

Rescue Swimmer Refresher Course



Rescue Devices and Procedures

LT 3.1

Enabling Objectives

- Demonstrate the proper methods of communication between the rescue swimmer and the rescue platform per NWP 3-50.1:
 - Hand Signals
 - Radio Communication
- Demonstrate the functional operation of the following Rescue Devices per NWP 3-50.1:
 - Double Rescue Hook
 - Modified Rescue Strop
 - Rescue Net
 - Rescue Litter/ SAR MEDEVAC Litter, Trail Line and Gloves
 - Rescue Seat

Enabling Objectives

(cont.)

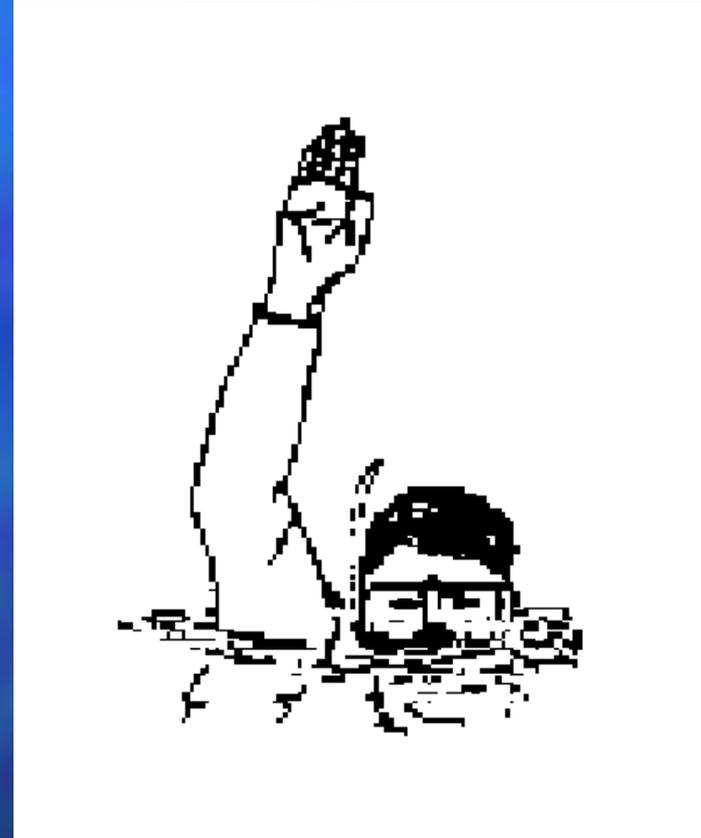
- Place a victim into the following rescue devices in a water environment:
 - Double Rescue Hook
 - Modified Rescue Strop
 - Rescue Net
 - Rescue Litter/ SAR MEDEVAC Litter
 - Rescue Seat

Communication Procedures

- Efficient communications keeps pilot, hoist operator, and swimmer aware of a developing rescue situation and allows rescue platform to provide needed support to swimmer (i.e., deployment of rescue devices).
- Hand signals are used whenever radio communications are not possible.
 - Primary means of communication between rescue swimmer and the aircraft in a maritime environment.
 - All crewmembers must be familiar with the meaning of standard hand signals
- The radio offers an optimal means of communications.

