § 135.169(b) (2), (3), (4), (5), or (6) unless that person complies with the takeoff weight limitations in the approved Airplane Flight Manual or equivalent for operations under this part, and, if the airplane is certificated under § 135.169(b) (4) or (5) with the landing weight limitations in the Approved Airplane Flight Manual or equivalent for operations under this part.

(b) No person may operate an airplane that is certificated under § 135.169(b)(6) unless that person complies with the landing limitations prescribed in §§ 135.385 and 135.387 of this part. For purposes of this paragraph, §§ 135.385 and 135.387 are applicable to reciprocating and turbopropeller-powered small airplanes notwithstanding their stated applicability to turbine engine powered large transport category airplanes.

[44 FR 53731, Sept. 17, 1979]

Subpart J - Maintenance, Preventive Maintenance, and Alterations

§ 135.411 Applicability.

(a) This subpart prescribes rules in addition to those in other parts of this chapter for the maintenance, preventive maintenance, and alterations for each certificate holder as follows:

(1) Aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of nine seats or less, shall be maintained under parts 91 and 43 of this chapter and §§

135.415, 135.417, 135.421 and 135.422. An approved aircraft inspection program may be used under § 135.419.

(2) Aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of ten seats or more, shall be maintained under a maintenance program in §§ 135.415, 135.417, 135.423 through 135.443.

(b) A certificate holder who is not otherwise required, may elect to maintain its aircraft under paragraph (a)(2) of this section.

(c) Single engine aircraft used in passenger-carrying IFR operations shall also be maintained in accordance with § 135.421 (c), (d), and (e).

(d) A certificate holder who elects to operate in accordance with § 135.364 must maintain its aircraft under paragraph (a) (2) of this section and the additional requirements of Appendix G of this part.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-70, 62 FR 42374, Aug. 6, 1997; Amdt. 135-78, 65 FR 60556, Oct. 11, 2000; Amdt. 135-92, 68 FR 69308, Dec. 12, 2003; Amdt. 135-81, 70 FR 5533, Feb. 2, 2005; Amdt. 135-108, 72 FR 1885, Jan. 16, 2007; 72 FR 53114, Sept. 18, 2007]

§ 135.413 Responsibility for airworthiness.

(a) Each certificate holder is primarily responsible for the airworthiness of its aircraft, including airframes, aircraft engines, propellers, rotors, appliances, and parts, and shall have its aircraft maintained under this chapter, and shall have defects repaired between required maintenance under part 43 of this chapter.

(b) Each certificate holder who maintains its aircraft under § 135.411(a)(2) shall -

(1) Perform the maintenance, preventive maintenance, and alteration of its aircraft, including airframe, aircraft engines, propellers, rotors, appliances, emergency equipment and parts, under its manual and this chapter; or

(2) Make arrangements with another person for the performance of maintenance, preventive maintenance, or alteration. However, the certificate holder shall ensure that any maintenance, preventive maintenance, or alteration that is performed by another person is performed under the certificate holder's manual and this chapter.

§ 135.415 Service difficulty reports.

(a) Each certificate holder shall report the occurrence or detection of each failure, malfunction, or defect in an aircraft concerning -

(1) Fires during flight and whether the related fire-warning system functioned properly;

(2) Fires during flight not protected by related fire-warning system;

(3) False fire-warning during flight;

(4) An exhaust system that causes damage during flight to the engine, adjacent structure, equipment, or components;

(5) An aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;

(6) Engine shutdown during flight because of flameout;

(7) Engine shutdown during flight when external damage to the engine or aircraft structure occurs;

(8) Engine shutdown during flight due to foreign object ingestion or icing;

(9) Shutdown of more than one engine during flight;

(10) A propeller feathering system or ability of the system to control overspeed during flight;

(11) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage during flight;

(12) An unwanted landing gear extension or retraction or opening or closing of landing gear doors during flight;

(13) Brake system components that result in loss of brake actuating force when the aircraft is in motion on the ground;

(14) Aircraft structure that requires major repair;

(15) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the FAA; and

(16) Aircraft components or systems that result in taking emergency actions during flight (except action to shut-down an engine).

(b) For the purpose of this section, *during flight* means the period from the moment the aircraft leaves the surface of the earth on takeoff until it touches down on landing.

(c) In addition to the reports required by paragraph (a) of this section, each certificate holder shall report any other failure, malfunction, or defect in an aircraft that occurs or is detected at any time if, in its opinion, the failure, malfunction, or defect has endangered or may endanger the safe operation of the aircraft.

(d) Each certificate holder shall submit each report required by this section, covering each 24-hour period beginning at 0900 local time of each day and ending at 0900 local time on the next day, to the FAA offices in Oklahoma City, Oklahoma. Each report of occurrences during a 24-hour period shall be submitted to the collection point within the next 96 hours. However, a report due on Saturday or Sunday may be submitted on the following Monday, and a report due on a holiday may be submitted on the next workday.

(e) The certificate holder shall transmit the reports required by this section on a form and in a manner prescribed by the Administrator, and shall include as much of the following as is available:

(1) The type and identification number of the aircraft.

(2) The name of the operator.

(3) The date.

(4) The nature of the failure, malfunction, or defect.

(5) Identification of the part and system involved, including available information pertaining to type designation of the major component and time since last overhaul, if known.

(6) Apparent cause of the failure, malfunction or defect (e.g., wear, crack, design deficiency, or personnel error).

(7) Other pertinent information necessary for more complete identification, determination of seriousness, or corrective action.

(f) A certificate holder that is also the holder of a type certificate (including a supplemental type certificate), a Parts Manufacturer Approval, or a Technical Standard Order Authorization, or that is the licensee of a type certificate need not report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported by it under § 21.3 or § 37.17 of this chapter or under the accident reporting provisions of part 830 of the regulations of the National Transportation Safety Board.

(g) No person may withhold a report required by this section even though all information required by this section is not available.

(h) When the certificate holder gets additional information, including information from the manufacturer or other agency, concerning a report required by this section, it shall expeditiously submit it as a supplement to the first report and reference the date and place of submission of the first report.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-102, 70 FR 76979, Dec. 29, 2005]

§ 135.417 Mechanical interruption summary report.

Each certificate holder shall mail or deliver, before the end of the 10th day of the following month, a summary report of the following occurrences in multiengine aircraft for the preceding month to the certificate-holding district office:

(a) Each interruption to a flight, unscheduled change of aircraft en route, or unscheduled stop or diversion from a route, caused by known or suspected mechanical difficulties or malfunctions that are not required to be reported under § 135.415.

(b) The number of propeller featherings in flight, listed by type of propeller and engine and aircraft on which it was installed. Propeller featherings for training, demonstration, or flight check purposes need not be reported.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-60, 61 FR 2616, Jan. 26, 1996]

§ 135.419 Approved aircraft inspection program.

(a) Whenever the Administrator finds that the aircraft inspections required or allowed under part 91 of this chapter are not adequate to meet this part, or upon application by a certificate holder, the Administrator may amend the certificate holder's operations specifications under § 119.51, to require or allow an approved aircraft inspection program for any make and model aircraft of which the certificate holder has the exclusive use of at least one aircraft (as defined in § 135.25(b)).

(b) A certificate holder who applies for an amendment of its operations specifications to allow an approved aircraft inspection program must submit that program with its application for approval by the Administrator.

(c) Each certificate holder who is required by its operations specifications to have an approved aircraft inspection program

shall submit a program for approval by the Administrator within 30 days of the amendment of its operations specifications or within any other period that the Administrator may prescribe in the operations specifications.

(d) The aircraft inspection program submitted for approval by the Administrator must contain the following:

(1) Instructions and procedures for the conduct of aircraft inspections (which must include necessary tests and checks), setting forth in detail the parts and areas of the airframe, engines, propellers, rotors, and appliances, including emergency equipment, that must be inspected.

(2) A schedule for the performance of the aircraft inspections under paragraph (d)(1) of this section expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.

(3) Instructions and procedures for recording discrepancies found during inspections and correction or deferral of discrepancies including form and disposition of records.

(e) After approval, the certificate holder shall include the approved aircraft inspection program in the manual required by § 135.21.

(f) Whenever the Administrator finds that revisions to an approved aircraft inspection program are necessary for the continued adequacy of the program, the certificate holder shall, after notification by the Administrator, make any changes in the program found by the Administrator to be necessary. The certificate holder may petition the Administrator to reconsider the notice to make any changes in a program. The petition must be filed with the representatives of the Administrator assigned to it within 30 days after the certificate holder receives the notice. Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

(g) Each certificate holder who has an approved aircraft inspection program shall have each aircraft that is subject to the program inspected in accordance with the program.

(h) The registration number of each aircraft that is subject to an approved aircraft inspection program must be included in the operations specifications of the certificate holder.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-104, 71 FR 536, Jan. 4, 2006]

§ 135.421 Additional maintenance requirements.

(a) Each certificate holder who operates an aircraft type certificated for a passenger seating configuration, excluding any pilot seat, of nine seats or less, must comply with the manufacturer's recommended maintenance programs, or a program approved by the Administrator, for each aircraft engine, propeller, rotor, and each item of emergency equipment required by this chapter.

(b) For the purpose of this section, a manufacturer's maintenance program is one which is contained in the maintenance manual or maintenance instructions set forth by the manufacturer as required by this chapter for the

aircraft, aircraft engine, propeller, rotor or item of emergency equipment.

(c) For each single engine aircraft to be used in passenger-carrying IFR operations, each certificate holder must incorporate into its maintenance program either:

(1) The manufacturer's recommended engine trend monitoring program, which includes an oil analysis, if appropriate, or

(2) An FAA approved engine trend monitoring program that includes an oil analysis at each 100 hour interval or at the manufacturer's suggested interval, whichever is more frequent.

(d) For single engine aircraft to be used in passenger-carrying IFR operations, written maintenance instructions containing the methods, techniques, and practices necessary to maintain the equipment specified in §§ 135.105, and 135.163 (f) and (h) are required.

(e) No certificate holder may operate a single engine aircraft under IFR, carrying passengers, unless the certificate holder records and maintains in the engine maintenance records the results of each test, observation, and inspection required by the applicable engine trend monitoring program specified in (c) (1) and (2) of this section.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-70, 62 FR 42374, Aug. 6, 1997]

§ 135.422 Aging airplane inspections and records reviews for multiengine airplanes certificated with nine or fewer passenger seats.

(a) *Applicability.* This section applies to multiengine airplanes certificated with nine or fewer passenger seats, operated by a certificate holder in a scheduled operation under this part, except for those airplanes operated by a certificate holder in a scheduled operation between any point within the State of Alaska and any other point within the State of Alaska.

(b) *Operation after inspections and records review.* After the dates specified in this paragraph, a certificate holder may not operate a multiengine airplane in a scheduled operation under this part unless the Administrator has notified the certificate holder that the Administrator has completed the aging airplane inspection and records review required by this section. During the inspection and records review, the certificate holder must demonstrate to the Administrator that the maintenance of age-sensitive parts and components of the airplane has been adequate and timely enough to ensure the highest degree of safety.

(1) *Airplanes exceeding 24 years in service on December 8, 2003; initial and repetitive inspections and records reviews.* For an airplane that has exceeded 24 years in service on December 8, 2003, no later than December 5, 2007, and thereafter at intervals not to exceed 7 years.

(2) *Airplanes exceeding 14 years in service but not 24 years in service on December 8, 2003; initial and repetitive inspections and records reviews.* For an airplane that has exceeded 14 years in service, but not 24 years in service,

on December 8, 2003, no later than December 4, 2008, and thereafter at intervals not to exceed 7 years.

(3) *Airplanes not exceeding 14 years in service on December 8, 2003; initial and repetitive inspections and records reviews.* For an airplane that has not exceeded 14 years in service on December 8, 2003, no later than 5 years after the start of the airplane's 15th year in service and thereafter at intervals not to exceed 7 years.

(c) *Unforeseen schedule conflict.* In the event of an unforeseen scheduling conflict for a specific airplane, the Administrator may approve an extension of up to 90 days beyond an interval specified in paragraph (b) of this section.

(d) *Airplane and records availability.* The certificate holder must make available to the Administrator each airplane for which an inspection and records review is required under this section, in a condition for inspection specified by the Administrator, together with the records containing the following information:

- (1) Total years in service of the airplane;
- (2) Total time in service of the airframe;
- (3) Date of the last inspection and records review required by this section;
- (4) Current status of life-limited parts of the airframe;
- (5) Time since the last overhaul of all structural components required to be overhauled on a specific time basis;
- (6) Current inspection status of the airplane, including the time since the last inspection required by the inspection program under which the airplane is maintained;
- (7) Current status of applicable airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required;
- (8) A list of major structural alterations; and
- (9) A report of major structural repairs and the current inspection status for these repairs.

(e) *Notification to the Administrator.* Each certificate holder must notify the Administrator at least 60 days before the date on which the airplane and airplane records will be made available for the inspection and records review.

[Doc. No. FAA-1999-5401, 70 FR 5533, Feb. 2, 2005]

§ 135.423 Maintenance, preventive maintenance, and alteration organization.

(a) Each certificate holder that performs any of its maintenance (other than required inspections), preventive maintenance, or alterations, and each person with whom it arranges for the performance of that work, must have an organization adequate to perform the work.

(b) Each certificate holder that performs any inspections required by its manual under § 135.427(b) (2) or (3), (in this subpart referred to as *required inspections*), and each person with whom it arranges for the performance of that work, must have an organization adequate to perform that work.

(c) Each person performing required inspections in addition to other maintenance, preventive maintenance, or alterations, shall organize the performance of those functions so as to separate the required inspection functions from the other maintenance, preventive maintenance, and alteration functions. The separation shall be below the level of administrative control at which overall responsibility for the required inspection functions and other maintenance, preventive maintenance, and alteration functions is exercised.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978. Redesignated by Amdt. 135-81, 67 FR 72765, Dec. 6, 2002. Redesignated by Amdt. 135-81, 70 FR 5533, Feb. 2, 2005]

§ 135.425 Maintenance, preventive maintenance, and alteration programs.

Each certificate holder shall have an inspection program and a program covering other maintenance, preventive maintenance, and alterations, that ensures that -

- (a) Maintenance, preventive maintenance, and alterations performed by it, or by other persons, are performed under the certificate holder's manual;
- (b) Competent personnel and adequate facilities and equipment are provided for the proper performance of maintenance, preventive maintenance, and alterations; and
- (c) Each aircraft released to service is airworthy and has been properly maintained for operation under this part.

§ 135.426 Contract maintenance.

(a) A certificate holder may arrange with another person for the performance of maintenance, preventive maintenance, and alterations as authorized in § 135.437(a) only if the certificate holder has met all the requirements in this section. For purposes of this section -

(1) A *maintenance provider* is any person who performs maintenance, preventive maintenance, or an alteration for a certificate holder other than a person who is trained by and employed directly by that certificate holder.

(2) *Covered work* means any of the following:

(i) Essential maintenance that could result in a failure, malfunction, or defect endangering the safe operation of an aircraft if not performed properly or if improper parts or materials are used;

(ii) Regularly scheduled maintenance; or

(iii) A required inspection item on an aircraft.

(3) *Directly in charge* means having responsibility for covered work performed by a maintenance provider. A representative of the certificate holder directly in charge of covered work does not need to physically observe and direct each maintenance provider constantly, but must be available for consultation on matters requiring instruction or decision.

(b) Each certificate holder must be directly in charge of all covered work done for it by a maintenance provider.

(c) Each maintenance provider must perform all covered work in accordance with the certificate holder's maintenance manual.

(d) No maintenance provider may perform covered work unless that work is carried out under the supervision and control of the certificate holder.

(e) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must develop and implement policies, procedures, methods, and instructions for the accomplishment of all contracted maintenance, preventive maintenance, and alterations. These policies, procedures, methods, and instructions must provide for the maintenance, preventive maintenance, and alterations to be performed in accordance with the certificate holder's maintenance program and maintenance manual.

(f) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must ensure that its system for the continuing analysis and surveillance of the maintenance, preventive maintenance, and alterations carried out by a maintenance provider, as required by § 135.431(a), contains procedures for oversight of all contracted covered work.

(g) The policies, procedures, methods, and instructions required by paragraphs (e) and (f) of this section must be acceptable to the FAA and included in the certificate holder's maintenance manual, as required by § 135.427(b)(10).

(h) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must provide to its FAA Certificate Holding District Office, in a format acceptable to the FAA, a list that includes the name and physical (street) address, or addresses, where the work is carried out for each maintenance provider that performs work for the certificate holder, and a description of the type of maintenance, preventive maintenance, or alteration that is to be performed at each location. The list must be updated with any changes, including additions or deletions, and the updated list provided to the FAA in a format acceptable to the FAA by the last day of each calendar month.

[Docket FAA-2011-1136, Amdt. 135-132, 80 FR 11547, Mar. 4, 2015]

§ 135.427 Manual requirements.

(a) Each certificate holder shall put in its manual the chart or description of the certificate holder's organization required by § 135.423 and a list of persons with whom it has arranged for the performance of any of its required inspections, other maintenance, preventive maintenance, or alterations, including a general description of that work.

(b) Each certificate holder shall put in its manual the programs required by § 135.425 that must be followed in performing maintenance, preventive maintenance, and alterations of that certificate holder's aircraft, including airframes, aircraft engines, propellers, rotors, appliances, emergency equipment, and parts, and must include at least the following:

(1) The method of performing routine and nonroutine maintenance (other than required inspections), preventive maintenance, and alterations.

(2) A designation of the items of maintenance and alteration that must be inspected (required inspections) including at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or if improper parts or materials are used.

(3) The method of performing required inspections and a designation by occupational title of personnel authorized to perform each required inspection.

(4) Procedures for the reinspection of work performed under previous required inspection findings (*buy-back procedures*).

(5) Procedures, standards, and limits necessary for required inspections and acceptance or rejection of the items required to be inspected and for periodic inspection and calibration of precision tools, measuring devices, and test equipment.

(6) Procedures to ensure that all required inspections are performed.

(7) Instructions to prevent any person who performs any item of work from performing any required inspection of that work.

(8) Instructions and procedures to prevent any decision of an inspector regarding any required inspection from being countermanded by persons other than supervisory personnel of the inspection unit, or a person at the level of administrative control that has overall responsibility for the management of both the required inspection functions and the other maintenance, preventive maintenance, and alterations functions.

(9) Procedures to ensure that required inspections, other maintenance, preventive maintenance, and alterations that are not completed as a result of work interruptions are properly completed before the aircraft is released to service.

(10) Policies, procedures, methods, and instructions for the accomplishment of all maintenance, preventive maintenance, and alterations carried out by a maintenance provider. These policies, procedures, methods, and instructions must be acceptable to the FAA and ensure that, when followed by the maintenance provider, the maintenance, preventive maintenance, and alterations are performed in accordance with the certificate holder's maintenance program and maintenance manual.

(c) Each certificate holder shall put in its manual a suitable system (which may include a coded system) that provides for the retention of the following information -

(1) A description (or reference to data acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the certificate holder; and

(3) The name or other positive identification of the individual approving the work.

(d) For the purposes of this part, the certificate holder must prepare that part of its manual containing maintenance information and instructions, in whole or in part, in printed

form or other form, acceptable to the Administrator, that is retrievable in the English language.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-66, 62 FR 13257, Mar. 19, 1997; 69 FR 18472, Apr. 8, 2004; Amdt. 135-118, 74 FR 38522, Aug. 4, 2009; Docket FAA-2011-1136, Amdt. 135-132, 80 FR 11547, Mar. 4, 2015]

§ 135.429 Required inspection personnel.

(a) No person may use any person to perform required inspections unless the person performing the inspection is appropriately certificated, properly trained, qualified, and authorized to do so.

(b) No person may allow any person to perform a required inspection unless, at the time, the person performing that inspection is under the supervision and control of an inspection unit.

(c) No person may perform a required inspection if that person performed the item of work required to be inspected.

(d) In the case of rotorcraft that operate in remote areas or sites, the Administrator may approve procedures for the performance of required inspection items by a pilot when no other qualified person is available, provided -

(1) The pilot is employed by the certificate holder;

(2) It can be shown to the satisfaction of the Administrator that each pilot authorized to perform required inspections is properly trained and qualified;

(3) The required inspection is a result of a mechanical interruption and is not a part of a certificate holder's continuous airworthiness maintenance program;

(4) Each item is inspected after each flight until the item has been inspected by an appropriately certificated mechanic other than the one who originally performed the item of work; and

(5) Each item of work that is a required inspection item that is part of the flight control system shall be flight tested and reinspected before the aircraft is approved for return to service.

(e) Each certificate holder shall maintain, or shall determine that each person with whom it arranges to perform its required inspections maintains, a current listing of persons who have been trained, qualified, and authorized to conduct required inspections. The persons must be identified by name, occupational title and the inspections that they are authorized to perform. The certificate holder (or person with whom it arranges to perform its required inspections) shall give written information to each person so authorized, describing the extent of that person's responsibilities, authorities, and inspectional limitations. The list shall be made available for inspection by the Administrator upon request.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-20, 51 FR 40710, Nov. 7, 1986]

§ 135.431 Continuing analysis and surveillance.

(a) Each certificate holder shall establish and maintain a system for the continuing analysis and surveillance of the performance and effectiveness of its inspection program

and the program covering other maintenance, preventive maintenance, and alterations and for the correction of any deficiency in those programs, regardless of whether those programs are carried out by the certificate holder or by another person.

(b) Whenever the Administrator finds that either or both of the programs described in paragraph (a) of this section does not contain adequate procedures and standards to meet this part, the certificate holder shall, after notification by the Administrator, make changes in those programs requested by the Administrator.

(c) A certificate holder may petition the Administrator to reconsider the notice to make a change in a program. The petition must be filed with the certificate-holding district office within 30 days after the certificate holder receives the notice. Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-60, 61 FR 2617, Jan. 26, 1996]

§ 135.433 Maintenance and preventive maintenance training program.

Each certificate holder or a person performing maintenance or preventive maintenance functions for it shall have a training program to ensure that each person (including inspection personnel) who determines the adequacy of work done is fully informed about procedures and techniques and new equipment in use and is competent to perform that person's duties.

§ 135.435 Certificate requirements.

(a) Except for maintenance, preventive maintenance, alterations, and required inspections performed by a certificated repair station that is located outside the United States, each person who is directly in charge of maintenance, preventive maintenance, or alterations, and each person performing required inspections must hold an appropriate airman certificate.

(b) For the purpose of this section, a person *directly in charge* is each person assigned to a position in which that person is responsible for the work of a shop or station that performs maintenance, preventive maintenance, alterations, or other functions affecting airworthiness. A person who is *directly in charge* need not physically observe and direct each worker constantly but must be available for consultation and decision on matters requiring instruction or decision from higher authority than that of the person performing the work.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-82, 66 FR 41117, Aug. 6, 2001]

§ 135.437 Authority to perform and approve maintenance, preventive maintenance, and alterations.

(a) A certificate holder may perform or make arrangements with other persons to perform maintenance, preventive

maintenance, and alterations as provided in its maintenance manual. In addition, a certificate holder may perform these functions for another certificate holder as provided in the maintenance manual of the other certificate holder.

(b) A certificate holder may approve any airframe, aircraft engine, propeller, rotor, or appliance for return to service after maintenance, preventive maintenance, or alterations that are performed under paragraph (a) of this section. However, in the case of a major repair or alteration, the work must have been done in accordance with technical data approved by the Administrator.

§ 135.439 Maintenance recording requirements.

(a) Each certificate holder shall keep (using the system specified in the manual required in § 135.427) the following records for the periods specified in paragraph (b) of this section:

(1) All the records necessary to show that all requirements for the issuance of an airworthiness release under § 135.443 have been met.

(2) Records containing the following information:

(i) The total time in service of the airframe, engine, propeller, and rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of each item installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The identification of the current inspection status of the aircraft, including the time since the last inspections required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required.

(vi) A list of current major alterations and repairs to each airframe, engine, propeller, rotor, and appliance.

(b) Each certificate holder shall retain the records required to be kept by this section for the following periods:

(1) Except for the records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance the records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for one year after the work is performed.

(2) The records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance shall be retained until the work is superseded by work of equivalent scope and detail.

(3) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(c) The certificate holder shall make all maintenance records required to be kept by this section available for

inspection by the Administrator or any representative of the National Transportation Safety Board.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978; 43 FR 49975, Oct. 26, 1978]

§ 135.441 Transfer of maintenance records.

Each certificate holder who sells a United States registered aircraft shall transfer to the purchaser, at the time of the sale, the following records of that aircraft, in plain language form or in coded form which provides for the preservation and retrieval of information in a manner acceptable to the Administrator:

(a) The records specified in § 135.439(a)(2).

(b) The records specified in § 135.439(a)(1) which are not included in the records covered by paragraph (a) of this section, except that the purchaser may allow the seller to keep physical custody of such records. However, custody of records by the seller does not relieve the purchaser of its responsibility under § 135.439(c) to make the records available for inspection by the Administrator or any representative of the National Transportation Safety Board.

§ 135.443 Airworthiness release or aircraft maintenance log entry.

(a) No certificate holder may operate an aircraft after maintenance, preventive maintenance, or alterations are performed on the aircraft unless the certificate holder prepares, or causes the person with whom the certificate holder arranges for the performance of the maintenance, preventive maintenance, or alterations, to prepare -

(1) An airworthiness release; or

(2) An appropriate entry in the aircraft maintenance log.

(b) The airworthiness release or log entry required by paragraph (a) of this section must -

(1) Be prepared in accordance with the procedure in the certificate holder's manual;

(2) Include a certification that -

(i) The work was performed in accordance with the requirements of the certificate holder's manual;

(ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed;

(iii) No known condition exists that would make the aircraft unairworthy; and

(iv) So far as the work performed is concerned, the aircraft is in condition for safe operation; and

(3) Be signed by an authorized certificated mechanic or repairman, except that a certificated repairman may sign the release or entry only for the work for which that person is employed and for which that person is certificated.

(c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations performed by a repair station located outside the United States, the airworthiness release or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

(d) Instead of restating each of the conditions of the certification required by paragraph (b) of this section, the certificate holder may state in its manual that the signature of an authorized certificated mechanic or repairman constitutes that certification.

[Doc. No. 16097, 43 FR 46783, Oct. 10, 1978, as amended by Amdt. 135-29, 53 FR 47375, Nov. 22, 1988; Amdt. 135-82, 66 FR 41117, Aug. 6, 2001]

Subpart K - Hazardous Materials Training Program

Source:

Docket No. FAA-2003-15085, 70 FR 58829, Oct. 7, 2005, unless otherwise noted.

§ 135.501 Applicability and definitions.

(a) This subpart prescribes the requirements applicable to each certificate holder for training each crewmember and person performing or directly supervising any of the following job functions involving any item for transport on board an aircraft:

- (1) Acceptance;
- (2) Rejection;
- (3) Handling;
- (4) Storage incidental to transport;
- (5) Packaging of company material; or
- (6) Loading.

(b) *Definitions.* For purposes of this subpart, the following definitions apply:

(1) *Company material (COMAT)* - Material owned or used by a certificate holder.

(2) *Initial hazardous materials training* - The basic training required for each newly hired person, or each person changing job functions, who performs or directly supervises any of the job functions specified in paragraph (a) of this section.

(3) *Recurrent hazardous materials training* - The training required every 24 months for each person who has satisfactorily completed the certificate holder's approved initial hazardous materials training program and performs or directly supervises any of the job functions specified in paragraph (a) of this section.

§ 135.503 Hazardous materials training: General.

(a) Each certificate holder must establish and implement a hazardous materials training program that:

- (1) Satisfies the requirements of Appendix O of part 121 of this part;
- (2) Ensures that each person performing or directly supervising any of the job functions specified in § 135.501(a) is trained to comply with all applicable parts of 49 CFR parts 171 through 180 and the requirements of this subpart; and

(3) Enables the trained person to recognize items that contain, or may contain, hazardous materials regulated by 49 CFR parts 171 through 180.

(b) Each certificate holder must provide initial hazardous materials training and recurrent hazardous materials training to each crewmember and person performing or directly supervising any of the job functions specified in § 135.501(a).

(c) Each certificate holder's hazardous materials training program must be approved by the FAA prior to implementation.

§ 135.505 Hazardous materials training required.

(a) *Training requirement.* Except as provided in paragraphs (b), (c) and (f) of this section, no certificate holder may use any crewmember or person to perform any of the job functions or direct supervisory responsibilities, and no person may perform any of the job functions or direct supervisory responsibilities, specified in § 135.501(a) unless that person has satisfactorily completed the certificate holder's FAA-approved initial or recurrent hazardous materials training program within the past 24 months.

(b) *New hire or new job function.* A person who is a new hire and has not yet satisfactorily completed the required initial hazardous materials training, or a person who is changing job functions and has not received initial or recurrent training for a job function involving storage incidental to transport, or loading of items for transport on an aircraft, may perform those job functions for not more than 30 days from the date of hire or a change in job function, if the person is under the direct visual supervision of a person who is authorized by the certificate holder to supervise that person and who has successfully completed the certificate holder's FAA-approved initial or recurrent training program within the past 24 months.

(c) *Persons who work for more than one certificate holder.* A certificate holder that uses or assigns a person to perform or directly supervise a job function specified in § 135.501(a), when that person also performs or directly supervises the same job function for another certificate holder, need only train that person in its own policies and procedures regarding those job functions, if all of the following are met:

(1) The certificate holder using this exception receives written verification from the person designated to hold the training records representing the other certificate holder that the person has satisfactorily completed hazardous materials training for the specific job function under the other certificate holder's FAA approved hazardous material training program under appendix O of part 121 of this chapter; and

(2) The certificate holder who trained the person has the same operations specifications regarding the acceptance, handling, and transport of hazardous materials as the certificate holder using this exception.

(d) *Recurrent hazardous materials training - Completion date.* A person who satisfactorily completes recurrent hazardous materials training in the calendar month before, or the calendar month after, the month in which the recurrent

training is due, is considered to have taken that training during the month in which it is due. If the person completes this training earlier than the month before it is due, the month of the completion date becomes his or her new anniversary month.

(e) *Repair stations.* A certificate holder must ensure that each repair station performing work for, or on the certificate holder's behalf is notified in writing of the certificate holder's policies and operations specification authorization permitting or prohibition against the acceptance, rejection, handling, storage incidental to transport, and transportation of hazardous materials, including company material. This notification requirement applies only to repair stations that are regulated by 49 CFR parts 171 through 180.

(f) *Certificate holders operating at foreign locations.* This exception applies if a certificate holder operating at a foreign location where the country requires the certificate holder to use persons working in that country to load aircraft. In such a case, the certificate holder may use those persons even if they have not been trained in accordance with the certificate holder's FAA approved hazardous materials training program. Those persons, however, must be under the direct visual supervision of someone who has successfully completed the certificate holder's approved initial or recurrent hazardous materials training program in accordance with this part. This exception applies only to those persons who load aircraft.

§ 135.507 Hazardous materials training records.

(a) *General requirement.* Each certificate holder must maintain a record of all training required by this part received within the preceding three years for each person who performs or directly supervises a job function specified in § 135.501(a). The record must be maintained during the time that the person performs or directly supervises any of those job functions, and for 90 days thereafter. These training records must be kept for direct employees of the certificate holder, as well as independent contractors, subcontractors, and any other person who performs or directly supervises these job functions for the certificate holder.

(b) *Location of records.* The certificate holder must retain the training records required by paragraph (a) of this section for all initial and recurrent training received within the preceding 3 years for all persons performing or directly supervising the job functions listed in Appendix O of part 121 of this chapter at a designated location. The records must be available upon request at the location where the trained person performs or directly supervises the job function specified in § 135.501(a). Records may be maintained electronically and provided on location electronically. When the person ceases to perform or directly supervise a hazardous materials job function, the certificate holder must retain the hazardous materials training records for an additional 90 days and make them available upon request at the last location where the person worked.

(c) *Content of records.* Each record must contain the following:

- (1) The individual's name;

- (2) The most recent training completion date;
- (3) A description, copy or reference to training materials used to meet the training requirement;
- (4) The name and address of the organization providing the training; and
- (5) A copy of the certification issued when the individual was trained, which shows that a test has been completed satisfactorily.

(d) *New hire or new job function.* Each certificate holder using a person under the exception in § 135.505(b) must maintain a record for that person. The records must be available upon request at the location where the trained person performs or directly supervises the job function specified in § 135.501(a). Records may be maintained electronically and provided on location electronically. The record must include the following:

- (1) A signed statement from an authorized representative of the certificate holder authorizing the use of the person in accordance with the exception;
- (2) The date of hire or change in job function;
- (3) The person's name and assigned job function;
- (4) The name of the supervisor of the job function; and
- (5) The date the person is to complete hazardous materials training in accordance with Appendix O of part 121 of this chapter.

Subpart L - Helicopter Air Ambulance Equipment, Operations, and Training Requirements

Source:

Docket No. FAA-2010-0982, 79 FR 9975, Feb. 21, 2014, unless otherwise noted.

§ 135.601 Applicability and definitions.

(a) *Applicability.* This subpart prescribes the requirements applicable to each certificate holder conducting helicopter air ambulance operations.

(b) *Definitions.* For purposes of this subpart, the following definitions apply:

(1) *Helicopter air ambulance operation* means a flight, or sequence of flights, with a patient or medical personnel on board, for the purpose of medical transportation, by a part 135 certificate holder authorized by the Administrator to conduct helicopter air ambulance operations. A helicopter air ambulance operation includes, but is not limited to -

- (i) Flights conducted to position the helicopter at the site at which a patient or donor organ will be picked up.
- (ii) Flights conducted to reposition the helicopter after completing the patient, or donor organ transport.
- (iii) Flights initiated for the transport of a patient or donor organ that are terminated due to weather or other reasons.

(2) *Medical personnel* means a person or persons with medical training, including but not limited to flight physicians, flight nurses, or flight paramedics, who are carried aboard a helicopter during helicopter air ambulance operations in order to provide medical care.

(3) *Mountainous* means designated mountainous areas as listed in part 95 of this chapter.

(4) *Nonmountainous* means areas other than mountainous areas as listed in part 95 of this chapter.

§ 135.603 Pilot-in-command instrument qualifications.

After April 24, 2017, no certificate holder may use, nor may any person serve as, a pilot in command of a helicopter air ambulance operation unless that person meets the requirements of § 135.243 and holds a helicopter instrument rating or an airline transport pilot certificate with a category and class rating for that aircraft, that is not limited to VFR.

§ 135.605 Helicopter terrain awareness and warning system (HTAWS).

(a) After April 24, 2017, no person may operate a helicopter in helicopter air ambulance operations unless that helicopter is equipped with a helicopter terrain awareness and warning system (HTAWS) that meets the requirements in TSO-C194 and Section 2 of RTCA DO-309.

(b) The certificate holder's Rotorcraft Flight Manual must contain appropriate procedures for -

(1) The use of the HTAWS; and

(2) Proper flight crew response to HTAWS audio and visual warnings.

(c) Certificate holders with HTAWS required by this section with an approved deviation under § 21.618 of this chapter are in compliance with this section.

(d) The standards required in this section are incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the FAA must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the FAA's Office of Rulemaking (ARM-1), 800 Independence Avenue SW., Washington, DC 20591 (telephone (202) 267-9677) and from the sources indicated below. It is

also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(1) U.S. Department of Transportation, Subsequent Distribution Office, DOT Warehouse M30, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785; telephone (301) 322-5377. Copies are also available on the FAA's Web site. Use the following link and type the TSO number in the search box: http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgTSO.nsf/Frameset?OpenPage.

(i) TSO C-194, Helicopter Terrain Awareness and Warning System (HTAWS), Dec. 17, 2008.

(ii) [Reserved]

(2) RTCA, Inc., 1150 18th Street NW., Suite 910, Washington, DC 20036, telephone (202) 833-9339, and are also available on RTCA's Web site at <http://www.rtca.org/onlinecart/index.cfm>.

(i) RTCA DO-309, Minimum Operational Performance Standards (MOPS) for Helicopter Terrain Awareness and Warning System (HTAWS) Airborne Equipment, Mar. 13, 2008.

(ii) [Reserved]

§ 135.607 Flight Data Monitoring System.

After April 23, 2018, no person may operate a helicopter in air ambulance operations unless it is equipped with an approved flight data monitoring system capable of recording flight performance data. This system must:

(a) Receive electrical power from the bus that provides the maximum reliability for operation without jeopardizing service to essential or emergency loads, and

(b) Be operated from the application of electrical power before takeoff until the removal of electrical power after termination of flight.

§ 135.609 VFR ceiling and visibility requirements for Class G airspace.

(a) Unless otherwise specified in the certificate holder's operations specifications, when conducting VFR helicopter air ambulance operations in Class G airspace, the weather minimums in the following table apply:

| Location | Day | | Night | | Night using an Approved NVIS or HTAWS | |
|---------------------------------------|------------|-------------------|------------|-------------------|---------------------------------------|-------------------|
| | Ceiling | Flight Visibility | Ceiling | Flight Visibility | Ceiling | Flight Visibility |
| Nonmountainous local flying areas | 800-foot | 2 statute miles | 1,000-foot | 3 statute miles | 800-foot | 3 statute miles |
| Nonmountainous non-local flying areas | 800-foot | 3 statute miles | 1,000-foot | 5 statute miles | 1,000-foot | 3 statute miles |
| Mountainous local flying areas | 800-foot | 3 statute miles | 1,500-foot | 3 statute miles | 1,000-foot | 3 statute miles |
| Mountainous non-local flying areas | 1,000-foot | 3 statute miles | 1,500-foot | 5 statute miles | 1,000-foot | 5 statute miles |

(b) A certificate holder may designate local flying areas in a manner acceptable to the Administrator, that must -

(1) Not exceed 50 nautical miles in any direction from each designated location;

(2) Take into account obstacles and terrain features that are easily identifiable by the pilot in command and from which the pilot in command may visually determine a position; and

(3) Take into account the operating environment and capabilities of the certificate holder's helicopters.

(c) A pilot must demonstrate a level of familiarity with the local flying area by passing an examination given by the certificate holder within the 12 calendar months prior to using the local flying area.

[Doc. No. FAA-2010-0982, 79 FR 9975, Feb. 21, 2014; Amdt. 135-129A, 79 FR 41126, July 15, 2014]

§ 135.611 IFR operations at locations without weather reporting.

(a) If a certificate holder is authorized to conduct helicopter IFR operations, the Administrator may authorize the certificate holder to conduct IFR helicopter air ambulance operations at airports with an instrument approach procedure and at which a weather report is not available from the U.S. National Weather Service (NWS), a source approved by the NWS, or a source approved by the FAA, subject to the following limitations:

(1) The certificate holder must obtain a weather report from a weather reporting facility operated by the NWS, a source approved by the NWS, or a source approved by the FAA, that is located within 15 nautical miles of the airport. If a weather report is not available, the certificate holder may obtain the area forecast from the NWS, a source approved by the NWS, or a source approved by the FAA, for information regarding the weather observed in the vicinity of the airport;

(2) Flight planning for IFR flights conducted under this paragraph must include selection of an alternate airport that meets the requirements of §§ 135.221 and 135.223;

(3) In Class G airspace, IFR departures with visual transitions are authorized only after the pilot in command determines that the weather conditions at the departure point are at or above takeoff minimums depicted in the published Obstacle Departure Procedure or VFR minimum ceilings and visibilities in accordance with § 135.609.

(4) All approaches must be conducted at Category A approach speeds as established in part 97 or those required for the type of approach being used.

(b) Each helicopter air ambulance operated under this section must be equipped with functioning severe weather detection equipment.

(c) Pilots conducting operations pursuant to this section may use the weather information obtained in paragraph (a) to satisfy the weather report and forecast requirements of § 135.213 and § 135.225(a).

(d) After completing a landing at the airport at which a weather report is not available, the pilot in command is authorized to determine if the weather meets the takeoff requirements of part 97 of this chapter or the certificate holder's operations specification, as applicable.

[Doc. No. FAA-2010-0982, 79 FR 9975, Feb. 21, 2014, as amended by Amdt. 135-131, 79 FR 43622, July 28, 2014]

§ 135.613 Approach/departure IFR transitions.

(a) *Approaches.* When conducting an authorized instrument approach and transitioning from IFR to VFR flight, upon transitioning to VFR flight the following weather minimums apply -

(1) For Point-in-Space (PinS) Copter Instrument approaches annotated with a "Proceed VFR" segment, if the distance from the missed approach point to the landing area is

1 NM or less, flight visibility must be at least 1 statute mile and the ceiling on the approach chart applies;

(2) For all instrument approaches, including PinS when paragraph (a)(1) of this section does not apply, if the distance from the missed approach point to the landing area is 3 NM or less, the applicable VFR weather minimums are -

(i) For Day Operations: No less than a 600-foot ceiling and 2 statute miles flight visibility;

(ii) For Night Operations: No less than a 600-foot ceiling and 3 statute miles flight visibility; or

(3) For all instrument approaches, including PinS, if the distance from the missed approach point to the landing area is greater than 3 NM, the VFR weather minimums required by the class of airspace.

(b) *Departures.* For transitions from VFR to IFR upon departure -

(1) The VFR weather minimums of paragraph (a) of this section apply if -

(i) An FAA-approved obstacle departure procedure is followed; and

(ii) An IFR clearance is obtained on or before reaching a predetermined location that is not more than 3 NM from the departure location.

(2) If the departure does not meet the requirements of paragraph (b)(1) of this section, the VFR weather minimums required by the class of airspace apply.

§ 135.615 VFR flight planning.

(a) *Pre-flight.* Prior to conducting VFR operations, the pilot in command must -

(1) Determine the minimum safe cruise altitude by evaluating the terrain and obstacles along the planned route of flight;

(2) Identify and document the highest obstacle along the planned route of flight; and

(3) Using the minimum safe cruise altitudes in paragraphs (b)(1)-(2) of this section, determine the minimum required ceiling and visibility to conduct the planned flight by applying the weather minimums appropriate to the class of airspace for the planned flight.

(b) *Enroute.* While conducting VFR operations, the pilot in command must ensure that all terrain and obstacles along the route of flight are cleared vertically by no less than the following:

(1) 300 feet for day operations.

(2) 500 feet for night operations.

(c) *Rerouting the planned flight path.* A pilot in command may deviate from the planned flight path for reasons such as weather conditions or operational considerations. Such deviations do not relieve the pilot in command of the weather requirements or the requirements for terrain and obstacle clearance contained in this part and in part 91 of this chapter. Rerouting, change in destination, or other changes to the planned flight that occur while the helicopter is on the ground

at an intermediate stop require evaluation of the new route in accordance with paragraph (a) of this section.

(d) *Operations manual.* Each certificate holder must document its VFR flight planning procedures in its operations manual.

§ 135.617 Pre-flight risk analysis.

(a) Each certificate holder conducting helicopter air ambulance operations must establish, and document in its operations manual, an FAA-approved preflight risk analysis that includes at least the following -

(1) Flight considerations, to include obstacles and terrain along the planned route of flight, landing zone conditions, and fuel requirements;

(2) Human factors, such as crew fatigue, life events, and other stressors;

(3) Weather, including departure, en route, destination, and forecasted;

(4) A procedure for determining whether another helicopter air ambulance operator has refused or rejected a flight request; and

(5) Strategies and procedures for mitigating identified risks, including procedures for obtaining and documenting approval of the certificate holder's management personnel to release a flight when a risk exceeds a level predetermined by the certificate holder.

(b) Each certificate holder must develop a preflight risk analysis worksheet to include, at a minimum, the items in paragraph (a) of this section.

(c) Prior to the first leg of each helicopter air ambulance operation, the pilot in command must conduct a preflight risk analysis and complete the preflight risk analysis worksheet in accordance with the certificate holder's FAA-approved procedures. The pilot in command must sign the preflight risk analysis worksheet and specify the date and time it was completed.

(d) The certificate holder must retain the original or a copy of each completed preflight risk analysis worksheet at a location specified in its operations manual for at least 90 days from the date of the operation.

§ 135.619 Operations control centers.

(a) *Operations control center.* After April 22, 2016, certificate holders authorized to conduct helicopter air ambulance operations, with 10 or more helicopter air ambulances assigned to the certificate holder's operations specifications, must have an operations control center. The operations control center must be staffed by operations control specialists who, at a minimum -

(1) Provide two-way communications with pilots;

(2) Provide pilots with weather briefings, to include current and forecasted weather along the planned route of flight;

(3) Monitor the progress of the flight; and

(4) Participate in the preflight risk analysis required under § 135.617 to include the following:

(i) Ensure the pilot has completed all required items on the preflight risk analysis worksheet;

(ii) Confirm and verify all entries on the preflight risk analysis worksheet;

(iii) Assist the pilot in mitigating any identified risk prior to takeoff; and

(iv) Acknowledge in writing, specifying the date and time, that the preflight risk analysis worksheet has been accurately completed and that, according to their professional judgment, the flight can be conducted safely.

(b) *Operations control center staffing.* Each certificate holder conducting helicopter air ambulance operations must provide enough operations control specialists at each operations control center to ensure the certificate holder maintains operational control of each flight.

(c) *Documentation of duties and responsibilities.* Each certificate holder must describe in its operations manual the duties and responsibilities of operations control specialists, including preflight risk mitigation strategies and control measures, shift change checklist, and training and testing procedures to hold the position, including procedures for retesting.

(d) *Training requirements.* No certificate holder may use, nor may any person perform the duties of, an operations control specialist unless the operations control specialist has satisfactorily completed the training requirements of this paragraph.

