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| UNIT OVERVIEW |
| **Course** Helicopter Crewmember, S-271 |
| **Unit** 7 – Operational Safety |
| **Lesson** A – General Aviation Safety |
| **Time** XX Hour |
| **Objectives**1. List safety precautions to be observed when working around or flying in a helicopter.2. Define the requirements and procedures to safely perform special missions. |
| **Strategy**Through lecture, and class discussion this unit will help students obtain an overall knowledge of general aviation safety, pre-flight and in-flight, aviation watch outs and an overall understanding of special mission safety.  |
| **Instructional Methods*** Facilitation /informal lecture supported with slides
* Class discussion
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| **Instructional Aids*** Computer with presentation software with LCD projector
* Incident Reponses Pocket Guide (IRPG)
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| **Exercise*** None
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| **Evaluation Methods*** Class discussion
* Unit review
* Unit quiz
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| **Outline**I. General Aviation SafetyA. Safety PrecautionsB. General Helicopter SafetyC. In-Flight DisciplineD. Common Questions and Concerns to ConsiderII. Special Mission SafetyA. What Is Special Use?B. Pilot and Helicopter Approved For The Mission |
| **Aids and Cues Codes**The codes in the Aids and Cues column are defined as follows:IG – Instructor Guide IR – Instructor ReferenceSW – Student Workbook SR – Student ReferenceHO – Handout Slide – PowerPoint |

# UNIT PRESENTATION

COURSE: Helicopter Crewmember, S-271

UNIT: 7 – Operational Safety

LESSON: A – General Aviation Safety

| OUTLINE | AIDS & CUES |
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| Unit Title Slide.Present Unit Objectives.The purpose of this unit is to provide you with information and skills to perform your job safely in and around helicopters.Many accidents and incidents could have been prevented if the established policies and procedures were followed.Helicopters are potentially dangerous to all personnel. Through application of the following safety practices, the helicopter operations environment can be safe.i. general Aviation safetyA. Safety Precautions* Helicopter operations will be limited to missions approved on the Aircraft Data Card and the Pilot Qualifications Card. If you have not flown in the aircraft or with the pilot recently you should ask to see both cards. The pilot is required to carry the pilot qualifications card, and the aircraft data card is required to be in the aircraft.
* Helicopter operations will comply with the user agency manual, Helicopter Contract and Federal and State Occupational Safety and Health Act. Standards applicable to the general safety rules for operations and practices.
* Flight following and flight planning will be in place and conducted based on agency policy.
* Operation of the helicopter will be during daylight hours only. (Defined as one-half hour before sunrise to one-half hour after sunset.)
* Helicopter pilot duty and flight limitations have been established by the agencies in an effort to reduce pilot fatigue.
* No unnecessary passengers will be aboard the helicopters.
* Do not allow unnecessary flights.
* Helicopters shall not be dispatched for mountainous flying when average wind velocity exceeds agency or manufacturer limitations.
* Personal protective equipment required for all missions-available and worn by all ground personnel, passengers and pilot.
* Daily or mission briefing

Participants PilotCrewmembersGround personnelHelicopter managerBriefing itemsOn the ground and in the air safety precautions Safety plan Hazard mapMission* Responsibilities

PilotSafe use of the helicopter at all times.Participate in the helicopter safety program and the efficient use of the aircraft.Approve all missions; the pilot’s word is final as to whether or not the flight can safely be made.All personnelEnsure mission objectives and hazards are clear and understood.A passenger may refuse to fly with any pilot or in any aircraft or curtail an existing flight if, in the opinion of the passenger, conditions exist which make the flight unsafe.B. General Helicopter Safety* Keep clear of helicopter’s rotors.

Unless loading or unloading, stay outside safety circle at all times.Approach or depart in a slight crouch from front or side in full view of the pilot or as directed by the pilot or helitack personnel.* Under no circumstances go near the tail rotor of the helicopter.
* Do not approach from or depart to an area where ground is higher than where the helicopter is sitting or hovering.
* Never run when approaching or leaving helicopters.
* Carry equipment parallel to the ground.
* Obtain pilot’s approval for all gear stowed in or on the helicopter, especially explosives, flammable, or other hazardous materials.
* Cargo in racks or cargo compartments must be tied down securely.
* Know location and operation of doors and emergency exits.
* Know location and operation of:

Fire extinguisherAll DOI and Forest Service aircraft must have a hand held minimum 20B:C rated fire extinguisher.Emergency location transmitter (ELTs) Every aircraft must have an ELT.First-aid kitAircraft owned or operated by DOI and Forest Service are required to carry a first aid kit.The first aid kit must be readily accessible to all occupants in the aircraft.Survival kit**Survival kits are required for all special use activities and are recommended for all missions.**Survival kit (minimum contents)* Knife
* Signal mirror
* Signal flares (6)
* Matches
* Space blanket
* Water (1 qt. per person)
* Food (2 days per person)
* Candles
* Water purification tablets
* Collapsible water bag
* Whistle
* Magnesium fire starter
* Nylon Rope (50 ft.)