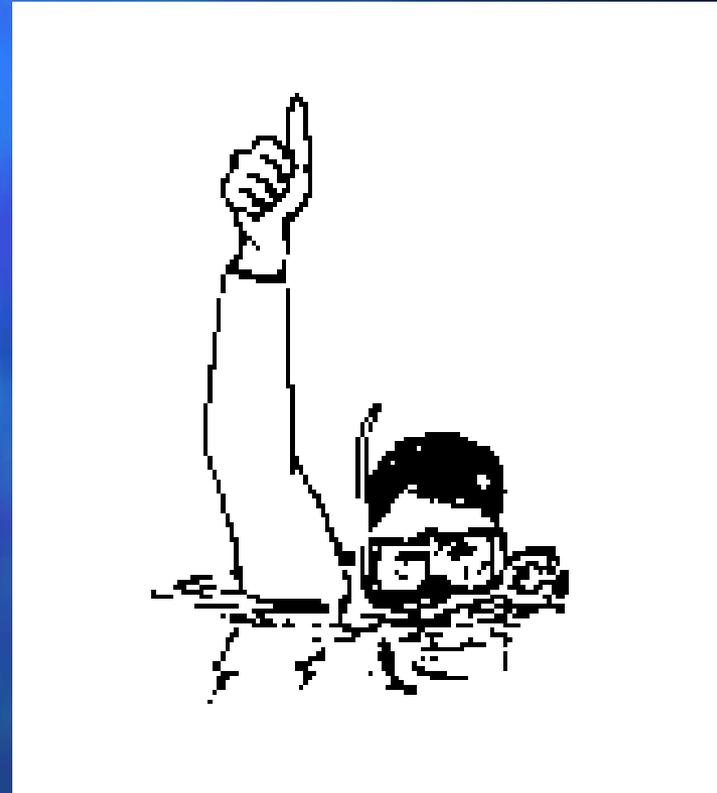
Hand Signals

- I am all right -
Raised arm, open
hand, fingers
extended.



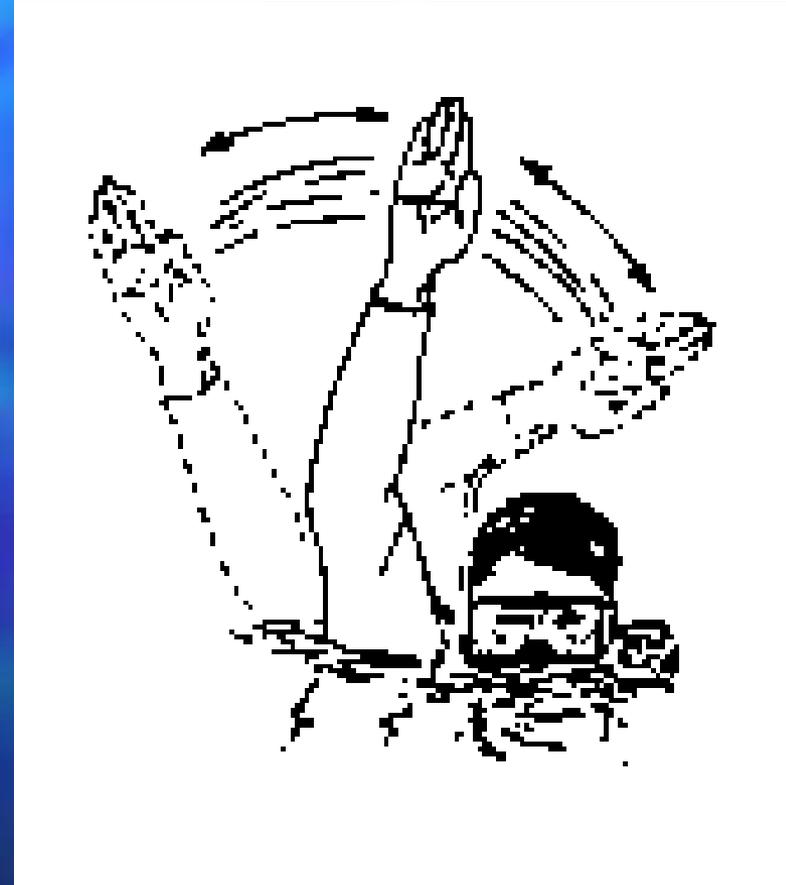
Hand Signals

- Move in for pickup -
Raised arm, thumb
up.



Hand Signals

- In trouble, need assistance - Vigorous waving of one arm.



Hand Signals



- Deploy Raft -
Clenched fists, arms
crossed overhead.

Hand Signals

- Deploy Radio -
Hand held to ear.