(1) *Initial training.* Before performing the duties of an operations control specialist, each person must satisfactorily complete the certificate holder's FAA-approved operations control specialist initial training program and pass an FAA-approved knowledge and practical test given by the certificate holder. Initial training must include a minimum of 80 hours of training on the topics listed in paragraph (f) of this section. A certificate holder may reduce the number of hours of initial training to a minimum of 40 hours for persons who have obtained, at the time of beginning initial training, a total of at least 2 years of experience during the last 5 years in any one or in any combination of the following areas -

(i) In military aircraft operations as a pilot, flight navigator, or meteorologist;

(ii) In air carrier operations as a pilot, flight engineer, certified aircraft dispatcher, or meteorologist; or

(iii) In aircraft operations as an air traffic controller or a flight service specialist.

(2) *Recurrent training.* Every 12 months after satisfactory completion of the initial training, each operations control specialist must complete a minimum of 40 hours of recurrent training on the topics listed in paragraph (f) of this section and pass an FAA-approved knowledge and practical test given by the certificate holder on those topics.

(e) *Training records.* The certificate holder must maintain a training record for each operations control specialist employed by the certificate holder for the duration of that individual's employment and for 90 days thereafter. The

training record must include a chronological log for each training course, including the number of training hours and the examination dates and results.

(f) *Training topics.* Each certificate holder must have an FAA-approved operations control specialist training program that covers at least the following topics -

(1) Aviation weather, including:

(i) General meteorology;

(ii) Prevailing weather;

(iii) Adverse and deteriorating weather;

(iv) Windshear;

(v) Icing conditions;

(vi) Use of aviation weather products;

(vii) Available sources of information; and

(viii) Weather minimums;

(2) Navigation, including:

(i) Navigation aids;

(ii) Instrument approach procedures;

(iii) Navigational publications; and

(iv) Navigation techniques;

(3) Flight monitoring, including:

(i) Available flight-monitoring procedures; and

(ii) Alternate flight-monitoring procedures;

(4) Air traffic control, including:

(i) Airspace;

(ii) Air traffic control procedures;

(iii) Aeronautical charts; and

(iv) Aeronautical data sources;

(5) Aviation communication, including:

(i) Available aircraft communications systems;

(ii) Normal communication procedures;

(iii) Abnormal communication procedures; and

(iv) Emergency communication procedures;

(6) Aircraft systems, including:

(i) Communications systems;

(ii) Navigation systems;

(iii) Surveillance systems;

(iv) Fueling systems;

(v) Specialized systems;

(vi) General maintenance requirements; and

(vii) Minimum equipment lists;

(7) Aircraft limitations and performance, including:

(i) Aircraft operational limitations;

(ii) Aircraft performance;

(iii) Weight and balance procedures and limitations; and

(iv) Landing zone and landing facility requirements;

(8) Aviation policy and regulations, including:

(i) 14 CFR Parts 1, 27, 29, 61, 71, 91, and 135;

(ii) 49 CFR Part 830;

(iii) Company operations specifications;

(iv) Company general operations policies;

(v) Enhanced operational control policies;

(vi) Aeronautical decision making and risk management;

(vii) Lost aircraft procedures; and

(viii) Emergency and search and rescue procedures, including plotting coordinates in degrees, minutes, seconds format, and degrees, decimal minutes format;

(9) Crew resource management, including:

(i) Concepts and practical application;

(ii) Risk management and risk mitigation; and

(iii) Pre-flight risk analysis procedures required under § 135.617;

(10) Local flying area orientation, including:

(i) Terrain features;

(ii) Obstructions;

(iii) Weather phenomena for local area;

(iv) Airspace and air traffic control facilities;

(v) Heliports, airports, landing zones, and fuel facilities;

(vi) Instrument approaches;

(vii) Predominant air traffic flow;

(viii) Landmarks and cultural features, including areas prone to flat-light, whiteout, and brownout conditions; and

(ix) Local aviation and safety resources and contact information; and

(11) Any other requirements as determined by the Administrator to ensure safe operations.

(g) *Operations control specialist duty time limitations.* (1) Each certificate holder must establish the daily duty period for an operations control specialist so that it begins at a time that allows that person to become thoroughly familiar with operational considerations, including existing and anticipated weather conditions in the area of operations, helicopter operations in progress, and helicopter maintenance status, before performing duties associated with any helicopter air ambulance operation. The operations control specialist must remain on duty until relieved by another qualified operations control specialist or until each helicopter air ambulance monitored by that person has completed its flight or gone beyond that person's jurisdiction.

(2) Except in cases where circumstances or emergency conditions beyond the control of the certificate holder require otherwise -

(i) No certificate holder may schedule an operations control specialist for more than 10 consecutive hours of duty;

(ii) If an operations control specialist is scheduled for more than 10 hours of duty in 24 consecutive hours, the certificate holder must provide that person a rest period of at least 8 hours at or before the end of 10 hours of duty;

(iii) If an operations control specialist is on duty for more than 10 consecutive hours, the certificate holder must provide that person a rest period of at least 8 hours before that person's next duty period;

(iv) Each operations control specialist must be relieved of all duty with the certificate holder for at least 24 consecutive hours during any 7 consecutive days.

(h) *Drug and alcohol testing.* Operations control specialists must be tested for drugs and alcohol according to the certificate holder's Drug and Alcohol Testing Program administered under part 120 of this chapter.

§ 135.621 Briefing of medical personnel.

(a) Except as provided in paragraph (b) of this section, prior to each helicopter air ambulance operation, each pilot in command, or other flight crewmember designated by the certificate holder, must ensure that all medical personnel have been briefed on the following -

(1) Passenger briefing requirements in § 135.117(a) and (b); and

(2) Physiological aspects of flight;

(3) Patient loading and unloading;

(4) Safety in and around the helicopter;

(5) In-flight emergency procedures;

(6) Emergency landing procedures;

(7) Emergency evacuation procedures;

(8) Efficient and safe communications with the pilot; and

(9) Operational differences between day and night operations, if appropriate.

(b) The briefing required in paragraphs (a)(2) through (9) of this section may be omitted if all medical personnel on board have satisfactorily completed the certificate holder's FAA-approved medical personnel training program within the preceding 24 calendar months. Each training program must include a minimum of 4 hours of ground training, and 4 hours of training in and around an air ambulance helicopter, on the topics set forth in paragraph (a)(2) through (9) of this section.

(c) Each certificate holder must maintain a record for each person trained under this section that -

(1) Contains the individual's name, the most recent training completion date, and a description, copy, or reference to training materials used to meet the training requirement.

(2) Is maintained for 24 calendar months following the individual's completion of training.

[Doc. No. FAA-2010-0982, 79 FR 9975, Feb. 21, 2014; Amdt. 135-129A, 79 FR 41126, July 15, 2014]

Appendix A to Part 135 - Additional Airworthiness Standards for 10 or More Passenger Airplanes

Applicability

1. *Applicability.* This appendix prescribes the additional airworthiness standards required by § 135.169.

2. *References.* Unless otherwise provided, references in this appendix to specific sections of part 23 of the Federal Aviation Regulations (FAR part 23) are to those sections of part 23 in effect on March 30, 1967.

Flight Requirements

3. *General.* Compliance must be shown with the applicable requirements of subpart B of FAR part 23, as supplemented or modified in §§ 4 through 10.

Performance

4. *General.* (a) Unless otherwise prescribed in this appendix, compliance with each applicable performance requirement in sections 4 through 7 must be shown for ambient atmospheric conditions and still air.

(b) The performance must correspond to the propulsive thrust available under the particular ambient atmospheric conditions and the particular flight condition. The available propulsive thrust must correspond to engine power or thrust, not exceeding the approved power or thrust less -

(1) Installation losses; and

(2) The power or equivalent thrust absorbed by the accessories and services appropriate to the particular ambient atmospheric conditions and the particular flight condition.

(c) Unless otherwise prescribed in this appendix, the applicant must select the take-off, en route, and landing configurations for the airplane.

(d) The airplane configuration may vary with weight, altitude, and temperature, to the extent they are compatible with the operating procedures required by paragraph (e) of this section.

(e) Unless otherwise prescribed in this appendix, in determining the critical engine inoperative takeoff performance, the accelerate-stop distance, takeoff distance, changes in the airplane's configuration, speed, power, and thrust must be made under procedures established by the applicant for operation in service.

(f) Procedures for the execution of balked landings must be established by the applicant and included in the Airplane Flight Manual.

(g) The procedures established under paragraphs (e) and (f) of this section must -

(1) Be able to be consistently executed in service by a crew of average skill;

(2) Use methods or devices that are safe and reliable; and

(3) Include allowance for any time delays, in the execution of the procedures, that may reasonably be expected in service.

5. *Takeoff.* (a) *General.* Takeoff speeds, the accelerate-stop distance, the takeoff distance, and the one-engine-inoperative takeoff flight path data (described in paragraphs (b), (c), (d), and (f) of this section), must be determined for -

(1) Each weight, altitude, and ambient temperature within the operational limits selected by the applicant;

(2) The selected configuration for takeoff;

(3) The center of gravity in the most unfavorable position;

(4) The operating engine within approved operating limitations; and

(5) Takeoff data based on smooth, dry, hard-surface runway.

(b) *Takeoff speeds.* (1) The decision speed V_1 is the calibrated airspeed on the ground at which, as a result of engine failure or other reasons, the pilot is assumed to have made a decision to continue or discontinue the takeoff. The speed V_1 must be selected by the applicant but may not be less than -

(i) $1.10V_{S1}$;

(ii) $1.10V_{MC}$;

(iii) A speed that allows acceleration to V_1 and stop under paragraph (c) of this section; or

(iv) A speed at which the airplane can be rotated for takeoff and shown to be adequate to safely continue the takeoff, using normal piloting skill, when the critical engine is suddenly made inoperative.

(2) The initial climb out speed V_2 , in terms of calibrated airspeed, must be selected by the applicant so as to allow the gradient of climb required in section 6(b)(2), but it must not be less than V_1 or less than $1.2V_{S1}$.

(3) Other essential take off speeds necessary for safe operation of the airplane.

(c) *Accelerate-stop distance.* (1) The accelerate-stop distance is the sum of the distances necessary to -

(i) Accelerate the airplane from a standing start to V_1 ; and

(ii) Come to a full stop from the point at which V_1 is reached assuming that in the case of engine failure, failure of the critical engine is recognized by the pilot at the speed V_1 .

(2) Means other than wheel brakes may be used to determine the accelerate-stop distance if that means is available with the critical engine inoperative and -

(i) Is safe and reliable;

(ii) Is used so that consistent results can be expected under normal operating conditions; and

(iii) Is such that exceptional skill is not required to control the airplane.

(d) *All engines operating takeoff distance.* The all engine operating takeoff distance is the horizontal distance required to takeoff and climb to a height of 50 feet above the takeoff surface under the procedures in FAR 23.51(a).

(e) *One-engine-inoperative takeoff.* Determine the weight for each altitude and temperature within the operational limits established for the airplane, at which the airplane has the capability, after failure of the critical engine at V_1 determined under paragraph (b) of this section, to take off and climb at not less than V_2 , to a height 1,000 feet above the takeoff surface and attain the speed and configuration at which compliance is shown with the en route one-engine-inoperative gradient of climb specified in section 6(c).

(f) *One-engine-inoperative takeoff flight path data.* The one-engine-inoperative takeoff flight path data consist of takeoff flight paths extending from a standing start to a point in the takeoff at which the airplane reaches a height 1,000 feet above the takeoff surface under paragraph (e) of this section.

6. *Climb.* (a) *Landing climb: All-engines-operating.* The maximum weight must be determined with the airplane in the landing configuration, for each altitude, and ambient temperature within the operational limits established for the airplane, with the most unfavorable center of gravity, and out-of-ground effect in free air, at which the steady gradient of climb will not be less than 3.3 percent, with:

(1) The engines at the power that is available 8 seconds after initiation of movement of the power or thrust controls from the minimum flight idle to the takeoff position.

(2) A climb speed not greater than the approach speed established under section 7 and not less than the greater of $1.05V_{MC}$ or $1.10V_{S1}$.

(b) *Takeoff climb: one-engine-inoperative.* The maximum weight at which the airplane meets the minimum climb performance specified in paragraphs (1) and (2) of this paragraph must be determined for each altitude and ambient temperature within the operational limits established for the airplane, out of ground effect in free air, with the airplane in the takeoff configuration, with the most unfavorable center of gravity, the critical engine inoperative, the remaining engines at the maximum takeoff power or thrust, and the propeller of the inoperative engine windmilling with the propeller controls in the normal position except that, if an approved automatic feathering system is installed, the propellers may be in the feathered position:

(1) *Takeoff: landing gear extended.* The minimum steady gradient of climb must be measurably positive at the speed V_1 .

(2) *Takeoff: landing gear retracted.* The minimum steady gradient of climb may not be less than 2 percent at speed V_2 . For airplanes with fixed landing gear this requirement must be met with the landing gear extended.

(c) *En route climb: one-engine-inoperative.* The maximum weight must be determined for each altitude and ambient temperature within the operational limits established for the airplane, at which the steady gradient of climb is not less 1.2 percent at an altitude 1,000 feet above the takeoff surface, with the airplane in the en route configuration, the critical engine inoperative, the remaining engine at the maximum continuous power or thrust, and the most unfavorable center of gravity.

7. *Landing.* (a) The landing field length described in paragraph (b) of this section must be determined for standard atmosphere at each weight and altitude within the operational limits established by the applicant.

(b) The landing field length is equal to the landing distance determined under FAR 23.75(a) divided by a factor of 0.6 for the destination airport and 0.7 for the alternate airport. Instead of the gliding approach specified in FAR 23.75(a)(1), the landing may be preceded by a steady approach down to the 50-foot height at a gradient of descent not greater than 5.2 percent (3°) at a calibrated airspeed not less than $1.3V_{S1}$.

Trim

8. *Trim.* (a) *Lateral and directional trim.* The airplane must maintain lateral and directional trim in level flight at a speed of V_H or $V_{MO/MO}$, whichever is lower, with landing gear and wing flaps retracted.

(b) *Longitudinal trim.* The airplane must maintain longitudinal trim during the following conditions, except that it need not maintain trim at a speed greater than $V_{MO/MO}$:

(1) In the approach conditions specified in FAR 23.161(c) (3) through (5), except that instead of the speeds specified in those paragraphs, trim must be maintained with a stick force

of not more than 10 pounds down to a speed used in showing compliance with section 7 or $1.4V_{S1}$ whichever is lower.

(2) In level flight at any speed from V_H or $V_{MO/MO}$, whichever is lower, to either V_X or $1.4V_{S1}$, with the landing gear and wing flaps retracted.

Stability

9. *Static longitudinal stability.* (a) In showing compliance with FAR 23.175(b) and with paragraph (b) of this section, the airspeed must return to within ± 7 percent of the trim speed.

(b) *Cruise stability.* The stick force curve must have a stable slope for a speed range of ± 50 knots from the trim speed except that the speeds need not exceed $V_{FC/MFC}$ or be less than $1.4V_{S1}$. This speed range will be considered to begin at the outer extremes of the friction band and the stick force may not exceed 50 pounds with -

(1) Landing gear retracted;

(2) Wing flaps retracted;

(3) The maximum cruising power as selected by the applicant as an operating limitation for turbine engines or 75 percent of maximum continuous power for reciprocating engines except that the power need not exceed that required at $V_{MO/MO}$;

(4) Maximum takeoff weight; and

(5) The airplane trimmed for level flight with the power specified in paragraph (3) of this paragraph.

$V_{FC/MFC}$ may not be less than a speed midway between $V_{MO/MO}$ and $V_{DF/MDF}$, except that, for altitudes where Mach number is the limiting factor, M_{FC} need not exceed the Mach number at which effective speed warning occurs.

(c) *Climb stability (turbopropeller powered airplanes only).* In showing compliance with FAR 23.175(a), an applicant must, instead of the power specified in FAR 23.175(a)(4), use the maximum power or thrust selected by the applicant as an operating limitation for use during climb at the best rate of climb speed, except that the speed need not be less than $1.4V_{S1}$.

Stalls

10. *Stall warning.* If artificial stall warning is required to comply with FAR 23.207, the warning device must give clearly distinguishable indications under expected conditions of flight. The use of a visual warning device that requires the attention of the crew within the cockpit is not acceptable by itself.

Control Systems

11. *Electric trim tabs.* The airplane must meet FAR 23.677 and in addition it must be shown that the airplane is safely controllable and that a pilot can perform all the maneuvers and operations necessary to effect a safe landing following any probable electric trim tab runaway which might be reasonably expected in service allowing for appropriate time delay after pilot recognition of the runaway. This demonstration must be

conducted at the critical airplane weights and center of gravity positions.

Instruments: Installation

12. *Arrangement and visibility.* Each instrument must meet FAR 23.1321 and in addition:

(a) Each flight, navigation, and powerplant instrument for use by any pilot must be plainly visible to the pilot from the pilot's station with the minimum practicable deviation from the pilot's normal position and line of vision when the pilot is looking forward along the flight path.

(b) The flight instruments required by FAR 23.1303 and by the applicable operating rules must be grouped on the instrument panel and centered as nearly as practicable about the vertical plane of each pilot's forward vision. In addition -

(1) The instrument that most effectively indicates the attitude must be in the panel in the top center position;

(2) The instrument that most effectively indicates the airspeed must be on the panel directly to the left of the instrument in the top center position;

(3) The instrument that most effectively indicates altitude must be adjacent to and directly to the right of the instrument in the top center position; and

(4) The instrument that most effectively indicates direction of flight must be adjacent to and directly below the instrument in the top center position.

13. *Airspeed indicating system.* Each airspeed indicating system must meet FAR 23.1323 and in addition:

(a) Airspeed indicating instruments must be of an approved type and must be calibrated to indicate true airspeed at sea level in the standard atmosphere with a minimum practicable instrument calibration error when the corresponding pitot and static pressures are supplied to the instruments.

(b) The airspeed indicating system must be calibrated to determine the system error, i.e., the relation between IAS and CAS, in flight and during the accelerate-takeoff ground run. The ground run calibration must be obtained between 0.8 of the minimum value of V_1 and 1.2 times the maximum value of V_1 , considering the approved ranges of altitude and weight. The ground run calibration is determined assuming an engine failure at the minimum value of V_1 .

(c) The airspeed error of the installation excluding the instrument calibration error, must not exceed 3 percent or 5 knots whichever is greater, throughout the speed range from V_{MO} to $1.3V_{S1}$ with flaps retracted and from $1.3V_{SO}$ to V_{FE} with flaps in the landing position.

(d) Information showing the relationship between IAS and CAS must be shown in the Airplane Flight manual.

14. *Static air vent system.* The static air vent system must meet FAR 23.1325. The altimeter system calibration must be determined and shown in the Airplane Flight Manual.

Operating Limitations and Information

15. *Maximum operating limit speed V_{MO}/M_{MO} .* Instead of establishing operating limitations based on V_{NE} and V_{NO} , the applicant must establish a maximum operating limit speed V_{MO}/M_{MO} as follows:

(a) The maximum operating limit speed must not exceed the design cruising speed V_C and must be sufficiently below V_{D/M_D} or $V_{DF/M_{DF}}$ to make it highly improbable that the latter speeds will be inadvertently exceeded in flight.

(b) The speed V_{MO} must not exceed $0.8V_{D/M_D}$ or $0.8V_{DF/M_{DF}}$ unless flight demonstrations involving upsets as specified by the Administrator indicates a lower speed margin will not result in speeds exceeding V_{D/M_D} or V_{DF} . Atmospheric variations, horizontal gusts, system and equipment errors, and airframe production variations are taken into account.

16. *Minimum flight crew.* In addition to meeting FAR 23.1523, the applicant must establish the minimum number and type of qualified flight crew personnel sufficient for safe operation of the airplane considering -

(a) Each kind of operation for which the applicant desires approval;

(b) The workload on each crewmember considering the following:

(1) Flight path control.

(2) Collision avoidance.

(3) Navigation.

(4) Communications.

(5) Operation and monitoring of all essential aircraft systems.

(6) Command decisions; and

(c) The accessibility and ease of operation of necessary controls by the appropriate crewmember during all normal and emergency operations when at the crewmember flight station.

17. *Airspeed indicator.* The airspeed indicator must meet FAR 23.1545 except that, the airspeed notations and markings in terms of V_{NO} and V_{NH} must be replaced by the V_{MO}/M_{MO} notations. The airspeed indicator markings must be easily read and understood by the pilot. A placard adjacent to the airspeed indicator is an acceptable means of showing compliance with FAR 23.1545(c).

Airplane Flight Manual

18. *General.* The Airplane Flight Manual must be prepared under FARs 23.1583 and 23.1587, and in addition the operating limitations and performance information in sections 19 and 20 must be included.

19. *Operating limitations.* The Airplane Flight Manual must include the following limitations -

(a) *Airspeed limitations.* (1) The maximum operating limit speed V_{MO}/M_{MO} and a statement that this speed limit may not be deliberately exceeded in any regime of flight (climb,

cruise, or descent) unless a higher speed is authorized for flight test or pilot training;

(2) If an airspeed limitation is based upon compressibility effects, a statement to this effect and information as to any symptoms, the probable behavior of the airplane, and the recommended recovery procedures; and

(3) The airspeed limits, shown in terms of V_{MO}/M_{MO} instead of V_{NO} and V_{NE} .

(b) *Takeoff weight limitations.* The maximum takeoff weight for each airport elevation ambient temperature and available takeoff runway length within the range selected by the applicant may not exceed the weight at which -

(1) The all-engine-operating takeoff distance determined under section 5(b) or the accelerate-stop distance determined under section 5(c), whichever is greater, is equal to the available runway length;

(2) The airplane complies with the one-engine-inoperative takeoff requirements specified in section 5(e); and

(3) The airplane complies with the one-engine-inoperative takeoff and en route climb requirements specified in sections 6 (b) and (c).

(c) *Landing weight limitations.* The maximum landing weight for each airport elevation (standard temperature) and available landing runway length, within the range selected by the applicant. This weight may not exceed the weight at which the landing field length determined under section 7(b) is equal to the available runway length. In showing compliance with this operating limitation, it is acceptable to assume that the landing weight at the destination will be equal to the takeoff weight reduced by the normal consumption of fuel and oil en route.

20. *Performance information.* The Airplane Flight Manual must contain the performance information determined under the performance requirements of this appendix. The information must include the following:

(a) Sufficient information so that the takeoff weight limits specified in section 19(b) can be determined for all temperatures and altitudes within the operation limitations selected by the applicant.

(b) The conditions under which the performance information was obtained, including the airspeed at the 50-foot height used to determine landing distances.

(c) The performance information (determined by extrapolation and computed for the range of weights between the maximum landing and takeoff weights) for -

(1) Climb in the landing configuration; and

(2) Landing distance.

(d) Procedure established under section 4 related to the limitations and information required by this section in the form of guidance material including any relevant limitations or information.

(e) An explanation of significant or unusual flight or ground handling characteristics of the airplane.

(f) Airspeeds, as indicated airspeeds, corresponding to those determined for takeoff under section 5(b).

21. *Maximum operating altitudes.* The maximum operating altitude to which operation is allowed, as limited by flight, structural, powerplant, functional, or equipment characteristics, must be specified in the Airplane Flight Manual.

22. *Stowage provision for airplane flight manual.* Provision must be made for stowing the Airplane Flight Manual in a suitable fixed container which is readily accessible to the pilot.

23. *Operating procedures.* Procedures for restarting turbine engines in flight (including the effects of altitude) must be set forth in the Airplane Flight Manual.

Airframe Requirements

Flight Loads

24. *Engine torque.* (a) Each turbopropeller engine mount and its supporting structure must be designed for the torque effects of:

(1) The conditions in FAR 23.361(a).

(2) The limit engine torque corresponding to takeoff power and propeller speed multiplied by a factor accounting for propeller control system malfunction, including quick feathering action, simultaneously with 1g level flight loads. In the absence of a rational analysis, a factor of 1.6 must be used.

(b) The limit torque is obtained by multiplying the mean torque by a factor of 1.25.

25. *Turbine engine gyroscopic loads.* Each turbopropeller engine mount and its supporting structure must be designed for the gyroscopic loads that result, with the engines at maximum continuous r.p.m., under either -

(a) The conditions in FARs 23.351 and 23.423; or

(b) All possible combinations of the following:

(1) A yaw velocity of 2.5 radians per second.

(2) A pitch velocity of 1.0 radians per second.

(3) A normal load factor of 2.5.

(4) Maximum continuous thrust.

26. *Unsymmetrical loads due to engine failure.* (a) Turbopropeller powered airplanes must be designed for the unsymmetrical loads resulting from the failure of the critical engine including the following conditions in combination with a single malfunction of the propeller drag limiting system, considering the probable pilot corrective action on the flight controls:

(1) At speeds between V_{mo} and V_D , the loads resulting from power failure because of fuel flow interruption are considered to be limit loads.

(2) At speeds between V_{mo} and V_c , the loads resulting from the disconnection of the engine compressor from the turbine or from loss of the turbine blades are considered to be ultimate loads.

(3) The time history of the thrust decay and drag buildup occurring as a result of the prescribed engine failures must be

substantiated by test or other data applicable to the particular engine-propeller combination.

(4) The timing and magnitude of the probable pilot corrective action must be conservatively estimated, considering the characteristics of the particular engine-propeller-airplane combination.

(b) Pilot corrective action may be assumed to be initiated at the time maximum yawing velocity is reached, but not earlier than 2 seconds after the engine failure. The magnitude of the corrective action may be based on the control forces in FAR 23.397 except that lower forces may be assumed where it is shown by analysis or test that these forces can control the yaw and roll resulting from the prescribed engine failure conditions.

Ground Loads

27. *Dual wheel landing gear units.* Each dual wheel landing gear unit and its supporting structure must be shown to comply with the following:

(a) *Pivoting.* The airplane must be assumed to pivot about one side of the main gear with the brakes on that side locked. The limit vertical load factor must be 1.0 and the coefficient of friction 0.8. This condition need apply only to the main gear and its supporting structure.

(b) *Unequal tire inflation.* A 60-40 percent distribution of the loads established under FAR 23.471 through FAR 23.483 must be applied to the dual wheels.

(c) *Flat tire.* (1) Sixty percent of the loads in FAR 23.471 through FAR 23.483 must be applied to either wheel in a unit.

(2) Sixty percent of the limit drag and side loads and 100 percent of the limit vertical load established under FARs 23.493 and 23.485 must be applied to either wheel in a unit except that the vertical load need not exceed the maximum vertical load in paragraph (c)(1) of this section.

Fatigue Evaluation

28. *Fatigue evaluation of wing and associated structure.* Unless it is shown that the structure, operating stress levels, materials and expected use are comparable from a fatigue standpoint to a similar design which has had substantial satisfactory service experience, the strength, detail design, and the fabrication of those parts of the wing, wing carrythrough, and attaching structure whose failure would be catastrophic must be evaluated under either -

(a) A fatigue strength investigation in which the structure is shown by analysis, tests, or both to be able to withstand the repeated loads of variable magnitude expected in service; or

(b) A fail-safe strength investigation in which it is shown by analysis, tests, or both that catastrophic failure of the structure is not probable after fatigue, or obvious partial failure, of a principal structural element, and that the remaining structure is able to withstand a static ultimate load factor of 75 percent of the critical limit load factor at V_C . These loads must be multiplied by a factor of 1.15 unless the dynamic effects of failure under static load are otherwise considered.

Design and Construction

29. *Flutter.* For multiengine turbopropeller powered airplanes, a dynamic evaluation must be made and must include -

(a) The significant elastic, inertia, and aerodynamic forces associated with the rotations and displacements of the plane of the propeller; and

(b) Engine-propeller-nacelle stiffness and damping variations appropriate to the particular configuration.

Landing Gear

30. *Flap operated landing gear warning device.* Airplanes having retractable landing gear and wing flaps must be equipped with a warning device that functions continuously when the wing flaps are extended to a flap position that activates the warning device to give adequate warning before landing, using normal landing procedures, if the landing gear is not fully extended and locked. There may not be a manual shut off for this warning device. The flap position sensing unit may be installed at any suitable location. The system for this device may use any part of the system (including the aural warning device) provided for other landing gear warning devices.

Personnel and Cargo Accommodations

31. *Cargo and baggage compartments.* Cargo and baggage compartments must be designed to meet FAR 23.787 (a) and (b), and in addition means must be provided to protect passengers from injury by the contents of any cargo or baggage compartment when the ultimate forward inertia force is 9g.

32. *Doors and exits.* The airplane must meet FAR 23.783 and FAR 23.807 (a)(3), (b), and (c), and in addition:

(a) There must be a means to lock and safeguard each external door and exit against opening in flight either inadvertently by persons, or as a result of mechanical failure. Each external door must be operable from both the inside and the outside.

(b) There must be means for direct visual inspection of the locking mechanism by crewmembers to determine whether external doors and exits, for which the initial opening movement is outward, are fully locked. In addition, there must be a visual means to signal to crewmembers when normally used external doors are closed and fully locked.

(c) The passenger entrance door must qualify as a floor level emergency exit. Each additional required emergency exit except floor level exits must be located over the wing or must be provided with acceptable means to assist the occupants in descending to the ground. In addition to the passenger entrance door:

(1) For a total seating capacity of 15 or less, an emergency exit as defined in FAR 23.807(b) is required on each side of the cabin.

(2) For a total seating capacity of 16 through 23, three emergency exits as defined in FAR 23.807(b) are required with one on the same side as the door and two on the side opposite the door.

(d) An evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. It must be conducted under simulated night conditions utilizing only the emergency exits on the most critical side of the aircraft. The participants must be representative of average airline passengers with no previous practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

(e) Each emergency exit must be marked with the word "Exit" by a sign which has white letters 1 inch high

on a red background 2 inches high, be self-illuminated or independently internally electrically illuminated, and have a minimum luminescence (brightness) of at least 160 microlamberts. The colors may be reversed if the passenger compartment illumination is essentially the same.

(f) Access to window type emergency exits must not be obstructed by seats or seat backs.

(g) The width of the main passenger aisle at any point between seats must equal or exceed the values in the following table:

| Total seating capacity | Minimum main passenger aisle width | |
|------------------------|------------------------------------|-------------------------------|
| | Less than 25 inches from floor | 25 inches and more from floor |
| 10 through 23 | 9 inches | 15 inches. |

Miscellaneous

33. *Lightning strike protection.* Parts that are electrically insulated from the basic airframe must be connected to it through lightning arrestors unless a lightning strike on the insulated part -

- (a) Is improbable because of shielding by other parts; or
- (b) Is not hazardous.

34. *Ice protection.* If certification with ice protection provisions is desired, compliance with the following must be shown:

(a) The recommended procedures for the use of the ice protection equipment must be set forth in the Airplane Flight Manual.

(b) An analysis must be performed to establish, on the basis of the airplane's operational needs, the adequacy of the ice protection system for the various components of the airplane. In addition, tests of the ice protection system must be conducted to demonstrate that the airplane is capable of operating safely in continuous maximum and intermittent maximum icing conditions as described in appendix C of part 25 of this chapter.

(c) Compliance with all or portions of this section may be accomplished by reference, where applicable because of similarity of the designs, to analysis and tests performed by the applicant for a type certificated model.

35. *Maintenance information.* The applicant must make available to the owner at the time of delivery of the airplane the information the applicant considers essential for the proper maintenance of the airplane. That information must include the following:

(a) Description of systems, including electrical, hydraulic, and fuel controls.

(b) Lubrication instructions setting forth the frequency and the lubricants and fluids which are to be used in the various systems.

(c) Pressures and electrical loads applicable to the various systems.

(d) Tolerances and adjustments necessary for proper functioning.

(e) Methods of leveling, raising, and towing.

(f) Methods of balancing control surfaces.

(g) Identification of primary and secondary structures.

(h) Frequency and extent of inspections necessary to the proper operation of the airplane.

(i) Special repair methods applicable to the airplane.

(j) Special inspection techniques, such as X-ray, ultrasonic, and magnetic particle inspection.

(k) List of special tools.

Propulsion

General

36. *Vibration characteristics.* For turbopropeller powered airplanes, the engine installation must not result in vibration characteristics of the engine exceeding those established during the type certification of the engine.

37. *In flight restarting of engine.* If the engine on turbopropeller powered airplanes cannot be restarted at the maximum cruise altitude, a determination must be made of the altitude below which restarts can be consistently accomplished. Restart information must be provided in the Airplane Flight Manual.

38. *Engines.* (a) *For turbopropeller powered airplanes.* The engine installation must comply with the following:

(1) *Engine isolation.* The powerplants must be arranged and isolated from each other to allow operation, in at least one configuration, so that the failure or malfunction of any engine, or of any system that can affect the engine, will not -

(i) Prevent the continued safe operation of the remaining engines; or

(ii) Require immediate action by any crewmember for continued safe operation.

(2) *Control of engine rotation.* There must be a means to individually stop and restart the rotation of any engine in flight except that engine rotation need not be stopped if continued rotation could not jeopardize the safety of the airplane. Each component of the stopping and restarting system on the engine side of the firewall, and that might be exposed to fire, must be at least fire resistant. If hydraulic propeller feathering systems are used for this purpose, the feathering lines must be at

least fire resistant under the operating conditions that may be expected to exist during feathering.

(3) *Engine speed and gas temperature control devices.* The powerplant systems associated with engine control devices, systems, and instrumentation must provide reasonable assurance that those engine operating limitations that adversely affect turbine rotor structural integrity will not be exceeded in service.

(b) *For reciprocating engine powered airplanes.* To provide engine isolation, the powerplants must be arranged and isolated from each other to allow operation, in at least one configuration, so that the failure or malfunction of any engine, or of any system that can affect that engine, will not -

(1) Prevent the continued safe operation of the remaining engines; or

(2) Require immediate action by any crewmember for continued safe operation.

39. *Turbopropeller reversing systems.* (a) Turbopropeller reversing systems intended for ground operation must be designed so that no single failure or malfunction of the system will result in unwanted reverse thrust under any expected operating condition. Failure of structural elements need not be considered if the probability of this kind of failure is extremely remote.

(b) Turbopropeller reversing systems intended for in flight use must be designed so that no unsafe condition will result during normal operation of the system, or from any failure (or reasonably likely combination of failures) of the reversing system, under any anticipated condition of operation of the airplane. Failure of structural elements need not be considered if the probability of this kind of failure is extremely remote.

(c) Compliance with this section may be shown by failure analysis, testing, or both for propeller systems that allow propeller blades to move from the flight low-pitch position to a position that is substantially less than that at the normal flight low-pitch stop position. The analysis may include or be supported by the analysis made to show compliance with the type certification of the propeller and associated installation components. Credit will be given for pertinent analysis and testing completed by the engine and propeller manufacturers.

40. *Turbopropeller drag-limiting systems.* Turbopropeller drag-limiting systems must be designed so that no single failure or malfunction of any of the systems during normal or emergency operation results in propeller drag in excess of that for which the airplane was designed. Failure of structural elements of the drag-limiting systems need not be considered if the probability of this kind of failure is extremely remote.

41. *Turbine engine powerplant operating characteristics.* For turbopropeller powered airplanes, the turbine engine powerplant operating characteristics must be investigated in flight to determine that no adverse characteristics (such as stall, surge, or flameout) are present to a hazardous degree, during normal and emergency operation within the range of operating limitations of the airplane and of the engine.

42. *Fuel flow.* (a) For turbopropeller powered airplanes -

(1) The fuel system must provide for continuous supply of fuel to the engines for normal operation without interruption due to depletion of fuel in any tank other than the main tank; and

(2) The fuel flow rate for turbopropeller engine fuel pump systems must not be less than 125 percent of the fuel flow required to develop the standard sea level atmospheric conditions takeoff power selected and included as an operating limitation in the Airplane Flight Manual.

(b) For reciprocating engine powered airplanes, it is acceptable for the fuel flow rate for each pump system (main and reserve supply) to be 125 percent of the takeoff fuel consumption of the engine.

Fuel System Components

43. *Fuel pumps.* For turbopropeller powered airplanes, a reliable and independent power source must be provided for each pump used with turbine engines which do not have provisions for mechanically driving the main pumps. It must be demonstrated that the pump installations provide a reliability and durability equivalent to that in FAR 23.991(a).

44. *Fuel strainer or filter.* For turbopropeller powered airplanes, the following apply:

(a) There must be a fuel strainer or filter between the tank outlet and the fuel metering device of the engine. In addition, the fuel strainer or filter must be -

(1) Between the tank outlet and the engine-driven positive displacement pump inlet, if there is an engine-driven positive displacement pump;

(2) Accessible for drainage and cleaning and, for the strainer screen, easily removable; and

(3) Mounted so that its weight is not supported by the connecting lines or by the inlet or outlet connections of the strainer or filter itself.

(b) Unless there are means in the fuel system to prevent the accumulation of ice on the filter, there must be means to automatically maintain the fuel-flow if ice-clogging of the filter occurs; and

(c) The fuel strainer or filter must be of adequate capacity (for operating limitations established to ensure proper service) and of appropriate mesh to insure proper engine operation, with the fuel contaminated to a degree (for particle size and density) that can be reasonably expected in service. The degree of fuel filtering may not be less than that established for the engine type certification.

45. *Lightning strike protection.* Protection must be provided against the ignition of flammable vapors in the fuel vent system due to lightning strikes.

Cooling

46. *Cooling test procedures for turbopropeller powered airplanes.* (a) Turbopropeller powered airplanes must be shown to comply with FAR 23.1041 during takeoff, climb, en route, and landing stages of flight that correspond to the applicable performance requirements. The cooling tests must be conducted with the airplane in the configuration,

and operating under the conditions that are critical relative to cooling during each stage of flight. For the cooling tests a temperature is “stabilized” when its rate of change is less than 2 °F. per minute.

(b) Temperatures must be stabilized under the conditions from which entry is made into each stage of flight being investigated unless the entry condition is not one during which component and engine fluid temperatures would stabilize, in which case, operation through the full entry condition must be conducted before entry into the stage of flight being investigated to allow temperatures to reach their natural levels at the time of entry. The takeoff cooling test must be preceded by a period during which the powerplant component and engine fluid temperatures are stabilized with the engines at ground idle.

(c) Cooling tests for each stage of flight must be continued until -

- (1) The component and engine fluid temperatures stabilize;
- (2) The stage of flight is completed; or
- (3) An operating limitation is reached.

Induction System

47. *Air induction.* For turbopropeller powered airplanes -

(a) There must be means to prevent hazardous quantities of fuel leakage or overflow from drains, vents, or other components of flammable fluid systems from entering the engine intake systems; and

(b) The air inlet ducts must be located or protected so as to minimize the ingestion of foreign matter during takeoff, landing, and taxiing.

48. *Induction system icing protection.* For turbopropeller powered airplanes, each turbine engine must be able to operate throughout its flight power range without adverse effect on engine operation or serious loss of power or thrust, under the icing conditions specified in appendix C of part 25 of this chapter. In addition, there must be means to indicate to appropriate flight crewmembers the functioning of the powerplant ice protection system.

49. *Turbine engine bleed air systems.* Turbine engine bleed air systems of turbopropeller powered airplanes must be investigated to determine -

(a) That no hazard to the airplane will result if a duct rupture occurs. This condition must consider that a failure of the duct can occur anywhere between the engine port and the airplane bleed service; and

(b) That, if the bleed air system is used for direct cabin pressurization, it is not possible for hazardous contamination of the cabin air system to occur in event of lubrication system failure.

Exhaust System

50. *Exhaust system drains.* Turbopropeller engine exhaust systems having low spots or pockets must incorporate drains at those locations. These drains must discharge clear of the airplane in normal and ground attitudes to prevent the

accumulation of fuel after the failure of an attempted engine start.

Powerplant Controls and Accessories

51. *Engine controls.* If throttles or power levers for turbopropeller powered airplanes are such that any position of these controls will reduce the fuel flow to the engine(s) below that necessary for satisfactory and safe idle operation of the engine while the airplane is in flight, a means must be provided to prevent inadvertent movement of the control into this position. The means provided must incorporate a positive lock or stop at this idle position and must require a separate and distinct operation by the crew to displace the control from the normal engine operating range.

52. *Reverse thrust controls.* For turbopropeller powered airplanes, the propeller reverse thrust controls must have a means to prevent their inadvertent operation. The means must have a positive lock or stop at the idle position and must require a separate and distinct operation by the crew to displace the control from the flight regime.

53. *Engine ignition systems.* Each turbopropeller airplane ignition system must be considered an essential electrical load.

54. *Powerplant accessories.* The powerplant accessories must meet FAR 23.1163, and if the continued rotation of any accessory remotely driven by the engine is hazardous when malfunctioning occurs, there must be means to prevent rotation without interfering with the continued operation of the engine.

Powerplant Fire Protection

55. *Fire detector system.* For turbopropeller powered airplanes, the following apply:

(a) There must be a means that ensures prompt detection of fire in the engine compartment. An overtemperature switch in each engine cooling air exit is an acceptable method of meeting this requirement.

(b) Each fire detector must be constructed and installed to withstand the vibration, inertia, and other loads to which it may be subjected in operation.

(c) No fire detector may be affected by any oil, water, other fluids, or fumes that might be present.

(d) There must be means to allow the flight crew to check, in flight, the functioning of each fire detector electric circuit.

(e) Wiring and other components of each fire detector system in a fire zone must be at least fire resistant.

56. *Fire protection, cowling and nacelle skin.* For reciprocating engine powered airplanes, the engine cowling must be designed and constructed so that no fire originating in the engine compartment can enter either through openings or by burn through, any other region where it would create additional hazards.

57. *Flammable fluid fire protection.* If flammable fluids or vapors might be liberated by the leakage of fluid systems in areas other than engine compartments, there must be means to -

(a) Prevent the ignition of those fluids or vapors by any other equipment; or

(b) Control any fire resulting from that ignition.

Equipment

58. *Powerplant instruments.* (a) The following are required for turbopropeller airplanes:

- (1) The instruments required by FAR 23.1305 (a) (1) through (4), (b) (2) and (4).
- (2) A gas temperature indicator for each engine.
- (3) Free air temperature indicator.
- (4) A fuel flowmeter indicator for each engine.
- (5) Oil pressure warning means for each engine.
- (6) A torque indicator or adequate means for indicating power output for each engine.
- (7) Fire warning indicator for each engine.
- (8) A means to indicate when the propeller blade angle is below the low-pitch position corresponding to idle operation in flight.
- (9) A means to indicate the functioning of the ice protection system for each engine.

(b) For turbopropeller powered airplanes, the turbopropeller blade position indicator must begin indicating when the blade has moved below the flight low-pitch position.

(c) The following instruments are required for reciprocating engine powered airplanes:

- (1) The instruments required by FAR 23.1305.
- (2) A cylinder head temperature indicator for each engine.
- (3) A manifold pressure indicator for each engine.

Systems and Equipments**General**

59. *Function and installation.* The systems and equipment of the airplane must meet FAR 23.1301, and the following:

- (a) Each item of additional installed equipment must -
 - (1) Be of a kind and design appropriate to its intended function;
 - (2) Be labeled as to its identification, function, or operating limitations, or any applicable combination of these factors, unless misuse or inadvertent actuation cannot create a hazard;
 - (3) Be installed according to limitations specified for that equipment; and
 - (4) Function properly when installed.
- (b) Systems and installations must be designed to safeguard against hazards to the aircraft in the event of their malfunction or failure.
- (c) Where an installation, the functioning of which is necessary in showing compliance with the applicable requirements, requires a power supply, that installation must be considered an essential load on the power supply, and the power sources and the distribution system must be capable of supplying the following power loads in probable operation combinations and for probable durations:
 - (1) All essential loads after failure of any prime mover, power converter, or energy storage device.
 - (2) All essential loads after failure of any one engine on two-engine airplanes.

(3) In determining the probable operating combinations and durations of essential loads for the power failure conditions described in paragraphs (1) and (2) of this paragraph, it is permissible to assume that the power loads are reduced in accordance with a monitoring procedure which is consistent with safety in the types of operations authorized.

60. *Ventilation.* The ventilation system of the airplane must meet FAR 23.831, and in addition, for pressurized aircraft, the ventilating air in flight crew and passenger compartments must be free of harmful or hazardous concentrations of gases and vapors in normal operation and in the event of reasonably probable failures or malfunctioning of the ventilating, heating, pressurization, or other systems, and equipment. If accumulation of hazardous quantities of smoke in the cockpit area is reasonably probable, smoke evacuation must be readily accomplished.

Electrical Systems and Equipment

61. *General.* The electrical systems and equipment of the airplane must meet FAR 23.1351, and the following:

(a) *Electrical system capacity.* The required generating capacity, and number and kinds of power sources must -

- (1) Be determined by an electrical load analysis; and
- (2) Meet FAR 23.1301.

(b) *Generating system.* The generating system includes electrical power sources, main power busses, transmission cables, and associated control, regulation and protective devices. It must be designed so that -

- (1) The system voltage and frequency (as applicable) at the terminals of all essential load equipment can be maintained within the limits for which the equipment is designed, during any probable operating conditions;
- (2) System transients due to switching, fault clearing, or other causes do not make essential loads inoperative, and do not cause a smoke or fire hazard;
- (3) There are means, accessible in flight to appropriate crewmembers, for the individual and collective disconnection of the electrical power sources from the system; and
- (4) There are means to indicate to appropriate crewmembers the generating system quantities essential for the safe operation of the system, including the voltage and current supplied by each generator.

62. *Electrical equipment and installation.* Electrical equipment, controls, and wiring must be installed so that operation of any one unit or system of units will not adversely affect the simultaneous operation of any other electrical unit or system essential to the safe operation.

63. *Distribution system.* (a) For the purpose of complying with this section, the distribution system includes the distribution busses, their associated feeders, and each control and protective device.

(b) Each system must be designed so that essential load circuits can be supplied in the event of reasonably probable faults or open circuits, including faults in heavy current carrying cables.