Restraint systemsAll aircraft must be equipped with an FAA approved restraint system.All restraint systems must have a metal-to-metal buckle or latching mechanism.Keep belt fastened during flight.Three types of restraint systems:* Two-point (if applicable)
* Three-point
* Four-point

Front seat occupants of a helicopter must have a four-point harness.Make sure lap belts are refastened before closing doorFuel and battery shut offKnow location and operation, specifically which to shut-off first in the event of an emergency* Use a chin strap or secure hard hat when working close to the helicopter.
* No smoking within 100 feet of helicopter or fuel trucks.
* One-wheel, one-skid, hover stepping, or power-on landing will not be performed without written agency approval.

C. In-Flight Discipline* No moving about in flight; i.e., changing seats.
* Keep arms and legs clear of controls and inside helicopter.
* Control objects, such as maps, etc., so as to not restrict visibility.
* Keep hardhat, gloves and other PPE on.
* Locate the emergency exits and know how to operate. Use only in emergency.
* If suspect becomes combative, restrain the suspect and notify pilot to land in a safe area.
* No smoking at any time while in flight.
* Keep alert for aerial hazards, particularly other aircraft and power lines; inform pilot of their presence.
* Always know your location so you may assist in flight following and maintain situational awareness.
* Do not throw objects out of helicopter unless trained in procedures and pilot approval is obtained.

D. Common Questions and Concerns to ConsiderRefer to IRPG aviation blue section for list of watch out situations. Go through list with students and discuss each situation.1. Aviation Watch out Situations* Is the flight necessary?
* Who is in charge?

Are all known hazards identified and have you made them known?* Should you stop the operation or flight due to change in conditions, communications, confusion, conflicting priorities, weather, turbulence, personnel?
* Is this the best way to accomplish the mission?
* Are you driven by an overwhelming sense of urgency?
* Can you justify your actions?
* Are there any other aircraft in the area?
* Do you have an escape route?
* Are there any rules being broken?
* Are communications getting tense?
* Are you deviating from assigned operation or flight?

2. Other Questions to Consider* Do the risks outweigh the benefits of the operation?
* Is there an adequate safety margin?
* Has adequate planning been accomplished?
* Are the pilot and helicopter carded and equipped for the mission?
* Are there sufficient qualified personnel to accomplish the mission?
* Has there been an adequate planning and hazard analysis?
* Is there adequate equipment to accomplish the mission?
* Have all personnel been briefed on the mission and a positive communication established?
* Are contingency plans in place for changes due to bad weather or equipment failure?

Ii. special mission safetyA. What Is Special Use?Special use is operations involving the use of helicopters in support of DOI and U.S. Forest Service programs, which require special considerations due to their functional use. Pilot and aircraft must be carded for special mission.Example of Special Use:* Flying low-level (below 500 ft.)
* Mountain flying
* Long-line
* Aerial ignition
* Short Haul/Rappel
* Law Enforcement Missions

B. Pilot and Helicopter Approved For the MissionBefore any flight, you must ensure the pilot and helicopter are approved for the planned mission.Special use activities require that everyone aboard the helicopter wear a full complement of PPE:* Aviator’s Flight Helmet
* Fire Resistant Clothing
* Leather or Nomex Gloves
* Leather Boots
* Restraint harness

Any questions?Review Unit Objectives. | Slide 7A-1Slide 7A-2Slide 7A-3Slide 7A-4Slide 7A-5Slide 7A-6Slide 7A-7Slide 7A-8Slide 7A-9Slide 7A-10Slide 7A-11Slide 7A-12Slide 7A-13Slide 7A-14Slide 7A-15Slide 7A-16Slide 7A-17Slide 7A-18Slide 7A-19Slide 7A-20Slide 7A-21Slide 7A-22Slide 7A-23Slide 7A-24Slide 7A-25Slide 7A-26Slide 7A-27Slide 7A-28Slide 7A-29Slide 7A-30Slide 7A-31Slide 7A-32Slide 7A-33Slide 7A-34Slide 7A-35Slide 7A-36Slide 7A-37Slide 7A-38Slide 7A-39Slide 7A-40Slide 7A-41Slide 7A-42Slide 7A-43Slide 7A-44Slide 7A-45Slide 7A-46Slide 7A-47Slide 7A-48Slide 7A-49Slide 7A-50Slide 7A-51Slide 7A-52Slide 7A-53Slide 7A-54Slide 7A-55 |