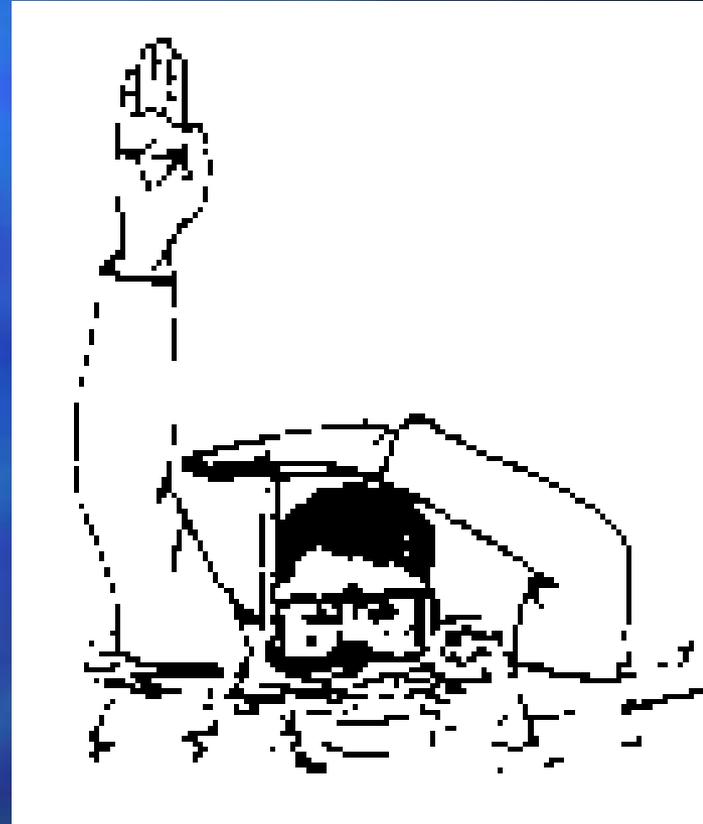
Hand Signals



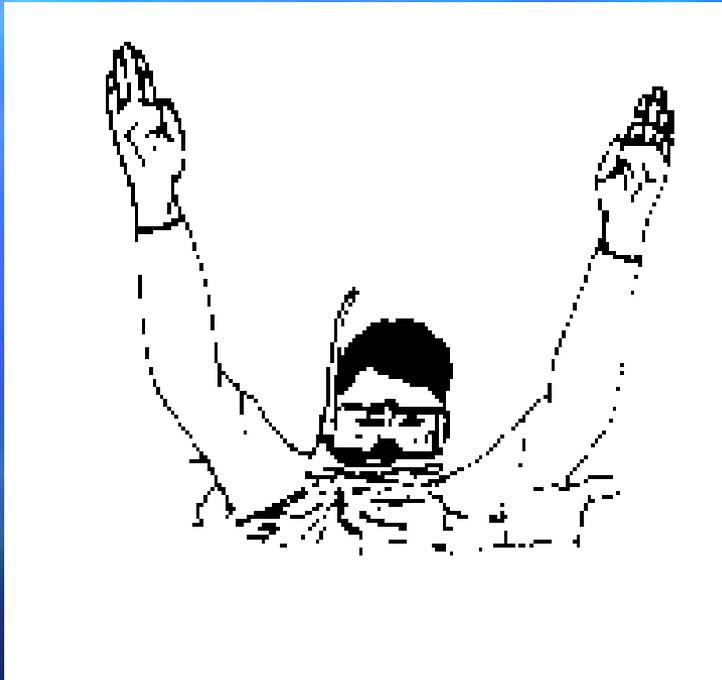
- Deploy Pneumatic Webbing Cutter -
Clenched fist, arm
pumping motion

Hand Signals

- Deploy Rescue Litter - One arm raised with open palm, fingers extended over the swimmer's head and touching the first arm at the elbow.