(c) If two independent sources of electrical power for particular equipment or systems are required under this appendix, their electrical energy supply must be ensured by means such as duplicate electrical equipment, throwover switching, or multichannel or loop circuits separately routed.

64. *Circuit protective devices.* The circuit protective devices for the electrical circuits of the airplane must meet

FAR 23.1357, and in addition circuits for loads which are essential to safe operation must have individual and exclusive circuit protection.

Appendix B to Part 135 - Airplane Flight Recorder Specifications

| Parameters | Range | Installed system 1 minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution 4 read out |
|---|--|--|--|--------------------------|
| Relative time (from recorded on prior to takeoff) | 25 hr minimum | ±0.125% per hour | 1 | 1 sec. |
| Indicated airspeed | V _{SO} to V _D (KIAS) | ±5% or ±10 kts., whichever is greater. Resolution 2 kts. below 175 KIAS | 1 | 1% 3 |
| Altitude | #1,000 ft. to max cert. alt. of A/C | ±100 to ±700 ft. (see Table 1, TSO C51-a) | 1 | 25 to 150 |
| Magnetic heading | 360° | ±5° | 1 | 1° |
| Vertical acceleration | #3g to + 6g | ±0.2g in addition to ±0.3g maximum datum | 4 (or 1 per second where peaks, ref. to 1g are recorded) | 0.03g. |
| Longitudinal acceleration | ±1.0g | ±1.5% max. range excluding datum error of ±5% | 2 | 0.01g. |
| Pitch attitude | 100% of usable | ±2° | 1 | 0.8° |
| Roll attitude | ±60° or 100% of usable range, whichever is greater | ±2° | 1 | 0.8° |
| Stabilizer trim position | Full range | ±3% unless higher uniquely required | 1 | 1% 3 |
| Or | | | | |
| Pitch control position | Full range | ±3% unless higher uniquely required | 1 | 1% 3 |
| | | | | |
| <i>Engine Power, Each Engine</i> | | | | |
| Fan or N ₁ speed or EPR or cockpit indications used for aircraft certification | Maximum range | ±5% | 1 | 1% 3 |
| Or | | | | |
| Prop. speed and torque (sample once/sec as close together as practicable) | | | 1 (prop speed), 1 (torque) | |

| Parameters | Range | Installed system ¹ minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution ⁴ read out |
|---|---|---|--------------------------------|-------------------------------------|
| Altitude rate ² (need depends on altitude resolution) | ±8,000 fpm | ±10%. Resolution 250 fpm below 12,000 ft. indicated | 1 | 250 fpm Below 12,000 |
| Angle of attack ² (need depends on altitude resolution) | #20° to 40° or of usable range | ±2° | 1 | 0.8% ³ |
| Radio transmitter keying (discrete) | On/off | | 1 | |
| TE flaps (discrete or analog) | Each discrete position (U, D, T/O, AAP) | | 1 | |
| | Or | | | |
| | Analog 0-100% range | ±3° | 1 | 1% ³ |
| LE flaps (discrete or analog) | Each discrete position (U, D, T/O, AAP) | | 1 | |
| | Or | | | |
| | Analog 0-100% range | ±3° | 1 | 1% ³ |
| Thrust reverser, each engine (Discrete) | Stowed or full reverse | | 1 | |
| Spoiler/speedbrake (discrete) | Stowed or out | | 1 | |
| Autopilot engaged (discrete) | Engaged or disengaged | | 1 | |

¹ When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

² If data from the altitude encoding altimeter (100 ft. resolution) is used, then either one of these parameters should also be recorded. If however, altitude is recorded at a minimum resolution of 25 feet, then these two parameters can be omitted.

³ Per cent of full range.

⁴ This column applies to aircraft manufacturing after October 11, 1991.

[Doc. No. 25530, 53 FR 26152, July 11, 1988; 53 FR 30906, Aug. 16, 1988, as amended by Amdt. 135-69, 62 FR 38397, July 17, 1997]

Appendix C to Part 135 - Helicopter Flight Recorder Specifications

| Parameters | Range | Installed system ¹ minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution ³ read out |
|---|--|---|--------------------------------|-------------------------------------|
| Relative time (from recorded on prior to takeoff) | 25 hr minimum | ±0.125% per hour | 1 | 1 sec. |
| Indicated airspeed | V _m in to V _D (KIAS) (minimum airspeed signal attainable with installed pilot-static system) | ±5% or ±10 kts., whichever is greater | 1 | 1 kt. |

| Parameters | Range | Installed system 1 minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution 3 read out |
|--|--|---|--|--------------------------|
| Altitude | #1,000 ft. to 20,000 ft. pressure altitude | ±100 to ±700 ft. (see Table 1, TSO C51-a) | 1 | 25 to 150 ft. |
| Magnetic heading | 360° | ±5° | 1 | 1°. |
| Vertical acceleration | #3g to + 6g | ±0.2g in addition to ±0.3g maximum datum | 4 (or 1 per second where peaks, ref. to 1g are recorded) | 0.05g. |
| Longitudinal acceleration | ±1.0g | ±1.5% max. range excluding datum error of ±5% | 2 | 0.03g. |
| Pitch attitude | 100% of usable range | ±2° | 1 | 0.8°. |
| Roll attitude | ±60° or 100% of usable range, whichever is greater | ±2° | 1 | 0.8°. |
| Altitude rate | ±8,000 fpm | ±10% Resolution 250 fpm below 12,000 ft. indicated | 1 | 250 fpm below 12,000. |
| <i>Engine Power, Each Engine</i> | | | | |
| Main rotor speed | Maximum range | ±5% | 1 | 1% 2 |
| Free or power turbine | Maximum range | + 5% | 1 | 1% 2 |
| Engine torque | Maximum range | ±5% | 1 | 1% 2 |
| <i>Flight Control - Hydraulic Pressure</i> | | | | |
| Primary (discrete) | High/low | | 1 | |
| Secondary - if applicable (discrete) | High/low | | 1 | |
| Radio transmitter keying (discrete) | On/off | | 1 | |
| Autopilot engaged (discrete) | Engaged or disengaged | | 1 | |
| SAS status - engaged (discrete) | Engaged/disengaged | | 1 | |
| SAS fault status (discrete) | Fault/OK | | 1 | |
| <i>Flight Controls</i> | | | | |
| Collective 4 | Full range | ±3% | 2 | 1% 2 |
| Pedal Position 4 | Full range | ±3% | 2 | 1% 2 |

| Parameters | Range | Installed system ¹ minimum accuracy (to recovered data) | Sampling interval (per second) | Resolution ³ read out |
|---------------------------------------|------------|---|--------------------------------|-------------------------------------|
| Lat. Cyclic 4 | Full range | ±3% | 2 | 1% 2 |
| Long. Cyclic 4 | Full range | ±3% | 2 | 1% 2 |
| Controllable Stabilator Position 4 | Full range | ±3% | 2 | 1% 2 |

¹ When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

² Per cent of full range.

³ This column applies to aircraft manufactured after October 11, 1991.

⁴ For all aircraft manufactured on or after December 6, 2010, the sampling interval per second is 4.

[Doc. No. 25530, 53 FR 26152, July 11, 1988; 53 FR 30906, Aug. 16, 1988, as amended by Amdt. 135-69, 62 FR 38397, July 17, 1997; Amdt. 135-113, 73 FR 12570, Mar. 7, 2008; 73 FR 15281, Mar. 21, 2008; Amdt. 135-121, 75 FR 17047, Apr. 5, 2010]

Appendix D to Part 135 - Airplane Flight Recorder Specification

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | resolution ⁴ read out |
|--|--|---|--------------------------------|-------------------------------------|
| Time (GMT or Frame Counter) (range 0 to 4095, sampled 1 per frame) | 24 Hrs | ±0.125% Per Hour | 0.25 (1 per 4 seconds) | 1 sec. |
| Altitude | #1,000 ft to max certificated altitude of aircraft | ±100 to ±700 ft (See Table 1, TSO-C51a) | 1 | 5# to 35# 1. |
| Airspeed | 50 KIAS to V _{SO} and V _{SO} to 1.2 V _D | ±5%, ±3% | 1 | 1kt |
| Heading | 360° | ±2° | 1 | 0.5° |
| Normal Acceleration (Vertical) | #3g to + 6g | ±1% of max range excluding datum error of ±5% | 8 | 0.01g |
| Pitch Attitude | ±75° | ±2° | 1 | 0.5° |
| Roll Attitude | ±180° | ±2° | 1 | 0.5°. |
| Radio Transmitter Keying | On-Off (Discrete) | | 1 | |
| Thrust/Power on Each Engine | Full range forward | ±2% | 1 (per engine) | 0.2% 2. |
| Trailing Edge Flap or Cockpit Control Selection | Full range or each discrete position | ±3° or as pilot's indicator | 0.5 | 0.5% 2. |
| Leading Edge Flap on or Cockpit Control Selection | Full range or each discrete position | ±3° or as pilot's indicator | 0.5 | 0.5% 2. |
| Thrust Reverser Position | Stowed, in transit, and reverse (discretion) | | 1 (per 4 seconds per engine) | |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | resolution 4 read out |
|--|--------------------------------------|---|--------------------------------|----------------------------|
| Ground Spoiler Position/ Speed Brake Selection | Full range or each discrete position | ±2% unless higher accuracy uniquely required | 1 | 0.22 2. |
| Marker Beacon Passage | Discrete | | 1 | |
| Autopilot Engagement | Discrete | | 1 | |
| Longitudinal Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g. |
| Pilot Input And/or Surface Position-Primary Controls (Pitch, Roll, Yaw) 3 | Full range | ±2° unless higher accuracy uniquely required | 1 | 0.2% 2. |
| Lateral Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g. |
| Pitch Trim Position | Full range | ±3% unless higher accuracy uniquely required | 1 | 0.3% 2. |
| Glideslope Deviation | ±400 Microamps | ±3% | 1 | 0.3% 2. |
| Localizer Deviation | ±400 Microamps | ±3% | 1 | 0.3% 2. |
| AFCS Mode And Engagement Status | Discrete | | 1 | |
| Radio Altitude | #20 ft to 2,500 ft | ±2 Ft or ±3% whichever is greater below 500 ft and ±5% above 500 ft | 1 | 1 ft + 5% 2 above 500#. |
| Master Warning | Discrete | | 1 | |
| Main Gear Squat Switch Status | Discrete | | 1 | |
| Angle of Attack (if recorded directly) | As installed | As installed | 2 | 0.3% 2. |
| Outside Air Temperature or Total Air Temperature | #50 °C to + 90 °C | ±2° c | 0.5 | 0.3° c |
| Hydraulics, Each System Low Pressure | Discrete | | 0.5 | or 0.5% 2. |
| Groundspeed | As installed | Most accurate systems installed (IMS equipped aircraft only) | 1 | 0.2% 2. |
| If additional recording capacity is available, recording of the following parameters is recommended. The parameters are listed in order of significance: | | | | |
| Drift Angle | When available. As installed | As installed | 4 | |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | resolution ⁴ read out |
|---|------------------------------|---------------------------------------|--------------------------------|----------------------------------|
| Wind Speed and Direction | When available. As installed | As installed | 4 | |
| Latitude and Longitude | When available. As installed | As installed | 4 | |
| Brake pressure/Brake pedal position | As installed | As installed | 1 | |
| Additional engine parameters: | | | | |
| EPR | As installed | As installed | 1 (per engine) | |
| N ₁ | As installed | As installed | 1 (per engine) | |
| N ₂ | As installed | As installed | 1 (per engine) | |
| EGT | As installed | As installed | 1 (per engine) | |
| Throttle Lever Position | As installed | As installed | 1 (per engine) | |
| Fuel Flow | As installed | As installed | 1 (per engine) | |
| TCAS: | | | | |
| TA | As installed | As installed | 1 | |
| RA | As installed | As installed | 1 | |
| Sensitivity level (as selected by crew) | As installed | As installed | 2 | |
| GPWS (ground proximity warning system) | Discrete | | 1 | |
| Landing gear or gear selector position | Discrete | | 0.25 (1 per 4 seconds) | |
| DME 1 and 2 Distance | 0-200 NM; | As installed | 0.25 | 1mi. |
| Nav 1 and 2 Frequency Selection | Full range | As installed | 0.25 | |

¹ When altitude rate is recorded. Altitude rate must have sufficient resolution and sampling to permit the derivation of altitude to 5 feet.

² Per cent of full range.

³ For airplanes that can demonstrate the capability of deriving either the control input on control movement (one from the other) for all modes of operation and flight regimes, the “or” applies. For airplanes with non-mechanical control systems (fly-by-wire) the “and” applies. In airplanes with split

surfaces, suitable combination of inputs is acceptable in lieu of recording each surface separately.

⁴ This column applies to aircraft manufactured after October 11, 1991.

[Doc. No. 25530, 53 FR 26153, July 11, 1988; 53 FR 30906, Aug. 16, 1988]

Appendix E to Part 135 - Helicopter Flight Recorder Specifications

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution ² read out |
|------------|--------|---------------------------------------|--------------------------------|----------------------------------|
| Time (GMT) | 24 Hrs | ±0.125% Per Hour | 0.25 (1 per 4 seconds) | 1 sec |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution ² read out |
|--|--|---|--------------------------------|--|
| Altitude | #1,000 ft to max certificated altitude of aircraft | ±100 to ±700 ft (See Table 1, TSO-C51a) | 1 | 5# to 30#. |
| Airspeed | As the installed measuring system | ±3% | 1 | 1 kt |
| Heading | 360° | ±2° | 1 | 0.5°. |
| Normal Acceleration (Vertical) | #3g to + 6g | ±1% of max range excluding datum error of ±5% | 8 | 0.01g |
| Pitch Attitude | ±75° | ±2° | 2 | 0.5° |
| Roll Attitude | ±180° | ±2° | 2 | 0.5°. |
| Radio Transmitter Keying | On-Off (Discrete) | | 1 | 0.25 sec |
| Power in Each Engine: Free Power Turbine Speed and Engine Torque | 0-130% (power Turbine Speed) Full range (Torque) | ±2% | 1 speed 1 torque (per engine) | 0.2% ¹ to 0.4% ¹ |
| Main Rotor Speed | 0-130% | ±2% | 2 | 0.3% ¹ |
| Altitude Rate | ±6,000 ft/min | As installed | 2 | 0.2% ¹ |
| Pilot Input - Primary Controls (Collective, Longitudinal Cyclic, Lateral Cyclic, Pedal) ³ | Full range | ±3% | 2 | 0.5% ¹ |
| Flight Control Hydraulic Pressure Low | Discrete, each circuit | | 1 | |
| Flight Control Hydraulic Pressure Selector Switch Position, 1st and 2nd stage | Discrete | | 1 | |
| AFCS Mode and Engagement Status | Discrete (5 bits necessary) | | 1 | |
| Stability Augmentation System Engage | Discrete | | 1 | |
| SAS Fault Status | Discrete | | 0.25 | |
| Main Gearbox Temperature Low | As installed | As installed | 0.25 | 0.5% ¹ |
| Main Gearbox Temperature High | As installed | As installed | 0.5 | 0.5% ¹ |
| Controllable Stabilator Position | Full Range | ±3% | 2 | 0.4% ¹ . |

| Parameters | Range | Accuracy sensor input to DFDR readout | Sampling interval (per second) | Resolution ² read out |
|---------------------------------|------------------|--|--------------------------------|----------------------------------|
| Longitudinal Acceleration | ±1g | ±1.5% max range excluding datum error of ±5% | 4 | 0.01g. |
| Lateral Acceleration | ±1g | ±1.5% max range excluding datum of ±5% | 4 | 0.01g. |
| Master Warning | Discrete | | 1 | |
| Nav 1 and 2 Frequency Selection | Full range | As installed | 0.25 | |
| Outside Air Temperature | #50 °C to +90 °C | ±2° c | 0.5 | 0.3° c |

¹ Per cent of full range.

² This column applies to aircraft manufactured after October 11, 1991.

³ For all aircraft manufactured on or after December 6, 2010, the sampling interval per second is 4.

[Doc. No. 25530, 53 FR 26154, July 11, 1988; 53 FR 30906, Aug. 16, 1988; Amdt. 135-113, 73 FR 12571, Mar. 7, 2008; 73 FR 15281, Mar. 21, 2008; Amdt. 135-121, 75 FR 17047, Apr. 5, 2010]

Appendix F to Part 135 - Airplane Flight Recorder Specification

The recorded values must meet the designated range, resolution and accuracy requirements during static and dynamic conditions. Dynamic condition means the parameter is experiencing change at the maximum rate attainable, including the maximum rate of reversal. All data recorded must be correlated in time to within one second.

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|--|---|------------|---|
| 1. Time or Relative Time Counts 1 | 24 Hrs, 0 to 4095 | ±0.125% Per Hour | 4 | 1 sec | UTC time preferred when available. Counter increments each 4 seconds of system operation. |
| 2. Pressure Altitude | #1000 ft to max certificated altitude of aircraft. + 5000 ft | ±100 to ±700 ft (see table, TSO C124a or TSO C51a) | 1 | 5# to 35# | Data should be obtained from the air data computer when practicable. |
| 3. Indicated airspeed or Calibrated airspeed | 50 KIAS or minimum value to Max V _{so#} and V _{so} to 1.2 V _D | ±5% and ±3% | 1 | 1 kt | Data should be obtained from the air data computer when practicable. |
| 4. Heading (Primary flight crew reference) | 0#360° and Discrete “true” or “mag” | ±2° | 1 | 0.5° | When true or magnetic heading can be selected as the primary heading reference, a discrete indicating selection must be recorded. |
| 5. Normal Acceleration (Vertical) 9 | #3g to +6g | ±1% of max range excluding datum error of ±5% | 0.125 | 0.004g | |
| 6. Pitch Attitude | ±75% | ±2° | 1 or 0.25 for airplanes operated under § 135.152(j) | 0.5° | A sampling rate of 0.25 is recommended. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|-------------------------------|---|--|--------------------|---|
| 7. Roll Attitude 2 | $\pm 180^\circ$ | $\pm 2^\circ$ | 1 or 0.5 0.5 airplanes operated under § 135.152(j) | 0.5° | A sampling rate of 0.5 is recommended. |
| 8. Manual Radio Transmitter Keying or CVR/DFDR synchronization reference | On-Off (Discrete) None | | 1 | | Preferably each crew member but one discrete acceptable for all transmission provided the CVR/FDR system complies with TSO C124a CVR synchronization requirements (paragraph 4.2.1 ED-55). |
| 9. Thrust/Power on each engine - primary flight crew reference | Full Range Forward | $\pm 2\%$ | 1 (per engine) | 0.3% of full range | Sufficient parameters (e.g. EPR, N1 or Torque, NP) as appropriate to the particular engine being recorded to determine power in forward and reverse thrust, including potential overspeed condition. |
| 10. Autopilot Engagement | Discrete "on" or "off" | | 1 | | |
| 11. Longitudinal Acceleration | $\pm 1g$ | $\pm 1.5\%$ max. range excluding datum error of $\pm 5\%$ | 0.25 | 0.004g. | |
| 12a. Pitch control(s) position (nonfly-by-wire systems) 18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 135.152(j) | 0.5% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 12b. Pitch control(s) position (fly-by-wire systems) 3 18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 135.152(j) | 0.2% of full range | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|------------|--|--|--------------------|---|
| 13a. Lateral control position(s) (nonfly-by-wire) 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 135.152(j) | 0.2% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 13b. Lateral control position(s) (fly-by-wire) 4 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 135.152(j) | 0.2% of full range | |
| 14a. Yaw control position(s) (nonfly-by-wire) 5 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 | 0.3% of full range | For airplanes that have a flight control breakaway capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling of 0.5 or 0.25, as applicable. |
| 14b. Yaw control position(s) (fly-by-wire) 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 | 0.2% of full range | |
| 15. Pitch control surface(s) position 6 18 | Full Range | ±2° unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 135.152(j). | 0.3% of full range | For airplanes fitted with multiple or split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5 or 0.25, as applicable. |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|--|--|---|--------------------|--|
| 16. Lateral control surface(s) position 7 18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 or 0.25 for airplanes operated under § 135.152(j) | 0.2% of full range | A suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5 or 0.25, as applicable. |
| 17. Yaw control surface(s) position 8 18 | Full Range | $\pm 2^\circ$ unless higher accuracy uniquely required | 0.5 | 0.2% of full range | For airplanes with multiple or split surfaces, a suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5. |
| 18. Lateral Acceleration | $\pm 1g$ | $\pm 1.5\%$ max. range excluding datum error of $\pm 5\%$ | 0.25 | 0.004g | |
| 19. Pitch Trim Surface Position | Full Range | $\pm 3^\circ$ Unless Higher Accuracy Uniquely Required | 1 | 0.6% of full range | |
| 20. Trailing Edge Flap or Cockpit Control Selection 10 | Full Range or Each Position (discrete) | $\pm 3^\circ$ or as Pilot's Indicator | 2 | 0.5% of full range | Flap position and cockpit control may each be sampled alternately at 4 second intervals, to give a data point every 2 seconds. |
| 21. Leading Edge Flap or Cockpit Control Selection 11 | Full Range or Each Discrete Position | $\pm 3^\circ$ or as Pilot's Indicator and sufficient to determine each discrete position | 2 | 0.5% of full range | Left and right sides, of flap position and cockpit control may each be sampled at 4 second intervals, so as to give a data point to every 2 seconds. |
| 22. Each Thrust reverser Position (or equivalent for propeller airplane) | Stowed, In Transit, and reverse (Discrete) | | 1 (per engine) | | Turbo-jet - 2 discrettes enable the 3 states to be determined |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|---|---|--|------------------------|---|
| | | | | | Turbo-prop - 1 discrete |
| 23. Ground Spoiler Position or Speed Brake Selection 12 | Full Range or Each Position (discrete) | ±2° Unless Higher Accuracy Uniquely Required | 1 or 0.5 for airplanes operated under § 135.152(j) | 0.5% of full range | |
| 24. Outside Air Temperature or Total Air Temperature 13 | #50 °C to + 90 °C | ±2 °C | 2 | 0.3 °C | |
| 25. Autopilot/ Autothrottle/ AFCS Mode and Engagement Status | A suitable combination of discrettes | | 1 | | Discrettes should show which systems are engaged and which primary modes are controlling the flight path and speed of the aircraft. |
| 26. Radio Altitude 14 | #20 ft to 2,500 ft | ±2 ft or ±3% Whichever is Greater Below 500 ft and ±5% Above 500 ft | 1 | 1 ft + 5% above 500 ft | For autoland/ category 3 operations. Each radio altimeter should be recorded, but arranged so that at least one is recorded each second. |
| 27. Localizer Deviation, MLS Azimuth, or GPS Lateral Deviation | ±400 Microamps or available sensor range as installed ±62° | As installed ±3% recommended. | 1 | 0.3% of full range | For autoland/ category 3 operations. Each system should be recorded but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded. |
| 28. Glideslope Deviation, MLS Elevation, or GPS Vertical Deviation | ±400 Microamps or available sensor range as installed 0.9 to + 30° | As installed ±3% recommended | 1 | 0.3% of full range | For autoland/ category 3 operations. Each system should be recorded but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---|---------------------------------|--|-------------------------|---|
| | | | | | only the approach aid in use need be recorded. |
| 29. Marker Beacon Passage | Discrete “on” or “off” | | 1 | | A single discrete is acceptable for all markers. |
| 30. Master Warning | Discrete | | 1 | | Record the master warning and record each “red” warning that cannot be determined from other parameters or from the cockpit voice recorder. |
| 31. Air/ground sensor (primary airplane system reference nose or main gear) | Discrete “air” or “ground” | | 1 (0.25 recommended.) | | |
| 32. Angle of Attack (If measured directly) | As installed | As installed | 2 or 0.5 for airplanes operated under § 135.152(j) | 0.3% of full range | If left and right sensors are available, each may be recorded at 4 or 1 second intervals, as appropriate, so as to give a data point at 2 seconds or 0.5 second, as required. |
| 33. Hydraulic Pressure Low, Each System | Discrete or available sensor range, “low” or “normal” | ±5% | 2 | 0.5% of full range. | |
| 34. Groundspeed | As installed | Most Accurate Systems Installed | 1 | 0.2% of full range. | |
| 35. GPWS (ground proximity warning system) | Discrete “warning” or “off” | | 1 | | A suitable combination of discrettes unless recorder capacity is limited in which case a single discrete for all modes is acceptable. |
| 36. Landing Gear Position or Landing gear cockpit control selection | Discrete | | 4 | | A suitable combination of discrettes should be recorded. |
| 37. Drift Angle 15 | As installed | As installed | 4 | 0.1° | |
| 38. Wind Speed and Direction | As installed | As installed | 4 | 1 knot, and 1.0°. | |
| 39. Latitude and Longitude | As installed | As installed | 4 | 0.002°, or as installed | Provided by the Primary Navigation |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|-----------------------------|-------------------------|-------------------------------|---------------------|--|
| | | | | | System Reference. Where capacity permits latitude/ longitude resolution should be 0.0002°. |
| 40. Stick shaker and pusher activation | Discrete(s) "on" or "off" | | 1 | | A suitable combination of discrettes to determine activation. |
| 41. Windshear Detection | Discrete "warning" or "off" | | 1. | | |
| 42. Throttle/power lever position 16 | Full Range | ±2% | 1 for each lever | 2% of full range | For airplanes with non-mechanically linked cockpit engine controls. |
| 43. Additional Engine Parameters | As installed | As installed | Each engine each second | 2% of full range | Where capacity permits, the preferred priority is indicated vibration level, N2, EGT, Fuel Flow, Fuel Cut-off lever position and N3, unless engine manufacturer recommends otherwise. |
| 44. Traffic Alert and Collision Avoidance System (TCAS) | Discrettes | As installed | 1 | | A suitable combination of discrettes should be recorded to determine the status of - Combined Control, Vertical Control, Up Advisory, and down advisory. (ref. ARINC Characteristic 735 Attachment 6E, TCAS VERTICAL RA DATA OUTPUT WORD.) |
| 45. DME 1 and 2 Distance | 0-200 NM; | As installed | 4 | 1 NM | 1 mile. |
| 46. Nav 1 and 2 Selected Frequency | Full range | As installed | 4 | | Sufficient to determine selected frequency. |
| 47. Selected barometric setting | Full Range | ±5% | (1 per 64 sec.) | 0.2% of full range. | |
| 48. Selected altitude | Full Range | ±5% | 1 | 100 ft. | |
| 49. Selected speed | Full Range | ±5% | 1 | 1 knot. | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|--|---|-------------------------|-------------------------------|-------------------|---|
| 50. Selected Mach | Full Range | ±5% | 1 | .01. | |
| 51. Selected vertical speed | Full Range | ±5% | 1 | 100 ft./min. | |
| 52. Selected heading | Full Range | ±5% | 1 | 1°. | |
| 53. Selected flight path | Full Range | ±5% | 1 | 1°. | |
| 54. Selected decision height | Full Range | ±5% | 64 | 1 ft. | |
| 55. EFIS display format | Discrete(s) | | 4 | | Discretes should show the display system status (e.g., off, normal, fail, composite, sector, plan, nav aids, weather radar, range, copy. |
| 56. Multi-function/ Engine Alerts Display format | Discrete(s) | | 4 | | Discretes should show the display system status (e.g., off, normal, fail, and the identity of display pages for emergency procedures, need not be recorded. |
| 57. Thrust comand 17 | Full Range | ±2% | 2 | 2% of full range | |
| 58. Thrust target | Full Range | ±2% | 4 | 2% of full range. | |
| 59. Fuel quantity in CG trim tank | Full Range | ±5% | (1 per 64 sec.) | 1% of full range. | |
| 60. Primary Navigation System Reference | Discrete GPS, INS, VOR/DME, MLS, Localizer Glideslope | | 4 | | A suitable combination of discretes to determine the Primary Navigation System reference. |
| 61. Ice Detection | Discrete "ice" or "no ice" | | 4. | | |
| 62. Engine warning each engine vibration | Discrete | | 1. | | |
| 63. Engine warning each engine over temp. | Discrete | | 1. | | |
| 64. Engine warning each engine oil pressure low | Discrete | | 1. | | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|---------------------------------------|--|-------------------------------|---------------------|---|
| 65. Engine warning each engine over speed | Discrete | | 1. | | |
| 66. Yaw Trim Surface Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 2 | 0.3% of full range. | |
| 67. Roll Trim Surface Position | Full Range | ±3% Unless Higher Accuracy Uniquely Required | 2 | 0.3% of full range. | |
| 68. Brake Pressure (left and right) | As installed | ±5% | 1 | | To determine braking effort applied by pilots or by autobrakes. |
| 69. Brake Pedal Application (left and right) | Discrete or Analog “applied” or “off” | ±5% (Analog) | 1 | | To determine braking applied by pilots. |
| 70. Yaw or sideslip angle | Full Range | ±5% | 1 | 0.5°. | |
| 71. Engine bleed valve position | Discrete “open” or “closed” | | 4. | | |
| 72. De-icing or anti-icing system selection | Discrete “on” or “off” | | 4. | | |
| 73. Computed center of gravity | Full Range | ±5% | (1 per 64 sec.) | 1% of full range. | |
| 74. AC electrical bus status | Discrete “power” or “off” | | 4 | | Each bus. |
| 75. DC electrical bus status | Discrete “power” or “off” | | 4 | | Each bus. |
| 76. APU bleed valve position | Discrete “open” or “closed” | | 4. | | |
| 77. Hydraulic Pressure (each system) | Full range | ±5% | 2 | 100 psi. | |
| 78. Loss of cabin pressure | Discrete “loss” or “normal” | | 1. | | |
| 79. Computer failure (critical flight and engine control systems) | Discrete “fail” or “normal” | | 4. | | |
| 80. Heads-up display (when an information source is installed) | Discrete(s) “on” or “off” | | 4. | | |
| 81. Para-visual display (when an information source is installed) | Discrete(s) “on” or “off” | | 1. | | |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|---|--|-------------------------|-------------------------------|---------------------|--|
| 82. Cockpit trim control input position - pitch | Full Range | ±5% | 1 | 0.2% of full range | Where mechanical means for control inputs are not available, cockpit display trim positions should be recorded. |
| 83. Cockpit trim control input position - roll | Full Range | ±5% | 1 | 0.7% of full range | Where mechanical means for control inputs are not available, cockpit display trim position should be recorded. |
| 84. Cockpit trim control input position - yaw | Full Range | ±5% | 1 | 0.3% of full range | Where mechanical means for control input are not available, cockpit display trim positions should be recorded. |
| 85. Trailing edge flap and cockpit flap control position | Full Range | ±5% | 2 | 0.5% of full range | Trailing edge flaps and cockpit flap control position may each be sampled alternately at 4 second intervals to provide a sample each 0.5 second. |
| 86. Leading edge flap and cockpit flap control position | Full Range or Discrete | ±5% | 1 | 0.5% of full range. | |
| 87. Ground spoiler position and speed brake selection | Full Range or Discrete | ±5% | 0.5 | 0.3% of full range | |
| 88. All cockpit flight control input forces (control wheel, control column, rudder pedal) 18 | Full Range Control wheel ±70 lbs. Control column ±85 lbs. Rudder pedal ±165 lbs | ±5° | 1 | 0.3% of full range | For fly-by-wire flight control systems, where flight control surface position is a function of the displacement of the control input device only, it is not necessary to record this parameter. For airplanes that have a flight control breakaway capability that allows either pilot to operate the control independently, record both control force inputs. The |

| Parameters | Range | Accuracy (sensor input) | Seconds per sampling interval | Resolution | Remarks |
|------------|-------|-------------------------|-------------------------------|------------|---|
| | | | | | control force inputs may be sampled alternately once per 2 seconds to produce the sampling interval of 1. |

- ¹ For A300 B2/B4 airplanes, resolution = 6 seconds.
- ² For A330/A340 series airplanes, resolution = 0.703°.
- ³ For A318/A319/A320/A321 series airplanes, resolution = 0.275% (0.088°>0.064°). For A330/A340 series airplanes, resolution = 2.20% (0.703°>0.064°).
- ⁴ For A318/A319/A320/A321 series airplanes, resolution = 0.22% (0.088°>0.080°). For A330/A340 series airplanes, resolution = 1.76% (0.703°>0.080°).
- ⁵ For A330/A340 series airplanes, resolution = 1.18% (0.703°>0.120°).
- ⁶ For A330/A340 series airplanes, resolution = 0.783% (0.352°>0.090°).
- ⁷ For A330/A340 series airplanes, aileron resolution = 0.704% (0.352°>0.100°). For A330/A340 series airplanes, spoiler resolution = 1.406% (0.703°>0.100°).
- ⁸ For A330/A340 series airplanes, resolution = 0.30% (0.176°>0.12°). For A330/A340 series airplanes, seconds per sampling interval = 1.
- ⁹ For B-717 series airplanes, resolution = .005g. For Dassault F900C/F900EX airplanes, resolution = .007g.
- ¹⁰ For A330/A340 series airplanes, resolution = 1.05% (0.250°>0.120°).
- ¹¹ For A330/A340 series airplanes, resolution = 1.05% (0.250°>0.120°). For A300 B2/B4 series airplanes, resolution = 0.92% (0.230°>0.125°).
- ¹² For A330/A340 series airplanes, spoiler resolution = 1.406% (0.703°>0.100°).
- ¹³ For A330/A340 series airplanes, resolution = 0.5 °C.
- ¹⁴ For Dassault F900C/F900EX airplanes, Radio Altitude resolution = 1.25 ft.
- ¹⁵ For A330/A340 series airplanes, resolution = 0.352 degrees.
- ¹⁶ For A318/A319/A320/A321 series airplanes, resolution = 4.32%. For A330/A340 series airplanes, resolution is 3.27% of full range for throttle lever angle (TLA); for reverse thrust, reverse throttle lever angle (RLA) resolution is nonlinear over the active reverse thrust range, which is 51.54 degrees to 96.14 degrees. The resolved element is 2.8 degrees uniformly over

the entire active reverse thrust range, or 2.9% of the full range value of 96.14 degrees.

¹⁷ For A318/A319/A320/A321 series airplanes, with IAE engines, resolution = 2.58%.

¹⁸ For all aircraft manufactured on or after December 6, 2010, the seconds per sampling interval is 0.125. Each input must be recorded at this rate. Alternately sampling inputs (interleaving) to meet this sampling interval is prohibited.

[Doc. No. 28109, 62 FR 38398, July 17, 1997; 62 FR 48135, Sept. 12, 1997; Amdt. 135-85, 67 FR 54323, Aug. 21, 2002; Amdt. 135-89, 68 FR 42939, July 18, 2003; 68 FR 50069, Aug. 20, 2003; Amdt. 135-113, 73 FR 12570, Mar. 7, 2008; Amdt. 135-121, 75 FR 17047, Apr. 5, 2010; Amdt. 135-120, 75 FR 7357, Feb. 19, 2010; Docket FAA-2017-0733, Amdt. 135-137, 82 FR 34399, July 25, 2017]

Appendix G to Part 135 - Extended Operations (ETOPS)

G135.1 Definitions.

G135.1.1 Adequate Airport means an airport that an airplane operator may list with approval from the FAA because that airport meets the landing limitations of § 135.385 or is a military airport that is active and operational.

G135.1.2 ETOPS Alternate Airport means an adequate airport that is designated in a dispatch or flight release for use in the event of a diversion during ETOPS. This definition applies to flight planning and does not in any way limit the authority of the pilot in command during flight.

G135.1.3 ETOPS Entry Point means the first point on the route of an ETOPS flight, determined using a one-engine inoperative cruise speed under standard conditions in still air, that is more than 180 minutes from an adequate airport.

G135.1.4 ETOPS Qualified Person means a person, performing maintenance for the certificate holder, who has satisfactorily completed the certificate holder's ETOPS training program.

G135.2 Requirements.

G135.2.1 General. After August 13, 2008, no certificate holder may operate an airplane, other than an all-cargo airplane with more than two engines, outside the continental United States more than 180 minutes flying time (at the one-engine-inoperative cruise speed under standard conditions in still air) from an airport described in § 135.364 unless -

- (a) The certificate holder receives ETOPS approval from the FAA;

(b) The operation is conducted in a multi-engine transport category turbine-powered airplane;

(c) The operation is planned to be no more than 240 minutes flying time (at the one engine inoperative cruise speed under standard conditions in still air) from an airport described in § 135.364; and

(d) The certificate holder meets the requirements of this appendix.

G135.2.2 Required certificate holder experience prior to conducting ETOPS.

Before applying for ETOPS approval, the certificate holder must have at least 12 months experience conducting international operations (excluding Canada and Mexico) with multi-engine transport category turbine-engine powered airplanes. The certificate holder may consider the following experience as international operations:

(a) Operations to or from the State of Hawaii.

(b) For certificate holders granted approval to operate under part 135 or part 121 before February 15, 2007, up to 6 months of domestic operating experience and operations in Canada and Mexico in multi-engine transport category turbojet-powered airplanes may be credited as part of the required 12 months of international experience required by paragraph G135.2.2(a) of this appendix.

(c) ETOPS experience with other aircraft types to the extent authorized by the FAA.

G135.2.3 Airplane requirements. No certificate holder may conduct ETOPS in an airplane that was manufactured after February 17, 2015 unless the airplane meets the standards of § 25.1535.

G135.2.4 Crew information requirements. The certificate holder must ensure that flight crews have in-flight access to current weather and operational information needed to comply with § 135.83, § 135.225, and § 135.229. This includes information on all ETOPS Alternate Airports, all destination alternates, and the destination airport proposed for each ETOPS flight.

G135.2.5 Operational Requirements.

(a) No person may allow a flight to continue beyond its ETOPS Entry Point unless -

(1) The weather conditions at each ETOPS Alternate Airport are forecast to be at or above the operating minima in the certificate holder's operations specifications for that airport when it might be used (from the earliest to the latest possible landing time), and

(3) All ETOPS Alternate Airports within the authorized ETOPS maximum diversion time are reviewed for any changes in conditions that have occurred since dispatch.

(b) In the event that an operator cannot comply with paragraph G135.2.5(a)(1) of this appendix for a specific airport, another ETOPS Alternate Airport must be substituted within the maximum ETOPS diversion time that could be authorized for that flight with weather conditions at or above operating minima.

(c) Pilots must plan and conduct ETOPS under instrument flight rules.

(d) **Time-Limited Systems.** (1) Except as provided in paragraph G135.2.5(d)(3) of this appendix, the time required to fly the distance to each ETOPS Alternate Airport (at the all-engines-operating cruise speed, corrected for wind and temperature) may not exceed the time specified in the Airplane Flight Manual for the airplane's most limiting fire suppression system time required by regulation for any cargo or baggage compartments (if installed), minus 15 minutes.

(2) Except as provided in G135.2.5(d)(3) of this appendix, the time required to fly the distance to each ETOPS Alternate Airport (at the approved one-engine-inoperative cruise speed, corrected for wind and temperature) may not exceed the time specified in the Airplane Flight Manual for the airplane's most time limited system time (other than the airplane's most limiting fire suppression system time required by regulation for any cargo or baggage compartments), minus 15 minutes.

(3) A certificate holder operating an airplane without the Airplane Flight Manual information needed to comply with paragraphs G135.2.5(d)(1) and (d)(2) of this appendix, may continue ETOPS with that airplane until February 17, 2015.

G135.2.6 Communications Requirements.

(a) No person may conduct an ETOPS flight unless the following communications equipment, appropriate to the route to be flown, is installed and operational:

(1) Two independent communication transmitters, at least one of which allows voice communication.

(2) Two independent communication receivers, at least one of which allows voice communication.

(3) Two headsets, or one headset and one speaker.

(b) In areas where voice communication facilities are not available, or are of such poor quality that voice communication is not possible, communication using an alternative system must be substituted.

G135.2.7 Fuel Requirements. No person may dispatch or release for flight an ETOPS flight unless, considering wind and other weather conditions expected, it has the fuel otherwise required by this part and enough fuel to satisfy each of the following requirements:

(a) **Fuel to fly to an ETOPS Alternate Airport.** (1) Fuel to account for rapid decompression and engine failure. The airplane must carry the greater of the following amounts of fuel:

(i) Fuel sufficient to fly to an ETOPS Alternate Airport assuming a rapid decompression at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements of § 135.157;

(ii) Fuel sufficient to fly to an ETOPS Alternate Airport (at the one-engine-inoperative cruise speed under standard conditions in still air) assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by descent to a safe altitude in compliance with the oxygen requirements of § 135.157; or

(iii) Fuel sufficient to fly to an ETOPS Alternate Airport (at the one-engine-inoperative cruise speed under standard conditions in still air) assuming an engine failure at the most critical point followed by descent to the one engine inoperative cruise altitude.

(2) Fuel to account for errors in wind forecasting. In calculating the amount of fuel required by paragraph G135.2.7(a)(1) of this appendix, the certificate holder must increase the actual forecast wind speed by 5% (resulting in an increase in headwind or a decrease in tailwind) to account for any potential errors in wind forecasting. If a certificate holder is not using the actual forecast wind based on a wind model accepted by the FAA, the airplane must carry additional fuel equal to 5% of the fuel required by paragraph G135.2.7(a) of this appendix, as reserve fuel to allow for errors in wind data.

(3) Fuel to account for icing. In calculating the amount of fuel required by paragraph G135.2.7(a)(1) of this appendix, (after completing the wind calculation in G135.2.7(a)(2) of this appendix), the certificate holder must ensure that the airplane carries the greater of the following amounts of fuel in anticipation of possible icing during the diversion:

(i) Fuel that would be burned as a result of airframe icing during 10 percent of the time icing is forecast (including the fuel used by engine and wing anti-ice during this period).

(ii) Fuel that would be used for engine anti-ice, and if appropriate wing anti-ice, for the entire time during which icing is forecast.

(4) Fuel to account for engine deterioration. In calculating the amount of fuel required by paragraph G135.2.7(a)(1) of this appendix (after completing the wind calculation in paragraph G135.2.7(a)(2) of this appendix), the certificate holder must ensure the airplane also carries fuel equal to 5% of the fuel specified above, to account for deterioration in cruise fuel burn performance unless the certificate holder has a program to monitor airplane in-service deterioration to cruise fuel burn performance.

(b) *Fuel to account for holding, approach, and landing.* In addition to the fuel required by paragraph G135.2.7 (a) of this appendix, the airplane must carry fuel sufficient to hold at 1500 feet above field elevation for 15 minutes upon reaching the ETOPS Alternate Airport and then conduct an instrument approach and land.

(c) *Fuel to account for APU use.* If an APU is a required power source, the certificate holder must account for its fuel consumption during the appropriate phases of flight.

G135.2.8 *Maintenance Program Requirements.* In order to conduct an ETOPS flight under § 135.364, each certificate holder must develop and comply with the ETOPS maintenance program as authorized in the certificate holder's operations specifications for each two-engine airplane-engine combination used in ETOPS. This provision does not apply to operations using an airplane with more than two engines. The certificate holder must develop this ETOPS maintenance program to supplement the maintenance program currently

approved for the operator. This ETOPS maintenance program must include the following elements:

(a) *ETOPS maintenance document.* The certificate holder must have an ETOPS maintenance document for use by each person involved in ETOPS. The document must -

- (1) List each ETOPS Significant System,
- (2) Refer to or include all of the ETOPS maintenance elements in this section,
- (3) Refer to or include all supportive programs and procedures,
- (4) Refer to or include all duties and responsibilities, and
- (5) Clearly state where referenced material is located in the certificate holder's document system.

(b) *ETOPS pre-departure service check.* The certificate holder must develop a pre-departure check tailored to their specific operation.

(1) The certificate holder must complete a pre-departure service check immediately before each ETOPS flight.

- (2) At a minimum, this check must:
 - (i) Verify the condition of all ETOPS Significant Systems;
 - (ii) Verify the overall status of the airplane by reviewing applicable maintenance records; and

(iii) Include an interior and exterior inspection to include a determination of engine and APU oil levels and consumption rates.

(3) An appropriately trained maintenance person, who is ETOPS qualified must accomplish and certify by signature ETOPS specific tasks. Before an ETOPS flight may commence, an ETOPS pre-departure service check (PDSC) Signatory Person, who has been authorized by the certificate holder, must certify by signature, that the ETOPS PDSC has been completed.

(4) For the purposes of this paragraph (b) only, the following definitions apply:

(i) ETOPS qualified person: A person is ETOPS qualified when that person satisfactorily completes the operator's ETOPS training program and is authorized by the certificate holder.

(ii) ETOPS PDSC Signatory Person: A person is an ETOPS PDSC Signatory Person when that person is ETOPS Qualified and that person:

(A) When certifying the completion of the ETOPS PDSC in the United States:

- (1) Works for an operator authorized to engage in part 135 or 121 operation or works for a part 145 repair station; and
- (2) Holds a U.S. Mechanic's Certificate with airframe and powerplant ratings.

(B) When certifying the completion of the ETOPS PDSC outside of the U.S. holds a certificate in accordance with § 43.17(c)(1) of this chapter; or

(C) When certifying the completion of the ETOPS PDSC outside the U.S. holds the certificates needed or has the requisite experience or training to return aircraft to service on behalf of an ETOPS maintenance entity.

(iii) ETOPS maintenance entity: An entity authorized to perform ETOPS maintenance and complete ETOPS pre-departure service checks and that entity is:

- (A) Certificated to engage in part 135 or 121 operations;
- (B) Repair station certificated under part 145 of this title; or
- (C) Entity authorized pursuant to § 43.17(c)(2) of this chapter.

