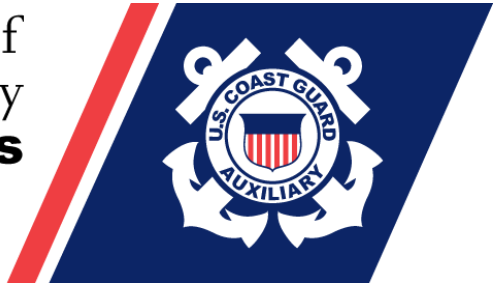
U.S. Department of Homeland Security
United States Coast Guard Auxiliary



Surface Guide to Helicopter Operations

National Response Directorate

Disclaimer

- This guide is not a substitute for applicable policy.
- The best practices presented in this guide should augment and support the safe completion of our surface operations responsibilities.
- Applicable instructions and/or local regulations from your OIA and chain of leadership must always be followed.

Warning

The wearing of jewelry, including rings, wristwatches, necklaces or other items not consisting of organizational clothing, PPE or uniform articles by boat crew members engaged in hoisting, towing, or other deck evolutions where the potential for snagging exists is **prohibited.** Coxswains will address this during all briefs and will ensure jewelry is removed prior to all deck operations. (COMDTINST M16114.5 (series) Chapter 19)

Warning

- Hoisting operations off a vessel can be hazardous to aircrew, boat crew and whoever/whatever is being hoisted.
- These operations require constant situational awareness by all involved.
- Recheck GAR score before each evolution.

Warning

- NOTE: Helicopter operations are exciting, dynamic environments. Be extremely vigilant and prepared to make immediate decisions to prevent a serious incident.
- If anyone is ever in doubt about the evolution or safety…"Breakaway, Breakaway, Breakaway".

General Conditions

Training operations should be conducted while underway during daylight hours in fair weather conditions

General Conditions

- All crew members must be wearing gloves, helmets, goggles, PFDs or appropriate exposure gear and boat crew personal survival vests (COMDTINST M16114.5 series, 19.B.3.c)

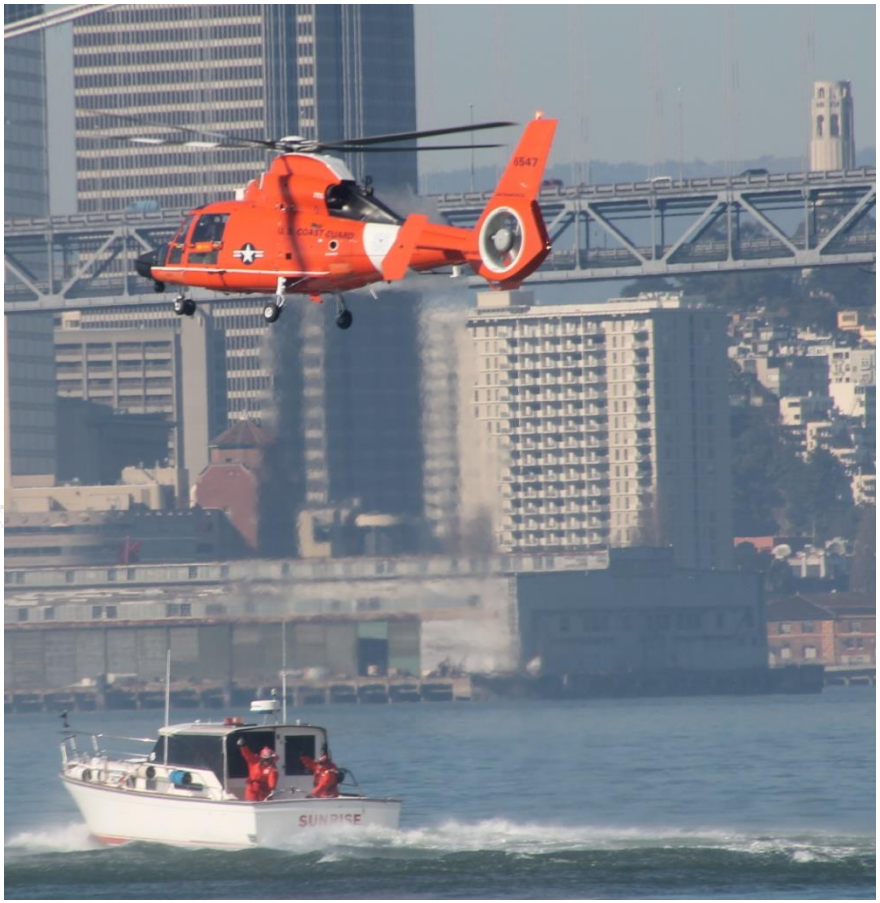
General Conditions

- Prior to any scheduled evolutions involving air assets it is highly recommended that the crew meet with the aircrew on the ground to discuss the evolution, goals, signals and safety procedures.
- Prior to getting underway conduct a detailed pre-underway briefing. All involved members should participate in the mission analysis.