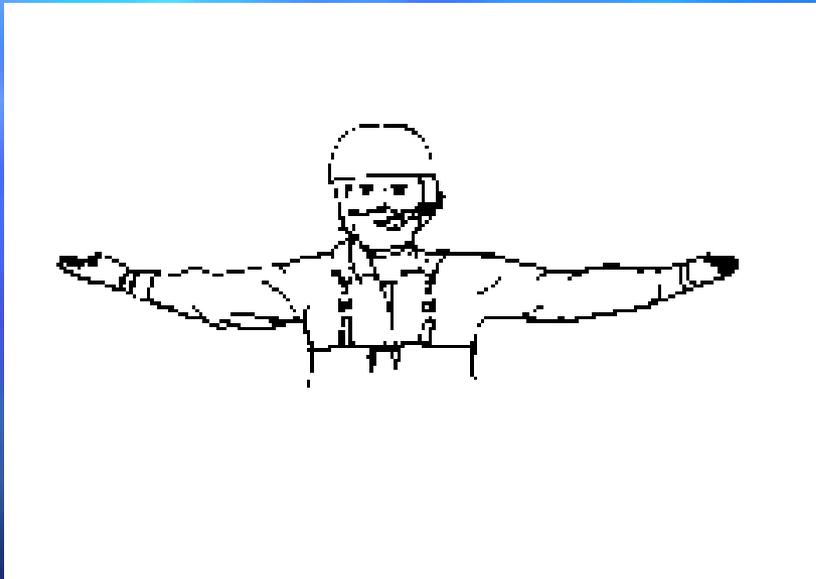


Hand Signals



- Deploy Rescue Net - Both arms raised, palms open, fingers extended at a 45 degree angle to the swimmer's head.

Hand Signals



- Rescue Seat - Both arms out stretched palms up.

Hand Signals

- Deploy oxygen/suction unit -

One palm cupped over mouth and nose, clenched fist in front.



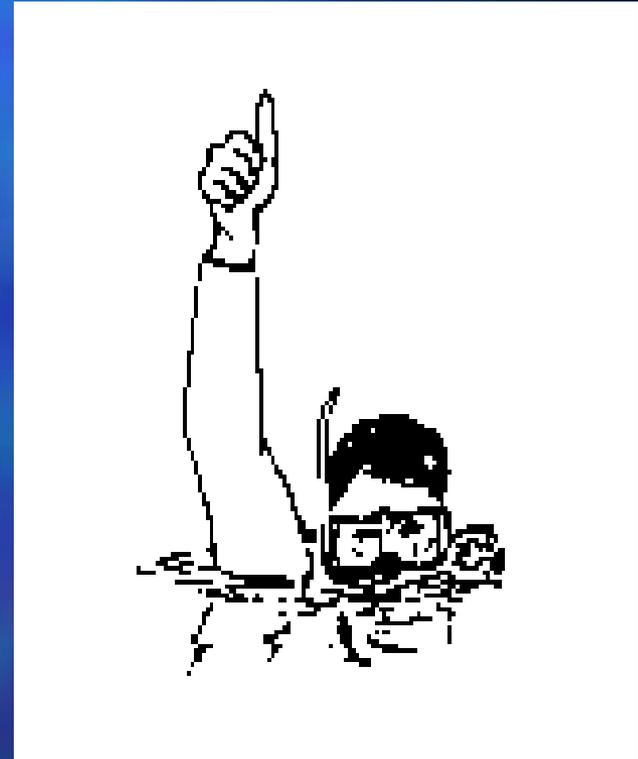
Hand Signals



- Deploy medical kit - Both arms raised, palms overlapping and touching top of head.