(c) *Limitations on dual maintenance.* (1) Except as specified in paragraph G135.2.8(c)(2) of this appendix, the certificate holder may not perform scheduled or unscheduled dual maintenance during the same maintenance visit on the same or a substantially similar ETOPS Significant System listed in the ETOPS maintenance document, if the improper maintenance could result in the failure of an ETOPS Significant System.

(2) In the event dual maintenance as defined in paragraph G135.2.8(c)(1) of this appendix cannot be avoided, the certificate holder may perform maintenance provided:

- (i) The maintenance action on each affected ETOPS Significant System is performed by a different technician, or
- (ii) The maintenance action on each affected ETOPS Significant System is performed by the same technician under the direct supervision of a second qualified individual; and
- (iii) For either paragraph G135.2.8(c)(2)(i) or (ii) of this appendix, a qualified individual conducts a ground verification test and any in-flight verification test required under the program developed pursuant to paragraph G135.2.8(d) of this appendix.

(d) *Verification program.* The certificate holder must develop a program for the resolution of discrepancies that will ensure the effectiveness of maintenance actions taken on ETOPS Significant Systems. The verification program must identify potential problems and verify satisfactory corrective action. The verification program must include ground verification and in-flight verification policy and procedures. The certificate holder must establish procedures to clearly indicate who is going to initiate the verification action and what action is necessary. The verification action may be performed on an ETOPS revenue flight provided the verification action is documented as satisfactorily completed upon reaching the ETOPS entry point.

(e) *Task identification.* The certificate holder must identify all ETOPS-specific tasks. An ETOPS qualified person must accomplish and certify by signature that the ETOPS-specific task has been completed.

(f) *Centralized maintenance control procedures.* The certificate holder must develop procedures for centralized maintenance control for ETOPS.

(g) *ETOPS parts control program.* The certificate holder must develop an ETOPS parts control program to ensure the proper identification of parts used to maintain the configuration of airplanes used in ETOPS.

(h) *Enhanced Continuing Analysis and Surveillance System (E-CASS) program.* A certificate holder's existing CASS must be enhanced to include all elements of the

ETOPS maintenance program. In addition to the reporting requirements of § 135.415 and § 135.417, the program includes reporting procedures, in the form specified in § 135.415(e), for the following significant events detrimental to ETOPS within 96 hours of the occurrence to the certificate holding district office (CHDO):

- (1) IFSDs, except planned IFSDs performed for flight training.
- (2) Diversions and turnbacks for failures, malfunctions, or defects associated with any airplane or engine system.
- (3) Uncommanded power or thrust changes or surges.
- (4) Inability to control the engine or obtain desired power or thrust.
- (5) Inadvertent fuel loss or unavailability, or uncorrectable fuel imbalance in flight.
- (6) Failures, malfunctions or defects associated with ETOPS Significant Systems.
- (7) Any event that would jeopardize the safe flight and landing of the airplane on an ETOPS flight.

(i) *Propulsion system monitoring.* The certificate holder, in coordination with the CHDO, must -

- (1) Establish criteria as to what action is to be taken when adverse trends in propulsion system conditions are detected, and
- (2) Investigate common cause effects or systemic errors and submit the findings to the CHDO within 30 days.

(j) *Engine condition monitoring.* (1) The certificate holder must establish an engine-condition monitoring program to detect deterioration at an early stage and to allow for corrective action before safe operation is affected.

(2) This program must describe the parameters to be monitored, the method of data collection, the method of analyzing data, and the process for taking corrective action.

(3) The program must ensure that engine limit margins are maintained so that a prolonged engine-inoperative diversion may be conducted at approved power levels and in all expected environmental conditions without exceeding approved engine limits. This includes approved limits for items such as rotor speeds and exhaust gas temperatures.

(k) *Oil consumption monitoring.* The certificate holder must develop an engine oil consumption monitoring program to ensure that there is enough oil to complete each ETOPS flight. APU oil consumption must be included if an APU is required for ETOPS. The operator's consumption limit may not exceed the manufacturer's recommendation. Monitoring must be continuous and include oil added at each ETOPS departure point. The program must compare the amount of oil added at each ETOPS departure point with the running average consumption to identify sudden increases.

(l) *APU in-flight start program.* If an APU is required for ETOPS, but is not required to run during the ETOPS portion of the flight, the certificate holder must have a program acceptable to the FAA for cold soak in-flight start and run reliability.

(m) *Maintenance training.* For each airplane-engine combination, the certificate holder must develop a maintenance training program to ensure that it provides training adequate to support ETOPS. It must include ETOPS specific training for all persons involved in ETOPS maintenance that focuses on the special nature of ETOPS. This training must be in addition to the operator's maintenance training program used to qualify individuals for specific airplanes and engines.

(n) *Configuration, maintenance, and procedures (CMP) document.* The certificate holder must use a system to ensure compliance with the minimum requirements set forth in the current version of the CMP document for each airplane-engine combination that has a CMP.

(o) *Reporting.* The certificate holder must report quarterly to the CHDO and the airplane and engine manufacturer for each airplane authorized for ETOPS. The report must provide the operating hours and cycles for each airplane.

G135.2.9 *Delayed compliance date for all airplanes.* A certificate holder need not comply with this appendix for any airplane until August 13, 2008.

[Doc. No. FAA-2002-6717, 72 FR 1885, Jan. 16, 2007, as amended by Amdt. 135-108, 72 FR 7348, Feb. 15, 2007; 72 FR 26542, May 10, 2007; Amdt. 135-112, 73 FR 8798, Feb. 15, 2008; Amdt. 135-115, 73 FR 33882, June 16, 2008]

PART 136 - COMMERCIAL AIR TOURS AND NATIONAL PARKS AIR TOUR MANAGEMENT

Authority:

49 U.S.C. 106(g), 40113, 40119, 44101, 44701, 44701-44702, 44705, 44709-44711, 44713, 44716-44717, 44722, 44901, 44903-44904, 44912, 46105.

Source:

Docket No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002, unless otherwise noted.

Subpart A - National Air Tour Safety Standards

Source:

Docket No. FAA-1998-4521, 72 FR 6912, Feb. 13, 2007, unless otherwise noted.

§ 136.1 Applicability and definitions.

(a) This subpart applies to each person operating or intending to operate a commercial air tour in an airplane or helicopter and, when applicable, to all occupants of the airplane or helicopter engaged in a commercial air tour. When

any requirement of this subpart is more stringent than any other requirement of this chapter, the person operating the commercial air tour must comply with the requirement in this subpart.

(b) As of September 11, 2007, this subpart is applicable to:

(1) Part 121 or 135 operators conducting a commercial air tour and holding a part 119 certificate;

(2) Part 91 operators conducting flights as described in § 119.1(e)(2); and

(3) Part 91 operators conducting flights as described in 14 CFR 91.146

(c) This subpart is not applicable to operations conducted in balloons, gliders (powered or un-powered), parachutes (powered or un-powered), gyroplanes, or airships.

(d) For the purposes of this subpart the following definitions apply:

Commercial Air Tour means a flight conducted for compensation or hire in an airplane or helicopter where a purpose of the flight is sightseeing. The FAA may consider the following factors in determining whether a flight is a commercial air tour for purposes of this subpart:

(1) Whether there was a holding out to the public of willingness to conduct a sightseeing flight for compensation or hire;

(2) Whether the person offering the flight provided a narrative that referred to areas or points of interest on the surface below the route of the flight;

(3) The area of operation;

(4) How often the person offering the flight conducts such flights;

(5) The route of the flight;

(6) The inclusion of sightseeing flights as part of any travel arrangement package;

(7) Whether the flight in question would have been canceled based on poor visibility of the surface below the route of the flight; and

(8) Any other factors that the FAA considers appropriate.

Commercial Air Tour operator means any person who conducts a commercial air tour.

Life preserver means a flotation device used by an aircraft occupant if the aircraft ditches in water. If an inflatable device, it must be un-inflated and ready for its intended use once inflated. In evaluating whether a non-inflatable life preserver is acceptable to the FAA, the operator must demonstrate to the FAA that such a preserver can be used during an evacuation and will allow all passengers to exit the aircraft without blocking the exit. Each occupant must have the physical capacity to wear and inflate the type of device used once briefed by the commercial air tour operator. Seat cushions do not meet this definition.

Raw terrain means any area on the surface, including water, devoid of any person, structure, vehicle, or vessel.

Shoreline means that area of the land adjacent to the water of an ocean, sea, lake, pond, river or tidal basin that is above the high water mark and excludes land areas unsuitable for landing

such as vertical cliffs or land intermittently under water during the particular flight.

Suitable landing area for helicopters means an area that provides the operator reasonable capability to land without damage to equipment or injury to persons. Suitable landing areas must be site-specific, designated by the operator, and accepted by the FAA. These site-specific areas would provide an emergency landing area for a single-engine helicopter or a multiengine helicopter that does not have the capability to reach a safe landing area after an engine power loss.

(e) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this subpart to the extent required to meet that emergency.

§ 136.3 Letters of Authorization.

Operators subject to this subpart who have Letters of Authorization may use the procedures described in 14 CFR 119.51 to amend or have the FAA reconsider those Letters of Authorization.

§ 136.5 Additional requirements for Hawaii.

No person may conduct a commercial air tour in the State of Hawaii unless they comply with the additional requirements and restrictions in appendix A to part 136.

§ 136.7 Passenger briefings.

(a) Before takeoff each pilot in command shall ensure that each passenger has been briefed on the following:

- (1) Procedures for fastening and unfastening seatbelts;
- (2) Prohibition on smoking; and
- (3) Procedures for opening exits and exiting the aircraft.

(b) For flight segments over water beyond the shoreline, briefings must also include:

- (1) Procedures for water ditching;
- (2) Use of required life preservers; and
- (3) Procedures for emergency exit from the aircraft in the event of a water landing.

§ 136.9 Life preservers for over water.

(a) Except as provided in paragraphs (b) or (c) of this section, the operator and pilot in command of commercial air tours over water beyond the shoreline must ensure that each occupant is wearing a life preserver from before takeoff until flight is no longer over water.

(b) The operator and pilot in command of a commercial air tour over water beyond the shoreline must ensure that a life preserver is readily available for its intended use and easily accessible to each occupant if:

- (1) The aircraft is equipped with floats; or
- (2) The airplane is within power-off gliding distance to the shoreline for the duration of the time that the flight is over water.

(3) The aircraft is a multi engine that can be operated with the critical engine inoperative at a weight that will allow it to climb, at least 50 feet a minute, at an altitude of 1,000 feet

above the surface, as provided in the Airplane Flight Manual or the Rotorcraft Flight Manual, as appropriate.

(c) No life preserver is required if the overwater operation is necessary only for takeoff or landing.

§ 136.11 Helicopter floats for over water.

(a) A helicopter used in commercial air tours over water beyond the shoreline must be equipped with fixed floats or an inflatable flotation system adequate to accomplish a safe emergency ditching, if -

- (1) It is a single-engine helicopter; or
- (2) It is a multi-engine helicopter that cannot be operated with the critical engine inoperative at a weight that will allow it to climb, at least 50 feet a minute, at an altitude of 1,000 feet

above the surface, as provided in the Rotorcraft Flight Manual (RFM).

(b) Each helicopter that is required to be equipped with an inflatable flotation system must have:

- (1) The activation switch for the flotation system on one of the primary flight controls, and
- (2) The flotation system armed when the helicopter is over water and is flying at a speed that does not exceed the maximum speed prescribed in the Rotorcraft Flight Manual for flying with the flotation system armed.

(c) Fixed floats or an inflatable flotation system is not required for a helicopter under this section if:

- (1) The helicopter is over water only during the takeoff or landing portion of the flight, or
- (2) The helicopter is operated within power-off gliding distance to the shoreline for the duration of the flight and each occupant is wearing a life preserver from before takeoff until the aircraft is no longer over water.

(d) Air tour operators required to comply with paragraphs (a) and/or (b) of this section must meet these requirements on or before September 5, 2008.

§ 136.13 Helicopter performance plan and operations.

(a) Each operator must complete a performance plan before each helicopter commercial air tour, or flight operated under 14 CFR 91.146 or 91.147. The pilot in command must review for accuracy and comply with the performance plan on the day the flight is flown. The performance plan must be based on the information in the Rotorcraft Flight Manual (RFM) for that helicopter, taking into consideration the maximum density altitude for which the operation is planned, in order to determine:

- (1) Maximum gross weight and center of gravity (CG) limitations for hovering in ground effect;
- (2) Maximum gross weight and CG limitations for hovering out of ground effect; and
- (3) Maximum combination of weight, altitude, and temperature for which height/velocity information in the RFM is valid.

(b) Except for the approach to and transition from a hover for the purpose of takeoff and landing, or during takeoff and landing, the pilot in command must make a reasonable plan to operate the helicopter outside of the caution/warning/avoid area of the limiting height/velocity diagram.

(c) Except for the approach to and transition from a hover for the purpose of takeoff and landing, during takeoff and landing, or when necessary for safety of flight, the pilot in command must operate the helicopter in compliance with the plan described in paragraph (b) of this section.

§§ 136.15-136.29 [Reserved]

Subpart B - National Parks Air Tour Management

Source:

Docket No. FAA-1998-4521, 72 FR 6912, Feb. 13, 2007, unless otherwise noted.

§ 136.31 Applicability.

(a) This part restates and paraphrases several sections of the National Parks Air Tour Management Act of 2000, including section 803 (codified at 49 U.S.C. 40128) and sections 806 and 809. This subpart clarifies the requirements for the development of an air tour management plan for each park in the national park system where commercial air tour operations are flown.

(b) Except as provided in paragraph (c) of this section, this subpart applies to each commercial air tour operator who conducts a commercial air tour operation over -

- (1) A unit of the national park system;
- (2) Tribal lands as defined in this subpart; or
- (3) Any area within one-half mile outside the boundary of any unit of the national park system.

(c) This subpart does not apply to a commercial air tour operator conducting a commercial air tour operation -

- (1) Over the Grand Canyon National Park;
- (2) Over that portion of tribal lands within or abutting the Grand Canyon National Park;
- (3) Over any land or waters located in the State of Alaska;

or

(4) While flying over or near the Lake Mead Recreation Area, solely as a transportation route, to conduct a commercial air tour over the Grand Canyon National Park.

[Doc. No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002. Redesignated and amended by Amdt. 136-1, 72 FR 6912, Feb. 13, 2007]

§ 136.33 Definitions.

For purposes of this subpart -

(a) *Commercial air tour operator* means any person who conducts a commercial air tour operation.

(b) *Existing commercial air tour operator* means a commercial air tour operator that was actively engaged in the business of providing commercial air tour operations over a national park at any time during the 12-month period ending on April 5, 2000.

(c) *New entrant commercial air tour operator* means a commercial air tour operator that -

(1) Applies for operating authority as a commercial air tour operator for a national park or tribal lands; and

(2) Has not engaged in the business of providing commercial air tour operations over the national park or tribal lands for the 12-month period preceding enactment.

(d) *Commercial air tour operation* -

(1) Means any flight, conducted for compensation or hire in a powered aircraft where a purpose of the flight is sightseeing over a national park, within mile outside the boundary of any national park, or over tribal lands, during which the aircraft flies -

(i) Below 5,000 feet above ground level (except for the purpose of takeoff or landing, or as necessary for the safe operation of an aircraft as determined under the rules and regulations of the Federal Aviation Administration requiring the pilot-in-command to take action to ensure the safe operation of the aircraft);

(ii) Less than 1 mile laterally from any geographic feature within the park (unless more than mile outside the boundary); or

(iii) Except as provided in § 136.35.

(2) The Administrator may consider the following factors in determining whether a flight is a commercial air tour operation for purposes of this subpart -

(i) Whether there was a holding out to the public of willingness to conduct a sightseeing flight for compensation or hire;

(ii) Whether a narrative that referred to areas or points of interest on the surface below the route of the flight was provided by the person offering the flight;

(iii) The area of operation;

(iv) The frequency of flights conducted by the person offering the flight;

(v) The route of flight;

(vi) The inclusion of sightseeing flights as part of any travel arrangement package offered by the person offering the flight;

(vii) Whether the flight would have been canceled based on poor visibility of the surface below the route of the flight; and

(viii) Any other factors that the Administrator and Director consider appropriate.

(3) For purposes of § 136.35, means any flight conducted for compensation or hire in a powered aircraft where a purpose of the flight is sightseeing over a national park.

(e) *National park* means any unit of the national park system. (See title 16 of the U.S. Code, section 1, *et seq.*)

(f) *Tribal lands* means that portion of Indian country (as that term is defined in section 1151 of title 18 of the U.S. Code) that is within or abutting a national park.

(g) *Administrator* means the Administrator of the Federal Aviation Administration.

(h) *Director* means the Director of the National Park Service.

(i) *Superintendent* means the duly appointed representative of the National Park Service for a particular unit of the national park system.

[Doc. No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002. Redesignated and amended by Amdt. 136-1, 72 FR 6912, Feb. 13, 2007; Amdt. 136-1, 72 FR 31450, June 7, 2007]

§ 136.35 Prohibition of commercial air tour operations over the Rocky Mountain National Park.

All commercial air tour operations in the airspace over the Rocky Mountain National Park are prohibited regardless of altitude.

[Doc. No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002. Redesignated by Amdt. 136-1, 72 FR 6912, Feb. 13, 2007]

§ 136.37 Overflights of national parks and tribal lands.

(a) *General.* A commercial air tour operator may not conduct commercial air tour operations over a national park or tribal land except -

(1) In accordance with this section;

(2) In accordance with conditions and limitations prescribed for that operator by the Administrator; and

(3) In accordance with any applicable air tour management plan for the park or tribal lands.

(b) *Application for operating authority.* Before commencing commercial air tour operations over a national park or tribal lands, a commercial air tour operator shall apply to the Administrator for authority to conduct the operations over the park or tribal lands.

(c) *Number of operations authorized.* In determining the number of authorizations to issue to provide commercial air tour operations over a national park, the Administrator, in cooperation with the Director, shall take into consideration the provisions of the air tour management plan, the number of existing commercial air tour operators and current level of service and equipment provided by any such operators, and the financial viability of each commercial air tour operation.

(d) *Cooperation with National Park Service.* Before granting an application under this subpart, the Administrator, in cooperation with the Director, shall develop an air tour management plan in accordance with § 136.39 and implement such a plan.

(e) *Time limit on response to applications.* Every effort will be made to act on any application under this subpart and issue a decision on the application not later than 24 months after it is received or amended.

(f) *Priority.* In acting on applications under this paragraph to provide commercial air tour operations over a national park, the Administrator shall give priority to an application under

this paragraph in any case where a new entrant commercial air tour operator is seeking operating authority with respect to that national park.

(g) *Exception.* Notwithstanding this section, commercial air tour operators may conduct commercial air tour operations over a national park under part 91 of this chapter if -

(1) Such activity is permitted under part 119 of this chapter;

(2) The operator secures a letter of agreement from the Administrator and the Superintendent for that park describing the conditions under which the operations will be conducted; and

(3) The number of operations under this exception is limited to not more than a total of 5 flights by all operators in any 30-day period over a particular park.

(h) *Special rule for safety requirement.* Notwithstanding § 136.41, an existing commercial air tour operator shall apply, not later than January 23, 2003 for operating authority under part 119 of this chapter, for certification under part 121 or part 135 of this chapter. A new entrant commercial air tour operator shall apply for such authority before conducting commercial air tour operations over a national park or tribal lands that are within or abut a national park. The Administrator shall make every effort to act on such application for a new entrant and issue a decision on the application not later than 24 months after it is received or amended.

[Doc. No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002. Redesignated and amended by Amdt. 136-1, 72 FR 6912, Feb. 13, 2007; Amdt. 136-1, 72 FR 31450, June 7, 2007]

§ 136.39 Air tour management plans (ATMP).

(a) *Establishment.* The Administrator, in cooperation with the Director, shall establish an air tour management plan for any national park or tribal land for which such a plan is not in effect whenever a person applies for authority to conduct a commercial air tour operation over the park. The air tour management plan shall be developed by means of a public process in accordance with paragraph (d) of this section. The objective of any air tour management plan is to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tour operations upon the natural and cultural resources, visitor experiences, and tribal lands.

(b) *Environmental determination.* In establishing an air tour management plan under this section, the Administrator and the Director shall each sign the environmental decision document required by section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332) which may include a finding of no significant impact, an environmental assessment, or an environmental impact statement and the record of decision for the air tour management plan.

(c) *Contents.* An air tour management plan for a park -

(1) May prohibit commercial air tour operations in whole or in part;

(2) May establish conditions for the conduct of commercial air tour operations, including, but not limited to, commercial air tour routes, maximum number of flights per unit of time, maximum and minimum altitudes, time of day restrictions, restrictions for particular events, intrusions on privacy on tribal lands, and mitigation of noise, visual, or other impacts;

(3) Shall apply to all commercial air tour operations within mile outside the boundary of a national park;

(4) Shall include incentives (such as preferred commercial air tour routes and altitudes, and relief from caps and curfews) for the adoption of quiet technology aircraft by commercial air tour operators conducting commercial air tour operations at the park;

(5) Shall provide for the initial allocation of opportunities to conduct commercial air tour operations if the plan includes a limitation on the number of commercial air tour operations for any time period; and

(6) Shall justify and document the need for measures taken pursuant to paragraphs (c)(1) through (c)(5) of this section and include such justification in the record of decision.

(d) *Procedure.* In establishing an ATMP for a national park or tribal lands, the Administrator and Director shall -

(1) Hold at least one public meeting with interested parties to develop the air tour management plan;

(2) Publish the proposed plan in the Federal Register for notice and comment and make copies of the proposed plan available to the public;

(3) Comply with the regulations set forth in 40 CFR 1501.3 and 1501.5 through 1501.8 (for the purposes of complying with 40 CFR 1501.3 and 1501.5 through 1501.8, the Federal Aviation Administration is the lead agency and the National Park Service is a cooperating agency); and

(4) Solicit the participation of any Indian tribe whose tribal lands are, or may be, overflowed by aircraft involved in a commercial air tour operation over the park or tribal lands to which the plan applies, as a cooperating agency under the regulations referred to in paragraph (d)(3) of this section.

(e) *Amendments.* The Administrator, in cooperation with the Director, may make amendments to an air tour management plan. Any such amendments will be published in the Federal Register for notice and comment. A request for amendment of an ATMP will be made in accordance with § 11.25 of this chapter as a petition for rulemaking.

[Doc. No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002. Redesignated by Amdt. 136-1, 72 FR 6912, Feb. 13, 2007]

§ 136.41 Interim operating authority.

(a) *General.* Upon application for operating authority, the Administrator shall grant interim operating authority under this section to a commercial air tour operator for commercial air tour operations over a national park or tribal land for which the operator is an existing commercial air tour operator.

(b) *Requirements and limitations.* Interim operating authority granted under this section -

(1) Shall provide annual authorization only for the greater of -

(i) The number of flights used by the operator to provide the commercial air tour operations within the 12-month period prior to April 5, 2000; or

(ii) The average number of flights per 12-month period used by the operator to provide such operations within the 36-month period prior to April 5, 2000, and for seasonal operations, the number of flights so used during the season or seasons covered by that 12-month period;

(2) May not provide for an increase in the number of commercial air tour operations conducted during any time period by the commercial air tour operator above the number the air tour operator was originally granted unless such an increase is agreed to by the Administrator and the Director;

(3) Shall be published in the Federal Register to provide notice and opportunity for comment;

(4) May be revoked by the Administrator for cause;

(5) Shall terminate 180 days after the date on which an air tour management plan is established for the park and tribal lands;

(6) Shall promote protection of national park resources, visitor experiences, and tribal lands;

(7) Shall promote safe commercial air tour operations;

(8) Shall promote the adoption of quiet technology, as appropriate, and

(9) Shall allow for modifications of the interim operating authority based on experience if the modification improves protection of national park resources and values and of tribal lands.

(c) *New entrant operators.* The Administrator, in cooperation with the Director, may grant interim operating authority under this paragraph (c) to an air tour operator for a national park or tribal lands for which that operator is a new entrant air tour operator if the Administrator determines the authority is necessary to ensure competition in the provision of commercial air tour operations over the park or tribal lands.

(1) *Limitation.* The Administrator may not grant interim operating authority under this paragraph (c) if the Administrator determines that it would create a safety problem at the park or on the tribal lands, or if the Director determines that it would create a noise problem at the park or on the tribal lands.

(2) *ATMP limitation.* The Administrator may grant interim operating authority under this paragraph (c) only if the ATMP for the park or tribal lands to which the application relates has not been developed within 24 months after April 5, 2000.

[Doc. No. FAA-2001-8690, 67 FR 65667, Oct. 25, 2002. Redesignated by Amdt. 136-1, 72 FR 6912, Feb. 13, 2007]

§§ 136.43-136.49 [Reserved]

Subpart C - Grand Canyon National Park

§§ 136.51-136.69 [Reserved]

Appendix A to Part 136 - Special Operating Rules for Air Tour Operators in the State of Hawaii

Section 1. Applicability. This appendix prescribes operating rules for airplane and helicopter visual flight rules air tour flights conducted in the State of Hawaii under 14 CFR parts 91, 121, and 135. This appendix does not apply to:

(a) Operations conducted under 14 CFR part 121 in airplanes with a passenger seating configuration of more than 30 seats or a payload capacity of more than 7,500 pounds.

(b) Flights conducted in gliders or hot air balloons.

Section 2. Definitions. For the purposes of this appendix:

“Air tour” means any sightseeing flight conducted under visual flight rules in an airplane or helicopter for compensation or hire.

“Air tour operator” means any person who conducts an air tour.

Section 3. Helicopter flotation equipment. No person may conduct an air tour in Hawaii in a single-engine helicopter beyond the shore of any island, regardless of whether the helicopter is within gliding distance of the shore, unless:

(a) The helicopter is amphibious or is equipped with floats adequate to accomplish a safe emergency ditching and approved flotation gear is easily accessible for each occupant; or

(b) Each person on board the helicopter is wearing approved flotation gear.

Section 4. Helicopter performance plan. Each operator must complete a performance plan before each helicopter air tour flight. The performance plan must be based on the information in the Rotorcraft Flight Manual (RFM), considering the maximum density altitude for which the operation is planned for the flight to determine the following:

(a) Maximum gross weight and center of gravity (CG) limitations for hovering in ground effect;

(b) Maximum gross weight and CG limitations for hovering out of ground effect; and,

(c) Maximum combination of weight, altitude, and temperature for which height-velocity information in the RFM is valid.

The pilot in command (PIC) must comply with the performance plan.

Section 5. Helicopter Operating Limitations. Except for approach to and transition from a hover, and except for the purpose of takeoff and landing, the PIC shall operate the helicopter at a combination of height and forward speed (including hover) that would permit a safe landing in event of engine power loss, in accordance with the height-speed

envelope for that helicopter under current weight and aircraft altitude.

Section 6. Minimum flight altitudes. Except when necessary for takeoff and landing, or operating in compliance with an air traffic control clearance, or as otherwise authorized by the Administrator, no person may conduct an air tour in Hawaii:

(a) Below an altitude of 1,500 feet above the surface over all areas of the State of Hawaii, and,

(b) Closer than 1,500 feet to any person or property; or,

(c) Below any altitude prescribed by federal statute or regulation.

Section 7. Passenger briefing. Before takeoff, each PIC of an air tour flight of Hawaii with a flight segment beyond the ocean shore of any island shall ensure that each passenger has been briefed on the following, in addition to requirements set forth in 14 CFR 91.107, 121.571, or 135.117:

(a) Water ditching procedures;

(b) Use of required flotation equipment; and

(c) Emergency egress from the aircraft in event of a water landing.

[Doc. No. FAA-1998-4521, 72 FR 6914, Feb. 13, 2007]

PART 137 - AGRICULTURAL AIRCRAFT OPERATIONS**Authority:**

49 U.S.C. 106(g), 40103, 40113, 44701-44702.

Source:

Docket No. 1464, 30 FR 8106, June 24, 1965, unless otherwise noted.

Subpart A - General**§ 137.1 Applicability.**

(a) This part prescribes rules governing -

(1) Agricultural aircraft operations within the United States; and

(2) The issue of commercial and private agricultural aircraft operator certificates for those operations.

(b) In a public emergency, a person conducting agricultural aircraft operations under this part may, to the extent necessary, deviate from the operating rules of this part for relief and welfare activities approved by an agency of the United States or of a State or local government.

(c) Each person who, under the authority of this section, deviates from a rule of this part shall, within 10 days after the deviation send to the nearest FAA Flight Standards District Office a complete report of the aircraft operation involved, including a description of the operation and the reasons for it.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-13, 54 FR 39294, Sept. 25, 1989]

§ 137.3 Definition of terms.

For the purposes of this part -

Agricultural aircraft operation means the operation of an aircraft for the purpose of (1) dispensing any economic poison, (2) dispensing any other substance intended for plant nourishment, soil treatment, propagation of plant life, or pest control, or (3) engaging in dispensing activities directly affecting agriculture, horticulture, or forest preservation, but not including the dispensing of live insects.

Economic poison means (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary of Agriculture shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-3, 33 FR 9601, July 2, 1968]

Subpart B - Certification Rules

§ 137.11 Certificate required.

(a) Except as provided in paragraphs (c) and (d) of this section, no person may conduct agricultural aircraft operations without, or in violation of, an agricultural aircraft operator certificate issued under this part.

(b) Notwithstanding part 133 of this chapter, an operator may, if he complies with this part, conduct agricultural aircraft operations with a rotorcraft with external dispensing equipment in place without a rotorcraft external-load operator certificate.

(c) A Federal, State, or local government conducting agricultural aircraft operations with public aircraft need not comply with this subpart.

(d) The holder of a rotorcraft external-load operator certificate under part 133 of this chapter conducting an agricultural aircraft operation, involving only the dispensing of water on forest fires by rotorcraft external-load means, need not comply with this subpart.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-3, 33 FR 9601, July 2, 1968; Amdt. 137-6, 41 FR 35060, Aug. 19, 1976]

§ 137.15 Application for certificate.

An application for an agricultural aircraft operator certificate is made on a form and in a manner prescribed by the Administrator, and filed with the FAA Flight Standards District Office that has jurisdiction over the area in which the applicant's home base of operations is located.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-13, 54 FR 39294, Sept. 25, 1989]

§ 137.17 Amendment of certificate.

(a) An agricultural aircraft operator certificate may be amended -

(1) On the Administrator's own initiative, under section 609 of the Federal Aviation Act of 1958 (49 U.S.C. 1429) and part 13 of this chapter; or

(2) Upon application by the holder of that certificate.

(b) An application to amend an agricultural aircraft operator certificate is submitted on a form and in a manner prescribed by the Administrator. The applicant must file the application with the FAA Flight Standards District Office having jurisdiction over the area in which the applicant's home base of operations is located at least 15 days before the date that it proposes the amendment become effective, unless a shorter filing period is approved by that office.

(c) The Flight Standards District Office grants a request to amend a certificate if it determines that safety in air commerce and the public interest so allow.

(d) Within 30 days after receiving a refusal to amend, the holder may petition the Director, Flight Standards Service, to reconsider the refusal.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-9, 43 FR 52206, Nov. 9, 1978; Amdt. 137-11, 45 FR 47838, July 17, 1980; Amdt. 137-13, 54 FR 39294, Sept. 25, 1989]

§ 137.19 Certification requirements.

(a) *General.* An applicant for a private agricultural aircraft operator certificate is entitled to that certificate if he shows that he meets the requirements of paragraphs (b), (d), and (e) of this section. An applicant for a commercial agricultural aircraft operator certificate is entitled to that certificate if he shows that he meets the requirements of paragraphs (c), (d), and (e) of this section. However, if an applicant applies for an agricultural aircraft operator certificate containing a prohibition against the dispensing of economic poisons, that applicant is not required to demonstrate the knowledge required in paragraphs (e)(1) (ii) through (iv) of this section.

(b) *Private operator - pilot.* The applicant must hold a current U.S. private, commercial, or airline transport pilot certificate and be properly rated for the aircraft to be used.

(c) *Commercial operator - pilots.* The applicant must have available the services of at least one person who holds a current U.S. commercial or airline transport pilot certificate and who is properly rated for the aircraft to be used. The applicant himself may be the person available.

(d) *Aircraft.* The applicant must have at least one certificated and airworthy aircraft, equipped for agricultural operation.

(e) *Knowledge and skill tests.* The applicant must show, or have the person who is designated as the chief supervisor of agricultural aircraft operations for him show, that he has satisfactory knowledge and skill regarding agricultural aircraft

operations, as described in paragraphs (e) (1) and (2) of this section.

(1) The test of knowledge consists of the following:

(i) Steps to be taken before starting operations, including survey of the area to be worked.

(ii) Safe handling of economic poisons and the proper disposal of used containers for those poisons.

(iii) The general effects of economic poisons and agricultural chemicals on plants, animals, and persons, with emphasis on those normally used in the areas of intended operations; and the precautions to be observed in using poisons and chemicals.

(iv) Primary symptoms of poisoning of persons from economic poisons, the appropriate emergency measures to be taken, and the location of poison control centers.

(v) Performance capabilities and operating limitations of the aircraft to be used.

(vi) Safe flight and application procedures.

(2) The test of skill consists of the following maneuvers that must be shown in any of the aircraft specified in paragraph (d) of this section, and at that aircraft's maximum certificated take-off weight, or the maximum weight established for the special purpose load, whichever is greater:

(i) Short-field and soft-field takeoffs (airplanes and gyroplanes only).

(ii) Approaches to the working area.

(iii) Flare-outs.

(iv) Swath runs.

(v) Pullups and turnarounds.

(vi) Rapid deceleration (quick stops) in helicopters only.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-1, 30 FR 15143, Dec. 8, 1965; Amdt. 137-7, 43 FR 22643, May 25, 1978]

§ 137.21 Duration of certificate.

An agricultural aircraft operator certificate is effective until it is surrendered, suspended, or revoked. The holder of an agricultural aircraft operator certificate that is suspended or revoked shall return it to the Administrator.

§ 137.23 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

If the holder of a certificate issued under this part permits any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of § 91.19(a) of this chapter, that operation is a basis for suspending or revoking the certificate.

[Doc. No. 12035, 38 FR 17493, July 2, 1973, as amended by Amdt. 137-12, 54 FR 34332, Aug. 18, 1989]

Subpart C - Operating Rules

§ 137.29 General.

(a) Except as provided in paragraphs (d) and (e) of this section, this subpart prescribes rules that apply to persons and aircraft used in agricultural aircraft operations conducted under this part.

(b) [Reserved]

(c) The holder of an agricultural aircraft operator certificate may deviate from the provisions of part 91 of this chapter without a certificate of waiver, as authorized in this subpart for dispensing operations, when conducting nondispensing aerial work operations related to agriculture, horticulture, or forest preservation in accordance with the operating rules of this subpart.

(d) Sections 137.31 through 137.35, §§ 137.41, and 137.53 through 137.59 do not apply to persons and aircraft used in agricultural aircraft operations conducted with public aircraft.

(e) Sections 137.31 through 137.35, §§ 137.39, 137.41, 137.51 through 137.59, and subpart D do not apply to persons and rotorcraft used in agricultural aircraft operations conducted by a person holding a certificate under part 133 of this chapter and involving only the dispensing of water on forest fires by rotorcraft external-load means. However, the operation shall be conducted in accordance with -

(1) The rules of part 133 of this chapter governing rotorcraft external-load operations; and

(2) The operating rules of this subpart contained in §§ 137.29, 137.37, and §§ 137.43 through 137.49.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-3, 33 FR 9601, July 2, 1968; Amdt. 137-6, 41 FR 35060, Aug. 19, 1976]

§ 137.31 Aircraft requirements.

No person may operate an aircraft unless that aircraft -

(a) Meets the requirements of § 137.19(d); and

(b) Is equipped with a suitable and properly installed shoulder harness for use by each pilot.

§ 137.33 Carrying of certificate.

(a) No person may operate an aircraft unless a facsimile of the agricultural aircraft operator certificate, under which the operation is conducted, is carried on that aircraft. The facsimile shall be presented for inspection upon the request of the Administrator or any Federal, State, or local law enforcement officer.

(b) Notwithstanding part 91 of this chapter, the registration and airworthiness certificates issued for the aircraft need not be carried in the aircraft. However, when those certificates are not carried in the aircraft they shall be kept available for inspection at the base from which the dispensing operation is conducted.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-3, 33 FR 9601, July 2, 1968]

§ 137.35 Limitations on private agricultural aircraft operator.

No person may conduct an agricultural aircraft operation under the authority of a private agricultural aircraft operator certificate -

- (a) For compensation or hire;
- (b) Over a congested area; or
- (c) Over any property unless he is the owner or lessee of the property, or has ownership or other property interest in the crop located on that property.

§ 137.37 Manner of dispensing.

No persons may dispense, or cause to be dispensed, from an aircraft, any material or substance in a manner that creates a hazard to persons or property on the surface.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-3, 33 FR 9601, July 2, 1968]

§ 137.39 Economic poison dispensing.

(a) Except as provided in paragraph (b) of this section, no person may dispense or cause to be dispensed from an aircraft, any economic poison that is registered with the U.S. Department of Agriculture under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135-135k) -

- (1) For a use other than that for which it is registered;
- (2) Contrary to any safety instructions or use limitations on its label; or
- (3) In violation of any law or regulation of the United States.

(b) This section does not apply to any person dispensing economic poisons for experimental purposes under -

- (1) The supervision of a Federal or State agency authorized by law to conduct research in the field of economic poisons; or
- (2) A permit from the U.S. Department of Agriculture issued pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135-135k).

[Amdt. 137-2, 31 FR 6686, May 5, 1966]

§ 137.40 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no certificate holder may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

- (1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and
- (2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the certificate holder.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a certificate holder in a matter before the agency if the individual makes any written or oral communication on behalf of the certificate holder to the agency (or any of its officers or

employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a certificate holder from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual was employed by the certificate holder before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52236, Aug. 22, 2011]

§ 137.41 Personnel.

(a) *Information.* The holder of an agricultural aircraft operator certificate shall insure that each person used in the holder's agricultural aircraft operation is informed of that person's duties and responsibilities for the operation.

(b) *Supervisors.* No person may supervise an agricultural aircraft operation unless he has met the knowledge and skill requirements of § 137.19(e).

(c) *Pilot in command.* No person may act as pilot in command of an aircraft unless he holds a pilot certificate and rating prescribed by § 137.19 (b) or (c), as appropriate to the type of operation conducted. In addition, he must demonstrate to the holder of the Agricultural Aircraft Operator Certificate conducting the operation that he has met the knowledge and skill requirements of § 137.19(e). If the holder of that certificate has designated a person under § 137.19(e) to supervise his agricultural aircraft operations the demonstration must be made to the person so designated. However, a demonstration of the knowledge and skill requirement is not necessary for any pilot in command who -

(1) Is, at the time of the filing of an application by an agricultural aircraft operator, working as a pilot in command for that operator; and

(2) Has a record of operation under that applicant that does not disclose any question regarding the safety of his flight operations or his competence in dispensing agricultural materials or chemicals.

§ 137.42 Fastening of safety belts and shoulder harnesses.

No person may operate an aircraft in operations required to be conducted under part 137 without a safety belt and shoulder harness properly secured about that person except that the shoulder harness need not be fastened if that person would be unable to perform required duties with the shoulder harness fastened.

[Amdt. 137-10, 44 FR 61325, Oct. 25, 1979]

§ 137.43 Operations in controlled airspace designated for an airport.

(a) Except for flights to and from a dispensing area, no person may operate an aircraft within the lateral boundaries of the surface area of Class D airspace designated for an airport unless authorization for that operation has been obtained from the ATC facility having jurisdiction over that area.

(b) No person may operate an aircraft in weather conditions below VFR minimums within the lateral boundaries of a Class E airspace area that extends upward from the surface unless authorization for that operation has been obtained from the ATC facility having jurisdiction over that area.

(c) Notwithstanding § 91.157(b)(4) of this chapter, an aircraft may be operated under the special VFR weather minimums without meeting the requirements prescribed therein.

[Amdt. 137-14, 56 FR 65664, Dec. 17, 1991, as amended by Amdt. 137-14, 58 FR 32840, June 14, 1993; 74 FR 13099, Mar. 26, 2009]

§ 137.45 Nonobservance of airport traffic pattern.

Notwithstanding part 91 of this chapter, the pilot in command of an aircraft may deviate from an airport traffic pattern when authorized by the control tower concerned. At an airport without a functioning control tower, the pilot in command may deviate from the traffic pattern if -

(a) Prior coordination is made with the airport management concerned;

(b) Deviations are limited to the agricultural aircraft operation;

(c) Except in an emergency, landing and takeoffs are not made on ramps, taxiways, or other areas of the airport not intended for such use; and

(d) The aircraft at all times remains clear of, and gives way to, aircraft conforming to the traffic pattern for the airport.

§ 137.47 Operation without position lights.

Notwithstanding part 91 of this chapter, an aircraft may be operated without position lights if prominent unlighted objects are visible for at least 1 mile and takeoffs and landings at -

(a) Airports with a functioning control tower are made only as authorized by the control tower operator; and

(b) Other airports are made only with the permission of the airport management and no other aircraft operations requiring position lights are in progress at that airport.

§ 137.49 Operations over other than congested areas.

Notwithstanding part 91 of this chapter, during the actual dispensing operation, including approaches, departures, and turnarounds reasonably necessary for the operation, an aircraft may be operated over other than congested areas below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are

conducted without creating a hazard to persons or property on the surface.

[Amdt. 137-3, 33 FR 9601, July 2, 1968]

§ 137.51 Operation over congested areas: General.

(a) Notwithstanding part 91 of this chapter, an aircraft may be operated over a congested area at altitudes required for the proper accomplishment of the agricultural aircraft operation if the operation is conducted -

(1) With the maximum safety to persons and property on the surface, consistent with the operation; and

(2) In accordance with the requirements of paragraph (b) of this section.

(b) No person may operate an aircraft over a congested area except in accordance with the requirements of this paragraph.

(1) Prior written approval must be obtained from the appropriate official or governing body of the political subdivision over which the operations are conducted.

(2) Notice of the intended operation must be given to the public by some effective means, such as daily newspapers, radio, television, or door-to-door notice.

(3) A plan for each complete operation must be submitted to, and approved by appropriate personnel of the FAA Flight Standards District Office having jurisdiction over the area where the operation is to be conducted. The plan must include consideration of obstructions to flight; the emergency landing capabilities of the aircraft to be used; and any necessary coordination with air traffic control.

(4) Single engine aircraft must be operated as follows:

(i) Except for helicopters, no person may take off a loaded aircraft, or make a turnaround over a congested area.

(ii) No person may operate an aircraft over a congested area below the altitudes prescribed in part 91 of this chapter except during the actual dispensing operation, including the approaches and departures necessary for that operation.

(iii) No person may operate an aircraft over a congested area during the actual dispensing operation, including the approaches and departures for that operation, unless it is operated in a pattern and at such an altitude that the aircraft can land, in an emergency, without endangering persons or property on the surface.

(5) Multiengine aircraft must be operated as follows:

(i) No person may take off a multiengine airplane over a congested area except under conditions that will allow the airplane to be brought to a safe stop within the effective length of the runway from any point on takeoff up to the time of attaining, with all engines operating at normal takeoff power, 105 percent of the minimum control speed with the critical engine inoperative in the takeoff configuration or 115 percent of the power-off stall speed in the takeoff configuration, whichever is greater, as shown by the accelerate stop distance data. In applying this requirement, takeoff data is based upon still-air conditions, and no correction is made for any uphill gradient of 1 percent or less when the percentage is measured as the difference between elevation at the end points of the

runway divided by the total length. For uphill gradients greater than 1 percent, the effective takeoff length of the runway is reduced 20 percent for each 1-percent grade.

(ii) No person may operate a multiengine airplane at a weight greater than the weight that, with the critical engine inoperative, would permit a rate of climb of at least 50 feet per minute at an altitude of at least 1,000 feet above the elevation of the highest ground or obstruction within the area to be worked or at an altitude of 5,000 feet, whichever is higher. For the purposes of this subdivision, it is assumed that the propeller of the inoperative engine is in the minimum drag position; that the wing flaps and landing gear are in the most favorable positions; and that the remaining engine or engines are operating at the maximum continuous power available.

(iii) No person may operate any multiengine aircraft over a congested area below the altitudes prescribed in part 91 of this chapter except during the actual dispensing operation, including the approaches, departures, and turnarounds necessary for that operation.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Doc. No. 8084, 32 FR 5769, Apr. 11, 1967; Amdt. 137-13, 54 FR 39294, Sept. 25, 1989]

§ 137.53 Operation over congested areas: Pilots and aircraft.

(a) *General.* No person may operate an aircraft over a congested area except in accordance with the pilot and aircraft rules of this section.

(b) *Pilots.* Each pilot in command must have at least -

(1) 25 hours of pilot-in-command flight time in the make and basic model of the aircraft, at least 10 hours of which must have been acquired within the preceding 12 calendar months; and

(2) 100 hours of flight experience as pilot in command in dispensing agricultural materials or chemicals.

(c) *Aircraft.* (1) Each aircraft must - (i) If it is an aircraft not specified in paragraph (c)(1)(ii) of this section, have had within the preceding 100 hours of time in service a 100-hour or annual inspection by a person authorized by part 65 or 145 of this chapter, or have been inspected under a progressive inspection system; and

(ii) If it is a large or turbine-powered multiengine civil airplane of U.S. registry, have been inspected in accordance with the applicable inspection program requirements of § 91.409 of this chapter.

(2) If other than a helicopter, it must be equipped with a device capable of jettisoning at least one-half of the aircraft's maximum authorized load of agricultural material within 45 seconds. If the aircraft is equipped with a device for releasing the tank or hopper as a unit, there must be a means to prevent inadvertent release by the pilot or other crewmember.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-5, 41 FR 16796, Apr. 22, 1976; Amdt. 137-12, 54 FR 34332, Aug. 18, 1989]

§ 137.55 Business name: Commercial agricultural aircraft operator.

