

TRAINING BULLETIN NO. 53

AIR AMBULANCE

I. INTRODUCTION

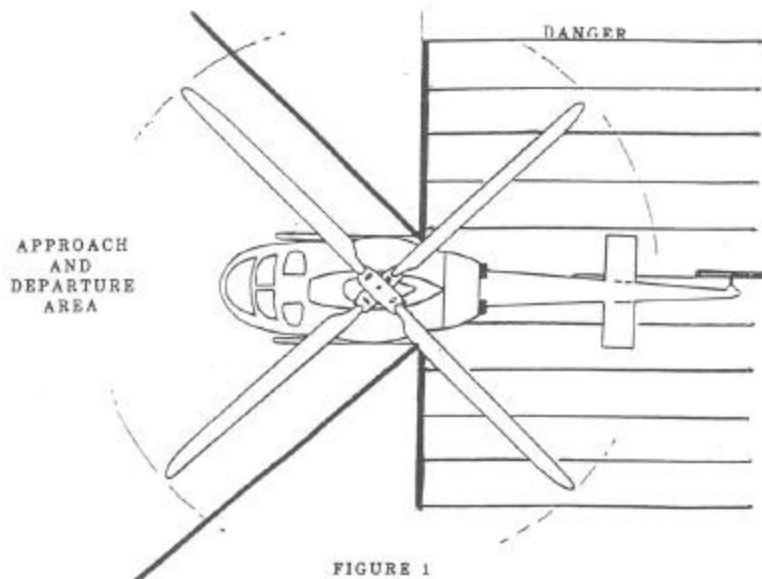
When a patient requires expedited transport to a hospital, an Air Ambulance may be a viable alternative. The Incident Commander (including first on scene Rescue Ambulance personnel) should not hesitate to request an Air Ambulance if operational circumstances warrant its use. The purpose of the Air Ambulance is to transport critical patient to a Trauma Center or other specialized medical facility (Burn Center, Children's Hospital, etc.). The Air Ambulance is also used when a medical disaster produces many patients and the nearest hospital's emergency capabilities have been saturated, making it necessary to transport patients great distance to available hospitals.

II. HELICOPTER CHARACTERISTICS

Helicopter #1 is the primary Air Ambulance. It has an inventory of medical equipment that is carried at all times. If helicopter #1 is not available, then Helicopters #2 or #3 are used as the Air Ambulance. When requesting the Air Ambulance, specify the operation desired so that the proper personnel and equipment are placed on board.

The normal staffing complement dispatched on an Air Ambulance is two Pilots, two Paramedics and two Helitac Crew Members. The on-board Paramedics are obtained from a Paramedic Ambulance or a Paramedic Engine dispatched to Air Operations. If Paramedics are not available to respond to Air Operations within a reasonable time frame, the Paramedics at the emergency scene will be utilized on the Air Ambulance. Therefore, it is the responsibility of all members to have a working knowledge of Air Ambulance operation.

The Air Ambulance can normally carry two litter patients per trip, however, high density transportation of up to six litter patients can be accomplished with prior notification. The Air Ambulance can normally receive patients on either side. However, the right side is preferred because the pilot is seated on the right side and eye to eye contact is more easily



obtained. (See Figure 1)

A helicopter's abilities to land and take off at a steep or vertical angle is limited by its gross weight, temperature (heat), altitude, relative head wind and visibility. Helicopters usually land and take off into the wind. The overall length of the largest Fire Department Air Ambulance is 57 feet from the tip of the main rotor to the tip of the tail rotor. The main rotor has a 48 foot diameter.

THE MOST HAZARDOUS PARTS OF A HELICOPTER ARE THE TURNING TAIL ROTOR AND MAIN ROTOR. (See Figure 2.)