Hand Signals

- Ready to be hoisted -
Raised arm, thumb up



Hand Signals

- Stop Hoisting -
Raised arm,
clenched fist



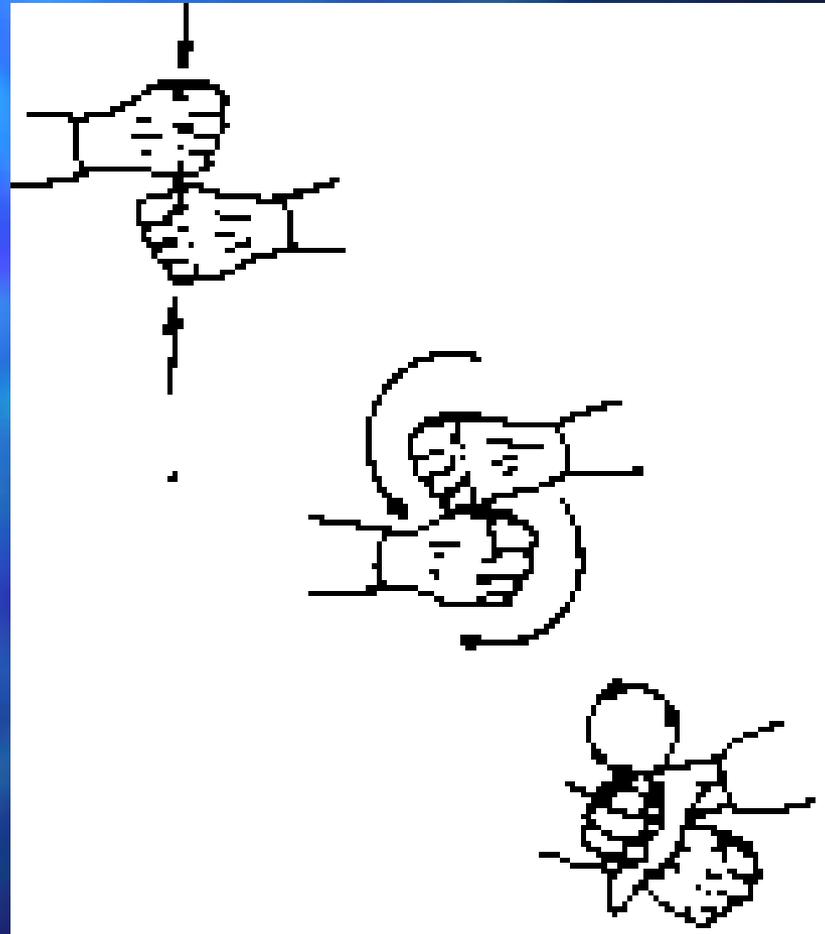
Hand Signals



- Lower Cable -
Raised arm, thumb
down.

Hand Signals

- Failed Hoist -
Clenched fist
over
clenched fist
followed by a
thumbs down
by hoist
operator



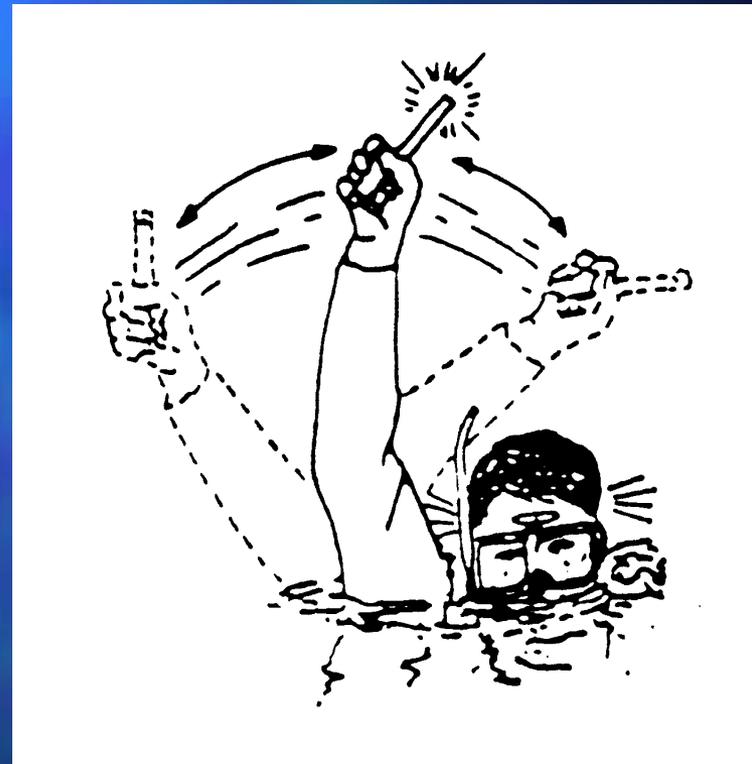
Hand Signals (Night)



- I'm all right - Swimmer's lighting device (chemlight) on, raised arm, palm open, fingers extended.

