

## Trail Line

**Note:** Trail Line may only be deployed when hoisting from land or a vessel  
Trail Line may not be used for hoisting from the water

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### 1. Description

There are situations that can make the transferring of personnel by helicopter to or from surface vessels extremely hazardous because of the vessel size, movement, or location of obstructions.

Trail-Line is a 150 ft nylon cord, one end of which is connected to the winch hook via a weak link while the other end is free. The Trail-Line is an invaluable tool for SAR winching. It may, if used effectively, increase both aircraft and crew safety. It allows minimum time to be spent in the overhead, a major factor when working with vessels in rough seas or when control of downwash effects is important. The Trail-Line is used, by the Rescue Swimmer or suitable briefed ground personnel, to control the winch hook whilst the aircraft is in the hover. The following are some examples of situations where a Trail-Line can be beneficial:

- a. Any situation where reaching an overhead may be impossible or difficult due to obstructions and/or small winching area.
- b. Where it would expedite or simplify a lift for either Pilot, Winch Operator or Rescue Swimmer because:
  - (1) The sea state is such that the movement of the vessel or dinghy presents a hazard to normal winching.
  - (2) There are a large number of survivors.
  - (3) The aircraft downwash may affect the target or a survivor too severely.
  - (4) The pilot requires better position references.

The examples above are more applicable to sea operations, however, the techniques can also be of great use in certain land situations.

### 2. Deployment Methods

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There are three methods of deploying the Trail-Line to the winching area:

- a. **Manually lower the Trail-Line vertically.** This requires the pilot to maintain an overhead and a knowledgeable surface party to receive the Trail-Line.
- b. **Trawl the Trail-Line.** This requires a knowledgeable surface party to receive the Trail-Line. Trawling to a moving vessel is not recommended as the aircraft has to be flown well forward of the winching area in order to deliver the Trail-Line (the Trail-Line trails behind the aircraft with any forward speed).
- c. **Lower the Rescue Swimmer with the Trail-Line.** Deploy rescue swimmer with the Trail-Line to the winching point or to such a position that he can pass the Trail-Line to the survivors.

### 3. Definitions

Crew	Air Sea Rescue crew that are part of the National Sea Rescue Institute ASR Unit
ASR	Air Sea Rescue
RS	ASR Rescue Swimmer

### 4. Equipment

RS will be dressed in a wetsuit and booties.
Hood and gloves are optional.
Harness and life jacket joined by a carabineer
Gloves to manage the Trail Line are required
Attached to the harness is a short sling and snap hook, clipped back onto the harness.
Fins and Mask
Trail Line and spare weak link

### 5. Training Requirements



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Airborne	2 per year
	Must be logged in log book

### 6. Safety Requirements

A safety boat must be in attendance during training
The trail line is attached to the equipment ring of the rescue hook for all rescue devices except the rescue stretcher
For rescue stretchers the Trail Line is attached to the foot of the litter to allow the correct end of the litter to enter the aircraft first.
A weak link has been incorporated which will break if excessive force is applied to the trail line.
Do not deploy the trail line without adequate weight attached
Deploy the trail line hand over hand out of the aircraft.
The engineer shall ensure that the weight bag is attached to the end of the trail line
Medic with jump bag min Basic Paramedic

### 7. Procedure

#### Trail Line Pre take off Inspection

Overall condition
Check trail Line weight secured
Check Weak link in place
Check operation of quick release snap hook

#### 6.2 Planning

During the execution of the trail line hoist, 10° and 20° relative winds may be more favorable than the normal 30° relative wind
The vessel may be stationery or be underway, preferably into the seas and 40deg into wind
The helicopter makes an approach across the vessels deck, normally from port to starboard, dragging the weighted trail line into the grasp of deck personnel



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Alternatively a Rescue Swimmer is lowered onto the deck and then deploys the Trail Line.
The helicopter can then hover close aboard but clear of obstacles
The helicopter shall hover at least twice as high as its horizontal distance from the vessel. For example, if the hover is maintained so that the vessel is kept just outside of the rotor arc, the hover altitude should be equal to or greater than the rotor diameter.
Deck personnel may not be able to prevent the person who is being hoisted from entering the water if the helicopter hovers so far from the vessel that the trail line angle is less than 60°.

### 1.1 Direct Deployment of Trail Line

Direct Deployment of the Trail Line is only to be used onto vessels where trained crew are managing the Trail Line

#### Deployment

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The snap hook of the trail line is attached to the equipment ring of the rescue hook
Engineer starts to lower Trail Line on final approach to vessel
Engineer guides the Trail Line onto the deck of the vessel
Once the Trail Line has been received by the vessels deck party the helicopter shall go back left to keep the Trail line and vessel visual.
Once the Trail Line is on the deck, more cable shall be payed out to allow for relative movement between the vessel and the helicopter
The engineer shall keep the pilot advised of the deck status and relative position of the aircraft
The rescue equipment will be connected to the hoist hook. i.e. Rescue Swimmer, Strops, Basket, Stretcher
The hoist will now be lowered to the deck of the vessel, with the deck crew managing the Trail Line as per procedure

#### Recovery



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When the recovery signal is given the helicopter will move over the vessel
Once the rescue device is plumb, standard voice procedures shall be used to retrieve the rescue device into the aircraft
The deck crew will managing the Trail Line as per procedure
A crewman must managed the trail Line inside the aircraft to maintain safety

### 1.2 RS Deployment of Trail Line

Rescue Swimmer Deployment of the Trail Line is only to be used onto vessels using a Rescue Swimmer.

#### Deployment

The snap hook of the trail line is attached to the equipment ring of the rescue hook
The trail line bag is attached to the Rescue Swimmer harness with a carabineer. The line is safely stowed in the bag
The RS is hoisted to the vessel wearing helmet and with a radio
Upon landing on the deck the RS disconnects from the hoist
The RS detaches the trail line rope bag keeping the trail line attached to the Hoist hook
A survivor or equipment may now be attached to the hoist hook for recovery
The bare hoist hook may be recovered in order to lower equipment
The RS will manage the trail line on the deck
Once the Trail Line is on the deck, more cable shall be payed out to allow for relative movement between the vessel and the helicopter
The engineer shall keep the pilot advised of the deck status and relative position of the aircraft
The rescue equipment will be connected to the hoist hook. i.e. Rescue Swimmer, Strops, Basket, Stretcher
The hoist will now be lowered to the deck of the vessel, with the RS managing the Trail Line as per procedure

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When the recovery signal is given the helicopter will move over the vessel
Once the rescue device is plumb, standard voice procedures shall be used to retrieve the rescue device into the aircraft
The RS will manage the Trail Line as per procedure
Finally the RS will be recovered by any of the following methods
The RS is lifted in the same manner as the survivors with the ground party handling the High-Line. Once the RS is clear, the Trail-Line is thrown clear of the winching area and then the RS and Trail-Line are recovered to the aircraft.
The RS gathers up the Trail-Line and is lifted from the overhead
The RS gathers up the Trail-Line and is lifted from 1-2 units out of the overhead with the aircraft moving to prevent him swinging back into obstructions.
The RS must at all time monitor the trail line and should it become snagged execute an emergency disconnect of the Trail Line by pulling the quick release snap hook.

### Heavy Weather

In heavy weather, it has been found necessary on occasions to attach two or more Trail-Lines together.
This allows for large ocean swells which temporarily cause the vessel and aircraft, in its relaxed hover, to part company beyond the limits of a single Trail-Line
The weak link in the centre is by-pass