No person may operate under a business name that is not shown on his commercial agricultural aircraft operator certificate.

§ 137.57 Availability of certificate.

Each holder of an agricultural aircraft operator certificate shall keep that certificate at his home base of operations and shall present it for inspection on the request of the Administrator or any Federal, State, or local law enforcement officer.

§ 137.59 Inspection authority.

Each holder of an agricultural aircraft operator certificate shall allow the Administrator at any time and place to make inspections, including on-the-job inspections, to determine compliance with applicable regulations and his agricultural aircraft operator certificate.

Subpart D - Records and Reports

§ 137.71 Records: Commercial agricultural aircraft operator.

(a) Each holder of a commercial agricultural aircraft operator certificate shall maintain and keep current, at the home base of operations designated in his application, the following records:

(1) The name and address of each person for whom agricultural aircraft services were provided;

(2) The date of the service;

(3) The name and quantity of the material dispensed for each operation conducted; and

(4) The name, address, and certificate number of each pilot used in agricultural aircraft operations and the date that pilot met the knowledge and skill requirements of § 137.19(e).

(b) The records required by this section must be kept at least 12 months and made available for inspection by the Administrator upon request.

§ 137.75 Change of address.

Each holder of an agricultural aircraft operator certificate shall notify the FAA in writing in advance of any change in the address of his home base of operations.

§ 137.77 Termination of operations.

Whenever a person holding an agricultural aircraft operator certificate ceases operations under this part, he shall surrender that certificate to the FAA Flight Standards District Office last having jurisdiction over his operation.

[Doc. No. 1464, 30 FR 8106, June 24, 1965, as amended by Amdt. 137-13, 54 FR 39294, Sept. 25, 1989; 54 FR 52872, Dec. 22, 1989]

SUBCHAPTER H - SCHOOLS AND OTHER CERTIFICATED AGENCIES

PART 141 - PILOT SCHOOLS

Authority:

49 U.S.C. 106(f), 106(g), 40113, 44701-44703, 44707, 44709, 44711, 45102-45103, 45301-45302.

Source:

Docket No. 25910, 62 FR 16347, Apr. 4, 1997, unless otherwise noted.

Subpart A - General

§ 141.1 Applicability.

This part prescribes the requirements for issuing pilot school certificates, provisional pilot school certificates, and associated ratings, and the general operating rules applicable to a holder of a certificate or rating issued under this part.

§ 141.3 Certificate required.

No person may operate as a certificated pilot school without, or in violation of, a pilot school certificate or provisional pilot school certificate issued under this part.

§ 141.5 Requirements for a pilot school certificate.

The FAA may issue a pilot school certificate with the appropriate ratings if, within the 24 calendar months before the date application is made, the applicant -

- (a) Completes the application for a pilot school certificate on the form and in the manner prescribed by the FAA;
- (b) Has held a provisional pilot school certificate;
- (c) Meets the applicable requirements under subparts A through C of this part for the school certificate and associated ratings sought;
- (d) Has established a pass rate of 80 percent or higher on the first attempt for all knowledge tests leading to a certificate or rating, practical tests leading to a certificate or rating, or end-of-course tests for an approved training course specified in appendix K of this part.
- (e) Has graduated at least 10 different people from the school's approved training courses.

[Doc. No. FAA-2006-26661, 74 FR 42563, Aug. 21, 2009, as amended by Amdt. 141-14, 75 FR 56858, Sept. 17, 2010]

§ 141.7 Provisional pilot school certificate.

An applicant that meets the applicable requirements of subparts A, B, and C of this part, but does not meet the recent

training activity requirements of § 141.5(d) of this part, may be issued a provisional pilot school certificate with ratings.

§ 141.9 Examining authority.

The FAA issues examining authority to a pilot school for a training course if the pilot school and its training course meet the requirements of subpart D of this part.

[Doc. No. FAA-2006-26661, 74 FR 42563, Aug. 21, 2009]

§ 141.11 Pilot school ratings.

(a) The ratings listed in paragraph (b) of this section may be issued to an applicant for:

- (1) A pilot school certificate, provided the applicant meets the requirements of § 141.5 of this part; or
- (2) A provisional pilot school certificate, provided the applicant meets the requirements of § 141.7 of this part.

(b) An applicant may be authorized to conduct the following courses:

(1) *Certification and rating courses.* (Appendixes A through J).

- (i) Recreational pilot course.
- (ii) Private pilot course.
- (iii) Commercial pilot course.
- (iv) Instrument rating course.
- (v) Airline transport pilot course.
- (vi) Flight instructor course.
- (vii) Flight instructor instrument course.
- (viii) Ground instructor course.
- (ix) Additional aircraft category or class rating course.
- (x) Aircraft type rating course.

(2) *Special preparation courses.* (Appendix K).

- (i) Pilot refresher course.
 - (ii) Flight instructor refresher course.
 - (iii) Ground instructor refresher course.
 - (iv) Agricultural aircraft operations course.
 - (v) Rotorcraft external-load operations course.
 - (vi) Special operations course.
 - (vii) Test pilot course.
 - (viii) Airline transport pilot certification training program.
- (3) *Pilot ground school course.* (Appendix L).

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997, as amended by Amdt. 141-17, 78 FR 42379, July 15, 2013; Amdt. 141-17A, 78 FR 53026, Aug. 28, 2013]

§ 141.13 Application for issuance, amendment, or renewal.

(a) Application for an original certificate and rating, an additional rating, or the renewal of a certificate under this part must be made on a form and in a manner prescribed by the Administrator.

(b) Application for the issuance or amendment of a certificate or rating must be accompanied by two copies of each proposed training course curriculum for which approval is sought.

§ 141.17 Duration of certificate and examining authority.

(a) Unless surrendered, suspended, or revoked, a pilot school's certificate or a provisional pilot school's certificate expires:

(1) On the last day of the 24th calendar month from the month the certificate was issued;

(2) Except as provided in paragraph (b) of this section, on the date that any change in ownership of the school occurs;

(3) On the date of any change in the facilities upon which the school's certificate is based occurs; or

(4) Upon notice by the Administrator that the school has failed for more than 60 days to maintain the facilities, aircraft, or personnel required for any one of the school's approved training courses.

(b) A change in the ownership of a pilot school or provisional pilot school does not terminate that school's certificate if, within 30 days after the date that any change in ownership of the school occurs:

(1) Application is made for an appropriate amendment to the certificate; and

(2) No change in the facilities, personnel, or approved training courses is involved.

(c) An examining authority issued to the holder of a pilot school certificate expires on the date that the pilot school certificate expires, or is surrendered, suspended, or revoked.

§ 141.18 Carriage of narcotic drugs, marijuana, and depressant or stimulant drugs or substances.

If the holder of a certificate issued under this part permits any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of § 91.19(a) of this chapter, that operation is a basis for suspending or revoking the certificate.

§ 141.19 Display of certificate.

(a) Each holder of a pilot school certificate or a provisional pilot school certificate must display that certificate in a place in the school that is normally accessible to the public and is not obscured.

(b) A certificate must be made available for inspection upon request by:

(1) The Administrator;

(2) An authorized representative of the National Transportation Safety Board; or

(3) A Federal, State, or local law enforcement officer.

§ 141.21 Inspections.

Each holder of a certificate issued under this part must allow the Administrator to inspect its personnel, facilities, equipment, and records to determine the certificate holder's:

(a) Eligibility to hold its certificate;

(b) Compliance with 49 U.S.C. 40101 *et seq.*, formerly the Federal Aviation Act of 1958, as amended; and

(c) Compliance with the Federal Aviation Regulations.

§ 141.23 Advertising limitations.

(a) The holder of a pilot school certificate or a provisional pilot school certificate may not make any statement relating to its certification and ratings that is false or designed to mislead any person contemplating enrollment in that school.

(b) The holder of a pilot school certificate or a provisional pilot school certificate may not advertise that the school is certificated unless it clearly differentiates between courses that have been approved under part 141 of this chapter and those that have not been approved under part 141 of this chapter.

(c) The holder of a pilot school certificate or a provisional pilot school certificate must promptly remove:

(1) From vacated premises, all signs indicating that the school was certificated by the Administrator; or

(2) All indications (including signs), wherever located, that the school is certificated by the Administrator when its certificate has expired or has been surrendered, suspended, or revoked.

§ 141.25 Business office and operations base.

(a) Each holder of a pilot school or a provisional pilot school certificate must maintain a principal business office with a mailing address in the name shown on its certificate.

(b) The facilities and equipment at the principal business office must be adequate to maintain the files and records required to operate the business of the school.

(c) The principal business office may not be shared with, or used by, another pilot school.

(d) Before changing the location of the principal business office or the operations base, each certificate holder must notify the FAA Flight Standards District Office having jurisdiction over the area of the new location, and the notice must be:

(1) Submitted in writing at least 30 days before the change of location; and

(2) Accompanied by any amendments needed for the certificate holder's approved training course outline.

(e) A certificate holder may conduct training at an operations base other than the one specified in its certificate, if:

(1) The Administrator has inspected and approved the base for use by the certificate holder; and

(2) The course of training and any needed amendments have been approved for use at that base.

§ 141.26 Training agreements.

(a) A training center certificated under part 142 of this chapter may provide the training, testing, and checking for pilot schools certificated under this part and is considered to meet the requirements of this part, provided -

(1) There is a training agreement between the certificated training center and the pilot school;

(2) The training, testing, and checking provided by the certificated training center is approved and conducted under part 142;

(3) The pilot school certificated under this part obtains the Administrator's approval for a training course outline that includes the training, testing, and checking to be conducted under this part and the training, testing, and checking to be conducted under part 142; and

(4) Upon completion of the training, testing, and checking conducted under part 142, a copy of each student's training record is forwarded to the part 141 school and becomes part of the student's permanent training record.

(b) A pilot school that provides flight training for an institution of higher education that holds a letter of authorization under § 61.169 of this chapter must have a training agreement with that institution of higher education.

[Doc. No. FAA-2010-0100, 78 FR 42379, July 15, 2013]

§ 141.27 Renewal of certificates and ratings.

(a) *Pilot school.* (1) A pilot school may apply for renewal of its school certificate and ratings within 30 days preceding the month the pilot school's certificate expires, provided the school meets the requirements prescribed in paragraph (a)(2) of this section for renewal of its certificate and ratings.

(2) A pilot school may have its school certificate and ratings renewed for an additional 24 calendar months if the Administrator determines the school's personnel, aircraft, facility and airport, approved training courses, training records, and recent training ability and quality meet the requirements of this part.

(3) A pilot school that does not meet the renewal requirements in paragraph (a)(2) of this section, may apply for a provisional pilot school certificate if the school meets the requirements of § 141.7 of this part.

(b) *Provisional pilot school.* (1) Except as provided in paragraph (b)(3) of this section, a provisional pilot school may not have its provisional pilot school certificate or the ratings on that certificate renewed.

(2) A provisional pilot school may apply for a pilot school certificate and associated ratings provided that school meets the requirements of § 141.5 of this part.

(3) A former provisional pilot school may apply for another provisional pilot school certificate, provided 180 days have elapsed since its last provisional pilot school certificate expired.

§ 141.29 [Reserved]

Subpart B - Personnel, Aircraft, and Facilities Requirements

§ 141.31 Applicability.

(a) This subpart prescribes:

(1) The personnel and aircraft requirements for a pilot school certificate or a provisional pilot school certificate; and

(2) The facilities that a pilot school or provisional pilot school must have available on a continuous basis.

(b) As used in this subpart, to have continuous use of a facility, including an airport, the school must have:

(1) Ownership of the facility or airport for at least 6 calendar months after the date the application for initial certification and on the date of renewal of the school's certificate is made; or

(2) A written lease agreement for the facility or airport for at least 6 calendar months after the date the application for initial certification and on the date of renewal of the school's certificate is made.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40907, July 30, 1997]

§ 141.33 Personnel.

(a) An applicant for a pilot school certificate or for a provisional pilot school certificate must meet the following personnel requirements:

(1) Each applicant must have adequate personnel, including certificated flight instructors, certificated ground instructors, or holders of a commercial pilot certificate with a lighter-than-air rating, and a chief instructor for each approved course of training who is qualified and competent to perform the duties to which that instructor is assigned.

(2) If the school employs dispatchers, aircraft handlers, and line and service personnel, then it must instruct those persons in the procedures and responsibilities of their employment.

(3) Each instructor to be used for ground or flight training must hold a flight instructor certificate, ground instructor certificate, or commercial pilot certificate with a lighter-than-air rating, as appropriate, with ratings for the approved course of training and any aircraft used in that course.

(4) In addition to meeting the requirements of paragraph (a) (3) of this section, each instructor used for the airline transport pilot certification training program in § 61.156 of this chapter must:

(i) Hold an airline transport pilot certificate with an airplane category multiengine class rating;

(ii) Have at least 2 years of experience as a pilot in command in operations conducted under § 91.1053(a)(2)(i) or § 135.243(a)(1) of this chapter, or as a pilot in command or second in command in any operation conducted under part 121 of this chapter; and

(iii) If providing training in a flight simulation training device, have received training and evaluation within the preceding 12 months from the certificate holder on -

(A) Proper operation of flight simulator and flight training device controls and systems;

(B) Proper operation of environmental and fault panels,

(C) Data and motion limitations of simulation;

(D) Minimum equipment requirements for each curriculum; and

(E) The maneuvers that will be demonstrated in the flight simulation training device.

(b) An applicant for a pilot school certificate or for a provisional pilot school certificate must designate a chief instructor for each of the school's approved training courses, who must meet the requirements of § 141.35 of this part.

(c) When necessary, an applicant for a pilot school certificate or for a provisional pilot school certificate may designate a person to be an assistant chief instructor for an approved training course, provided that person meets the requirements of § 141.36 of this part.

(d) A pilot school and a provisional pilot school may designate a person to be a check instructor for conducting student stage checks, end-of-course tests, and instructor proficiency checks, provided:

(1) That person meets the requirements of § 141.37 of this part; and

(2) The school has an enrollment of at least 10 students at the time designation is sought.

(e) A person, as listed in this section, may serve in more than one position for a school, provided that person is qualified for each position.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40907, July 30, 1997; Amdt. 141-12, 74 FR 42563, Aug. 21, 2009; Amdt. 141-17, 78 FR 42379, July 15, 2013; Amdt. 141-17A, 78 FR 53026, Aug. 28, 2013]

§ 141.34 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no holder of a pilot school certificate or a provisional pilot school certificate may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

(1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and

(2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the certificate holder.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a certificate holder in a matter before the agency if the individual makes any written or oral communication on behalf of the certificate holder to the agency (or any of its officers or employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a holder of a pilot school certificate or a provisional pilot school certificate from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before

the Federal Aviation Administration if the individual was employed by the certificate holder before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52236, Aug. 22, 2011]

§ 141.35 Chief instructor qualifications.

(a) To be eligible for designation as a chief instructor for a course of training, a person must meet the following requirements:

(1) Hold a commercial pilot certificate or an airline transport pilot certificate, and, except for a chief instructor for a course of training solely for a lighter-than-air rating, a current flight instructor certificate. The certificates must contain the appropriate aircraft category and class ratings for the category and class of aircraft used in the course and an instrument rating, if an instrument rating is required for enrollment in the course of training;

(2) Meet the pilot-in-command recent flight experience requirements of § 61.57 of this chapter;

(3) Pass a knowledge test on -

(i) Teaching methods;

(ii) Applicable provisions of the "Aeronautical Information Manual";

(iii) Applicable provisions of parts 61, 91, and 141 of this chapter; and

(iv) The objectives and approved course completion standards of the course for which the person seeks to obtain designation.

(4) Pass a proficiency test on instructional skills and ability to train students on the flight procedures and maneuvers appropriate to the course;

(5) Except for a course of training for gliders, balloons, or airships, the chief instructor must meet the applicable requirements in paragraphs (b), (c), and (d) of this section; and

(6) A chief instructor for a course of training for gliders, balloons or airships is only required to have 40 percent of the hours required in paragraphs (b) and (d) of this section.

(b) For a course of training leading to the issuance of a recreational or private pilot certificate or rating, a chief instructor must have:

(1) At least 1,000 hours as pilot in command; and

(2) Primary flight training experience, acquired as either a certificated flight instructor or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least -

(i) 2 years and a total of 500 flight hours; or

(ii) 1,000 flight hours.

(c) For a course of training leading to the issuance of an instrument rating or a rating with instrument privileges, a chief instructor must have:

(1) At least 100 hours of flight time under actual or simulated instrument conditions;

(2) At least 1,000 hours as pilot in command; and

(3) Instrument flight instructor experience, acquired as either a certificated flight instructor-instrument or an instructor

in a military pilot flight training program, or a combination thereof, consisting of at least -

- (i) 2 years and a total of 250 flight hours; or
- (ii) 400 flight hours.

(d) For a course of training other than one leading to the issuance of a recreational or private pilot certificate or rating, or an instrument rating or a rating with instrument privileges, a chief instructor must have:

- (1) At least 2,000 hours as pilot in command; and

(2) Flight training experience, acquired as either a certificated flight instructor or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least -

- (i) 3 years and a total of 1,000 flight hours; or
- (ii) 1,500 flight hours.

(e) To be eligible for designation as chief instructor for a ground school course, a person must have 1 year of experience as a ground school instructor at a certificated pilot school.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40907, July 30, 1997, as amended by Amdt. 141-10, 63 FR 20289, Apr. 23, 1998]

§ 141.36 Assistant chief instructor qualifications.

(a) To be eligible for designation as an assistant chief instructor for a course of training, a person must meet the following requirements:

(1) Hold a commercial pilot or an airline transport pilot certificate and, except for the assistant chief instructor for a course of training solely for a lighter-than-air rating, a current flight instructor certificate. The certificates must contain the appropriate aircraft category, class, and instrument ratings if an instrument rating is required by the course of training for the category and class of aircraft used in the course;

(2) Meet the pilot-in-command recent flight experience requirements of § 61.57 of this chapter;

(3) Pass a knowledge test on -

(i) Teaching methods;

(ii) Applicable provisions of the “Aeronautical Information Manual”;

(iii) Applicable provisions of parts 61, 91, and 141 of this chapter; and

(iv) The objectives and approved course completion standards of the course for which the person seeks to obtain designation.

(4) Pass a proficiency test on the flight procedures and maneuvers appropriate to that course; and

(5) Meet the applicable requirements in paragraphs (b), (c), and (d) of this section. However, an assistant chief instructor for a course of training for gliders, balloons, or airships is only required to have 40 percent of the hours required in paragraphs (b) and (d) of this section.

(b) For a course of training leading to the issuance of a recreational or private pilot certificate or rating, an assistant chief instructor must have:

- (1) At least 500 hours as pilot in command; and

(2) Flight training experience, acquired as either a certificated flight instructor or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least -

- (i) 1 year and a total of 250 flight hours; or

- (ii) 500 flight hours.

(c) For a course of training leading to the issuance of an instrument rating or a rating with instrument privileges, an assistant chief instructor must have:

(1) At least 50 hours of flight time under actual or simulated instrument conditions;

- (2) At least 500 hours as pilot in command; and

(3) Instrument flight instructor experience, acquired as either a certificated flight instructor-instrument or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least -

- (i) 1 year and a total of 125 flight hours; or

- (ii) 200 flight hours.

(d) For a course of training other than one leading to the issuance of a recreational or private pilot certificate or rating, or an instrument rating or a rating with instrument privileges, an assistant chief instructor must have:

- (1) At least 1,000 hours as pilot in command; and

(2) Flight training experience, acquired as either a certificated flight instructor or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least -

- (i) 1 years and a total of 500 flight hours; or

- (ii) 750 flight hours.

(e) To be eligible for designation as an assistant chief instructor for a ground school course, a person must have 6 months of experience as a ground school instructor at a certificated pilot school.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40907, July 30, 1997, as amended by Amdt. 141-10, 63 FR 20289, Apr. 23, 1998]

§ 141.37 Check instructor qualifications.

(a) To be designated as a check instructor for conducting student stage checks, end-of-course tests, and instructor proficiency checks under this part, a person must meet the eligibility requirements of this section:

(1) For checks and tests that relate to either flight or ground training, the person must pass a test, given by the chief instructor, on -

- (i) Teaching methods;

(ii) Applicable provisions of the “Aeronautical Information Manual”;

(iii) Applicable provisions of parts 61, 91, and 141 of this chapter; and

(iv) The objectives and course completion standards of the approved training course for the designation sought.

(2) For checks and tests that relate to a flight training course, the person must -

(i) Meet the requirements in paragraph (a)(1) of this section;

(ii) Hold a commercial pilot certificate or an airline transport pilot certificate and, except for a check instructor for a course of training for a lighter-than-air rating, a current flight instructor certificate. The certificates must contain the appropriate aircraft category, class, and instrument ratings for the category and class of aircraft used in the course;

(iii) Meet the pilot-in-command recent flight experience requirements of § 61.57 of this chapter; and

(iv) Pass a proficiency test, given by the chief instructor or assistant chief instructor, on the flight procedures and maneuvers of the approved training course for the designation sought.

(3) For checks and tests that relate to ground training, the person must -

(i) Meet the requirements in paragraph (a)(1) of this section;

(ii) Except for a course of training for a lighter-than-air rating, hold a current flight instructor certificate or ground instructor certificate with ratings appropriate to the category and class of aircraft used in the course; and

(iii) For a course of training for a lighter-than-air rating, hold a commercial pilot certificate with a lighter-than-air category rating and the appropriate class rating.

(b) A person who meets the eligibility requirements in paragraph (a) of this section must:

(1) Be designated, in writing, by the chief instructor to conduct student stage checks, end-of-course tests, and instructor proficiency checks; and

(2) Be approved by the FAA Flight Standards District Office having jurisdiction over the school.

(c) A check instructor may not conduct a stage check or an end-of-course test of any student for whom the check instructor has:

- (1) Served as the principal instructor; or
- (2) Recommended for a stage check or end-of-course test.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40907, July 30, 1997]

§ 141.38 Airports.

(a) An applicant for a pilot school certificate or a provisional pilot school certificate must show that he or she has continuous use of each airport at which training flights originate.

(b) Each airport used for airplanes and gliders must have at least one runway or takeoff area that allows training aircraft to make a normal takeoff or landing under the following conditions at the aircraft's maximum certificated takeoff gross weight:

- (1) Under wind conditions of not more than 5 miles per hour;
- (2) At temperatures in the operating area equal to the mean high temperature for the hottest month of the year;

(3) If applicable, with the powerplant operation, and landing gear and flap operation recommended by the manufacturer; and

(4) In the case of a takeoff -

(i) With smooth transition from liftoff to the best rate of climb speed without exceptional piloting skills or techniques; and

(ii) Clearing all obstacles in the takeoff flight path by at least 50 feet.

(c) Each airport must have a wind direction indicator that is visible from the end of each runway at ground level;

(d) Each airport must have a traffic direction indicator when:

(1) The airport does not have an operating control tower; and

(2) UNICOM advisories are not available.

(e) Except as provided in paragraph (f) of this section, each airport used for night training flights must have permanent runway lights;

(f) An airport or seaplane base used for night training flights in seaplanes is permitted to use adequate nonpermanent lighting or shoreline lighting, if approved by the Administrator.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40907, July 30, 1997]

§ 141.39 Aircraft.

(a) When the school's training facility is located within the U.S., an applicant for a pilot school certificate or provisional pilot school certificate must show that each aircraft used by the school for flight training and solo flights:

(1) Is a civil aircraft of the United States;

(2) Is certificated with a standard airworthiness certificate, a primary airworthiness certificate, or a special airworthiness certificate in the light-sport category unless the FAA determines otherwise because of the nature of the approved course;

(3) Is maintained and inspected in accordance with the requirements for aircraft operated for hire under part 91, subpart E, of this chapter;

(4) Has two pilot stations with engine-power controls that can be easily reached and operated in a normal manner from both pilot stations (for flight training); and

(5) Is equipped and maintained for IFR operations if used in a course involving IFR en route operations and instrument approaches. For training in the control and precision maneuvering of an aircraft by reference to instruments, the aircraft may be equipped as provided in the approved course of training.

(b) When the school's training facility is located outside the U.S. and the training will be conducted outside the U.S., an applicant for a pilot school certificate or provisional pilot school certificate must show that each aircraft used by the school for flight training and solo flights:

(1) Is either a civil aircraft of the United States or a civil aircraft of foreign registry;

(2) Is certificated with a standard or primary airworthiness certificate or an equivalent certification from the foreign aviation authority;

(3) Is maintained and inspected in accordance with the requirements for aircraft operated for hire under part 91, subpart E of this chapter, or in accordance with equivalent maintenance and inspection from the foreign aviation authority's requirements;

(4) Has two pilot stations with engine-power controls that can be easily reached and operated in a normal manner from both pilot stations (for flight training); and

(5) Is equipped and maintained for IFR operations if used in a course involving IFR en route operations and instrument approaches. For training in the control and precision maneuvering of an aircraft by reference to instruments, the aircraft may be equipped as provided in the approved course of training.

[Doc. No. FAA-2006-26661, 74 FR 42563, Aug. 21, 2009, as amended by Amdt. 141-13, 75 FR 5223, Feb. 1, 2010]

§ 141.41 Full flight simulators, flight training devices, aviation training devices, and training aids.

An applicant for a pilot school certificate or a provisional pilot school certificate must show that its full flight simulators, flight training devices, aviation training devices, training aids, and equipment meet the following requirements:

(a) *Full flight simulators and flight training devices.* Each full flight simulator and flight training device used to obtain flight training credit in an approved pilot training course curriculum must be:

(1) Qualified under part 60 of this chapter, or a previously qualified device, as permitted in accordance with § 60.17 of this chapter; and

(2) Approved by the Administrator for the tasks and maneuvers.

(b) *Aviation training devices.* Each basic or advanced aviation training device used to obtain flight training credit in an approved pilot training course curriculum must be evaluated, qualified, and approved by the Administrator.

(c) *Training aids and equipment.* Each training aid, including any audiovisual aid, projector, mockup, chart, or aircraft component listed in the approved training course outline, must be accurate and relevant to the course for which it is used.

[Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21460, Apr. 12, 2016]

§ 141.43 Pilot briefing areas.

(a) An applicant for a pilot school certificate or provisional pilot school certificate must show that the applicant has continuous use of a briefing area located at each airport at which training flights originate that is:

(1) Adequate to shelter students waiting to engage in their training flights;

(2) Arranged and equipped for the conduct of pilot briefings; and

(3) Except as provided in paragraph (c) of this section, for a school with an instrument rating or commercial pilot course, equipped with private landline or telephone communication to the nearest FAA Flight Service Station.

(b) A briefing area required by paragraph (a) of this section may not be used by the applicant if it is available for use by any other pilot school during the period it is required for use by the applicant.

(c) The communication equipment required by paragraph (a)(3) of this section is not required if the briefing area and the flight service station are located on the same airport, and are readily accessible to each other.

§ 141.45 Ground training facilities.

An applicant for a pilot school or provisional pilot school certificate must show that:

(a) Except as provided in paragraph (c) of this section, each room, training booth, or other space used for instructional purposes is heated, lighted, and ventilated to conform to local building, sanitation, and health codes.

(b) Except as provided in paragraph (c) of this section, the training facility is so located that the students in that facility are not distracted by the training conducted in other rooms, or by flight and maintenance operations on the airport.

(c) If a training course is conducted through an internet-based medium, the holder of a pilot school certificate or provisional pilot school certificate that provides such training need not comply with paragraphs (a) and (b) of this section but must maintain in current status a permanent business location and business telephone number.

[Doc. No. FAA-2008-0938, 76 FR 54107, Aug. 31, 2011]

Subpart C - Training Course Outline and Curriculum

§ 141.51 Applicability.

This subpart prescribes the curriculum and course outline requirements for the issuance of a pilot school certificate or provisional pilot school certificate and ratings.

§ 141.53 Approval procedures for a training course: General.

(a) *General.* An applicant for a pilot school certificate or provisional pilot school certificate must obtain the Administrator's approval of the outline of each training course for which certification and rating is sought.

(b) *Application.* (1) An application for the approval of an initial or amended training course must be submitted in duplicate to the FAA Flight Standards District Office having jurisdiction over the area where the school is based.

(2) An application for the approval of an initial or amended training course must be submitted at least 30 days before any training under that course, or any amendment thereto, is scheduled to begin.

(3) An application for amending a training course must be accompanied by two copies of the amendment.

(c) *Training courses.* An applicant for a pilot school certificate or provisional pilot school certificate may request approval for the training courses specified under § 141.11(b).

(d) *Additional rules for internet based training courses.* An application for an initial or amended training course offered through an internet based medium must comply with the following:

(1) All amendments must be identified numerically by page, date, and screen. Minor editorial and typographical changes do not require FAA approval, provided the school notifies the FAA within 30 days of their insertion.

(2) For monitoring purposes, the school must provide the FAA an acceptable means to log-in and log-off from a remote location to review all elements of the course as viewed by attendees and to by-pass the normal attendee restrictions.

(3) The school must incorporate adequate security measures into its internet-based courseware information system and into its operating and maintenance procedures to ensure the following fundamental areas of security and protection:

- (i) Integrity.
- (ii) Identification/Authentication.
- (iii) Confidentiality.
- (iv) Availability.
- (v) Access control.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997; Amdt. 141-12, 74 FR 42563, Aug. 21, 2009; Amdt. 141-15, 76 FR 54107, Aug. 31, 2011]

§ 141.55 Training course: Contents.

(a) Each training course for which approval is requested must meet the minimum curriculum requirements in accordance with the appropriate appendix of this part.

(b) Except as provided in paragraphs (d) and (e) of this section, each training course for which approval is requested must meet the minimum ground and flight training time requirements in accordance with the appropriate appendix of this part.

(c) Each training course for which approval is requested must contain:

(1) A description of each room used for ground training, including the room's size and the maximum number of students that may be trained in the room at one time, unless the course is provided via an internet-based training medium;

(2) A description of each type of audiovisual aid, projector, tape recorder, mockup, chart, aircraft component, and other special training aids used for ground training;

(3) A description of each flight simulator or flight training device used for training;

(4) A listing of the airports at which training flights originate and a description of the facilities, including pilot briefing areas that are available for use by the school's students and personnel at each of those airports;

(5) A description of the type of aircraft including any special equipment used for each phase of training;

(6) The minimum qualifications and ratings for each instructor assigned to ground or flight training; and

(7) A training syllabus that includes the following information -

(i) The prerequisites for enrolling in the ground and flight portion of the course that include the pilot certificate and rating (if required by this part), training, pilot experience, and pilot knowledge;

(ii) A detailed description of each lesson, including the lesson's objectives, standards, and planned time for completion;

(iii) A description of what the course is expected to accomplish with regard to student learning;

(iv) The expected accomplishments and the standards for each stage of training; and

(v) A description of the checks and tests to be used to measure a student's accomplishments for each stage of training.

(d) A pilot school may request and receive initial approval for a period of not more than 24 calendar months for any training course under this part that does not meet the minimum ground and flight training time requirements, provided the following provisions are met:

(1) The school holds a pilot school certificate issued under this part and has held that certificate for a period of at least 24 consecutive calendar months preceding the month of the request;

(2) In addition to the information required by paragraph (c) of this section, the training course specifies planned ground and flight training time requirements for the course;

(3) The school does not request the training course to be approved for examining authority, nor may that school hold examining authority for that course; and

(4) The practical test or knowledge test for the course is to be given by -

- (i) An FAA inspector; or
- (ii) An examiner who is not an employee of the school.

(e) A pilot school may request and receive final approval for any training course under this part that does not meet the minimum ground and flight training time requirements, provided the following conditions are met:

(1) The school has held initial approval for that training course for at least 24 calendar months.

(2) The school has -

(i) Trained at least 10 students in that training course within the preceding 24 calendar months and recommended those students for a pilot, flight instructor, or ground instructor certificate or rating; and

(ii) At least 80 percent of those students passed the practical or knowledge test, as appropriate, on the first attempt, and that test was given by -

- (A) An FAA inspector; or
- (B) An examiner who is not an employee of the school.

(3) In addition to the information required by paragraph (c) of this section, the training course specifies planned ground and flight training time requirements for the course.

(4) The school does not request that the training course be approved for examining authority nor may that school hold examining authority for that course.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997, as amended by Amdt. 141-12, 74 FR 42563, Aug. 21, 2009; Amdt. 141-15, 76 FR 54107, Aug. 31, 2011]

§ 141.57 Special curricula.

An applicant for a pilot school certificate or provisional pilot school certificate may apply for approval to conduct a special course of airman training for which a curriculum is not prescribed in the appendixes of this part, if the applicant shows that the training course contains features that could achieve a level of pilot proficiency equivalent to that achieved by a training course prescribed in the appendixes of this part or the requirements of part 61 of this chapter.

Subpart D - Examining Authority

§ 141.61 Applicability.

This subpart prescribes the requirements for the issuance of examining authority to the holder of a pilot school certificate, and the privileges and limitations of that examining authority.

§ 141.63 Examining authority qualification requirements.

(a) A pilot school must meet the following prerequisites to receive initial approval for examining authority:

(1) The school must complete the application for examining authority on a form and in a manner prescribed by the Administrator;

(2) The school must hold a pilot school certificate and rating issued under this part;

(3) The school must have held the rating in which examining authority is sought for at least 24 consecutive calendar months preceding the month of application for examining authority;

(4) The training course for which examining authority is requested may not be a course that is approved without meeting the minimum ground and flight training time requirements of this part; and

(5) Within 24 calendar months before the date of application for examining authority, that school must meet the following requirements -

(i) The school must have trained at least 10 students in the training course for which examining authority is sought and

recommended those students for a pilot, flight instructor, or ground instructor certificate or rating; and

(ii) At least 90 percent of those students passed the required practical or knowledge test, or any combination thereof, for the pilot, flight instructor, or ground instructor certificate or rating on the first attempt, and that test was given by -

- (A) An FAA inspector; or
- (B) An examiner who is not an employee of the school.

(b) A pilot school must meet the following requirements to retain approval of its examining authority:

(1) The school must complete the application for renewal of its examining authority on a form and in a manner prescribed by the Administrator;

(2) The school must hold a pilot school certificate and rating issued under this part;

(3) The school must have held the rating for which continued examining authority is sought for at least 24 calendar months preceding the month of application for renewal of its examining authority; and

(4) The training course for which continued examining authority is requested may not be a course that is approved without meeting the minimum ground and flight training time requirements of this part.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

§ 141.65 Privileges.

A pilot school that holds examining authority may recommend a person who graduated from its course for the appropriate pilot, flight instructor, or ground instructor certificate or rating without taking the FAA knowledge test or practical test in accordance with the provisions of this subpart.

§ 141.67 Limitations and reports.

A pilot school that holds examining authority may only recommend the issuance of a pilot, flight instructor, or ground instructor certificate and rating to a person who does not take an FAA knowledge test or practical test, if the recommendation for the issuance of that certificate or rating is in accordance with the following requirements:

(a) The person graduated from a training course for which the pilot school holds examining authority.

(b) Except as provided in this paragraph, the person satisfactorily completed all the curriculum requirements of that pilot school's approved training course. A person who transfers from one part 141 approved pilot school to another part 141 approved pilot school may receive credit for that previous training, provided the following requirements are met:

(1) The maximum credited training time does not exceed one-half of the receiving school's curriculum requirements;

(2) The person completes a knowledge and proficiency test conducted by the receiving school for the purpose of determining the amount of pilot experience and knowledge to be credited;

(3) The receiving school determines (based on the person's performance on the knowledge and proficiency test required by paragraph (b)(2) of this section) the amount of credit to be awarded, and records that credit in the person's training record;

(4) The person who requests credit for previous pilot experience and knowledge obtained the experience and knowledge from another part 141 approved pilot school and training course; and

(5) The receiving school retains a copy of the person's training record from the previous school.

(c) Tests given by a pilot school that holds examining authority must be approved by the Administrator and be at least equal in scope, depth, and difficulty to the comparable knowledge and practical tests prescribed by the Administrator under part 61 of this chapter.

(d) A pilot school that holds examining authority may not use its knowledge or practical tests if the school:

(1) Knows, or has reason to believe, the test has been compromised; or

(2) Is notified by an FAA Flight Standards District Office that there is reason to believe or it is known that the test has been compromised.

(e) A pilot school that holds examining authority must maintain a record of all temporary airman certificates it issues, which consist of the following information:

(1) A chronological listing that includes -

(i) The date the temporary airman certificate was issued;

(ii) The student to whom the temporary airman certificate was issued, and that student's permanent mailing address and telephone number;

(iii) The training course from which the student graduated;

(iv) The name of person who conducted the knowledge or practical test;

(v) The type of temporary airman certificate or rating issued to the student; and

(vi) The date the student's airman application file was sent to the FAA for processing for a permanent airman certificate.

(2) A copy of the record containing each student's graduation certificate, airman application, temporary airman certificate, superseded airman certificate (if applicable), and knowledge test or practical test results; and

(3) The records required by paragraph (e) of this section must be retained for 1 year and made available to the Administrator upon request. These records must be surrendered to the Administrator when the pilot school ceases to have examining authority.

(f) Except for pilot schools that have an airman certification representative, when a student passes the knowledge test or practical test, the pilot school that holds examining authority must submit that student's airman application file and training record to the FAA for processing for the issuance of a permanent airman certificate.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

Subpart E - Operating Rules

§ 141.71 Applicability.

This subpart prescribes the operating rules applicable to a pilot school or provisional pilot school certificated under the provisions of this part.

§ 141.73 Privileges.

(a) The holder of a pilot school certificate or a provisional pilot school certificate may advertise and conduct approved pilot training courses in accordance with the certificate and any ratings that it holds.

(b) A pilot school that holds examining authority for an approved training course may recommend a graduate of that course for the issuance of an appropriate pilot, flight instructor, or ground instructor certificate and rating, without taking an FAA knowledge test or practical test, provided the training course has been approved and meets the minimum ground and flight training time requirements of this part.

§ 141.75 Aircraft requirements.

The following items must be carried on each aircraft used for flight training and solo flights:

(a) A pretakeoff and prelanding checklist; and

(b) The operator's handbook for the aircraft, if one is furnished by the manufacturer, or copies of the handbook if furnished to each student using the aircraft.

[Doc. No. 25910, 62 FR 40908, July 30, 1997]

§ 141.77 Limitations.

(a) The holder of a pilot school certificate or a provisional pilot school certificate may not issue a graduation certificate to a student, or recommend a student for a pilot certificate or rating, unless the student has:

(1) Completed the training specified in the pilot school's course of training; and

(2) Passed the required final tests.

(b) Except as provided in paragraph (c) of this section, the holder of a pilot school certificate or a provisional pilot school certificate may not graduate a student from a course of training unless the student has completed all of the curriculum requirements of that course;

(c) A student may be given credit towards the curriculum requirements of a course for previous training under the following conditions:

(1) If the student completed a proficiency test and knowledge test that was conducted by the receiving pilot school and the previous training was based on a part 141- or a part 142-approved flight training course, the credit is limited to not more than 50 percent of the flight training requirements of the curriculum.

(2) If the student completed a knowledge test that was conducted by the receiving pilot school and the previous

training was based on a part 141- or a part 142-approved aeronautical knowledge training course, the credit is limited to not more than 50 percent of the aeronautical knowledge training requirements of the curriculum.

(3) If the student completed a proficiency test and knowledge test that was conducted by the receiving pilot school and the training was received from other than a part 141- or a part 142-approved flight training course, the credit is limited to not more than 25 percent of the flight training requirements of the curriculum.

(4) If the student completed a knowledge test that was conducted by the receiving pilot school and the previous training was received from other than a part 141- or a part 142-approved aeronautical knowledge training course, the credit is limited to not more than 25 percent of the aeronautical knowledge training requirements of the curriculum.

(5) Completion of previous training must be certified in the student's training record by the training provider or a management official within the training provider's organization, and must contain -

(i) The kind and amount of training provided; and

(ii) The result of each stage check and end-of-course test, if appropriate.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997; Amdt. 141-12, 74 FR 42564, Aug. 21, 2009]

§ 141.79 Flight training.

(a) No person other than a certificated flight instructor or commercial pilot with a lighter-than-air rating who has the ratings and the minimum qualifications specified in the approved training course outline may give a student flight training under an approved course of training.

(b) No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by a certificated flight instructor or commercial pilot with a lighter-than-air rating who is present at that airport.

(c) Each chief instructor and assistant chief instructor assigned to a training course must complete, at least once every 12 calendar months, an approved syllabus of training consisting of ground or flight training, or both, or an approved flight instructor refresher course.

(d) Each certificated flight instructor or commercial pilot with a lighter-than-air rating who is assigned to a flight training course must satisfactorily complete the following tasks, which must be administered by the school's chief instructor, assistant chief instructor, or check instructor:

(1) Prior to receiving authorization to train students in a flight training course, must -

(i) Accomplish a review of and receive a briefing on the objectives and standards of that training course; and

(ii) Accomplish an initial proficiency check in each make and model of aircraft used in that training course in which that person provides training; and

(2) Every 12 calendar months after the month in which the person last complied with the requirements of paragraph (d)(1) (ii) of this section, accomplish a recurrent proficiency check in one of the aircraft in which the person trains students.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

§ 141.81 Ground training.

(a) Except as provided in paragraph (b) of this section, each instructor who is assigned to a ground training course must hold a flight or ground instructor certificate, or a commercial pilot certificate with a lighter-than-air rating, with the appropriate rating for that course of training.

(b) A person who does not meet the requirements of paragraph (a) of this section may be assigned ground training duties in a ground training course, if:

(1) The chief instructor who is assigned to that ground training course finds the person qualified to give that training; and

(2) The training is given while under the supervision of the chief instructor or the assistant chief instructor who is present at the facility when the training is given.

(c) An instructor may not be used in a ground training course until that instructor has been briefed on the objectives and standards of that course by the chief instructor, assistant chief instructor, or check instructor.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

§ 141.83 Quality of training.

(a) Each pilot school or provisional pilot school must meet the following requirements:

(1) Comply with its approved training course; and

(2) Provide training of such quality that meets the requirements of § 141.5(d) of this part.

(b) The failure of a pilot school or provisional pilot school to maintain the quality of training specified in paragraph (a) of this section may be the basis for suspending or revoking that school's certificate.

(c) When requested by the Administrator, a pilot school or provisional pilot school must allow the FAA to administer any knowledge test, practical test, stage check, or end-of-course test to its students.

(d) When a stage check or end-of-course test is administered by the FAA under the provisions of paragraph (c) of this section, and the student has not completed the training course, then that test will be based on the standards prescribed in the school's approved training course.

(e) When a practical test or knowledge test is administered by the FAA under the provisions of paragraph (c) of this section, to a student who has completed the school's training course, that test will be based upon the areas of operation approved by the Administrator.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

§ 141.85 Chief instructor responsibilities.

(a) A chief instructor designated for a pilot school or provisional pilot school is responsible for:

(1) Certifying each student's training record, graduation certificate, stage check and end-of-course test reports, and recommendation for course completion, unless the duties are delegated by the chief instructor to an assistant chief instructor or recommending instructor;

(2) Ensuring that each certificated flight instructor, certificated ground instructor, or commercial pilot with a lighter-than-air rating passes an initial proficiency check prior to that instructor being assigned instructing duties in the school's approved training course, and thereafter that the instructor passes a recurrent proficiency check every 12 calendar months after the month in which the initial test was accomplished;

(3) Ensuring that each student accomplishes the required stage checks and end-of-course tests in accordance with the school's approved training course; and

(4) Maintaining training techniques, procedures, and standards for the school that are acceptable to the Administrator.

(b) The chief instructor or an assistant chief instructor must be available at the pilot school or, if away from the pilot school, be available by telephone, radio, or other electronic means during the time that training is given for an approved training course.

(c) The chief instructor may delegate authority for conducting stage checks, end-of-course tests, and flight instructor proficiency checks to the assistant chief instructor or a check instructor.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997; Amdt. 141-12, 74 FR 42564, Aug. 21, 2009]

§ 141.87 Change of chief instructor.

Whenever a pilot school or provisional pilot school makes a change of designation of its chief instructor, that school:

(a) Must immediately provide the FAA Flight Standards District Office that has jurisdiction over the area in which the school is located with written notification of the change;

(b) May conduct training without a chief instructor for that training course for a period not to exceed 60 days while awaiting the designation and approval of another chief instructor;

(c) May, for a period not to exceed 60 days, have the stage checks and end-of-course tests administered by:

(1) The training course's assistant chief instructor, if one has been designated;

(2) The training course's check instructor, if one has been designated;

(3) An FAA inspector; or

(4) An examiner.

(d) Must, after 60 days without a chief instructor, cease operations and surrender its certificate to the Administrator; and

(e) May have its certificate reinstated, upon:

(1) Designating and approving another chief instructor;

(2) Showing it meets the requirements of § 141.27(a)(2) of this part; and

(3) Applying for reinstatement on a form and in a manner prescribed by the Administrator.

§ 141.89 Maintenance of personnel, facilities, and equipment.

The holder of a pilot school certificate or provisional pilot school certificate may not provide training to a student who is enrolled in an approved course of training unless:

(a) Each airport, aircraft, and facility necessary for that training meets the standards specified in the holder's approved training course outline and the appropriate requirements of this part; and

(b) Except as provided in § 141.87 of this part, each chief instructor, assistant chief instructor, check instructor, or instructor meets the qualifications specified in the holder's approved course of training and the appropriate requirements of this part.

§ 141.91 Satellite bases.