Hand Signals (Night)

- Move in for pick-up -
Wave chemlight.



Hand Signals (Night)



- In trouble, need assistance -
Wave signal device (smoke flare).

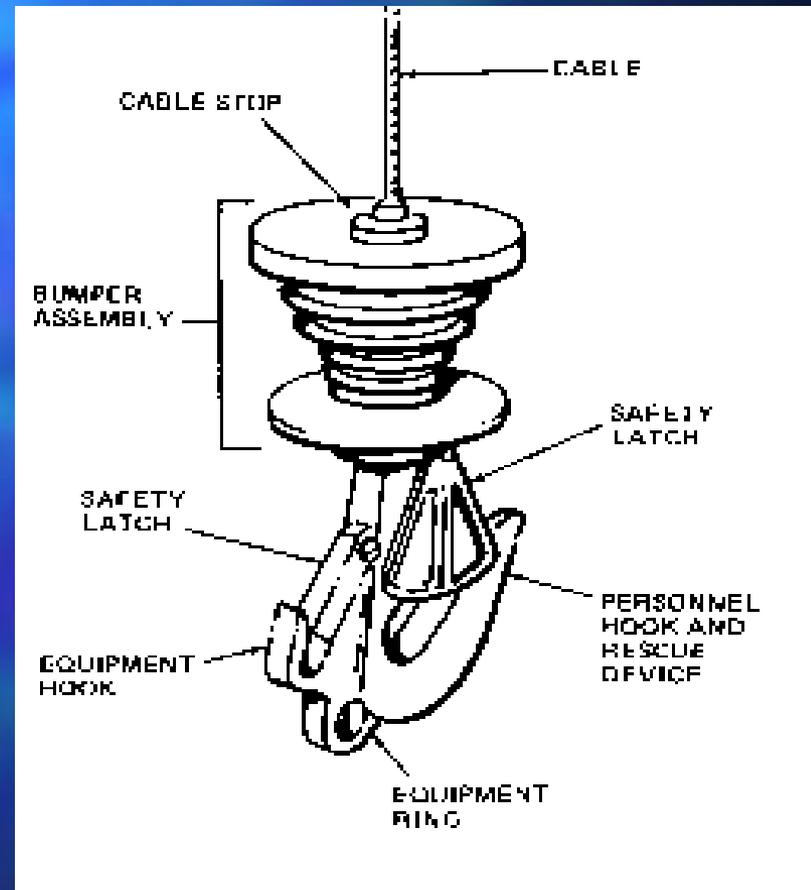
Hand Signals (Night)

- In trouble need assistance -
Blue strobe on.



Double Rescue Hook

- The Double Rescue Hook is the primary rescue device.
- All other rescue devices can only be used with the Double Rescue Hook.