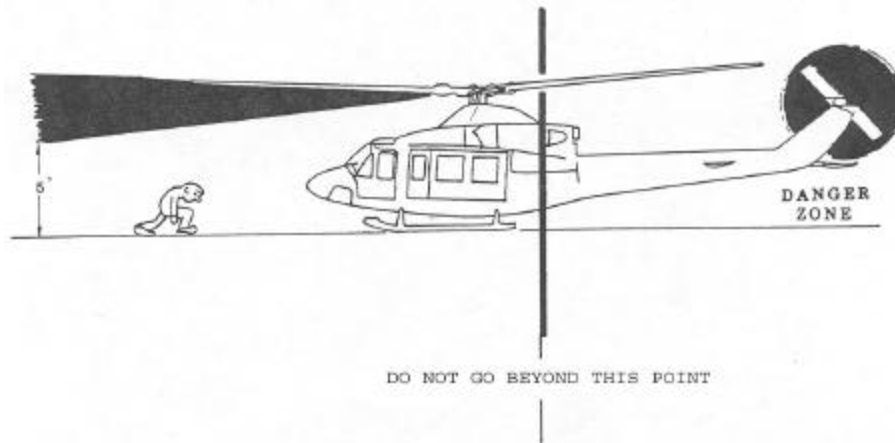


FIGURE 2

III. SELECTING A LANDING SITE

An Air Ambulance landing site shall be free of obstructions on the ground-and on the anticipated approach and departure path. Wires or electrical lines in the approach or departure path are one of the greatest hazards to any Air Ambulance operation. Darkness and times of poor visibility (fog, haze, or rain) increase these hazards. **IT IS IMPERATIVE THAT GREAT CARE BE USED IN LOCATING WIRES AND LINES THAT MAY BE A HAZARD.** This information must be passed on to the Helicopter Pilot prior to final approach to land or depart.

The suggested landing area size is 100 feet by 100 feet or larger. The normal MINIMUM landing pad is 25 feet by 25 feet (hilltop or rooftop). The most desirable approach and departure angle is about 20 degrees. The approach and departure angle should not exceed 25 degrees if possible. (See Figure 3.)

-NO FIGURE 3-

Parking lots, parks, playgrounds and vacant lots, when free of people, debris and vehicles, often are suitable landing sites. City streets are not always desirable due to power lines, light poles, trees, vehicles, spectators, and the risk of downwash or wind damage to large area windows in store fronts and residences. It may be better to transport the patient a short distance on the ground to a safe and secure landing site than to attempt to land at a marginal landing site.

The basic landing site criteria is **SAFETY**. Select an area close in proximity to your incident that in your best judgment is safe. Remember the Pilot will make the final determination based on existing conditions.

IV. PREPARING FOR THE ARRIVAL OF THE AIR AMBULANCE

Clear the landing area of all people and remove all vehicles. Move animals such as horses and dogs an extra measure of distance away. The downwash from the Air Ambulance can produce a fifty (50) mile per hour wind. Secure all loose objects, turnout coats, helmets, blankets, air bottles, and other equipment that may become airborne, possibly creating a hazard to Fire Department personnel, bystanders, or the Air Ambulance. Wet down the area if dust or dirt is present.

For nighttime, crossed headlight, beams from apparatus pointed in the direction the Air Ambulance is expected to land (aimed into the wind toward the path of departure) is an accepted way to mark a landing site. Due to the possibility of blinding the Pilots with bright lights, headlights should not be facing the helicopter. Portable quartz lights with tripod should not be used at helispots due to the possibility of being toppled by air ambulance downwash.

Lay out a loaded 1-1/2 inch protection line. Dry chemical extinguishers have a limited effectiveness on an operating helicopter fire due to downwash.

Personnel or security must be placed around the perimeter of the landing site to protect the Air Ambulance from bystanders and vehicles. The location of the Air Ambulance must be maintained at all times. Additionally, security personnel must divide their attention between the location of the Air Ambulance, bystanders, and vehicles. This is best done by facing away from the Air Ambulance so as to stop any bystanders or vehicles entering the security area.