The holder of a pilot school certificate or provisional pilot school certificate may conduct ground training or flight training in an approved course of training at a base other than its main operations base if:

(a) An assistant chief instructor is designated for each satellite base, and that assistant chief instructor is available at that base or, if away from the premises, by telephone, radio, or other electronic means during the time that training is provided for an approved training course;

(b) The airport, facilities, and personnel used at the satellite base meet the appropriate requirements of subpart B of this part and its approved training course outline;

(c) The instructors are under the direct supervision of the chief instructor or assistant chief instructor for the appropriate training course, who is readily available for consultation in accordance with § 141.85(b) of this part; and

(d) The FAA Flight Standards District Office having jurisdiction over the area in which the school is located is notified in writing if training is conducted at a base other than the school's main operations base for more than 7 consecutive days.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

§ 141.93 Enrollment.

(a) The holder of a pilot school certificate or a provisional pilot school certificate must, at the time a student is enrolled in an approved training course, furnish that student with a copy of the following:

- (1) A certificate of enrollment containing -
- (i) The name of the course in which the student is enrolled; and
 - (ii) The date of that enrollment.
- (2) A copy of the student's training syllabus.
- (3) Except for a training course offered through an internet based medium, a copy of the safety procedures and practices developed by the school that describe the use of the school's facilities and the operation of its aircraft. Those procedures and practices shall include training on at least the following information -
- (i) The weather minimums required by the school for dual and solo flights;
 - (ii) The procedures for starting and taxiing aircraft on the ramp;
 - (iii) Fire precautions and procedures;
 - (iv) Redispach procedures after unprogrammed landings, on and off airports;
 - (v) Aircraft discrepancies and approval for return-to-service determinations;
 - (vi) Securing of aircraft when not in use;
 - (vii) Fuel reserves necessary for local and cross-country flights;
 - (viii) Avoidance of other aircraft in flight and on the ground;
 - (ix) Minimum altitude limitations and simulated emergency landing instructions; and
 - (x) A description of and instructions regarding the use of assigned practice areas.
- (b) The holder of a pilot school certificate or provisional pilot school certificate must maintain a monthly listing of persons enrolled in each training course offered by the school.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997; Amdt. 141-15, 76 FR 54107, Aug. 31, 2011]

§ 141.95 Graduation certificate.

- (a) The holder of a pilot school certificate or provisional pilot school certificate must issue a graduation certificate to each student who completes its approved course of training.
- (b) The graduation certificate must be issued to the student upon completion of the course of training and contain at least the following information:
- (1) The name of the school and the certificate number of the school;
 - (2) The name of the graduate to whom it was issued;
 - (3) The course of training for which it was issued;
 - (4) The date of graduation;
 - (5) A statement that the student has satisfactorily completed each required stage of the approved course of training including the tests for those stages;
 - (6) A certification of the information contained on the graduation certificate by the chief instructor for that course of training; and

(7) A statement showing the cross-country training that the student received in the course of training.

(8) Certificates issued upon graduating from a course based on internet media must be uniquely identified using an alphanumeric code that is specific to the student graduating from that course.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997, as amended by Amdt. 141-15, 76 FR 54108, Aug. 31, 2011]

Subpart F - Records

§ 141.101 Training records.

(a) Each holder of a pilot school certificate or provisional pilot school certificate must establish and maintain a current and accurate record of the participation of each student enrolled in an approved course of training conducted by the school that includes the following information:

- (1) The date the student was enrolled in the approved course;
 - (2) A chronological log of the student's course attendance, subjects, and flight operations covered in the student's training, and the names and grades of any tests taken by the student; and
 - (3) The date the student graduated, terminated training, or transferred to another school. In the case of graduation from a course based on internet media, the school must maintain the identifying graduation certificate code required by § 141.95(b)(8).
- (b) The records required to be maintained in a student's logbook will not suffice for the record required by paragraph (a) of this section.
- (c) Whenever a student graduates, terminates training, or transfers to another school, the student's record must be certified to that effect by the chief instructor.

(d) The holder of a pilot school certificate or a provisional pilot school certificate must retain each student record required by this section for at least 1 year from the date that the student:

- (1) Graduates from the course to which the record pertains;
- (2) Terminates enrollment in the course to which the record pertains; or
- (3) Transfers to another school.

(e) The holder of a pilot school certificate or a provisional pilot school certificate must make a copy of the student's training record available upon request by the student.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997, as amended by Amdt. 141-15, 76 FR 54108, Aug. 31, 2011]

Appendix A to Part 141 - Recreational Pilot Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum required for a recreational pilot certification course under this part, for the following ratings:

- (a) Airplane single-engine.

- (b) Rotorcraft helicopter.
- (c) Rotorcraft gyroplane.

2. *Eligibility for enrollment.* A person must hold a student pilot certificate prior to enrolling in the flight portion of the recreational pilot certification course.

3. *Aeronautical knowledge training.* Each approved course must include at least 20 hours of ground training on the following aeronautical knowledge areas, appropriate to the aircraft category and class for which the course applies:

- (a) Applicable Federal Aviation Regulations for recreational pilot privileges, limitations, and flight operations;
 - (b) Accident reporting requirements of the National Transportation Safety Board;
 - (c) Applicable subjects in the “Aeronautical Information Manual” and the appropriate FAA advisory circulars;
 - (d) Use of aeronautical charts for VFR navigation using pilotage with the aid of a magnetic compass;
 - (e) Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts;
 - (f) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;
 - (g) Effects of density altitude on takeoff and climb performance;
 - (h) Weight and balance computations;
 - (i) Principles of aerodynamics, powerplants, and aircraft systems;
 - (j) Stall awareness, spin entry, spins, and spin recovery techniques, if applying for an airplane single-engine rating;
 - (k) Aeronautical decision making and judgment; and
- (1) Preflight action that includes -
- (1) How to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and
 - (2) How to plan for alternatives if the planned flight cannot be completed or delays are encountered.

4. *Flight training.* (a) Each approved course must include at least 30 hours of flight training (of which 15 hours must be with a certificated flight instructor and 3 hours must be solo flight training as provided in section No. 5 of this appendix) on the approved areas of operation listed in paragraph (c) of this section that are appropriate to the aircraft category and class rating for which the course applies, including:

- (1) Except as provided in § 61.100 of this chapter, 2 hours of dual flight training to and at an airport that is located more than 25 nautical miles from the airport where the applicant normally trains, with at least three takeoffs and three landings; and
- (2) 3 hours of dual flight training in an aircraft that is appropriate to the aircraft category and class for which the course applies, in preparation for the practical test within 60 days preceding the date of the test.

(b) Each training flight must include a preflight briefing and a postflight critique of the student by the flight instructor assigned to that flight.

(c) Flight training must include the following approved areas of operation appropriate to the aircraft category and class rating -

- (1) *For an airplane single-engine course:* (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport operations;
 - (iv) Takeoffs, landings, and go-arounds;
 - (v) Performance maneuvers;
 - (vi) Ground reference maneuvers;
 - (vii) Navigation;
 - (viii) Slow flight and stalls;
 - (ix) Emergency operations; and
 - (x) Postflight procedures.
- (2) *For a rotorcraft helicopter course:* (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport and heliport operations;
 - (iv) Hovering maneuvers;
 - (v) Takeoffs, landings, and go-arounds;
 - (vi) Performance maneuvers;
 - (vii) Navigation;
 - (viii) Emergency operations; and
 - (ix) Postflight procedures.
- (3) *For a rotorcraft gyroplane course:* (i) Preflight preparation;
 - (ii) Preflight procedures;
 - (iii) Airport operations;
 - (iv) Takeoffs, landings, and go-arounds;
 - (v) Performance maneuvers;
 - (vi) Ground reference maneuvers;
 - (vii) Navigation;
 - (viii) Flight at slow airspeeds;
 - (ix) Emergency operations; and
 - (x) Postflight procedures.

5. *Solo flight training.* Each approved course must include at least 3 hours of solo flight training on the approved areas of operation listed in paragraph (c) of section No. 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies.

6. *Stage checks and end-of-course tests.* (a) Each student enrolled in a recreational pilot course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation listed in paragraph (c) of section No. 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies.

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997]

Appendix B to Part 141 - Private Pilot Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a private pilot certification course required under this part, for the following ratings:

- (a) Airplane single-engine.
- (b) Airplane multiengine.
- (c) Rotorcraft helicopter.
- (d) Rotorcraft gyroplane.
- (e) Powered-lift.
- (f) Glider.
- (g) Lighter-than-air airship.
- (h) Lighter-than-air balloon.

2. *Eligibility for enrollment.* A person must hold either a recreational pilot certificate, sport pilot certificate, or student pilot certificate before enrolling in the solo flight phase of the private pilot certification course.

3. *Aeronautical knowledge training.*

(a) Each approved course must include at least the following ground training on the aeronautical knowledge areas listed in paragraph (b) of this section, appropriate to the aircraft category and class rating:

- (1) 35 hours of training if the course is for an airplane, rotorcraft, or powered-lift category rating.
- (2) 15 hours of training if the course is for a glider category rating.
- (3) 10 hours of training if the course is for a lighter-than-air category with a balloon class rating.
- (4) 35 hours of training if the course is for a lighter-than-air category with an airship class rating.
- (b) Ground training must include the following aeronautical knowledge areas:
 - (1) Applicable Federal Aviation Regulations for private pilot privileges, limitations, and flight operations;
 - (2) Accident reporting requirements of the National Transportation Safety Board;
 - (3) Applicable subjects of the "Aeronautical Information Manual" and the appropriate FAA advisory circulars;
 - (4) Aeronautical charts for VFR navigation using pilotage, dead reckoning, and navigation systems;
 - (5) Radio communication procedures;
 - (6) Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts;
 - (7) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;
 - (8) Effects of density altitude on takeoff and climb performance;
 - (9) Weight and balance computations;

(10) Principles of aerodynamics, powerplants, and aircraft systems;

(11) If the course of training is for an airplane category or glider category rating, stall awareness, spin entry, spins, and spin recovery techniques;

(12) Aeronautical decision making and judgment; and

(13) Preflight action that includes -

(i) How to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and

(ii) How to plan for alternatives if the planned flight cannot be completed or delays are encountered.

4. *Flight training.* (a) Each approved course must include at least the following flight training, as provided in this section and section No. 5 of this appendix, on the approved areas of operation listed in paragraph (d) of this section, appropriate to the aircraft category and class rating:

(1) 35 hours of training if the course is for an airplane, rotorcraft, powered-lift, or airship rating.

(2) 6 hours of training if the course is for a glider rating.

(3) 8 hours of training if the course is for a balloon rating.

(b) Each approved course must include at least the following flight training:

(1) *For an airplane single-engine course:* 20 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(1) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a single-engine airplane;

(ii) 3 hours of night flight training in a single-engine airplane that includes -

(A) One cross-country flight of more than 100-nautical-miles total distance; and

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) Three hours of flight training in a single engine airplane on the control and maneuvering of a single engine airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) 3 hours of flight training in a single-engine airplane in preparation for the practical test within 60 days preceding the date of the test.

(2) *For an airplane multiengine course:* 20 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(2) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a multiengine airplane;

(ii) 3 hours of night flight training in a multiengine airplane that includes -

(A) One cross-country flight of more than 100-nautical-miles total distance; and

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) Three hours of flight training in a multiengine airplane on the control and maneuvering of a multiengine airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) 3 hours of flight training in a multiengine airplane in preparation for the practical test within 60 days preceding the date of the test.

(3) *For a rotorcraft helicopter course:* 20 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(3) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a helicopter.

(ii) 3 hours of night flight training in a helicopter that includes -

(A) One cross-country flight of more than 50-nautical-miles total distance; and

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 3 hours of flight training in a helicopter in preparation for the practical test within 60 days preceding the date of the test.

(4) *For a rotorcraft gyroplane course:* 20 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(4) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a gyroplane.

(ii) 3 hours of night flight training in a gyroplane that includes -

(A) One cross-country flight over 50-nautical-miles total distance; and

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 3 hours of flight training in a gyroplane in preparation for the practical test within 60 days preceding the date of the test.

(5) *For a powered-lift course:* 20 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(5) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a powered-lift;

(ii) 3 hours of night flight training in a powered-lift that includes -

(A) One cross-country flight of more than 100-nautical-miles total distance; and

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) Three hours of flight training in a powered-lift on the control and maneuvering of a powered-lift solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) 3 hours of flight training in a powered-lift in preparation for the practical test, within 60 days preceding the date of the test.

(6) *For a glider course:* 4 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(6) of this section that includes at least -

(i) Five training flights in a glider with a certificated flight instructor on the launch/tow procedures approved for the course and on the appropriate approved areas of operation listed in paragraph (d)(6) of this section; and

(ii) Three training flights in a glider with a certificated flight instructor in preparation for the practical test within 60 days preceding the date of the test.

(7) *For a lighter-than-air airship course:* 20 hours of flight training from a commercial pilot with an airship rating on the approved areas of operation in paragraph (d)(7) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in an airship;

(ii) 3 hours of night flight training in an airship that includes -

(A) One cross-country flight over 25-nautical-miles total distance; and

(B) Five takeoffs and five landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 3 hours of instrument training in an airship; and

(iv) 3 hours of flight training in an airship in preparation for the practical test within 60 days preceding the date of the test.

(8) *For a lighter-than-air balloon course:* 8 hours of flight training, including at least five training flights, from a commercial pilot with a balloon rating on the approved areas of operation in paragraph (d)(8) of this section, that includes -

(i) If the training is being performed in a gas balloon -

(A) Two flights of 1 hour each;

(B) One flight involving a controlled ascent to 3,000 feet above the launch site; and

(C) Two flights in preparation for the practical test within 60 days preceding the date of the test.

(ii) If the training is being performed in a balloon with an airborne heater -

(A) Two flights of 30 minutes each;

(B) One flight involving a controlled ascent to 2,000 feet above the launch site; and

(C) Two flights in preparation for the practical test within 60 days preceding the date of the test.

(c) For use of full flight simulators or flight training devices:

(1) The course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and the training is given by an authorized instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a) may be credited for a maximum of 20 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a) may be credited for a maximum of 15 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in full flight simulators or flight training devices described in paragraphs (c)(2) and (3) of this section, if used in combination, may be credited for a maximum of 20 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight training device that meets the requirements of § 141.41(a) cannot exceed the limitation provided for in paragraph (c)(3) of this section.

(d) Each approved course must include the flight training on the approved areas of operation listed in this paragraph that are appropriate to the aircraft category and class rating -

(1) *For a single-engine airplane course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and seaplane base operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Basic instrument maneuvers;
- (x) Emergency operations;
- (xi) Night operations, and
- (xii) Postflight procedures.

(2) *For a multiengine airplane course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and seaplane base operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Basic instrument maneuvers;
- (x) Emergency operations;
- (xi) Multiengine operations;
- (xii) Night operations; and
- (xiii) Postflight procedures.

(3) *For a rotorcraft helicopter course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and heliport operations;

- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Emergency operations;
- (ix) Night operations; and
- (x) Postflight procedures.

(4) *For a rotorcraft gyroplane course:*

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Flight at slow airspeeds;
- (ix) Emergency operations;
- (x) Night operations; and
- (xi) Postflight procedures.

(5) *For a powered-lift course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and heliport operations;
- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Ground reference maneuvers;
- (viii) Navigation;
- (ix) Slow flight and stalls;
- (x) Basic instrument maneuvers;
- (xi) Emergency operations;
- (xii) Night operations; and
- (xiii) Postflight procedures.

(6) *For a glider course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and gliderport operations;
- (iv) Launches/tows, as appropriate, and landings;
- (v) Performance speeds;
- (vi) Soaring techniques;
- (vii) Performance maneuvers;
- (viii) Navigation;
- (ix) Slow flight and stalls;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(7) *For a lighter-than-air airship course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Emergency operations; and
- (ix) Postflight procedures.

(8) *For a lighter-than-air balloon course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Launches and landings;
- (v) Performance maneuvers;
- (vi) Navigation;
- (vii) Emergency operations; and
- (viii) Postflight procedures.

5. *Solo flight training.* Each approved course must include at least the following solo flight training:

(a) *For an airplane single-engine course:* 5 hours of solo flight training in a single-engine airplane on the approved areas of operation in paragraph (d)(1) of section No. 4 of this appendix that includes at least -

(1) One solo 100 nautical miles cross country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 50 nautical miles between the takeoff and landing locations; and

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(b) *For an airplane multiengine course:* 5 hours of flight training in a multiengine airplane performing the duties of a pilot in command while under the supervision of a certificated flight instructor. The training must consist of the approved areas of operation in paragraph (d)(2) of section No. 4 of this appendix, and include at least -

(1) One 100 nautical miles cross country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 50 nautical miles between the takeoff and landing locations; and

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(c) *For a rotorcraft helicopter course:* 5 hours of solo flight training in a helicopter on the approved areas of operation in paragraph (d)(3) of section No. 4 of this appendix that includes at least -

(1) One solo 100 nautical miles cross country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 25 nautical miles between the takeoff and landing locations; and

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(d) *For a rotorcraft gyroplane course:* 5 hours of solo flight training in gyroplanes on the approved areas of operation in paragraph (d)(4) of section No. 4 of this appendix that includes at least -

(1) One solo 100 nautical miles cross country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 25 nautical miles between the takeoff and landing locations; and

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(e) *For a powered-lift course:* 5 hours of solo flight training in a powered-lift on the approved areas of operation in paragraph (d)(5) of section No. 4 of this appendix that includes at least -

(1) One solo 100 nautical miles cross country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 50 nautical miles between the takeoff and landing locations; and

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(f) *For a glider course:* Two solo flights in a glider on the approved areas of operation in paragraph (d)(6) of section No. 4 of this appendix, and the launch and tow procedures appropriate for the approved course.

(g) *For a lighter-than-air airship course:* 5 hours of flight training in an airship performing the duties of pilot in command while under the supervision of a commercial pilot with an airship rating. The training must consist of the approved areas of operation in paragraph (d)(7) of section No. 4 of this appendix.

(h) *For a lighter-than-air balloon course:* Two solo flights in a balloon with an airborne heater if the course involves a balloon with an airborne heater or, if the course involves a gas balloon, at least two flights in a gas balloon performing the duties of pilot in command while under the supervision of a commercial pilot with a balloon rating. The training must consist of the approved areas of operation in paragraph (d)(8) of section No. 4 of this appendix, in the kind of balloon for which the course applies.

6. *Stage checks and end-of-course tests.*

(a) Each student enrolled in a private pilot course must satisfactorily accomplish the stage checks and end-of-course tests in accordance with the school's approved training course, consisting of the approved areas of operation listed in paragraph (d) of section No. 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies.

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40908, July 30, 1997, as amended by Amdt. 141-10, 63 FR 20289, Apr. 23, 1998; Amdt. 141-12, 74 FR 42564, Aug. 21, 2009; Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21460, Apr. 12, 2016]

Appendix C to Part 141 - Instrument Rating Course

1. *Applicability.* This appendix prescribes the minimum curriculum for an instrument rating course and an additional instrument rating course, required under this part, for the following ratings:

- (a) Instrument - airplane.
- (b) Instrument - helicopter.
- (c) Instrument - powered-lift.

2. *Eligibility for enrollment.* A person must hold at least a private pilot certificate with an aircraft category and class rating appropriate to the instrument rating for which the course applies prior to enrolling in the flight portion of the instrument rating course.

3. *Aeronautical knowledge training.* (a) Each approved course must include at least the following ground training on the aeronautical knowledge areas listed in paragraph (b) of this section appropriate to the instrument rating for which the course applies:

(1) 30 hours of training if the course is for an initial instrument rating.

(2) 20 hours of training if the course is for an additional instrument rating.

(b) Ground training must include the following aeronautical knowledge areas:

(1) Applicable Federal Aviation Regulations for IFR flight operations;

(2) Appropriate information in the “Aeronautical Information Manual”;

(3) Air traffic control system and procedures for instrument flight operations;

(4) IFR navigation and approaches by use of navigation systems;

(5) Use of IFR en route and instrument approach procedure charts;

(6) Procurement and use of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information and personal observation of weather conditions;

(7) Safe and efficient operation of aircraft under instrument flight rules and conditions;

(8) Recognition of critical weather situations and windshear avoidance;

(9) Aeronautical decision making and judgment; and

(10) Crew resource management, to include crew communication and coordination.

4. *Flight training.* (a) Each approved course must include at least the following flight training on the approved areas of operation listed in paragraph (d) of this section, appropriate to the instrument-aircraft category and class rating for which the course applies:

(1) 35 hours of instrument training if the course is for an initial instrument rating.

(2) 15 hours of instrument training if the course is for an additional instrument rating.

(b) For the use of full flight simulators, flight training devices, or aviation training devices -

(1) The course may include training in a full flight simulator, flight training device, or aviation training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and the training is given by an authorized instructor.

(2) Credit for training in a full flight simulator that meets the requirements of § 141.41(a) cannot exceed 50 percent of

the total flight training hour requirements of the course or of this section, whichever is less.

(3) Credit for training in a flight training device that meets the requirements of § 141.41(a), an advanced aviation training device that meets the requirements of § 141.41(b), or a combination of these devices cannot exceed 40 percent of the total flight training hour requirements of the course or of this section, whichever is less. Credit for training in a basic aviation training device that meets the requirements of § 141.41(b) cannot exceed 25 percent of the total training hour requirements permitted under this paragraph.

(4) Credit for training in full flight simulators, flight training devices, and aviation training devices if used in combination, cannot exceed 50 percent of the total flight training hour requirements of the course or of this section, whichever is less. However, credit for training in a flight training device or aviation training device cannot exceed the limitation provided for in paragraph (b)(3) of this section.

(c) Each approved course must include the following flight training -

(1) *For an instrument airplane course:* Instrument training time from a certificated flight instructor with an instrument rating on the approved areas of operation in paragraph (d) of this section including at least one cross-country flight that -

(i) Is in the category and class of airplane that the course is approved for, and is performed under IFR;

(ii) Is a distance of at least 250 nautical miles along airways or ATC-directed routing with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports;

(iii) Involves an instrument approach at each airport; and

(iv) Involves three different kinds of approaches with the use of navigation systems.

(2) *For an instrument helicopter course:* Instrument training time from a certificated flight instructor with an instrument rating on the approved areas of operation in paragraph (d) of this section including at least one cross-country flight that -

(i) Is in a helicopter and is performed under IFR;

(ii) Is a distance of at least 100 nautical miles along airways or ATC-directed routing with one segment of the flight consisting of at least a straight-line distance of 50 nautical miles between airports;

(iii) Involves an instrument approach at each airport; and

(iv) Involves three different kinds of approaches with the use of navigation systems.

(3) *For an instrument powered-lift course:* Instrument training time from a certificated flight instructor with an instrument rating on the approved areas of operation in paragraph (d) of this section including at least one cross-country flight that -

(i) Is in a powered-lift and is performed under IFR;

(ii) Is a distance of at least 250 nautical miles along airways or ATC-directed routing with one segment of the

flight consisting of at least a straight-line distance of 100 nautical miles between airports;

(iii) Involves an instrument approach at each airport; and

(iv) Involves three different kinds of approaches with the use of navigation systems.

(d) Each course must include flight training on the areas of operation listed under this paragraph appropriate to the instrument aircraft category and class rating (if a class rating is appropriate) for which the course applies:

- (1) Preflight preparation;
- (2) Preflight procedures;
- (3) Air traffic control clearances and procedures;
- (4) Flight by reference to instruments;
- (5) Navigation systems;
- (6) Instrument approach procedures;
- (7) Emergency operations; and
- (8) Postflight procedures.

5. *Stage checks and end-of-course tests.* Each student enrolled in an instrument rating course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation listed in paragraph (d) of section No. 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40909, July 30, 1997; Amdt. 141-12, 74 FR 42564, Aug. 21, 2009; Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21460, Apr. 12, 2016]

Appendix D to Part 141 - Commercial Pilot Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a commercial pilot certification course required under this part, for the following ratings:

- (a) Airplane single-engine.
- (b) Airplane multiengine.
- (c) Rotorcraft helicopter.
- (d) Rotorcraft gyroplane.
- (e) Powered-lift.
- (f) Glider.
- (g) Lighter-than-air airship.
- (h) Lighter-than-air balloon.

2. *Eligibility for enrollment.* A person must hold the following prior to enrolling in the flight portion of the commercial pilot certification course:

(a) At least a private pilot certificate; and

(b) If the course is for a rating in an airplane or a powered-lift category, then the person must:

(1) Hold an instrument rating in the aircraft that is appropriate to the aircraft category rating for which the course applies; or

(2) Be concurrently enrolled in an instrument rating course that is appropriate to the aircraft category rating for which the course applies, and pass the required instrument

rating practical test prior to completing the commercial pilot certification course.

3. *Aeronautical knowledge training.* (a) Each approved course must include at least the following ground training on the aeronautical knowledge areas listed in paragraph (b) of this section, appropriate to the aircraft category and class rating for which the course applies:

(1) 35 hours of training if the course is for an airplane category rating or a powered-lift category rating.

(2) 65 hours of training if the course is for a lighter-than-air category with an airship class rating.

(3) 30 hours of training if the course is for a rotorcraft category rating.

(4) 20 hours of training if the course is for a glider category rating.

(5) 20 hours of training if the course is for lighter-than-air category with a balloon class rating.

(b) Ground training must include the following aeronautical knowledge areas:

(1) Federal Aviation Regulations that apply to commercial pilot privileges, limitations, and flight operations;

(2) Accident reporting requirements of the National Transportation Safety Board;

(3) Basic aerodynamics and the principles of flight;

(4) Meteorology, to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts;

(5) Safe and efficient operation of aircraft;

(6) Weight and balance computations;

(7) Use of performance charts;

(8) Significance and effects of exceeding aircraft performance limitations;

(9) Use of aeronautical charts and a magnetic compass for pilotage and dead reckoning;

(10) Use of air navigation facilities;

(11) Aeronautical decision making and judgment;

(12) Principles and functions of aircraft systems;

(13) Maneuvers, procedures, and emergency operations appropriate to the aircraft;

(14) Night and high-altitude operations;

(15) Descriptions of and procedures for operating within the National Airspace System; and

(16) Procedures for flight and ground training for lighter-than-air ratings.

4. *Flight training.* (a) Each approved course must include at least the following flight training, as provided in this section and section No. 5 of this appendix, on the approved areas of operation listed in paragraph (d) of this section that are appropriate to the aircraft category and class rating for which the course applies:

(1) 120 hours of training if the course is for an airplane or powered-lift rating.

(2) 155 hours of training if the course is for an airship rating.

(3) 115 hours of training if the course is for a rotocraft rating.

(4) 6 hours of training if the course is for a glider rating.

(5) 10 hours of training and 8 training flights if the course is for a balloon rating.

(b) Each approved course must include at least the following flight training:

(1) *For an airplane single-engine course:* 55 hours of flight training from a certificated flight instructor on the approved areas of operation listed in paragraph (d)(1) of this section that includes at least -

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a single engine airplane;

(ii) Ten hours of training in an airplane that has a retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered;

(iii) One 2-hour cross country flight in daytime conditions in a single engine airplane that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight in nighttime conditions in a single engine airplane that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) 3 hours in a single-engine airplane in preparation for the practical test within 60 days preceding the date of the test.

(2) *For an airplane multiengine course:* 55 hours of flight training from a certificated flight instructor on the approved areas of operation listed in paragraph (d)(2) of this section that includes at least -

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a multiengine airplane;

(ii) 10 hours of training in a multiengine airplane that has retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered;

(iii) One 2-hour cross country flight in daytime conditions in a multiengine airplane that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight in nighttime conditions in a multiengine airplane that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) 3 hours in a multiengine airplane in preparation for the practical test within 60 days preceding the date of the test.

(3) *For a rotorcraft helicopter course:* 30 hours of flight training from a certificated flight instructor on the approved

areas of operation listed in paragraph (d)(3) of this section that includes at least -

(i) Five hours on the control and maneuvering of a helicopter solely by reference to instruments, including using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device;

(ii) One 2-hour cross country flight in daytime conditions in a helicopter that consists of a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight in nighttime conditions in a helicopter that consists of a total straight-line distance of more than 50 nautical miles from the original point of departure; and

(iv) 3 hours in a helicopter in preparation for the practical test within 60 days preceding the date of the test.

(4) *For a rotorcraft gyroplane course:* 30 hours of flight training from a certificated flight instructor on the approved areas of operation listed in paragraph (d)(4) of this section that includes at least -

(i) 2.5 hours on the control and maneuvering of a gyroplane solely by reference to instruments, including using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device;

(ii) One 2-hour cross country flight in daytime conditions in a gyroplane that consists of a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) Two hours of flight training in nighttime conditions in a gyroplane at an airport, that includes 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern); and

(iv) 3 hours in a gyroplane in preparation for the practical test within 60 days preceding the date of the test.

(5) *For a powered-lift course:* 55 hours of flight training from a certificated flight instructor on the approved areas of operation listed in paragraph (d)(5) of this section that includes at least -

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a powered-lift;

(ii) One 2-hour cross country flight in daytime conditions in a powered-lift that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight in nighttime conditions in a powered-lift that consists of a total straight-line distance

of more than 100 nautical miles from the original point of departure; and

(iv) 3 hours in a powered-lift in preparation for the practical test within 60 days preceding the date of the test.

(6) *For a glider course:* 4 hours of flight training from a certificated flight instructor on the approved areas of operation in paragraph (d)(6) of this section, that includes at least -

(i) Five training flights in a glider with a certificated flight instructor on the launch/tow procedures approved for the course and on the appropriate approved areas of operation listed in paragraph (d)(6) of this section; and

(ii) Three training flights in a glider with a certificated flight instructor in preparation for the practical test within 60 days preceding the date of the test.

(7) *For a lighter-than-air airship course:* 55 hours of flight training in airships from a commercial pilot with an airship rating on the approved areas of operation in paragraph (d)(7) of this section that includes at least -

(i) Three hours of instrument training in an airship, including using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) One hour cross country flight in daytime conditions in an airship that consists of a total straight-line distance of more than 25 nautical miles from the original point of departure;

(iii) One hour cross country flight in nighttime conditions in an airship that consists of a total straight-line distance of more than 25 nautical miles from the original point of departure; and

(iv) 3 hours in an airship, in preparation for the practical test within 60 days preceding the date of the test.

(8) *For a lighter-than-air balloon course:* Flight training from a commercial pilot with a balloon rating on the approved areas of operation in paragraph (d)(8) of this section that includes at least -

(i) If the course involves training in a gas balloon:

(A) Two flights of 1 hour each;

(B) One flight involving a controlled ascent to at least 5,000 feet above the launch site; and

(C) Two flights in preparation for the practical test within 60 days preceding the date of the test.

(ii) If the course involves training in a balloon with an airborne heater:

(A) Two flights of 30 minutes each;

(B) One flight involving a controlled ascent to at least 3,000 feet above the launch site; and

(C) Two flights in preparation for the practical test within 60 days preceding the date of the test.

(c) For the use of full flight simulators or flight training devices:

(1) The course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and is given by an authorized instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a) may be credited for a maximum of 30 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a) may be credited for a maximum of 20 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in the flight training devices described in paragraphs (c)(2) and (3) of this section, if used in combination, may be credited for a maximum of 30 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight training device that meets the requirements of § 141.41(a) cannot exceed the limitation provided for in paragraph (c)(3) of this section.

(d) Each approved course must include the flight training on the approved areas of operation listed in this paragraph that are appropriate to the aircraft category and class rating -

(1) *For an airplane single-engine course:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport and seaplane base operations;

(iv) Takeoffs, landings, and go-arounds;

(v) Performance maneuvers;

(vi) Navigation;

(vii) Slow flight and stalls;

(viii) Emergency operations;

(ix) High-altitude operations; and

(x) Postflight procedures.

(2) *For an airplane multiengine course:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport and seaplane base operations;

(iv) Takeoffs, landings, and go-arounds;

(v) Performance maneuvers;

(vi) Navigation;

(vii) Slow flight and stalls;

(viii) Emergency operations;

(ix) Multiengine operations;

(x) High-altitude operations; and

(xi) Postflight procedures.

(3) *For a rotorcraft helicopter course:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport and helicopter operations;

(iv) Hovering maneuvers;

(v) Takeoffs, landings, and go-arounds;

(vi) Performance maneuvers;

(vii) Navigation;

(viii) Emergency operations;

(ix) Special operations; and

(x) Postflight procedures.

(4) *For a rotorcraft gyroplane course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Flight at slow airspeeds;
- (ix) Emergency operations; and
- (x) Postflight procedures.

(5) *For a powered-lift course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and heliport operations;
- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Emergency operations;
- (x) High altitude operations;
- (xi) Special operations; and
- (xii) Postflight procedures.

(6) *For a glider course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Airport and gliderport operations;
- (iv) Launches/tows, as appropriate, and landings;
- (v) Performance speeds;
- (vi) Soaring techniques;
- (vii) Performance maneuvers;
- (viii) Navigation;
- (ix) Slow flight and stalls;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(7) *For a lighter-than-air airship course:* (i) Fundamentals of instructing;

- (ii) Technical subjects;
- (iii) Preflight preparation;
- (iv) Preflight lessons on a maneuver to be performed in flight;

- (v) Preflight procedures;
- (vi) Airport operations;
- (vii) Takeoffs, landings, and go-arounds;
- (viii) Performance maneuvers;
- (ix) Navigation;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(8) *For a lighter-than-air balloon course:* (i) Fundamentals of instructing;

- (ii) Technical subjects;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;

- (v) Preflight procedures;
- (vi) Airport operations;
- (vii) Launches and landings;
- (viii) Performance maneuvers;

- (ix) Navigation;
- (x) Emergency operations; and
- (xi) Postflight procedures.

5. *Solo training.* Each approved course must include at least the following solo flight training:

(a) *For an airplane single engine course.* Ten hours of solo flight time in a single engine airplane, or 10 hours of flight time while performing the duties of pilot in command in a single engine airplane with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(1) of section 4 of this appendix, and include -

(1) One cross-country flight, if the training is being performed in the State of Hawaii, with landings at a minimum of three points, and one of the segments consisting of a straight-line distance of at least 150 nautical miles;

(2) One cross-country flight, if the training is being performed in a State other than Hawaii, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 250 nautical miles; and

(3) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

(b) *For an airplane multiengine course.* Ten hours of solo flight time in a multiengine airplane, or 10 hours of flight time while performing the duties of pilot in command in a multiengine airplane with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(2) of section 4 of this appendix, and include -

(1) One cross-country flight, if the training is being performed in the State of Hawaii, with landings at a minimum of three points, and one of the segments consisting of a straight-line distance of at least 150 nautical miles;

(2) One cross-country flight, if the training is being performed in a State other than Hawaii, with landings at a minimum of three points and one segment of the flight consisting of straight-line distance of at least 250 nautical miles; and

(3) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

(c) *For a rotorcraft helicopter course.* Ten hours of solo flight time in a helicopter, or 10 hours of flight time while performing the duties of pilot in command in a helicopter with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(3) of section 4 of this appendix, and include -

(1) One cross-country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles from the original point of departure; and

(2) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

(d) *For a rotorcraft-gyroplane course.* Ten hours of solo flight time in a gyroplane, or 10 hours of flight time while performing the duties of pilot in command in a gyroplane with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(4) of section 4 of this appendix, and include -

(1) One cross-country flight with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles from the original point of departure; and

(2) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

(e) *For a powered-lift course.* Ten hours of solo flight time in a powered-lift, or 10 hours of flight time while performing the duties of pilot in command in a powered-lift with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(5) of section No. 4 of this appendix, and include -

(1) One cross-country flight, if the training is being performed in the State of Hawaii, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 150 nautical miles;

(2) One cross-country flight, if the training is being performed in a State other than Hawaii, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 250 nautical miles; and

(3) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

(f) *For a glider course:* 5 solo flights in a glider on the approved areas of operation in paragraph (d)(6) of section No. 4 of this appendix.

(g) *For a lighter-than-air airship course:* 10 hours of flight training in an airship performing the duties of pilot in command while under the supervision of a commercial pilot with an airship rating. The training must consist of the approved areas of operation in paragraph (d)(7) of section No. 4 of this appendix and include at least -

(1) One cross-country flight with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles from the original point of departure; and

(2) 5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern).

(h) *For a lighter-than-air balloon course:* Two solo flights if the course is for a hot air balloon rating, or, if the course is for a gas balloon rating, at least two flights in a gas balloon, while performing the duties of pilot in command under the supervision of a commercial pilot with a balloon rating. The training shall consist of the approved areas of operation in paragraph (d)(8) of section No. 4 of this appendix, in the kind of balloon for which the course applies.

6. *Stage checks and end-of-course tests.* (a) Each student enrolled in a commercial pilot course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation listed in paragraph (d) of section No. 4 of this appendix that are appropriate to aircraft category and class rating for which the course applies.

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40909, July 30, 1997, as amended by Amdt. 141-10, 63 FR 20290, Apr. 23, 1998; Amdt. 141-12, 74 FR 42565, Aug. 21, 2009; Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21461, Apr. 12, 2016]

Appendix E to Part 141 - Airline Transport Pilot Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for an airline transport pilot certification course under this part, for the following ratings:

- (a) Airplane single-engine.
- (b) Airplane multiengine.
- (c) Rotorcraft helicopter.
- (d) Powered-lift.

2. *Eligibility for enrollment.* Before completing the flight portion of the airline transport pilot certification course, a person must meet the aeronautical experience requirements for an airline transport pilot certificate under part 61, subpart G of this chapter that is appropriate to the aircraft category and class rating for which the course applies, and:

(a) Hold a commercial pilot certificate and an instrument rating, or an airline transport pilot certificate with instrument privileges;

(b) Meet the military experience requirements under § 61.73 of this chapter to qualify for a commercial pilot certificate and an instrument rating, if the person is a rated military pilot or former rated military pilot of an Armed Force of the United States; or

(c) Hold either a foreign airline transport pilot license or foreign commercial pilot license and an instrument rating, if the person holds a pilot license issued by a contracting State to the Convention on International Civil Aviation.

3. *Aeronautical knowledge areas.* (a) Each approved course must include at least 40 hours of ground training on the aeronautical knowledge areas listed in paragraph (b) of this section, appropriate to the aircraft category and class rating for which the course applies.

(b) Ground training must include the following aeronautical knowledge areas:

(1) Applicable Federal Aviation Regulations of this chapter that relate to airline transport pilot privileges, limitations, and flight operations;

(2) Meteorology, including knowledge of and effects of fronts, frontal characteristics, cloud formations, icing, and upper-air data;

(3) General system of weather and NOTAM collection, dissemination, interpretation, and use;

(4) Interpretation and use of weather charts, maps, forecasts, sequence reports, abbreviations, and symbols;

(5) National Weather Service functions as they pertain to operations in the National Airspace System;

(6) Windshear and microburst awareness, identification, and avoidance;

(7) Principles of air navigation under instrument meteorological conditions in the National Airspace System;

(8) Air traffic control procedures and pilot responsibilities as they relate to en route operations, terminal area and radar operations, and instrument departure and approach procedures;

(9) Aircraft loading; weight and balance; use of charts, graphs, tables, formulas, and computations; and the effects on aircraft performance;

(10) Aerodynamics relating to an aircraft's flight characteristics and performance in normal and abnormal flight regimes;

(11) Human factors;

(12) Aeronautical decision making and judgment; and

(13) Crew resource management to include crew communication and coordination.

4. *Flight training.* (a) Each approved course must include at least 25 hours of flight training on the approved areas of operation listed in paragraph (c) of this section appropriate to the aircraft category and class rating for which the course applies. At least 15 hours of this flight training must be instrument flight training.

(b) For the use of full flight simulators or flight training devices -

(1) The course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and the training is given by an authorized instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a) may be credited for a maximum of 50 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a) may be credited for a maximum of 25 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in full flight simulators or flight training devices described in paragraphs (b)(2) and (3) of this section, if used in combination, may be credited for a maximum of 50 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight training device that

meets the requirements of § 141.41(a) cannot exceed the limitation provided for in paragraph (b)(3) of this section.

(c) Each approved course must include flight training on the approved areas of operation listed in this paragraph appropriate to the aircraft category and class rating for which the course applies:

(1) Preflight preparation;

(2) Preflight procedures;

(3) Takeoff and departure phase;

(4) In-flight maneuvers;

(5) Instrument procedures;

(6) Landings and approaches to landings;

(7) Normal and abnormal procedures;

(8) Emergency procedures; and

(9) Postflight procedures.

5. *Stage checks and end-of-course tests.* (a) Each student enrolled in an airline transport pilot course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation listed in paragraph (c) of section No. 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies.

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40909, July 30, 1997; Amdt. 141-12, 74 FR 42565, Aug. 21, 2009; Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21461, Apr. 12, 2016]

Appendix F to Part 141 - Flight Instructor Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a flight instructor certification course and an additional flight instructor rating course required under this part, for the following ratings:

(a) Airplane single-engine.

(b) Airplane multiengine.

(c) Rotorcraft helicopter.

(d) Rotorcraft gyroplane.

(e) Powered-lift.

(f) Glider category.

2. *Eligibility for enrollment.* A person must hold the following prior to enrolling in the flight portion of the flight instructor or additional flight instructor rating course:

(a) A commercial pilot certificate or an airline transport pilot certificate, with an aircraft category and class rating appropriate to the flight instructor rating for which the course applies; and

(b) An instrument rating or privilege in an aircraft that is appropriate to the aircraft category and class rating for which the course applies, if the course is for a flight instructor airplane or powered-lift instrument rating.

3. *Aeronautical knowledge training.* (a) Each approved course must include at least the following ground training in the aeronautical knowledge areas listed in paragraph (b) of this section:

(1) 40 hours of training if the course is for an initial issuance of a flight instructor certificate; or

(2) 20 hours of training if the course is for an additional flight instructor rating.

(b) Ground training must include the following aeronautical knowledge areas:

(1) The fundamentals of instructing including -

(i) The learning process;

(ii) Elements of effective teaching;

(iii) Student evaluation and testing;

(iv) Course development;

(v) Lesson planning; and

(vi) Classroom training techniques.

(2) The aeronautical knowledge areas in which training is required for -

(i) A recreational, private, and commercial pilot certificate that is appropriate to the aircraft category and class rating for which the course applies; and

(ii) An instrument rating that is appropriate to the aircraft category and class rating for which the course applies, if the course is for an airplane or powered-lift aircraft rating.

(c) A student who satisfactorily completes 2 years of study on the principles of education at a college or university may be credited with no more than 20 hours of the training required in paragraph (a)(1) of this section.

4. *Flight training.* (a) Each approved course must include at least the following flight training on the approved areas of operation of paragraph (c) of this section appropriate to the flight instructor rating for which the course applies:

(1) 25 hours, if the course is for an airplane, rotorcraft, or powered-lift rating; and

(2) 10 hours, which must include 10 flights, if the course is for a glider category rating.

(b) For the use of flight simulators or flight training devices:

(1) The course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and the training is given by an authorized instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a), may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a), may be credited for a maximum of 5 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in full flight simulators or flight training devices described in paragraphs (b)(2) and (3) of this section, if used in combination, may be credited for a maximum of

10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight training device that meets the requirements of § 141.41(a) cannot exceed the limitation provided for in paragraph (b)(3) of this section.

(c) Each approved course must include flight training on the approved areas of operation listed in this paragraph that are appropriate to the aircraft category and class rating for which the course applies -

(1) *For an airplane - single-engine course:* (i) Fundamentals of instructing;

(ii) Technical subject areas;

(iii) Preflight preparation;

(iv) Preflight lesson on a maneuver to be performed in flight;

(v) Preflight procedures;

(vi) Airport and seaplane base operations;

(vii) Takeoffs, landings, and go-arounds;

(viii) Fundamentals of flight;

(ix) Performance maneuvers;

(x) Ground reference maneuvers;

(xi) Slow flight, stalls, and spins;

(xii) Basic instrument maneuvers;

(xiii) Emergency operations; and

(xiv) Postflight procedures.

(2) *For an airplane - multiengine course:* (i) Fundamentals of instructing;

(ii) Technical subject areas;

(iii) Preflight preparation;

(iv) Preflight lesson on a maneuver to be performed in flight;

(v) Preflight procedures;

(vi) Airport and seaplane base operations;

(vii) Takeoffs, landings, and go-arounds;

(viii) Fundamentals of flight;

(ix) Performance maneuvers;

(x) Ground reference maneuvers;

(xi) Slow flight and stalls;

(xii) Basic instrument maneuvers;

(xiii) Emergency operations;

(xiv) Multiengine operations; and

(xv) Postflight procedures.