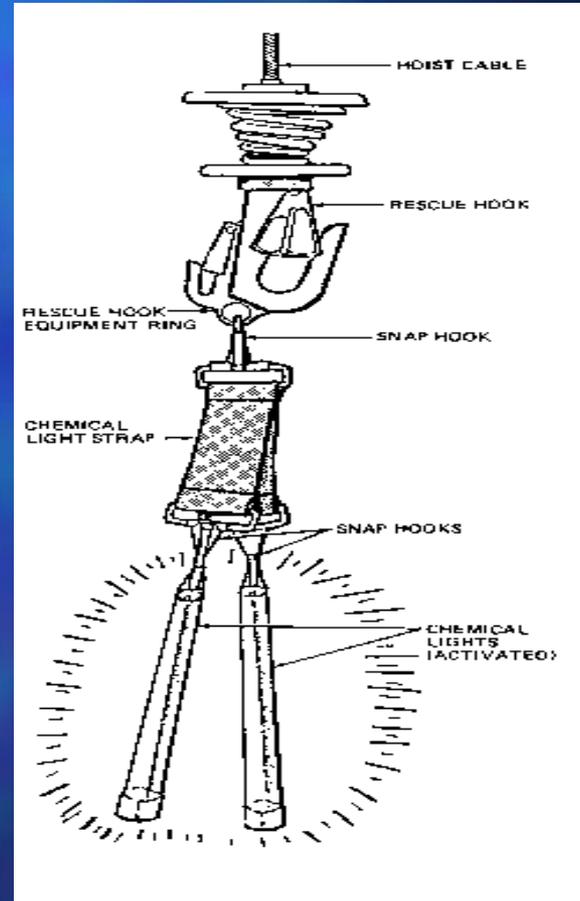


Load Ratings for the Double Rescue Hook IAW NAVAIR 13-1-6.5.

- Large hook, rated @ 3000 lbs., shall be the only hook used to hoist personnel.
- Small hook, rated @ 1000 lbs., is to be used only for lightweight items such as mail.
- The equipment ring, rated @ 1500 lbs., can be used to hoist light equipment and mail.

Double Rescue Hook

- Night time illumination
- Attach chemlight strap to equipment ring and attach two chemlights to strap.



Procedures for Helo-Deployed Rescue Hook

WARNING

1. Never touch **any** rescue device before it is grounded on deck or by water entry, doing so may cause electrical shock. Helicopter rotors can build up a significant static electrical charge.
2. When connecting to a survivor who has an SV-2 vest, ensure that the chest strap on the survivor is loosened slightly to avoid injury to the survivor.

Procedures for Hoisting Survivor and Swimmer Simultaneously

- If swimmer and survivor are to be hooked to the Double Rescue Hook and hoisted simultaneously:
 - Signal ready for pickup
 - Allow hook to ground
 - Hook up survivor
 - Hook up swimmer
 - Perform safety check
 - Signal for “up-hoist”

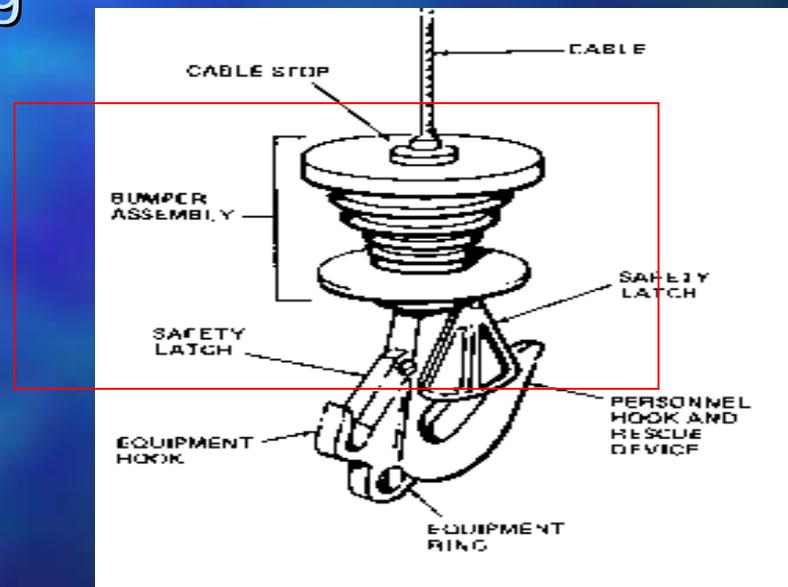
Procedures for Hoisting Survivor and Swimmer Simultaneously