General Conditions

- Stow and secure all loose gear on deck (19.B.3.d)
  - The downwash of a helicopter is very powerful. It can blow a person overboard and blow loose gear over the side. Loose objects such as articles of clothing can be caught in the air currents produced by the rotor blades and sucked into the engines.

General Conditions



Beware of Rotor Wash

Helicopter Operations Guide

General Conditions

- Rescue device and/or line must not become entangled or otherwise attached to the boat at any time (COMDTINST M16114.5(series) 19.B.3 warning)
- Rescue device and/or line must be grounded to the boat (touch the deck) before crew members handle it. (19.B.4)

General Conditions

- Lower and secure all antennas, booms, rigging and flags. (COMDTINST M16114.5(series) 19.B.3.e)
- Place radar in standby mode.
- Sailboats furl and secure all sails.
- Designate one crewmember to give hand signals to the hoist operator. (19.B.3.f)

Static Electricity

- Spinning rotor blades act like an electric generator and can develop thousands of volts of electricity.
- That electricity needs to go somewhere, preferably not into you. Let the basket or cable touch the boat before you touch it. (COMDTINST M16114.5 (series) 19.B.4)
- Boat hulls will conduct the charge away.

Prior to Evolutions

- Brief crew and post watches.
- Establish communications with helicopter.
- Agree on breakaway procedures.
  - Boat most often turns to the right (COMDTINSTM16114.5 (series) 19.B.22 (3))
- State number of person onboard (POB) on helicopter and boat.

Prior to Evolutions

- Charts are checked for hazards that would prevent the boat from maintaining course and speed until the hoist is complete.

  (COMDTINST M16115.5 (series) 19.B.3.a)

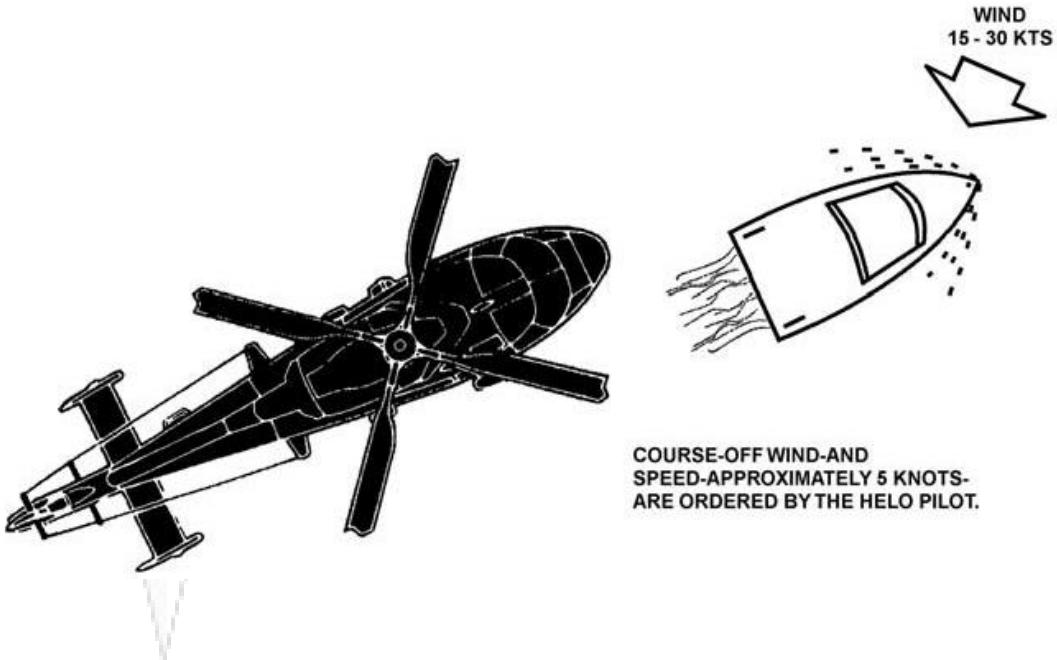
- Establish and maintain boat heading and speed as directed by the aircraft pilot.

Flight Operations

Pilot will normally direct the coxswain to assume a certain course and speed with a relative wind speed of 15-30 knots and 35-45° off the port bow.

The boat must maintain a steady course and speed.

COMDTINST M16114.5 (series) 19.B.6



Flight Operations

- Ensure you have a long run so you don't have to make course adjustments.
  - Delays often occur during hoists causing the distance through the water to increase. As a rule of thumb plan for twice the distance you expect to use.
- Helicopter will maintain full view of the vessel during the evolution.

Flight Operations

- Helicopter will approach from astern and hover off the port side, aft of amidships.
- Non-traditional boats (recreational/fishing) may require a different technique
  - Helicopter may hover and lower the device to a stationary position
  - The vessel should maneuver under the hoist for delivery. (COMDTINST M16114.5 (series) 19.B.7)

Night Flight Operations

- Consider adding designated Safety Observer and extra lookout to your crew.
- Do not shine any lights on the helicopter (no flash photography), the pilot can be blinded. (COMDTINST M16114.5 (series) 19.B.5)
- Illuminate the hoisting area on deck at night.