(3) *For a rotorcraft - helicopter course:* (i) Fundamentals of instructing;

(ii) Technical subject areas;

(iii) Preflight preparation;

(iv) Preflight lesson on a maneuver to be performed in flight;

(v) Preflight procedures;

(vi) Airport and heliport operations;

(vii) Hovering maneuvers;

(viii) Takeoffs, landings, and go-arounds;

(ix) Fundamentals of flight;

(x) Performance maneuvers;

(xi) Emergency operations;

- (xii) Special operations; and
 - (xiii) Postflight procedures.
- (4) *For a rotorcraft - gyroplane course:* (i) Fundamentals of instructing;
- (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;
 - (v) Preflight procedures;
 - (vi) Airport operations;
 - (vii) Takeoffs, landings, and go-arounds;
 - (viii) Fundamentals of flight;
 - (ix) Performance maneuvers;
 - (x) Flight at slow airspeeds;
 - (xi) Ground reference maneuvers;
 - (xii) Emergency operations; and
 - (xiii) Postflight procedures.
- (5) *For a powered-lift course:* (i) Fundamentals of instructing;
- (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;
 - (v) Preflight procedures;
 - (vi) Airport and heliport operations;
 - (vii) Hovering maneuvers;
 - (viii) Takeoffs, landings, and go-arounds;
 - (ix) Fundamentals of flight;
 - (x) Performance maneuvers;
 - (xi) Ground reference maneuvers;
 - (xii) Slow flight and stalls;
 - (xiii) Basic instrument maneuvers;
 - (xiv) Emergency operations;
 - (xv) Special operations; and
 - (xvi) Postflight procedures.
- (6) *For a glider course:* (i) Fundamentals of instructing;
- (ii) Technical subject areas;
 - (iii) Preflight preparation;
 - (iv) Preflight lesson on a maneuver to be performed in flight;
 - (v) Preflight procedures;
 - (vi) Airport and gliderport operations;
 - (vii) Tows or launches, landings, and go-arounds, if applicable;
 - (viii) Fundamentals of flight;
 - (ix) Performance speeds;
 - (x) Soaring techniques;
 - (xi) Performance maneuvers;
 - (xii) Slow flight, stalls, and spins;
 - (xiii) Emergency operations; and
 - (xiv) Postflight procedures.
5. *Stage checks and end-of-course tests.* (a) Each student enrolled in a flight instructor course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course,

consisting of the appropriate approved areas of operation listed in paragraph (c) of section No. 4 of this appendix appropriate to the flight instructor rating for which the course applies.

(b) In the case of a student who is enrolled in a flight instructor-airplane rating or flight instructor-glider rating course, that student must have:

(1) Received a logbook endorsement from a certificated flight instructor certifying the student received ground and flight training on stall awareness, spin entry, spins, and spin recovery procedures in an aircraft that is certificated for spins and is appropriate to the rating sought; and

(2) Demonstrated instructional proficiency in stall awareness, spin entry, spins, and spin recovery procedures.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40909, July 30, 1997, as amended by Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21461, Apr. 12, 2016]

Appendix G to Part 141 - Flight Instructor Instrument (For an Airplane, Helicopter, or Powered-Lift Instrument Instructor Rating, as Appropriate) Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a flight instructor instrument certification course required under this part, for the following ratings:

- (a) Flight Instructor Instrument - Airplane.
- (b) Flight Instructor Instrument - Helicopter.
- (c) Flight Instructor Instrument - Powered-lift aircraft.

2. *Eligibility for enrollment.* A person must hold the following prior to enrolling in the flight portion of the flight instructor instrument course:

(a) A commercial pilot certificate or airline transport pilot certificate with an aircraft category and class rating appropriate to the flight instructor category and class rating for which the course applies; and

(b) An instrument rating or privilege on that flight instructor applicant's pilot certificate that is appropriate to the flight instructor instrument rating (for an airplane-, helicopter-, or powered-lift-instrument rating, as appropriate) for which the course applies.

3. *Aeronautical knowledge training.* (a) Each approved course must include at least 15 hours of ground training on the aeronautical knowledge areas listed in paragraph (b) of this section, appropriate to the flight instructor instrument rating (for an airplane-, helicopter-, or powered-lift-instrument rating, as appropriate) for which the course applies:

(b) Ground training must include the following aeronautical knowledge areas:

- (1) The fundamentals of instructing including:
 - (i) The learning process;
 - (ii) Elements of effective teaching;
 - (iii) Student evaluation and testing;
 - (iv) Course development;
 - (v) Lesson planning; and
 - (vi) Classroom training techniques.

(2) The aeronautical knowledge areas in which training is required for an instrument rating that is appropriate to the aircraft category and class rating for the course which applies.

4. *Flight training.* (a) Each approved course must include at least 15 hours of flight training in the approved areas of operation of paragraph (c) of this section appropriate to the flight instructor rating for which the course applies.

(b) For the use of full flight simulators or flight training devices:

(1) The course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved for, meets requirements of this paragraph, and the training is given by an instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a), may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a), may be credited for a maximum of 5 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in full flight simulators or flight training devices described in paragraphs (b)(2) and (3) of this section, if used in combination, may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight training device that meets the requirements of § 141.41(b) cannot exceed the limitation provided for in paragraph (b)(3) of this section.

(c) An approved course for the flight instructor-instrument rating must include flight training on the following approved areas of operation that are appropriate to the instrument-aircraft category and class rating for which the course applies:

- (1) Fundamentals of instructing;
- (2) Technical subject areas;
- (3) Preflight preparation;
- (4) Preflight lesson on a maneuver to be performed in flight;
- (5) Air traffic control clearances and procedures;
- (6) Flight by reference to instruments;
- (7) Navigation systems;
- (8) Instrument approach procedures;
- (9) Emergency operations; and
- (10) Postflight procedures.

5. *Stage checks and end-of-course tests.* Each student enrolled in a flight instructor instrument course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation listed in paragraph (c) of section No. 4 of this appendix that are appropriate to the flight instructor instrument rating (for an airplane-, helicopter-, or powered-lift-instrument rating, as appropriate) for which the course applies.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40909, July 30, 1997, as amended by Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21461, Apr. 12, 2016]

Appendix H to Part 141 - Ground Instructor Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a ground instructor certification course and an additional ground instructor rating course, required under this part, for the following ratings:

- (a) Ground Instructor - Basic.
- (b) Ground Instructor - Advanced.
- (c) Ground Instructor - Instrument.

2. *Aeronautical knowledge training.* (a) Each approved course must include at least the following ground training on the knowledge areas listed in paragraphs (b), (c), (d), and (e) of this section, appropriate to the ground instructor rating for which the course applies:

(1) 20 hours of training if the course is for an initial issuance of a ground instructor certificate; or

(2) 10 hours of training if the course is for an additional ground instructor rating.

(b) Ground training must include the following aeronautical knowledge areas:

- (1) Learning process;
- (2) Elements of effective teaching;
- (3) Student evaluation and testing;
- (4) Course development;
- (5) Lesson planning; and
- (6) Classroom training techniques.

(c) Ground training for a basic ground instructor certificate must include the aeronautical knowledge areas applicable to a recreational and private pilot.

(d) Ground training for an advanced ground instructor rating must include the aeronautical knowledge areas applicable to a recreational, private, commercial, and airline transport pilot.

(e) Ground training for an instrument ground instructor rating must include the aeronautical knowledge areas applicable to an instrument rating.

(f) A student who satisfactorily completed 2 years of study on the principles of education at a college or university may be credited with 10 hours of the training required in paragraph (a)(1) of this section.

3. *Stage checks and end-of-course tests.* Each student enrolled in a ground instructor course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved knowledge areas in paragraph (b), (c), (d), and (e) of section No. 2 of this appendix appropriate to the ground instructor rating for which the course applies.

Appendix I to Part 141 - Additional Aircraft Category and/or Class Rating Course

1. *Applicability.* This appendix prescribes the minimum curriculum for an additional aircraft category rating course or an additional aircraft class rating course required under this part, for the following ratings:

- (a) Airplane single-engine.
- (b) Airplane multiengine.
- (c) Rotorcraft helicopter.
- (d) Rotorcraft gyroplane.
- (e) Powered-lift.
- (f) Glider.
- (g) Lighter-than-air airship.
- (h) Lighter-than-air balloon.

2. *Eligibility for enrollment.* A person must hold the level of pilot certificate for the additional aircraft category and class rating for which the course applies prior to enrolling in the flight portion of an additional aircraft category or additional aircraft class rating course.

3. *Aeronautical knowledge training.*

(a) For a recreational pilot certificate, the following aeronautical knowledge areas must be included in a 10-hour ground training course for an additional aircraft category and/or class rating:

- (1) Applicable regulations issued by the Federal Aviation Administration for recreational pilot privileges, limitations, and flight operations;
- (2) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;
- (3) Effects of density altitude on takeoff and climb performance;
- (4) Weight and balance computations;
- (5) Principles of aerodynamics, powerplants, and aircraft systems;
- (6) Stall awareness, spin entry, spins, and spin recovery techniques if applying for an airplane single engine rating; and
- (7) Preflight action that includes how to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements.

(b) For a private pilot certificate, the following aeronautical knowledge areas must be included in a 10-hour ground training course for an additional class rating or a 15-hour ground training course for an additional aircraft category and class rating:

- (1) Applicable regulations issued by the Federal Aviation Administration for private pilot privileges, limitations, and flight operations;
- (2) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;
- (3) Effects of density altitude on takeoff and climb performance;

- (4) Weight and balance computations;
- (5) Principles of aerodynamics, powerplants, and aircraft systems;

- (6) Stall awareness, spin entry, spins, and spin recovery techniques if applying for an airplane single engine rating; and

- (7) Preflight action that includes how to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements.

(c) For a commercial pilot certificate, the following aeronautical knowledge areas must be included in a 15-hour ground training course for an additional class rating or a 20-hour ground training course for an additional aircraft category and class rating:

- (1) Applicable regulations issued by the Federal Aviation Administration for commercial pilot privileges, limitations, and flight operations;
- (2) Basic aerodynamics and the principles of flight;
- (3) Safe and efficient operation of aircraft;
- (4) Weight and balance computations;
- (5) Use of performance charts;
- (6) Significance and effects of exceeding aircraft performance limitations;
- (7) Principles and functions of aircraft systems;
- (8) Maneuvers, procedures, and emergency operations appropriate to the aircraft;
- (9) Nighttime and high-altitude operations; and
- (10) Procedures for flight and ground training for lighter-than-air ratings.

(d) For an airline transport pilot certificate, the following aeronautical knowledge areas must be included in a 25-hour ground training course for an additional aircraft category and/or class rating:

- (1) Applicable regulations issued by the Federal Aviation Administration for airline transport pilot privileges, limitations, and flight operations;
- (2) Meteorology, including knowledge and effects of fronts, frontal characteristics, cloud formations, icing, and upper-air data;
- (3) General system of weather and NOTAM collection, dissemination, interpretation, and use;
- (4) Interpretation and use of weather charts, maps, forecasts, sequence reports, abbreviations, and symbols;
- (5) National Weather Service functions as they pertain to operations in the National Airspace System;
- (6) Windshear and microburst awareness, identification, and avoidance;
- (7) Principles of air navigation under instrument meteorological conditions in the National Airspace System;
- (8) Air traffic control procedures and pilot responsibilities as they relate to en route operations, terminal area and radar operations, and instrument departure and approach procedures;

(9) Aircraft loading; weight and balance; use of charts, graphs, tables, formulas, and computations; and the effects on aircraft performance;

(10) Aerodynamics relating to an aircraft's flight characteristics and performance in normal and abnormal flight regimes;

(11) Human factors;

(12) Aeronautical decision making and judgment; and

(13) Crew resource management to include crew communication and coordination.

4. Flight training.

(a) Course for an additional airplane category and single engine class rating.

(1) For the recreational pilot certificate, the course must include 15 hours of flight training on the areas of operations under part 141, appendix A, paragraph 4(c)(1) that include -

(i) Two hours of flight training to an airport and at an airport that is located more than 25 nautical miles from the airport where the applicant normally trains, with three takeoffs and three landings, except as provided under § 61.100 of this chapter; and

(ii) Three hours of flight training in an aircraft with the airplane category and single engine class within 2 calendar months before the date of the practical test.

(2) For the private pilot certificate, the course must include 20 hours of flight training on the areas of operations under part 141, appendix B, paragraph 4(d)(1). A flight simulator and flight training device cannot be used to meet more than 4 hours of the training requirements, and the use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Three hours of cross country training in a single engine airplane, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a single engine airplane that includes one cross country flight of more than 100 nautical miles total distance, and 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in a single engine airplane on the control and maneuvering of the airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) Three hours of flight training in a single engine airplane within 2 calendar months before the date of the practical test.

(3) For the commercial pilot certificate, the course must include 55 hours of flight training on the areas of operations under part 141, appendix D, paragraph 4(d)(1). A flight simulator and flight training device cannot be used to meet more than 16.5 hours of the training requirements, and the use of the flight training device is limited to 11 hours of the 16.5 hours permitted. The course must include -

(i) Five hours of instrument training in a single engine airplane that includes training using a view-limiting device on attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) Ten hours of training in an airplane that has retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered;

(iii) One 2-hour cross country flight during daytime conditions in a single engine airplane, a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight during nighttime conditions in a single engine airplane, a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) Three hours in a single engine airplane within 2 calendar months before the date of the practical test.

(4) For the airline transport pilot certificate, the course must include 25 hours flight training, including 15 hours of instrument training, in a single engine airplane on the areas of operation under part 141, appendix E, paragraph 4.(c). A flight simulator and flight training device cannot be used to meet more than 12.5 hours of the training requirements; and the use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(b) Course for an additional airplane category and multiengine class rating.

(1) For the private pilot certificate, the course requires 20 hours flight training on the areas of operations under part 141, appendix B, paragraph 4.(d)(2). A flight simulator and flight training device cannot be used more than 4 hours to meet the training requirements, and use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Three hours of cross country training in a multiengine airplane, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a multiengine airplane that includes one cross country flight of more than 100 nautical miles total distance, and 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in a multiengine airplane on the control and maneuvering of a multiengine airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) Three hours of flight training in a multiengine airplane in preparation for the practical test within 2 calendar months before the date of the test.

(2) For the commercial pilot certificate, the course requires 55 hours flight training on the areas of operations under part 141, appendix D, paragraph 4.(d)(2). A flight simulator and

flight training device cannot be used more than 16.5 hours to meet the training requirements, and use of the flight training device is limited to 11 hours of the 16.5 hours permitted. The course must include -

(i) Five hours of instrument training in a multiengine airplane including training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) Ten hours of training in a multiengine airplane that has retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered;

(iii) One 2-hour cross country flight during daytime conditions in a multiengine airplane, and a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight during nighttime conditions in a multiengine airplane, and a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) Three hours in a multiengine airplane within 2 calendar months before the date of the practical test.

(3) For the airline transport pilot certificate, the course requires 25 hours of flight training in a multiengine airplane on the areas of operation under part 141, appendix E, paragraph 4.(c) that includes 15 hours of instrument training. A flight simulator and flight training device cannot be used more than 12.5 hours to meet the training requirements, and use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(c) Course for an additional rotorcraft category and helicopter class rating.

(1) For the recreational pilot certificate, the course requires 15 hours of flight training on the areas of operations under part 141, appendix A, paragraph 4.(c)(2) that includes -

(i) Two hours of flight training to and at an airport that is located more than 25 nautical miles from the airport where the applicant normally trains, with three takeoffs and three landings, except as provided under § 61.100 of this chapter; and

(ii) Three hours of flight training in a rotorcraft category and a helicopter class aircraft within 2 calendar months before the date of the practical test.

(2) For the private pilot certificate, the course requires 20 hours flight training on the areas of operations under part 141, appendix B, paragraph 4.(d)(3). A flight simulator and flight training device cannot be used more than 4 hours to meet the training requirements, and use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Except as provided under § 61.111 of this chapter, 3 hours of cross country flight training in a helicopter;

(ii) Three hours of nighttime flight training in a helicopter that includes one cross country flight of more than 50 nautical miles total distance, and 10 takeoffs and 10 landings to a full

stop (with each landing involving a flight in the traffic pattern) at an airport; and

(iii) Three hours of flight training in a helicopter within 2 calendar months before the date of the practical test.

(3) The commercial pilot certificate level requires 30 hours flight training on the areas of operations under appendix D of part 141, paragraph 4.(d)(3). A flight simulator and flight training device cannot be used more than 9 hours to meet the training requirements, and use of the flight training device is limited to 6 hours of the 9 hours permitted. The course must include -

(i) Five hours on the control and maneuvering of a helicopter solely by reference to instruments, and must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device;

(ii) One 2-hour cross country flight during daytime conditions in a helicopter, a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight during nighttime conditions in a helicopter, a total straight-line distance of more than 50 nautical miles from the original point of departure; and

(iv) Three hours in a helicopter within 2 calendar months before the date of the practical test.

(4) For the airline transport pilot certificate, the course requires 25 hours of flight training, including 15 hours of instrument training, in a helicopter on the areas of operation under part 141, appendix E, paragraph 4.(c). A flight simulator and flight training device cannot be used more than 12.5 hours to meet the training requirements, and use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(d) Course for an additional rotorcraft category and a gyroplane class rating.

(1) For the recreational pilot certificate, the course requires 15 hours flight training on the areas of operations under part 141, appendix A, paragraph 4.(c)(3) that includes -

(i) Two hours of flight training to and at an airport that is located more than 25 nautical miles from the airport where the applicant normally trains, with three takeoffs and three landings, except as provided under § 61.100 of this chapter; and

(ii) Three hours of flight training in a gyroplane class within 2 calendar months before the date of the practical test.

(2) For the private pilot certificate, the course requires 20 hours flight training on the areas of operations under part 141, appendix B, paragraph 4.(d)(4). A flight simulator and flight training device cannot be used more than 4 hours to meet the training requirements, and use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Three hours of cross country flight training in a gyroplane, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a gyroplane that includes one cross country flight of more than 50 nautical miles total distance, and 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport; and

(iii) Three hours of flight training in a gyroplane within 2 calendar months before the date of the practical test.

(3) For the commercial pilot certificate, the course requires 30 hours flight training on the areas of operations of appendix D to part 141, paragraph 4.(d)(4). A flight simulator and flight training device cannot be used more than 6 hours to meet the training requirements, and use of the flight training device is limited to 6 hours of the 9 hours permitted. The course must include -

(i) 2.5 hours on the control and maneuvering of a gyroplane solely by reference to instruments, and must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device.

(ii) One 2-hour cross country flight during daytime conditions in a gyroplane, a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) Two hours of flight training during nighttime conditions in a gyroplane at an airport, that includes 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern); and

(iv) Three hours in a gyroplane within 2 calendar months before the date of the practical test.

(e) Course for an additional lighter-than-air category and airship class rating.

(1) For the private pilot certificate, the course requires 20 hours of flight training on the areas of operation under part 141, appendix B, paragraph 4.(d)(7). A flight simulator and flight training device cannot be used more than 4 hours to meet the training requirements, and use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Three hours of cross country flight training in an airship, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in an airship that includes one cross country flight of more than 25 nautical miles total distance and 5 takeoffs and 5 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in an airship on the control and maneuvering of an airship solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) Three hours of flight training in an airship within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 55 hours of flight training on the areas of operation under part 141, appendix D, paragraph 4.(d)(7). A flight simulator and flight training device cannot be used more than 16.5 hours to meet the training requirements, and use of the flight training device is limited to 11 hours of the 16.5 hours permitted. The course must include -

(i) Three hours of instrument training in an airship that must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) One hour cross country flight during daytime conditions in an airship that consists of, a total straight-line distance of more than 25 nautical miles from the original point of departure;

(iii) One hour cross country flight during nighttime conditions in an airship that consists of a total straight-line distance of more than 25 nautical miles from the original point of departure; and

(iv) Three hours of flight training in an airship within 2 calendar months before the date of the practical test.

(f) Course for an additional lighter-than-air category and a gas balloon class rating.

(1) For the private pilot certificate, the course requires eight hours of flight training that includes 5 training flights on the areas of operations under part 141, appendix B, paragraph 4(d)(8). A flight simulator and flight training device cannot be used more than 1.6 hours to meet the training requirements, and use of the flight training device is limited to 1.2 hours of the 1.6 hours permitted. The course must include -

(i) Two flights of 1 hour each;

(ii) One flight involving a controlled ascent to 3,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 10 hours of flight training that includes eight training flights on the areas of operations under part 141, appendix D, paragraph 4(d)(8). A flight simulator and flight training device cannot be used more than 3 hours to meet the training requirements, and use of the flight training device is limited to 2 hours of the 3 hours permitted. The course must include -

(i) Two flights of 1 hour each;

(ii) One flight involving a controlled ascent to 5,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(g) Course for an additional lighter-than-air category and a hot air balloon class rating.

(1) For the private pilot certificate, the course requires eight hours of flight training that includes 5 training flights on the areas of operations under part 141, appendix B, paragraph 4(d)(8). A flight simulator and flight training device cannot be used more than 1.6 hours to meet the training requirements, and use

of the flight training device is limited to 1.2 hours of the 1.6 hours permitted. The course must include -

(i) Two flights of 30 minutes each;

(ii) One flight involving a controlled ascent to 2,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 10 hours of flight training that includes eight training flights on the areas of operation under part 141, appendix D, paragraph 4(d)(8). A flight simulator and flight training device cannot be used more than 3 hours to meet the training requirements, and use of the flight training device is limited to 2 hours of the 3 hours permitted. The course must include -

(i) Two flights of 30 minutes each;

(ii) One flight involving a controlled ascent to 3,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(h) Course for an additional powered-lift category rating.

(1) For the private pilot certificate, the course requires 20 hours flight training on the areas of operations under part 141, appendix B, paragraph 4(d)(5). A flight simulator and flight training device cannot be used more than 4 hours to meet the training requirements, and use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Three hours of cross country flight training in a powered-lift except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a powered-lift that includes one cross-country flight of more than 100 nautical miles total distance, and 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in a powered-lift on the control and maneuvering of a powered-lift solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight;

(iv) Three hours of flight training in a powered-lift within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 55 hours flight training on the areas of operations under part 141, appendix D, paragraph 4(d)(5). A flight simulator and flight training device cannot be used more than 16.5 hours to meet the training requirements, and use of the flight training device is limited to 11 hours of the 16.5 hours permitted. The course includes -

(i) Five hours of instrument training in a powered-lift that must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) One 2-hour cross country flight during daytime conditions in a powered-lift, a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight during nighttime conditions in a powered-lift, a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(iv) Three hours of flight training in a powered-lift within 2 calendar months before the date of the practical test.

(3) For the airline transport pilot certificate, the course requires 25 hours flight training in a powered-lift on the areas of operation under part 141, appendix E, paragraph 4(c) that includes 15 hours of instrument training. A flight simulator and flight training device cannot be used more than 12.5 hours to meet the training requirements, and use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(i) Course for an additional glider category rating.

(1) For the private pilot certificate, the course requires 4 hours of flight training in a glider on the areas of operations under part 141, appendix B, paragraph 4(d)(6). A flight simulator and flight training device cannot be used more than 0.8 hours to meet the training requirements, and use of the flight training device is limited to 0.6 hours of the 0.8 hours permitted. The course must include -

(i) Five training flights in a glider with a certificated flight instructor on the launch/tow procedures approved for the course and on the appropriate approved areas of operation listed under appendix B, paragraph 4(d)(6) of this part; and

(ii) Three training flights in a glider with a certificated flight instructor within 2 calendar months before the date of the practical test.

(2) The commercial pilot certificate level requires 4 hours of flight training in a glider on the areas of operation under part 141, appendix D, paragraph 4.(d)(6). A flight simulator and flight training device cannot be used more than 0.8 hours to meet the training requirements, and use of the flight training device is limited to 0.6 hours of the 0.8 hours permitted. The course must include -

(j) Course for an airplane additional single engine class rating.

(1) For the private pilot certificate, the course requires 3 hours of flight training in the areas of operations under part 141, appendix B, paragraph 4.(d)(1). A flight simulator and flight training device cannot be used more than 0.6 hours to meet the training requirements, and use of the flight training device is limited to 0.4 hours of the 0.6 hours permitted. The course must include -

(i) Three hours of cross country training in a single engine airplane, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a single engine airplane that includes one cross country flight of more than 100 nautical miles total distance in a single engine airplane and 10 takeoffs and 10 landings to a full stop (with

each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in a single engine airplane on the control and maneuvering of a single engine airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) Three hours of flight training in a single engine airplane within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 10 hours of flight training on the areas of operations under part 141, appendix D, paragraph 4.(d)(1).

(i) Five hours of instrument training in a single engine airplane that must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems.

(ii) Ten hours of flight training in an airplane that has retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered.

(iii) One 2-hour cross country flight during daytime conditions in a single engine airplane and a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight during nighttime conditions in a single engine airplane and a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) Three hours of flight training in a single engine airplane within 2 calendar months before the date of the practical test.

(3) For the airline transport pilot certificate, the course requires 25 hours flight training in a single engine airplane on the areas of operation under appendix E to part 141, paragraph 4.(c), that includes 15 hours of instrument training. A flight simulator and flight training device cannot be used more than 12.5 hours to meet the training requirements, and use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(k) Course for an airplane additional multiengine class rating.

(1) For the private pilot certificate, the course requires 3 hours of flight training on the areas of operations of appendix B to part 141, paragraph 4(d)(2). A flight simulator and flight training device cannot be used more than 0.6 hours to meet the training requirements, and use of the flight training device is limited to 0.4 hours of the 0.6 hours permitted. The course must include -

(i) Three hours of cross country training in a multiengine airplane, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a multiengine airplane that includes one cross country flight of more than 100 nautical miles total distance in a multiengine airplane, and

10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in a multiengine airplane on the control and maneuvering of a multiengine airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) Three hours of flight training in a multiengine airplane within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 10 hours of training on the areas of operations under appendix D of part 141, paragraph 4(d)(2). A flight simulator and flight training device cannot be used more than 3 hours to meet the training requirements, and use of the flight training device is limited to 2 hours of the 3 hours permitted. The course must include -

(i) Five hours of instrument training in a multiengine airplane that must include training using a view-limiting device on for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) Ten hours of training in a multiengine airplane that has retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered;

(iii) One 2-hour cross country flight during daytime conditions in a multiengine airplane and, a total straight-line distance of more than 100 nautical miles from the original point of departure;

(iv) One 2-hour cross country flight during nighttime conditions in a multiengine airplane and, a total straight-line distance of more than 100 nautical miles from the original point of departure; and

(v) Three hours of flight training in a multiengine airplane within 2 calendar months before the date of the practical test.

(3) For the airline transport pilot certificate, the course requires 25 hours of training in a multiengine airplane on the areas of operation of appendix E to part 141, paragraph 4.(c) that includes 15 hours of instrument training. A flight simulator and flight training device cannot be used more than 12.5 hours to meet the training requirements, and use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(l) Course for a rotorcraft additional helicopter class rating.

(1) For the recreational pilot certificate, the course requires 3 hours of flight training on the areas of operations under appendix A of part 141, paragraph 4.(c)(2) that includes -

(i) Two hours of flight training to and at an airport that is located more than 25 nautical miles from the airport where the applicant normally trains, with three takeoffs and three landings, except as provided under § 61.100 of this chapter; and

(ii) Three hours of flight training in a helicopter within 2 calendar months before the date of the practical test.

(2) For the private pilot certificate, the course requires 3 hours flight training on the areas of operations under appendix B of part 141, paragraph 4.(d)(3). A flight simulator and flight training device cannot be used more than 0.6 hours to meet the training requirements, and use of the flight training device is limited to 0.4 hours of the 0.6 hours permitted. The course must include -

(i) Three hours of cross country training in a helicopter, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in a helicopter that includes one cross country flight of more than 50 nautical miles total distance, and 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport; and

(iii) Three hours of flight training in a helicopter within 2 calendar months before the date of the practical test.

(3) For the commercial pilot certificate, the course requires 5 hours flight training on the areas of operations under appendix D of part 141, paragraph 4.(d)(3). Use of a flight simulator and flight training device in the approved training course cannot exceed 1 hour; however, use of the flight training device cannot exceed 0.7 of the one hour. The course must include -

(i) Five hours on the control and maneuvering of a helicopter solely by reference to instruments, and must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device;

(ii) One 2-hour cross country flight during daytime conditions in a helicopter and, a total straight-line distance of more than 50 nautical miles from the original point of departure;

(iii) One 2-hour cross country flight during nighttime conditions in a helicopter and a total straight-line distance of more than 50 nautical miles from the original point of departure; and

(iv) Three hours of flight training in a helicopter within 2 calendar months before the date of the practical test.

(4) For the airline transport pilot certificate, the course requires 25 hours of flight training in a helicopter on the areas of operation under appendix E of part 141, paragraph 4.(c) that includes 15 hours of instrument training. A flight simulator and flight training device cannot be used more than 12.5 hours to meet the training requirements, and use of the flight training device is limited to 6.25 hours of the 12.5 hours permitted.

(m) Course for a rotorcraft additional gyroplane class rating.

(1) For the recreational pilot certificate, the course requires 3 hours flight training on the areas of operations of appendix A to part 141, paragraph 4.(c)(3) that includes -

(i) Except as provided under § 61.100 of this chapter, 2 hours of flight training to and at an airport that is located more

than 25 nautical miles from the airport where the applicant normally trains, with three takeoffs and three landings; and

(ii) Within 2 calendar months before the date of the practical test, 3 hours of flight training in a gyroplane.

(2) For the private pilot certificate, the course requires 3 hours flight training on the areas of operations of appendix B to part 141, paragraph 4.(d)(4). A flight simulator and flight training device cannot be used more than 0.6 hours to meet the training requirements, and use of the flight training device is limited to 0.4 hours of the 0.6 hours permitted. The course must include -

(i) Three hours of cross country training in a gyroplane;

(ii) Three hours of nighttime flight training in a gyroplane that includes one cross country flight of more than 50 nautical miles total distance, and 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport; and

(iii) Three hours of flight training in a gyroplane within 2 calendar months before the date of the practical test.

(3) For the commercial pilot certificate, the course requires 5 hours flight training on the areas of operations of appendix D to part 141, paragraph 4.(d)(4). A flight simulator and flight training device cannot be used more than 1 hour to meet the training requirements, and use of the flight training device is limited to 0.7 hours of the 1 hour permitted. The course must include -

(i) 2.5 hours on the control and maneuvering of a gyroplane solely by reference to instruments, and must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. This aeronautical experience may be performed in an aircraft, flight simulator, flight training device, or an aviation training device.

(ii) Three hours of cross country flight training in a gyroplane, except as provided under § 61.111 of this chapter;

(iii) Two hours of flight training during nighttime conditions in a gyroplane at an airport that includes 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern); and

(iv) Three hours of flight training in a gyroplane within 2 calendar months before the date of the practical test.

(n) Course for a lighter-than-air additional airship class rating.

(1) For the private pilot certificate, the course requires 20 hours of flight training on the areas of operation under appendix B of part 141, paragraph 4.(d)(7). A flight simulator and flight training device cannot be used more than 4 hours to meet the training requirements, and use of the flight training device is limited to 3 hours of the 4 hours permitted. The course must include -

(i) Three hours of cross country training in an airship, except as provided under § 61.111 of this chapter;

(ii) Three hours of nighttime flight training in an airship that includes one cross country flight of more than 25 nautical miles total distance, and 5 takeoffs and 5 landings to a full stop

(with each landing involving a flight in the traffic pattern) at an airport;

(iii) Three hours of flight training in an airship on the control and maneuvering of an airship solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual flight attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight; and

(iv) Three hours of flight training in an airship within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 55 hours of flight training on the areas of operation under appendix D of part 141, paragraph 4.(d)(7). A flight simulator and flight training device cannot be used more than 16.5 hours to meet the training requirements, and use of the flight training device is limited to 11 hours of the 16.5 hours permitted. The course must include -

(i) Three hours of instrument training in an airship that must include training using a view-limiting device for attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems;

(ii) One hour cross country flight during daytime conditions in an airship that consists of a total straight-line distance of more than 25 nautical miles from the original point of departure;

(iii) One hour cross country flight during nighttime conditions in an airship that consists of a total straight-line distance of more than 25 nautical miles from the original point of departure; and

(iv) Three hours of flight training in an airship within 2 calendar months before the date of the practical test.

(o) Course for a lighter-than-air additional gas balloon class rating.

(1) For the private pilot certificate, the course requires eight hours of flight training that includes 5 training flights on the areas of operations under appendix B of part 141, paragraph 4.(d)(8). A flight simulator and flight training device cannot be used more than 1.6 hours to meet the training requirements, and use of the flight training device is limited to 1.2 hours of the 1.6 hours permitted. The course must include -

(i) Two flights of 1 hour each;

(ii) One flight involving a controlled ascent to 3,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 10 hours of flight training that includes eight training flights on the areas of operations of appendix D to part 141, paragraph 4.(d)(8). A flight simulator and flight training device cannot be used more than 3 hours to meet the training requirements, and use of the flight training device is limited to 2 hours of the 3 hours permitted. The course must include -

(i) Two flights of 1 hour each;

(ii) One flight involving a controlled ascent to 5,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(p) Course for a lighter-than-air additional hot air balloon class rating.

(1) For the private pilot certificate, the course requires 8 hours of flight training that includes 5 training flights on the areas of operations of appendix B to part 141, paragraph 4.(d)(8). A flight simulator and flight training device cannot be used more than 1.6 hours to meet the training requirements, and use of the flight training device is limited to 1.2 hours of the 1.6 hours permitted. The course must include -

(i) Two flights of 30 minutes each;

(ii) One flight involving a controlled ascent to 2,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

(2) For the commercial pilot certificate, the course requires 10 hours of flight training that includes eight training flight on the areas of operation of appendix D to part 141, paragraph 4.(d)(8). A flight simulator and flight training device cannot be used more than 3 hours to meet the training requirements, and use of the flight training device is limited to 2 hours of the 3 hours permitted. The course must include -

(i) Two flights of 30 minutes each.

(ii) One flight involving a controlled ascent to 3,000 feet above the launch site; and

(iii) Two flights within 2 calendar months before the date of the practical test.

5. *Stage checks and end-of-course tests.* (a) Each student enrolled in an additional aircraft category rating course or an additional aircraft class rating course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation in section No. 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies at the appropriate pilot certificate level.

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40909, July 30, 1997; Amdt. 141-12, 74 FR 42566, Aug. 21, 2009]

Appendix J to Part 141 - Aircraft Type Rating Course, For Other Than an Airline Transport Pilot Certificate

1. *Applicability.* This appendix prescribes the minimum curriculum for an aircraft type rating course other than an airline transport pilot certificate, for:

(a) A type rating in an airplane category - single-engine class.

(b) A type rating in an airplane category - multiengine class.

(c) A type rating in a rotorcraft category - helicopter class.

(d) A type rating in a powered-lift category.

(e) Other aircraft type ratings specified by the Administrator through the aircraft type certificate procedures.

2. *Eligibility for enrollment.* Prior to enrolling in the flight portion of an aircraft type rating course, a person must hold at least a private pilot certificate and:

(a) An instrument rating in the category and class of aircraft that is appropriate to the aircraft type rating for which the course applies, provided the aircraft's type certificate does not have a VFR limitation; or

(b) Be concurrently enrolled in an instrument rating course in the category and class of aircraft that is appropriate to the aircraft type rating for which the course applies, and pass the required instrument rating practical test concurrently with the aircraft type rating practical test.

3. *Aeronautical knowledge training.* (a) Each approved course must include at least 10 hours of ground training on the aeronautical knowledge areas listed in paragraph (b) of this section, appropriate to the aircraft type rating for which the course applies.

(b) Ground training must include the following aeronautical areas:

(1) Proper control of airspeed, configuration, direction, altitude, and attitude in accordance with procedures and limitations contained in the aircraft's flight manual, checklists, or other approved material appropriate to the aircraft type;

(2) Compliance with approved en route, instrument approach, missed approach, ATC, or other applicable procedures that apply to the aircraft type;

(3) Subjects requiring a practical knowledge of the aircraft type and its powerplant, systems, components, operational, and performance factors;

(4) The aircraft's normal, abnormal, and emergency procedures, and the operations and limitations relating thereto;

(5) Appropriate provisions of the approved aircraft's flight manual;

(6) Location of and purpose for inspecting each item on the aircraft's checklist that relates to the exterior and interior preflight; and

(7) Use of the aircraft's prestart checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communication radio facilities and frequencies.

4. *Flight training.* (a) Each approved course must include at least:

(1) Flight training on the approved areas of operation of paragraph (c) of this section in the aircraft type for which the course applies; and

(2) 10 hours of training of which at least 5 hours must be instrument training in the aircraft for which the course applies.

(b) For the use of full flight simulators or flight training devices:

(1) The course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets requirements of this paragraph, and the training is given by an authorized instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a), may be credited for a maximum of 50 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a), may be credited for a maximum of 25 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in the full flight simulators or flight training devices described in paragraphs (b)(2) and (3) of this section, if used in combination, may be credited for a maximum of 50 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit training in a flight training device that meets the requirements of § 141.41(a) cannot exceed the limitation provided for in paragraph (b)(3) of this section.

(c) Each approved course must include the flight training on the areas of operation listed in this paragraph, that are appropriate to the aircraft category and class rating for which the course applies:

(1) *A type rating for an airplane - single-engine course:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Takeoff and departure phase;

(iv) In-flight maneuvers;

(v) Instrument procedures;

(vi) Landings and approaches to landings;

(vii) Normal and abnormal procedures;

(viii) Emergency procedures; and

(ix) Postflight procedures.

(2) *A type rating for an airplane - multiengine course:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Takeoff and departure phase;

(iv) In-flight maneuvers;

(v) Instrument procedures;

(vi) Landings and approaches to landings;

(vii) Normal and abnormal procedures;

(viii) Emergency procedures; and

(ix) Postflight procedures.

(3) *A type rating for a powered-lift course:* (i) Preflight preparation;

(ii) Preflight procedures;

(iii) Takeoff and departure phase;

(iv) In-flight maneuvers;

(v) Instrument procedures;

(vi) Landings and approaches to landings;

(vii) Normal and abnormal procedures;

- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(4) *A type rating for a rotorcraft - helicopter course:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(5) *Other aircraft type ratings specified by the Administrator through aircraft type certificate procedures:* (i) Preflight preparation;

- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

5. *Stage checks and end-of-course tests.* (a) Each student enrolled in an aircraft type rating course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation that are appropriate to the aircraft type rating for which the course applies at the airline transport pilot certificate level; and

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40910, July 30, 1997, as amended by Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21461, Apr. 12, 2016]

Appendix K to Part 141 - Special Preparation Courses

1. *Applicability.* This appendix prescribes the minimum curriculum for the special preparation courses that are listed in § 141.11 of this part.

2. *Eligibility for enrollment.* Prior to enrolling in the flight portion of a special preparation course, a person must hold a pilot certificate, flight instructor certificate, or ground instructor certificate that is appropriate for the exercise of the operating privileges or authorizations sought.

3. *General requirements.* (a) To be approved, a special preparation course must:

- (1) Meet the appropriate requirements of this appendix; and
- (2) Prepare the graduate with the necessary skills, competency, and proficiency to exercise safely the privileges of the certificate, rating, or authorization for which the course is established.

(b) An approved special preparation course must include ground and flight training on the operating privileges or authorization sought, for developing competency, proficiency, resourcefulness, self-confidence, and self-reliance in the student.

4. *Use of full flight simulators or flight training devices.* (a) The approved special preparation course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets requirements of this paragraph, and the training is given by an authorized instructor.

(b) Except for the airline transport pilot certification program in section 13 of this appendix, training in a full flight simulator that meets the requirements of § 141.41(a), may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(c) Except for the airline transport pilot certification program in section 13 of this appendix, training in a flight training device that meets the requirements of § 141.41(a), may be credited for a maximum of 5 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(d) Training in the full flight simulators or flight training devices described in paragraphs (b) and (c) of this section, if used in combination, may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight training device that meets the requirements of § 141.41(a) cannot exceed the limitation provided for in paragraph (c) of this section.

5. *Stage check and end-of-course tests.* Each person enrolled in a special preparation course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation that are appropriate to the operating privileges or authorization sought, and for which the course applies.

6. *Agricultural aircraft operations course.* An approved special preparation course for pilots in agricultural aircraft operations must include at least the following -

- (a) 25 hours of training on:
 - (1) Agricultural aircraft operations;
 - (2) Safe piloting and operating practices and procedures for handling, dispensing, and disposing agricultural and industrial chemicals, including operating in and around congested areas; and
 - (3) Applicable provisions of part 137 of this chapter.
- (b) 15 hours of flight training on agricultural aircraft operations.

7. *Rotorcraft external-load operations course.* An approved special preparation course for pilots of external-load operations must include at least the following -

- (a) 10 hours of training on:
 - (1) Rotorcraft external-load operations;

(2) Safe piloting and operating practices and procedures for external-load operations, including operating in and around congested areas; and

(3) Applicable provisions of part 133 of this chapter.

(b) 15 hours of flight training on external-load operations.

8. *Test pilot course.* An approved special preparation course for pilots in test pilot duties must include at least the following -

(a) Aeronautical knowledge training on:

(1) Performing aircraft maintenance, quality assurance, and certification test flight operations;

(2) Safe piloting and operating practices and procedures for performing aircraft maintenance, quality assurance, and certification test flight operations;

(3) Applicable parts of this chapter that pertain to aircraft maintenance, quality assurance, and certification tests; and

(4) Test pilot duties and responsibilities.

(b) 15 hours of flight training on test pilot duties and responsibilities.

9. *Special operations course.* An approved special preparation course for pilots in special operations that are mission-specific for certain aircraft must include at least the following -

(a) Aeronautical knowledge training on:

(1) Performing that special flight operation;

(2) Safe piloting operating practices and procedures for performing that special flight operation;

(3) Applicable parts of this chapter that pertain to that special flight operation; and

(4) Pilot in command duties and responsibilities for performing that special flight operation.

(b) Flight training:

(1) On that special flight operation; and

(2) To develop skills, competency, proficiency, resourcefulness, self-confidence, and self-reliance in the student for performing that special flight operation in a safe manner.

10. *Pilot refresher course.* An approved special preparation pilot refresher course for a pilot certificate, aircraft category and class rating, or an instrument rating must include at least the following -

(a) 4 hours of aeronautical knowledge training on:

(1) The aeronautical knowledge areas that are applicable to the level of pilot certificate, aircraft category and class rating, or instrument rating, as appropriate, that pertain to that course;

(2) Safe piloting operating practices and procedures; and

(3) Applicable provisions of parts 61 and 91 of this chapter for pilots.

(b) 6 hours of flight training on the approved areas of operation that are applicable to the level of pilot certificate, aircraft category and class rating, or instrument rating, as appropriate, for performing pilot-in-command duties and responsibilities.

11. *Flight instructor refresher course.* An approved special preparation flight instructor refresher course must include at

least a combined total of 16 hours of aeronautical knowledge training, flight training, or any combination of ground and flight training on the following -

(a) Aeronautical knowledge training on:

(1) The aeronautical knowledge areas of part 61 of this chapter that apply to student, recreational, private, and commercial pilot certificates and instrument ratings;

(2) The aeronautical knowledge areas of part 61 of this chapter that apply to flight instructor certificates;

(3) Safe piloting operating practices and procedures, including airport operations and operating in the National Airspace System; and

(4) Applicable provisions of parts 61 and 91 of this chapter that apply to pilots and flight instructors.

(b) Flight training to review:

(1) The approved areas of operations applicable to student, recreational, private, and commercial pilot certificates and instrument ratings; and

(2) The skills, competency, and proficiency for performing flight instructor duties and responsibilities.

12. *Ground instructor refresher course.* An approved special preparation ground instructor refresher course must include at least 16 hours of aeronautical knowledge training on:

(a) The aeronautical knowledge areas of part 61 of this chapter that apply to student, recreational, private, and commercial pilots and instrument rated pilots;

(b) The aeronautical knowledge areas of part 61 of this chapter that apply to ground instructors;

(c) Safe piloting operating practices and procedures, including airport operations and operating in the National Airspace System; and

(d) Applicable provisions of parts 61 and 91 of this chapter that apply to pilots and ground instructors.

13. *Airline transport pilot certification training program.* An approved airline transport pilot certification training program must include the academic and FSTD training set forth in § 61.156 of this chapter. The FAA will not approve a course with fewer hours than those prescribed in § 61.156 of this chapter.

[Doc. No. 25910, 62 FR 16347, Apr. 4, 1997; Amdt. 141-9, 62 FR 40910, July 30, 1997, as amended by Amdt. 141-17, 78 FR 42380, July 15, 2013; Amdt. 141-17A, 78 FR 53026, Aug. 28, 2013; Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21462, Apr. 12, 2016]

Appendix L to Part 141 - Pilot Ground School Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a pilot ground school course required under this part.

2. *General requirements.* An approved course of training for a pilot ground school must include training on the aeronautical knowledge areas that are:

(a) Needed to safely exercise the privileges of the certificate, rating, or authority for which the course is established; and

(b) Conducted to develop competency, proficiency, resourcefulness, self-confidence, and self-reliance in each student.

3. *Aeronautical knowledge training requirements.* Each approved pilot ground school course must include:

(a) The aeronautical knowledge training that is appropriate to the aircraft rating and pilot certificate level for which the course applies; and

(b) An adequate number of total aeronautical knowledge training hours appropriate to the aircraft rating and pilot certificate level for which the course applies.

4. *Stage checks and end-of-course tests.* Each person enrolled in a pilot ground school course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation that are appropriate to the operating privileges or authorization that graduation from the course will permit and for which the course applies.

Appendix M to Part 141 - Combined Private Pilot Certification and Instrument Rating Course

1. *Applicability.* This appendix prescribes the minimum curriculum for a combined private pilot certification and instrument rating course required under this part, for the following ratings:

(a) Airplane.

(1) Airplane single-engine.

(2) Airplane multiengine.

(b) Rotorcraft helicopter.

(c) Powered-lift.

2. *Eligibility for enrollment.* A person must hold a sport pilot, recreational, or student pilot certificate prior to enrolling in the flight portion of a combined private pilot certification and instrument rating course.

3. *Aeronautical knowledge training.*

(a) Each approved course must include at least 65 hours of ground training on the aeronautical knowledge areas listed in paragraph (b) of this section that are appropriate to the aircraft category and class rating of the course:

(b) Ground training must include the following aeronautical knowledge areas:

(1) Applicable Federal Aviation Regulations for private pilot privileges, limitations, flight operations, and instrument flight rules (IFR) flight operations.

(2) Accident reporting requirements of the National Transportation Safety Board.