V. PREPARING PATIENT FOR TRANSPORTATION

Prior to arrival of the Air Ambulance, patients should be immobilized (splints, cervical collar, backboard, etc.) and stabilized (I.V.'s, patient airway, MAST suit, etc.), as required depending upon the extent of injuries and hospital base station instructions. All patients (with or without trauma) shall be placed on a flat stretcher. This makes loading the patient into the aircraft safer and easier.

A Medtag with all patient information shall be placed on the patient and secured so it will not be blown off due to rotor wash. If there is time, the pink copy of the 902-M should be completed and given to the Air Ambulance Paramedic III when the assessment is given (this is not always possible due to the urgency of the incident).

VI. LANDING THE AIR AMBULANCE

The Incident Commander or on-scene designated member shall contact the Pilot by the appropriate radio channel and inform him of the landing site location. The Pilot will make a visual reconnaissance of the area prior to landing. Let the Pilot know when you're prepared and are ready for the Air Ambulance to land. Under normal conditions the Air Ambulance should be on the ground for no more than two to three minutes. Ideally, patient(s) are ready for transport when the Air Ambulance is touching down.

A member who is familiar with helicopter hand signals (Ref. Vol. 3, 6/11-87.66) shall be designated to visually guide the helicopter to the landing site. When the Air Ambulance arrives over the scene, the guide should stand in front of the landing site with back to the wind and arms extended fully above the head. At night, flashlight wands or flashlights should be held in both hands. Do not use fusees (highway flares) -- molten sulfur may blow into the face or other unprotected areas due to the strong downwash.

All personnel near the landing site shall wear goggles, helmets with tightened chin straps, and protective clothing. Be aware of blowing dirt, dust, and debris. Media representatives, photographers, and other officials shall be observed closely to keep them from moving too close to the Air Ambulance.

VII. WHEN THE AIR AMBULANCE IS ON THE GROUND

When the Air Ambulance is on the ground, the Helitac Crew Members (orange jumpsuits) or Co-Pilot (tan jumpsuit) will disembark to direct operations at the scene. Be guided by their directions.

Approach and depart the Air Ambulance from the front and move from one side to the other around the front only. Do not walk behind the Air Ambulance (See Figure 1). Walk, don't run. If the landing site is sloped or terraced, do not approach or depart from the uphill side (See Figure 4).

NO FIGURE 4

The tail rotor is usually the greatest hazard to personnel on the ground. It is nearly invisible because it is turning about nine times faster than the main rotor and its sound is masked by the main rotor and engine noise.

DO NOT APPROACH THE REAR of the Air Ambulance!!!

All personnel shall remain at least 100 feet away from the Air Ambulance unless otherwise assigned.

VIII. LOADING PATIENTS

Park the Rescue Ambulance or other apparatus away from the rotor arc to prevent possible damage due to collision with antennas. Allow only the minimum number of people necessary to load the patient to approach the Air Ambulance. While loading patients, avoid placing feet next to the skids as they spring outward up to six inches. Place one foot on top of the skid.

Prepare the patient for transport on a flat stretcher, litter, or backboard. Check for and secure loose equipment, sheets, blankets, paperwork, etc. Don't load relatives of patients, or other passengers on the Air Ambulance without the expressed permission of the Pilot.

All cabin doors and other equipment should be operated by crewmembers only.

IX. WHEN THE AIR AMBULANCE DEPARTS

The designated guide should assume a position in front of the Air Ambulance and check for obstructions or other aircraft overhead. When the Pilot gives the thumbs up signal and the takeoff path is clear, the guide should give the Pilot the takeoff signal and then MOVE out of the way. (Ref. Vol. 3, 6/11-87.66)

X. CONCLUSION

It is the responsibility of all members to familiarize themselves with the Air Ambulance operation and the potential role(s) they may be called upon to perform.

The hallmark of an effective and professional Air Ambulance operation is SAFETY. Working with and around helicopters is demanding and challenging. The helicopter/Air Ambulance operation is not inherently dangerous, but to an even greater extent than ground fire/rescue operations, it is unforgiving of ignorance or neglect.

REMEMBER SAFETY FIRST!