Hoisting Operations

- A line will be trailed from the helicopter for the boat crew to guide device as it is lowered.
- Do not touch the rescue device as it is being lowered! Allow it to touch the vessel first (static electricity).
- If the rescue device is to be moved, unhook the cable and lay it loose on the deck. Do not ever connect the cable to the boat.

Hoisting Operations

- If transferring a patient/survivor make sure they are wearing a life jacket and include all papers, medical records, etc is inside their clothing or blankets to prevent FOD (Foreign Object Damage).
- When patient is securely loaded signal helicopter to lower the hook.
- Do not touch the hook or cable as it is being lowered. Allow it to touch the boat first.

Hoisting Operations

- Re-attach the hook to the rescue device while supporting both ends of the basket.
- Signal the hoist operator with a “thumbs up” when ready to hoist.
- Tend the trail line to prevent rescue device from swinging.
- At the end of the trail line gently toss it over the side (beware of boat props).

Basket Hoist

Bring basket onto boat by hand/trail line.

Lift basket from boat and hoist to helicopter.

Swimmer Transfer

Transfer rescue swimmer to boat using the rescue strap.

Hoist rescue swimmer back to helicopter.

Hand Signals

Deploy
Rescue Sling

Hand Signals

Deploy
Rescue Litter

Hand Signals

Deploy
Rescue
Basket

Hand Signals

Back Away

Hand Signals

Terminate Evolution

Hand Signals

Disconnect From Hoist Hook

NOTE: Disconnect hook prior to giving the signal to prevent being inadvertently jerked into the water

Hand Signals

Hoist Up

Hand Signals

Stop Hoisting

Hand Signals

Lower Cable

Hand Signals

EMERGENCY

Emergency Breakaway

- Safety comes first!
- If either coxswain or pilot feel the operation is unsafe a “breakaway” should be conducted. (COMDTINST M16114.5(series) pg 19-8)
- Coxswain directs crew to push loose cable, rescue device, and trail line over the side towards the helicopter.

Emergency Breakaway

- Transmit “Breakaway, breakaway, breakaway” to the pilot over the radio.
- Turn the boat away from the helicopter (usually to starboard but not always. Follow prearranged plan). (COMDTINST M16114.5(series) 19.B.22)

Vessel Casualties

- Engine Casualty
  - Maintain course and speed. Add power to good engine and steer towards good engine to maintain course and speed. Conduct normal breakaway.
- Steering Casualty
  - Signal emergency breakaway. Use engines to steer to maintain course. (COMDTINST M16114.5 (series) 19.B.23)
- Radio Casualty
  - Use hand signals for normal breakaway. Always have backup communications source (2nd radio, handheld)

Helicopter Ditching

There is always the possibility a helicopter may have to ditch in the water.

Helicopter Ditching

- Plan ahead for such an emergency.
- CG Air crews receive extensive training in escape procedures.
- They may be disoriented due to injuries, aircraft attitude, damage and/or environmental factors.
- Boat crewmembers must be familiar with emergency exits. (COMDTINST M16114.5 (series) 19.C)

Helicopter Ditching

- CAUTION! Boat crewmembers will not enter an inverted aircraft.
- Ensure OPCON is advised of ditching.
- Approach bow-on from leeward side of helicopter.
- Make minimal wake so the vertical stability is not disrupted (helicopter will roll over).
- Be alert to position of the rotor blades.

Helicopter Ditching

- Always be prepared to rescue survivors in the event the aircraft impacts the water. Procedures should be the same as a man overboard, with multiple victims.
- Recovery of viable survivors is the first priority
- Recovery of remains is second priority.
- If the aircraft sinks drop an anchor with a marker buoy for the investigators.

Safety Standby Patrol

- Often we are tasked as a safety boat for rescue swimmer deployment training
- Work under the direction of the aircraft commander to warn transient traffic away from the location
- Be prepared to recover the swimmer if needed

Summary

- Air/Surface operations are dynamic and exciting.
- It is very easy to get “tunnel vision” and lose situational awareness.
- Always be adaptable to changing conditions.

References

- COMDTINST M3710.4 (series)
  - Coast Guard Helicopter Rescue Swimmer Manual
- COMDTINST M16114.33 (series)
  - Boat Operations And Training Manual
- COMDTINST M16114.5 (series)
  - Boat Crew Seamanship Manual
- COMDTINST M16790.1(series)
  - USCG Auxiliary Manual
- COMDTINST M16798.3 (series)
  - Auxiliary Operations Policy Manual

Thank You

Please send your comments to:

David Larkin, BC-RSP
david.larkin@cgauxnet.us
James McCarty, DVC-RS
james.mccarty@cgauxnet.us