(3) Applicable subjects of the "Aeronautical Information Manual" and the appropriate FAA advisory circulars.

(4) Aeronautical charts for visual flight rules (VFR) navigation using pilotage, dead reckoning, and navigation systems.

(5) Radio communication procedures.

(6) Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts.

(7) Safe and efficient operation of aircraft under instrument flight rules and conditions.

(8) Collision avoidance and recognition and avoidance of wake turbulence.

(9) Effects of density altitude on takeoff and climb performance.

(10) Weight and balance computations.

(11) Principles of aerodynamics, powerplants, and aircraft systems.

(12) If the course of training is for an airplane category, stall awareness, spin entry, spins, and spin recovery techniques.

(13) Air traffic control system and procedures for instrument flight operations.

(14) IFR navigation and approaches by use of navigation systems.

(15) Use of IFR en route and instrument approach procedure charts.

(16) Aeronautical decision making and judgment.

(17) Preflight action that includes -

(i) How to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements.

(ii) How to plan for alternatives if the planned flight cannot be completed or delays are encountered.

(iii) Procurement and use of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information and personal observation of weather conditions.

4. *Flight training.*

(a) Each approved course must include at least 70 hours of training, as described in section 4 and section 5 of this appendix, on the approved areas of operation listed in paragraph (d) of section 4 of this appendix that are appropriate to the aircraft category and class rating of the course:

(b) Each approved course must include at least the following flight training:

(1) *For an airplane single engine course:* 70 hours of flight training from an authorized instructor on the approved areas of operation in paragraph (d)(1) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a single engine airplane.

(ii) 3 hours of night flight training in a single-engine airplane that includes -

(A) One cross-country flight of more than 100 nautical miles total distance.

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 35 hours of instrument flight training in a single-engine airplane that includes at least one cross-country flight that is performed under IFR and -

(A) Is a distance of at least 250 nautical miles along airways or air traffic control-directed (ATC-directed) routing with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports.

(B) Involves an instrument approach at each airport.

(C) Involves three different kinds of approaches with the use of navigation systems.

(iv) 3 hours of flight training in a single-engine airplane in preparation for the practical test within 60 days preceding the date of the test.

(2) *For an airplane multiengine course:* 70 hours of training from an authorized instructor on the approved areas of operation in paragraph (d)(2) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a multiengine airplane.

(ii) 3 hours of night flight training in a multiengine airplane that includes -

(A) One cross-country flight of more than 100 nautical miles total distance.

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 35 hours of instrument flight training in a multiengine airplane that includes at least one cross-country flight that is performed under IFR and -

(A) Is a distance of at least 250 nautical miles along airways or ATC-directed routing with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports.

(B) Involves an instrument approach at each airport.

(C) Involves three different kinds of approaches with the use of navigation systems.

(iv) 3 hours of flight training in a multiengine airplane in preparation for the practical test within 60 days preceding the date of the test.

(3) *For a rotorcraft helicopter course:* 70 hours of training from an authorized instructor on the approved areas of operation in paragraph (d)(3) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a helicopter.

(ii) 3 hours of night flight training in a helicopter that includes -

(A) One cross-country flight of more than 50 nautical miles total distance.

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 35 hours of instrument flight training in a helicopter that includes at least one cross-country flight that is performed under IFR and -

(A) Is a distance of at least 100 nautical miles along airways or ATC-directed routing with one segment of the

flight consisting of at least a straight-line distance of 50 nautical miles between airports.

(B) Involves an instrument approach at each airport.

(C) Involves three different kinds of approaches with the use of navigation systems.

(iv) 3 hours of flight training in a helicopter in preparation for the practical test within 60 days preceding the date of the test.

(4) *For a powered-lift course:* 70 hours of training from an authorized instructor on the approved areas of operation in paragraph (d)(4) of this section that includes at least -

(i) Except as provided in § 61.111 of this chapter, 3 hours of cross-country flight training in a powered-lift.

(ii) 3 hours of night flight training in a powered-lift that includes -

(A) One cross-country flight of more than 100 nautical miles total distance.

(B) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.

(iii) 35 hours of instrument flight training in a powered-lift that includes at least one cross-country flight that is performed under IFR and -

(A) Is a distance of at least 250 nautical miles along airways or ATC-directed routing with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports.

(B) Involves an instrument approach at each airport.

(C) Involves three different kinds of approaches with the use of navigation systems.

(iv) 3 hours of flight training in a powered-lift in preparation for the practical test, within 60 days preceding the date of the test.

(c) For use of full flight simulators or flight training devices:

(1) The course may include training in a combination of full flight simulators, flight training devices, and aviation training devices, provided it is representative of the aircraft for which the course is approved, meets the requirements of this section, and the training is given by an authorized instructor.

(2) Training in a full flight simulator that meets the requirements of § 141.41(a) may be credited for a maximum of 35 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a) or an aviation training device that meets the requirements of § 141.41(b) may be credited for a maximum of 25 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(4) Training in a combination of flight simulators, flight training devices, or aviation training devices, described in paragraphs (c)(2) and (3) of this section, may be credited for a maximum of 35 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less. However, credit for training in a flight

training device and aviation training device, that meets the requirements of § 141.41(b), cannot exceed the limitation provided for in paragraph (c)(3) of this section.

(d) Each approved course must include the flight training on the approved areas of operation listed in this section that are appropriate to the aircraft category and class rating course -

(1) *For a combined private pilot certification and instrument rating course involving a single-engine airplane:*

- (i) Preflight preparation.
- (ii) Preflight procedures.
- (iii) Airport and seaplane base operations.
- (iv) Takeoffs, landings, and go-arounds.
- (v) Performance maneuvers.
- (vi) Ground reference maneuvers.
- (vii) Navigation and navigation systems.
- (viii) Slow flight and stalls.
- (ix) Basic instrument maneuvers and flight by reference to instruments.

- (x) Instrument approach procedures.
- (xi) Air traffic control clearances and procedures.
- (xii) Emergency operations.
- (xiii) Night operations.
- (xiv) Postflight procedures.

(2) *For a combined private pilot certification and instrument rating course involving a multiengine airplane:*

- (i) Preflight preparation.
- (ii) Preflight procedures.
- (iii) Airport and seaplane base operations.
- (iv) Takeoffs, landings, and go-arounds.
- (v) Performance maneuvers.
- (vi) Ground reference maneuvers.
- (vii) Navigation and navigation systems.
- (viii) Slow flight and stalls.
- (ix) Basic instrument maneuvers and flight by reference to instruments.

- (x) Instrument approach procedures.
- (xi) Air traffic control clearances and procedures.
- (xii) Emergency operations.
- (xiii) Multiengine operations.
- (xiv) Night operations.
- (xv) Postflight procedures.

(3) *For a combined private pilot certification and instrument rating course involving a rotorcraft helicopter:*

- (i) Preflight preparation.
- (ii) Preflight procedures.
- (iii) Airport and heliport operations.
- (iv) Hovering maneuvers.
- (v) Takeoffs, landings, and go-arounds.
- (vi) Performance maneuvers.
- (vii) Navigation and navigation systems.
- (viii) Basic instrument maneuvers and flight by reference to instruments.

- (ix) Instrument approach procedures.
- (x) Air traffic control clearances and procedures.
- (xi) Emergency operations.

(xii) Night operations.

(xiii) Postflight procedures.

(4) *For a combined private pilot certification and instrument rating course involving a powered-lift:*

- (i) Preflight preparation.
- (ii) Preflight procedures.
- (iii) Airport and heliport operations.
- (iv) Hovering maneuvers.
- (v) Takeoffs, landings, and go-arounds.
- (vi) Performance maneuvers.
- (vii) Ground reference maneuvers.
- (viii) Navigation and navigation systems.
- (ix) Slow flight and stalls.
- (x) Basic instrument maneuvers and flight by reference to instruments.
- (xi) Instrument approach procedures.
- (xii) Air traffic control clearances and procedures.
- (xiii) Emergency operations.
- (xiv) Night operations.
- (xv) Postflight procedures.

5. *Solo flight training.* Each approved course must include at least the following solo flight training:

(a) *For a combined private pilot certification and instrument rating course involving an airplane single engine:*

Five hours of flying solo in a single-engine airplane on the appropriate areas of operation in paragraph (d)(1) of section 4 of this appendix that includes at least -

(1) One solo cross-country flight of at least 100 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the takeoff and landing locations.

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(b) *For a combined private pilot certification and instrument rating course involving an airplane multiengine:*

Five hours of flying solo in a multiengine airplane or 5 hours of performing the duties of a pilot in command while under the supervision of an authorized instructor. The training must consist of the appropriate areas of operation in paragraph (d) (2) of section 4 of this appendix, and include at least -

(1) One cross-country flight of at least 100 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the takeoff and landing locations.

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(c) *For a combined private pilot certification and instrument rating course involving a helicopter:*

Five hours of flying solo in a helicopter on the appropriate areas of operation in paragraph (d)(3) of section 4 of this appendix that includes at least -

(1) One solo cross-country flight of more than 50 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles between the takeoff and landing locations.

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

(d) *For a combined private pilot certification and instrument rating course involving a powered-lift:* Five hours of flying solo in a powered-lift on the appropriate areas of operation in paragraph (d)(4) of section 4 of this appendix that includes at least -

(1) One solo cross-country flight of at least 100 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the takeoff and landing locations.

(2) Three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

6. Stage checks and end-of-course tests.

(a) Each student enrolled in a private pilot course must satisfactorily accomplish the stage checks and end-of-course tests in accordance with the school's approved training course that consists of the approved areas of operation listed in paragraph (d) of section 4 of this appendix that are appropriate to the aircraft category and class rating for which the course applies.

(b) Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate an aircraft in solo flight.

[Doc. No. FAA-2008-0938, 76 FR 54108, Aug. 31, 2011, as amended by Docket FAA-2015-1846, Amdt. 141-18, 81 FR 21462, Apr. 12, 2016]

PART 142 - TRAINING CENTERS

Authority:

49 U.S.C. 106(f), 106(g), 40113, 40119, 44101, 44701-44703, 44705, 44707, 44709-44711, 45102-45103, 45301-45302.

Source:

Docket No. 26933, 61 FR 34562, July 2, 1996, unless otherwise noted.

Subpart A - General

§ 142.1 Applicability.

(a) This subpart prescribes the requirements governing the certification and operation of training centers. Except as provided in paragraph (b) of this section, this part provides an

alternative means to accomplish training required by parts 61, 63, 65, 91, 121, 125, 135, or 137 of this chapter.

(b) Certification under this part is not required for training that is -

(1) Approved under the provisions of parts 63, 91, 121, 127, 135, or 137 of this chapter;

(2) Approved under subpart Y of part 121 of this chapter, Advanced Qualification Programs, for the authorization holder's own employees;

(3) Conducted under part 61 unless that part requires certification under this part;

(4) Conducted by a part 121 certificate holder for another part 121 certificate holder;

(5) Conducted by a part 135 certificate holder for another part 135 certificate holder; or

(6) Conducted by a part 91 fractional ownership program manager for another part 91 fractional ownership program manager.

(c) Except as provided in paragraph (b) of this section, after August 3, 1998, no person may conduct training, testing, or checking in advanced flight training devices or flight simulators without, or in violation of, the certificate and training specifications required by this part.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-4, 66 FR 21067, Apr. 27, 2001; Amdt. 142-5, 68 FR 54588, Sept. 17, 2003; Amdt. 142-9, 78 FR 42380, July 15, 2013]

§ 142.3 Definitions.

As used in this part:

Advanced Flight Training Device as used in this part, means a flight training device as defined in part 61 of this chapter that has a cockpit that accurately replicates a specific make, model, and type aircraft cockpit, and handling characteristics that accurately model the aircraft handling characteristics.

Core Curriculum means a set of courses approved by the Administrator, for use by a training center and its satellite training centers. The core curriculum consists of training which is required for certification. It does not include training for tasks and circumstances unique to a particular user.

Course means -

(1) A program of instruction to obtain pilot certification, qualification, authorization, or currency;

(2) A program of instruction to meet a specified number of requirements of a program for pilot training, certification, qualification, authorization, or currency; or

(3) A curriculum, or curriculum segment, as defined in subpart Y of part 121 of this chapter.

Courseware means instructional material developed for each course or curriculum, including lesson plans, flight event descriptions, computer software programs, audiovisual programs, workbooks, and handouts.

Evaluator means a person employed by a training center certificate holder who performs tests for certification, added ratings, authorizations, and proficiency checks that are

authorized by the certificate holder's training specification, and who is authorized by the Administrator to administer such checks and tests.

Flight training equipment means full flight simulators, as defined in § 1.1 of this chapter, flight training devices, as defined in § 1.1 of this chapter, and aircraft.

Instructor means a person employed by a training center and designated to provide instruction in accordance with subpart C of this part.

Line-Operational Simulation means simulation conducted using operational-oriented flight scenarios that accurately replicate interaction among flightcrew members and between flightcrew members and dispatch facilities, other crewmembers, air traffic control, and ground operations. Line operational simulation simulations are conducted for training and evaluation purposes and include random, abnormal, and emergency occurrences. Line operational simulation specifically includes line-oriented flight training, special purpose operational training, and line operational evaluation.

Specialty Curriculum means a set of courses that is designed to satisfy a requirement of the Federal Aviation Regulations and that is approved by the Administrator for use by a particular training center or satellite training center. The specialty curriculum includes training requirements unique to one or more training center clients.

Training center means an organization governed by the applicable requirements of this part that provides training, testing, and checking under contract or other arrangement to airmen subject to the requirements of this chapter.

Training program consists of courses, courseware, facilities, flight training equipment, and personnel necessary to accomplish a specific training objective. It may include a core curriculum and a specialty curriculum.

Training specifications means a document issued to a training center certificate holder by the Administrator that prescribes that center's training, checking, and testing authorizations and limitations, and specifies training program requirements.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-2, 62 FR 68137, Dec. 30, 1997; Amdt. 142-7, 76 FR 54110, Aug. 31, 2011; Amdt. 142-9, 78 FR 42380, July 15, 2013]

§ 142.5 Certificate and training specifications required.

(a) No person may operate a certificated training center without, or in violation of, a training center certificate and training specifications issued under this part.

(b) An applicant will be issued a training center certificate and training specifications with appropriate limitations if the applicant shows that it has adequate facilities, equipment, personnel, and courseware required by § 142.11 to conduct training approved under § 142.37.

§ 142.7 Duration of a certificate.

(a) Except as provided in paragraph (b) of this section, a training center certificate issued under this part is effective until the certificate is surrendered or until the Administrator suspends, revokes, or terminates it.

(b) Unless sooner surrendered, suspended, or revoked, a certificate issued under this part for a training center located outside the United States expires at the end of the twelfth month after the month in which it is issued or renewed.

(c) If the Administrator suspends, revokes, or terminates a training center certificate, the holder of that certificate shall return the certificate to the Administrator within 5 working days after being notified that the certificate is suspended, revoked, or terminated.

§ 142.9 Deviations or waivers.

(a) The Administrator may issue deviations or waivers from any of the requirements of this part.

(b) A training center applicant requesting a deviation or waiver under this section must provide the Administrator with information acceptable to the Administrator that shows -

- (1) Justification for the deviation or waiver; and
- (2) That the deviation or waiver will not adversely affect the quality of instruction or evaluation.

§ 142.11 Application for issuance or amendment.

(a) An application for a training center certificate and training specifications shall -

- (1) Be made on a form and in a manner prescribed by the Administrator;
- (2) Be filed with the FAA Flight Standards District Office that has jurisdiction over the area in which the applicant's principal business office is located; and
- (3) Be made at least 120 calendar days before the beginning of any proposed training or 60 calendar days before effecting an amendment to any approved training, unless a shorter filing period is approved by the Administrator.

(b) Each application for a training center certificate and training specification shall provide -

- (1) A statement showing that the minimum qualification requirements for each management position are met or exceeded;
- (2) A statement acknowledging that the applicant shall notify the Administrator within 10 working days of any change made in the assignment of persons in the required management positions;
- (3) The proposed training authorizations and training specifications requested by the applicant;
- (4) The proposed evaluation authorization;
- (5) A description of the flight training equipment that the applicant proposes to use;
- (6) A description of the applicant's training facilities, equipment, qualifications of personnel to be used, and proposed evaluation plans;

(7) A training program curriculum, including syllabi, outlines, courseware, procedures, and documentation to support the items required in subpart B of this part, upon request by the Administrator;

(8) A description of a recordkeeping system that will identify and document the details of training, qualification, and certification of students, instructors, and evaluators;

(9) A description of quality control measures proposed; and

(10) A method of demonstrating the applicant's qualification and ability to provide training for a certificate or rating in fewer than the minimum hours prescribed in part 61 of this chapter if the applicant proposes to do so.

(c) The facilities and equipment described in paragraph (b) of this section shall -

(1) Be available for inspection and evaluation prior to approval; and

(2) Be in place and operational at the location of the proposed training center prior to issuance of a certificate under this part.

(d) An applicant who meets the requirements of this part and is approved by the Administrator is entitled to -

(1) A training center certificate containing all business names included on the application under which the certificate holder may conduct operations and the address of each business office used by the certificate holder; and

(2) Training specifications, issued by the Administrator to the certificate holder, containing -

(i) The type of training authorized, including approved courses;

(ii) The category, class, and type of aircraft that may be used for training, testing, and checking;

(iii) For each flight simulator or flight training device, the make, model, and series of airplane or the set of airplanes being simulated and the qualification level assigned, or the make, model, and series of rotorcraft, or set of rotorcraft being simulated and the qualification level assigned;

(iv) For each flight simulator and flight training device subject to qualification evaluation by the Administrator, the identification number assigned by the FAA;

(v) The name and address of all satellite training centers, and the approved courses offered at each satellite training center;

(vi) Authorized deviations or waivers from this part; and

(vii) Any other items the Administrator may require or allow.

(e) The Administrator may deny, suspend, revoke, or terminate a certificate under this part if the Administrator finds that the applicant or the certificate holder -

(1) Held a training center certificate that was revoked, suspended, or terminated within the previous 5 years; or

(2) Employs or proposes to employ a person who -

(i) Was previously employed in a management or supervisory position by the holder of a training center certificate that was revoked, suspended, or terminated within the previous 5 years;

(ii) Exercised control over any certificate holder whose certificate has been revoked, suspended, or terminated within the last 5 years; and

(iii) Contributed materially to the revocation, suspension, or termination of that certificate and who will be employed in a management or supervisory position, or who will be in control of or have a substantial ownership interest in the training center.

(3) Has provided incomplete, inaccurate, fraudulent, or false information for a training center certificate;

(4) Should not be granted a certificate if the grant would not foster aviation safety.

(f) At any time, the Administrator may amend a training center certificate -

(1) On the Administrator's own initiative, under section 609 of the Federal Aviation Act of 1958 (49 U.S.C. 1429), as amended, and part 13 of this chapter; or

(2) Upon timely application by the certificate holder.

(g) The certificate holder must file an application to amend a training center certificate at least 60 calendar days prior to the applicant's proposed effective amendment date unless a different filing period is approved by the Administrator.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-1, 62 FR 13791, Mar. 21, 1997]

§ 142.13 Management and personnel requirements.

An applicant for a training center certificate must show that

(a) For each proposed curriculum, the training center has, and shall maintain, a sufficient number of instructors who are qualified in accordance with subpart C of this part to perform the duties to which they are assigned;

(b) The training center has designated, and shall maintain, a sufficient number of approved evaluators to provide required checks and tests to graduation candidates within 7 calendar days of training completion for any curriculum leading to airman certificates or ratings, or both;

(c) The training center has, and shall maintain, a sufficient number of management personnel who are qualified and competent to perform required duties; and

(d) A management representative, and all personnel who are designated by the training center to conduct direct student training, are able to understand, read, write, and fluently speak the English language.

§ 142.14 Employment of former FAA employees.

(a) Except as specified in paragraph (c) of this section, no holder of a training center certificate may knowingly employ or make a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual, in the preceding 2 years -

(1) Served as, or was directly responsible for the oversight of, a Flight Standards Service aviation safety inspector; and

(2) Had direct responsibility to inspect, or oversee the inspection of, the operations of the certificate holder.

(b) For the purpose of this section, an individual shall be considered to be acting as an agent or representative of a certificate holder in a matter before the agency if the individual makes any written or oral communication on behalf of the certificate holder to the agency (or any of its officers or employees) in connection with a particular matter, whether or not involving a specific party and without regard to whether the individual has participated in, or had responsibility for, the particular matter while serving as a Flight Standards Service aviation safety inspector.

(c) The provisions of this section do not prohibit a holder of a training center certificate from knowingly employing or making a contractual arrangement which permits an individual to act as an agent or representative of the certificate holder in any matter before the Federal Aviation Administration if the individual was employed by the certificate holder before October 21, 2011.

[Doc. No. FAA-2008-1154, 76 FR 52237, Aug. 22, 2011]

§ 142.15 Facilities.

(a) An applicant for, or holder of, a training center certificate shall ensure that -

(1) Each room, training booth, or other space used for instructional purposes is heated, lighted, and ventilated to conform to local building, sanitation, and health codes; and

(2) The facilities used for instruction are not routinely subject to significant distractions caused by flight operations and maintenance operations at the airport.

(b) An applicant for, or holder of, a training center certificate shall establish and maintain a principal business office that is physically located at the address shown on its training center certificate.

(c) The records required to be maintained by this part must be located in facilities adequate for that purpose.

(d) An applicant for, or holder of, a training center certificate must have available exclusively, for adequate periods of time and at a location approved by the Administrator, adequate flight training equipment and courseware, including at least one flight simulator or advanced flight training device.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-3, 63 FR 53537, Oct. 5, 1998]

§ 142.17 Satellite training centers.

(a) The holder of a training center certificate may conduct training in accordance with an approved training program at a satellite training center if -

(1) The facilities, equipment, personnel, and course content of the satellite training center meet the applicable requirements of this part;

(2) The instructors and evaluators at the satellite training center are under the direct supervision of management personnel of the principal training center;

(3) The Administrator is notified in writing that a particular satellite is to begin operations at least 60 days prior to proposed commencement of operations at the satellite training center; and

(4) The certificate holder's training specifications reflect the name and address of the satellite training center and the approved courses offered at the satellite training center.

(b) The certificate holder's training specifications shall prescribe the operations required and authorized at each satellite training center.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-3, 63 FR 53537, Oct. 5, 1998]

§§ 142.21-142.25 [Reserved]

§ 142.27 Display of certificate.

(a) Each holder of a training center certificate must prominently display that certificate in a place accessible to the public in the principal business office of the training center.

(b) A training center certificate and training specifications must be made available for inspection upon request by -

(1) The Administrator;

(2) An authorized representative of the National Transportation Safety Board; or

(3) Any Federal, State, or local law enforcement agency.

§ 142.29 Inspections.

Each certificate holder must allow the Administrator to inspect training center facilities, equipment, and records at any reasonable time and in any reasonable place in order to determine compliance with or to determine initial or continuing eligibility under 49 U.S.C. 44701, 44707, formerly the Federal Aviation Act of 1958, as amended, and the training center's certificate and training specifications.

§ 142.31 Advertising limitations.

(a) A certificate holder may not conduct, and may not advertise to conduct, any training, testing, and checking that is not approved by the Administrator if that training is designed to satisfy any requirement of this chapter.

(b) A certificate holder whose certificate has been surrendered, suspended, revoked, or terminated must -

(1) Promptly remove all indications, including signs, wherever located, that the training center was certificated by the Administrator; and

(2) Promptly notify all advertising agents, or advertising media, or both, employed by the certificate holder to cease all advertising indicating that the training center is certificated by the Administrator.

§ 142.33 Training agreements.

A pilot school certificated under part 141 of this chapter may provide training, testing, and checking for a training center certificated under this part if -

(a) There is a training, testing, and checking agreement between the certificated training center and the pilot school;

(b) The training, testing, and checking provided by the certificated pilot school is approved and conducted in accordance with this part;

(c) The pilot school certificated under part 141 obtains the Administrator's approval for a training course outline that includes the portion of the training, testing, and checking to be conducted under part 141; and

(d) Upon completion of training, testing, and checking conducted under part 141, a copy of each student's training record is forwarded to the part 142 training center and becomes part of the student's permanent training record.

Subpart B - Aircrew Curriculum and Syllabus Requirements

§ 142.35 Applicability.

This subpart prescribes the curriculum and syllabus requirements for the issuance of a training center certificate and training specifications for training, testing, and checking conducted to meet the requirements of part 61 of this chapter.

§ 142.37 Approval of flight aircrew training program.

(a) Except as provided in paragraph (b) of this section, each applicant for, or holder of, a training center certificate must apply to the Administrator for training program approval.

(b) A curriculum approved under SFAR 58 of part 121 of this chapter is approved under this part without modifications.

(c) Application for training program approval shall be made in a form and in a manner acceptable to the Administrator.

(d) Each application for training program approval must indicate -

(1) Which courses are part of the core curriculum and which courses are part of the specialty curriculum;

(2) Which requirements of part 61 of this chapter would be satisfied by the curriculum or curriculums; and

(3) Which requirements of part 61 of this chapter would not be satisfied by the curriculum or curriculums.

(e) If, after a certificate holder begins operations under an approved training program, the Administrator finds that the certificate holder is not meeting the provisions of its approved training program, the Administrator may require the certificate holder to make revisions to that training program.

(f) If the Administrator requires a certificate holder to make revisions to an approved training program and the certificate holder does not make those required revisions, within 30 calendar days, the Administrator may suspend, revoke, or terminate the training center certificate under the provisions of § 142.11(e).

§ 142.39 Training program curriculum requirements.

Each training program curriculum submitted to the Administrator for approval must meet the applicable requirements of this part and must contain -

(a) A syllabus for each proposed curriculum;

(b) Minimum aircraft and flight training equipment requirements for each proposed curriculum;

(c) Minimum instructor and evaluator qualifications for each proposed curriculum;

(d) A curriculum for initial training and continuing training of each instructor or evaluator employed to instruct in a proposed curriculum; and

(e) For each curriculum that provides for the issuance of a certificate or rating in fewer than the minimum hours prescribed by part 61 of this chapter -

(1) A means of demonstrating the ability to accomplish such training in the reduced number of hours; and

(2) A means of tracking student performance.

Subpart C - Personnel and Flight Training Equipment Requirements

§ 142.45 Applicability.

This subpart prescribes the personnel and flight training equipment requirements for a certificate holder that is training to meet the requirements of part 61 of this chapter.

§ 142.47 Training center instructor eligibility requirements.

(a) A certificate holder may not employ a person as an instructor in a flight training course that is subject to approval by the Administrator unless that person -

(1) Is at least 18 years of age;

(2) Is able to read, write, and speak and understand in the English language;

(3) If instructing in an aircraft in flight, is qualified in accordance with subpart H of this chapter;

(4) Satisfies the requirements of paragraph (c) of this section; and

(5) Meets at least one of the following requirements -

(i) Except as allowed by paragraph (a)(5)(ii) of this section, meets the aeronautical experience requirements of § 61.129 (a), (b), (c), or (e) of this chapter, as applicable, excluding the required hours of instruction in preparation for the commercial pilot practical test;

(ii) If instructing in flight simulator or flight training device that represents an airplane requiring a type rating or if instructing in a curriculum leading to the issuance of an airline transport pilot certificate or an added rating to an airline transport pilot certificate, meets the aeronautical experience requirements of § 61.159, § 61.161, or § 61.163 of this chapter, as applicable; or

(iii) Is employed as a flight simulator instructor or a flight training device instructor for a training center providing instruction and testing to meet the requirements of part 61 of this chapter on August 1, 1996.

(b) A training center must designate each instructor in writing to instruct in each approved course, prior to that person functioning as an instructor in that course.

(c) Prior to initial designation, each instructor shall:

(1) Complete at least 8 hours of ground training on the following subject matter:

(i) Instruction methods and techniques.

(ii) Training policies and procedures.

(iii) The fundamental principles of the learning process.

(iv) Instructor duties, privileges, responsibilities, and limitations.

(v) Proper operation of simulation controls and systems.

(vi) Proper operation of environmental control and warning or caution panels.

(vii) Limitations of simulation.

(viii) Minimum equipment requirements for each curriculum.

(ix) Revisions to the training courses.

(x) Cockpit resource management and crew coordination.

(2) Satisfactorily complete a written test -

(i) On the subjects specified in paragraph (c)(1) of this section; and

(ii) That is accepted by the Administrator as being of equivalent difficulty, complexity, and scope as the tests provided by the Administrator for the flight instructor airplane and instrument flight instructor knowledge tests.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-2, 62 FR 68137, Dec. 30, 1997]

§ 142.49 Training center instructor and evaluator privileges and limitations.

(a) A certificate holder may allow an instructor to provide:

(1) Instruction for each curriculum for which that instructor is qualified.

(2) Testing and checking for which that instructor is qualified.

(3) Instruction, testing, and checking intended to satisfy the requirements of any part of this chapter.

(b) A training center whose instructor or evaluator is designated in accordance with the requirements of this subpart to conduct training, testing, or checking in qualified and approved flight training equipment, may allow its instructor or evaluator to give endorsements required by part 61 of this chapter if that instructor or evaluator is authorized by the Administrator to instruct or evaluate in a part 142 curriculum that requires such endorsements.

(c) A training center may not allow an instructor to -

(1) Excluding briefings and debriefings, conduct more than 8 hours of instruction in any 24-consecutive-hour period;

(2) Provide flight training equipment instruction unless that instructor meets the requirements of § 142.53 (a)(1) through (a)(4), and § 142.53(b), as applicable; or

(3) Provide flight instruction in an aircraft unless that instructor -

(i) Meets the requirements of § 142.53(a)(1), (a)(2), and (a)(5);

(ii) Is qualified and authorized in accordance with subpart H of part 61 of this chapter;

(iii) Holds certificates and ratings specified by part 61 of this chapter appropriate to the category, class, and type aircraft in which instructing;

(iv) If instructing or evaluating in an aircraft in flight while serving as a required crewmember, holds at least a valid second class medical certificate; and

(v) Meets the recency of experience requirements of part 61 of this chapter.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-2, 62 FR 68137, Dec. 30, 1997; Amdt. 142-9, 78 FR 42380, July 15, 2013]

§ 142.51 [Reserved]

§ 142.53 Training center instructor training and testing requirements.

(a) Except as provided in paragraph (c) of this section, prior to designation and every 12 calendar months beginning the first day of the month following an instructor's initial designation, a certificate holder must ensure that each of its instructors meets the following requirements:

(1) Each instructor must satisfactorily demonstrate to an authorized evaluator knowledge of, and proficiency in, instructing in a representative segment of each curriculum for which that instructor is designated to instruct under this part.

(2) Each instructor must satisfactorily complete an approved course of ground instruction in at least -

(i) The fundamental principles of the learning process;

(ii) Elements of effective teaching, instruction methods, and techniques;

(iii) Instructor duties, privileges, responsibilities, and limitations;

(iv) Training policies and procedures;

(v) Cockpit resource management and crew coordination; and

(vi) Evaluation.

(3) Each instructor who instructs in a qualified and approved flight simulator or flight training device must satisfactorily complete an approved course of training in the operation of the flight simulator, and an approved course of ground instruction, applicable to the training courses the instructor is designated to instruct.

(4) The flight simulator training course required by paragraph (a)(3) of this section which must include -

(i) Proper operation of flight simulator and flight training device controls and systems;

- (ii) Proper operation of environmental and fault panels;
- (iii) Limitations of simulation; and
- (iv) Minimum equipment requirements for each curriculum.

(5) Each flight instructor who provides training in an aircraft must satisfactorily complete an approved course of ground instruction and flight training in an aircraft, flight simulator, or flight training device.

(6) The approved course of ground instruction and flight training required by paragraph (a)(5) of this section which must include instruction in -

- (i) Performance and analysis of flight training procedures and maneuvers applicable to the training courses that the instructor is designated to instruct;
- (ii) Technical subjects covering aircraft subsystems and operating rules applicable to the training courses that the instructor is designated to instruct;
- (iii) Emergency operations;
- (iv) Emergency situations likely to develop during training; and
- (v) Appropriate safety measures.

(7) Each instructor who instructs in qualified and approved flight training equipment must pass a written test and annual proficiency check -

- (i) In the flight training equipment in which the instructor will be instructing; and
- (ii) On the subject matter and maneuvers of a representative segment of each curriculum for which the instructor will be instructing.

(b) In addition to the requirements of paragraphs (a)(1) through (a)(7) of this section, each certificate holder must ensure that each instructor who instructs in a flight simulator that the Administrator has approved for all training and all testing for the airline transport pilot certification test, aircraft type rating test, or both, has met at least one of the following three requirements:

(1) Each instructor must have performed 2 hours in flight, including three takeoffs and three landings as the sole manipulator of the controls of an aircraft of the same category and class, and, if a type rating is required, of the same type replicated by the approved flight simulator in which that instructor is designated to instruct;

(2) Each instructor must have participated in an approved line-observation program under part 121 or part 135 of this chapter, and that -

(i) Was accomplished in the same airplane type as the airplane represented by the flight simulator in which that instructor is designated to instruct; and

(ii) Included line-oriented flight training of at least 1 hour of flight during which the instructor was the sole manipulator of the controls in a flight simulator that replicated the same type aircraft for which that instructor is designated to instruct; or

(3) Each instructor must have participated in an approved in-flight observation training course that -

(i) Consisted of at least 2 hours of flight time in an airplane of the same type as the airplane replicated by the flight simulator in which the instructor is designated to instruct; and

(ii) Included line-oriented flight training of at least 1 hour of flight during which the instructor was the sole manipulator of the controls in a flight simulator that replicated the same type aircraft for which that instructor is designated to instruct.

(c) An instructor who satisfactorily completes a curriculum required by paragraph (a) or (b) of this section in the calendar month before or after the month in which it is due is considered to have taken it in the month in which it was due for the purpose of computing when the next training is due.

(d) The Administrator may give credit for the requirements of paragraph (a) or (b) of this section to an instructor who has satisfactorily completed an instructor training course for a part 121 or part 135 certificate holder if the Administrator finds such a course equivalent to the requirements of paragraph (a) or (b) of this section.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-1, 62 FR 13791, Mar. 21, 1997]

§ 142.54 Airline transport pilot certification training program.

No certificate holder may use a person nor may any person serve as an instructor in a training program approved to meet the requirements of § 61.156 of this chapter unless the instructor:

(a) Holds an airline transport pilot certificate with an airplane category multiengine class rating;

(b) Has at least 2 years of experience as a pilot in command in operations conducted under § 91.1053(a)(2)(i) or § 135.243(a)(1) of this chapter, or as a pilot in command or second in command in any operation conducted under part 121 of this chapter;

(c) Except for the holder of a flight instructor certificate, receives initial training on the following topics:

- (1) The fundamental principles of the learning process;
- (2) Elements of effective teaching, instruction methods, and techniques;
- (3) Instructor duties, privileges, responsibilities, and limitations;
- (4) Training policies and procedures; and
- (5) Evaluation.

(d) If providing training in a flight simulation training device -

(1) Holds an aircraft type rating for the aircraft represented by the flight simulation training device utilized in the training program and have received training and evaluation within the preceding 12 months from the certificate holder on the maneuvers that will be demonstrated in the flight simulation training device; and

(2) Satisfies the requirements of § 142.53(a)(4).

(e) A certificate holder may not issue a graduation certificate to a student unless that student has completed all the curriculum requirements of the course.

(f) A certificate holder must conduct evaluations to ensure that training techniques, procedures, and standards are acceptable to the Administrator.

[Doc. No. FAA-2010-0100, 78 FR 42380, July 15, 2013]

§ 142.55 Training center evaluator requirements.

(a) Except as provided by paragraph (d) of this section, a training center must ensure that each person authorized as an evaluator -

- (1) Is approved by the Administrator;
- (2) Is in compliance with §§ 142.47, 142.49, and 142.53 and applicable sections of part 183 of this chapter; and
- (3) Prior to designation, and except as provided in paragraph (b) of this section, every 12-calendar-month period following initial designation, the certificate holder must ensure that the evaluator satisfactorily completes a curriculum that includes the following:
 - (i) Evaluator duties, functions, and responsibilities;
 - (ii) Methods, procedures, and techniques for conducting required tests and checks;
 - (iii) Evaluation of pilot performance; and
 - (iv) Management of unsatisfactory tests and subsequent corrective action; and
- (4) If evaluating in qualified and approved flight training equipment must satisfactorily pass a written test and annual proficiency check in a flight simulator or aircraft in which the evaluator will be evaluating.

(b) An evaluator who satisfactorily completes a curriculum required by paragraph (a) of this section in the calendar month before or the calendar month after the month in which it is due is considered to have taken it in the month in which it was due for the purpose of computing when the next training is due.

(c) The Administrator may give credit for the requirements of paragraph (a)(3) of this section to an evaluator who has satisfactorily completed an evaluator training course for a part 121 or part 135 certificate holder if the Administrator finds such a course equivalent to the requirements of paragraph (a) (3) of this section.

(d) An evaluator who is qualified under subpart Y of part 121 of this chapter shall be authorized to conduct evaluations under the Advanced Qualification Program without complying with the requirements of this section.

[Doc. No. 26933, 61 FR 34562, July 2, 1996, as amended by Amdt. 142-9, 78 FR 42380, July 15, 2013]

§ 142.57 Aircraft requirements.

(a) An applicant for, or holder of, a training center certificate must ensure that each aircraft used for flight instruction and solo flights meets the following requirements:

- (1) Except for flight instruction and solo flights in a curriculum for agricultural aircraft operations, external load operations, and similar aerial work operations, the aircraft must have an FAA standard airworthiness certificate or a foreign equivalent of an FAA standard airworthiness certificate, acceptable to the Administrator.

(2) The aircraft must be maintained and inspected in accordance with -

(i) The requirements of part 91, subpart E, of this chapter; and

(ii) An approved program for maintenance and inspection.

(3) The aircraft must be equipped as provided in the training specifications for the approved course for which it is used.

(b) Except as provided in paragraph (c) of this section, an applicant for, or holder of, a training center certificate must ensure that each aircraft used for flight instruction is at least a two-place aircraft with engine power controls and flight controls that are easily reached and that operate in a conventional manner from both pilot stations.

(c) Airplanes with controls such as nose-wheel steering, switches, fuel selectors, and engine air flow controls that are not easily reached and operated in a conventional manner by both pilots may be used for flight instruction if the certificate holder determines that the flight instruction can be conducted in a safe manner considering the location of controls and their nonconventional operation, or both.

§ 142.59 Flight simulators and flight training devices.

(a) An applicant for, or holder of, a training center certificate must show that each flight simulator and flight training device used for training, testing, and checking (except AQP) will be or is specifically qualified and approved by the Administrator for -

(1) Each maneuver and procedure for the make, model, and series of aircraft, set of aircraft, or aircraft type simulated, as applicable; and

(2) Each curriculum or training course in which the flight simulator or flight training device is used, if that curriculum or course is used to satisfy any requirement of 14 CFR chapter I.

(b) The approval required by paragraph (a)(2) of this section must include -

(1) The set of aircraft, or type aircraft;

(2) If applicable, the particular variation within type, for which the training, testing, or checking is being conducted; and

(3) The particular maneuver, procedure, or crewmember function to be performed.

(c) Each qualified and approved flight simulator or flight training device used by a training center must -

(1) Be maintained to ensure the reliability of the performances, functions, and all other characteristics that were required for qualification;

(2) Be modified to conform with any modification to the aircraft being simulated if the modification results in changes to performance, function, or other characteristics required for qualification;

(3) Be given a functional preflight check each day before being used; and

(4) Have a discrepancy log in which the instructor or evaluator, at the end of each training session, enters each discrepancy.

(d) Unless otherwise authorized by the Administrator, each component on a qualified and approved flight simulator or flight training device used by a training center must be operative if the component is essential to, or involved in, the training, testing, or checking of airmen.

(e) Training centers shall not be restricted to specific -

(1) Route segments during line-oriented flight training scenarios; and

(2) Visual data bases replicating a specific customer's bases of operation.

(f) Training centers may request evaluation, qualification, and continuing evaluation for qualification of flight simulators and flight training devices without -

(1) Holding an air carrier certificate; or

(2) Having a specific relationship to an air carrier certificate holder.

Subpart D - Operating Rules

§ 142.61 Applicability.

This subpart prescribes the operating rules applicable to a training center certificated under this part and operating a course or training program curriculum approved in accordance with subpart B of this part.

§ 142.63 Privileges.

A certificate holder may allow flight simulator instructors and evaluators to meet recency of experience requirements through the use of a qualified and approved flight simulator or qualified and approved flight training device if that flight simulator or flight training device is -

(a) Used in a course approved in accordance with subpart B of this part; or

(b) Approved under the Advanced Qualification Program for meeting recency of experience requirements.

§ 142.65 Limitations.

(a) A certificate holder shall -

(1) Ensure that a flight simulator or flight training device freeze, slow motion, or repositioning feature is not used during testing or checking; and

(2) Ensure that a repositioning feature is used during line operational simulation for evaluation and line-oriented flight training only to advance along a flight route to the point where the descent and approach phase of the flight begins.

(b) When flight testing, flight checking, or line operational simulation is being conducted, the certificate holder must ensure that one of the following occupies each crewmember position:

(1) A crewmember qualified in the aircraft category, class, and type, if a type rating is required, provided that

no flight instructor who is giving instruction may occupy a crewmember position.

(2) A student, provided that no student may be used in a crewmember position with any other student not in the same specific course.

(c) The holder of a training center certificate may not recommend a trainee for a certificate or rating, unless the trainee -

(1) Has satisfactorily completed the training specified in the course approved under § 142.37; and

(2) Has passed the final tests required by § 142.37.

(d) The holder of a training center certificate may not graduate a student from a course unless the student has satisfactorily completed the curriculum requirements of that course.

Subpart E - Recordkeeping

§ 142.71 Applicability.

This subpart prescribes the training center recordkeeping requirements for trainees enrolled in a course, and instructors and evaluators designated to instruct a course, approved in accordance with subpart B of this part.

§ 142.73 Recordkeeping requirements.

(a) A certificate holder must maintain a record for each trainee that contains -

(1) The name of the trainee;

(2) A copy of the trainee's pilot certificate, if any, and medical certificate;

(3) The name of the course and the make and model of flight training equipment used;

(4) The trainee's prerequisite experience and course time completed;

(5) The trainee's performance on each lesson and the name of the instructor providing instruction;

(6) The date and result of each end-of-course practical test and the name of the evaluator conducting the test; and

(7) The number of hours of additional training that was accomplished after any unsatisfactory practical test.

(b) A certificate holder shall maintain a record for each instructor or evaluator designated to instruct a course approved in accordance with subpart B of this part that indicates that the instructor or evaluator has complied with the requirements of §§ 142.13, 142.45, 142.47, 142.49, and 142.53, as applicable.

(c) The certificate holder shall -

(1) Maintain the records required by paragraphs (a) of this section for at least 1 year following the completion of training, testing or checking;

(2) Maintain the qualification records required by paragraph (b) of this section while the instructor or evaluator is in the employ of the certificate holder and for 1 year thereafter; and

(3) Maintain the recurrent demonstration of proficiency records required by paragraph (b) of this section for at least 1 year.

(d) The certificate holder must provide the records required by this section to the Administrator, upon request and at a reasonable time, and shall keep the records required by -

(1) Paragraph (a) of this section at the training center, or satellite training center where the training, testing, or checking, if appropriate, occurred; and

(2) Paragraph (b) of this section at the training center or satellite training center where the instructor or evaluator is primarily employed.

(e) The certificate holder shall provide to a trainee, upon request and at a reasonable time, a copy of his or her training records.

Subpart F - Other Approved Courses

§ 142.81 Conduct of other approved courses.

(a) An applicant for, or holder of, a training center certificate may apply for approval to conduct a course for which a curriculum is not prescribed by this part.

(b) The course for which application is made under paragraph (a) of this section may be for flight crewmembers other than pilots, airmen other than flight crewmembers, material handlers, ground servicing personnel, and security personnel, and others approved by the Administrator.

(c) An applicant for course approval under this subpart must comply with the applicable requirements of subpart A through subpart F of this part.

(d) The Administrator approves the course for which the application is made if the training center or training center applicant shows that the course contains a curriculum that will achieve a level of competency equal to, or greater than, that required by the appropriate part of this chapter.

SUBCHAPTER I - AIRPORTS

SUBCHAPTER J - NAVIGATIONAL FACILITIES

SUBCHAPTER K - ADMINISTRATIVE REGULATIONS

SUBCHAPTERS L-M [RESERVED]

SUBCHAPTER N - WAR RISK INSURANCE

April 10, 2017

Title 14 - Aeronautics and Space--Volume 4

CHAPTER II - OFFICE OF THE SECRETARY, DEPARTMENT OF TRANSPORTATION (AVIATION PROCEEDINGS)

SUBCHAPTER A - ECONOMIC REGULATIONS

SUBCHAPTER B - PROCEDURAL REGULATIONS

SUBCHAPTER C [RESERVED]

SUBCHAPTER D - SPECIAL REGULATIONS

SUBCHAPTER E - ORGANIZATION

SUBCHAPTER F - POLICY STATEMENTS

CHAPTER III - COMMERCIAL SPACE TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

SUBCHAPTER A - GENERAL

SUBCHAPTER B - PROCEDURE

SUBCHAPTER C - LICENSING

June 29 2017

Title 14 - Aeronautics and Space--Volume 5

CHAPTER V - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

CHAPTER VI - AIR TRANSPORTATION SYSTEM STABILIZATION

SUBCHAPTER A - OFFICE OF MANAGEMENT AND BUDGET

SUBCHAPTER B - AIR TRANSPORTATION STABILIZATION BOARD