- If survivor is to be attached to the gated "D"-ring of the swimmer's harness, and both swimmer and survivor are hoisted by the swimmer's "V"-ring:
 - Attach survivor's gated "D" / "V"-ring to swimmer's "D"-ring.
 - Signal ready for pickup
 - Allow hook to ground
 - Hook up survivor
 - Hook up swimmer's "V"-ring to large hook of Double Rescue Hook.
 - Perform safety check
 - Signal for "up-hoist"

Procedures for Hoisting Survivor and Swimmer Simultaneously

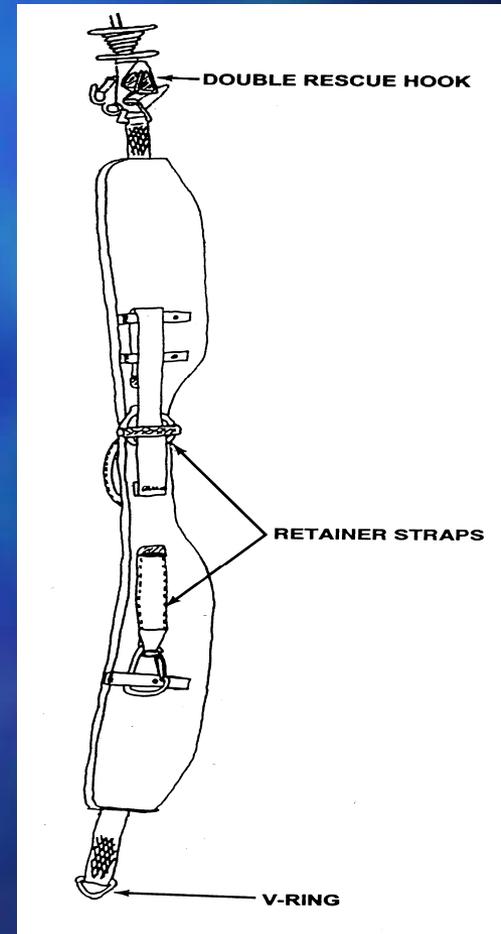
WARNING

Do not place fingers in or around the bumper compression spring due to the possibility of a crushing injury during hoisting operations when the hoist reaches the upper limit switch.



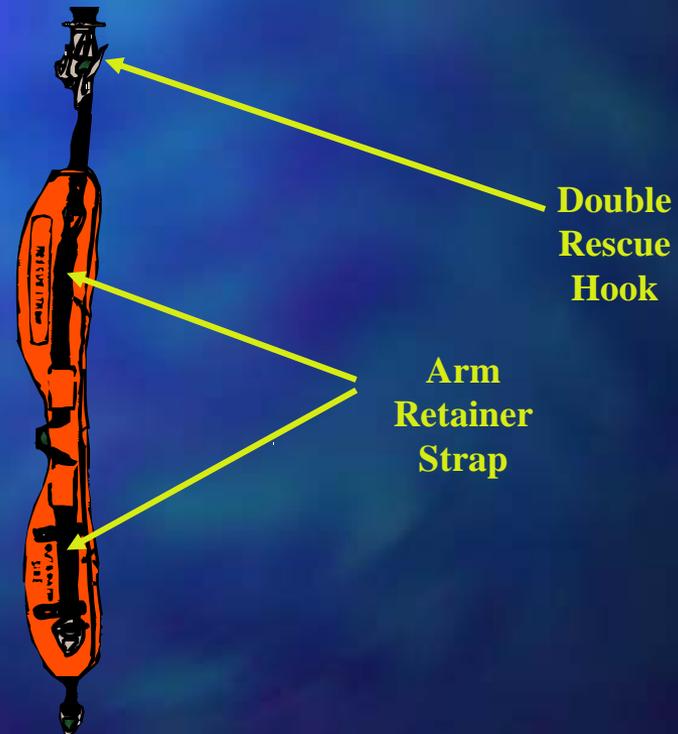
Modified Rescue Strop

- Optional rescue device used with Double Rescue Hook. The Modified Rescue Strop is a buoyant device with a red waterproof cordura cover over foam which is designed to accommodate one survivor.



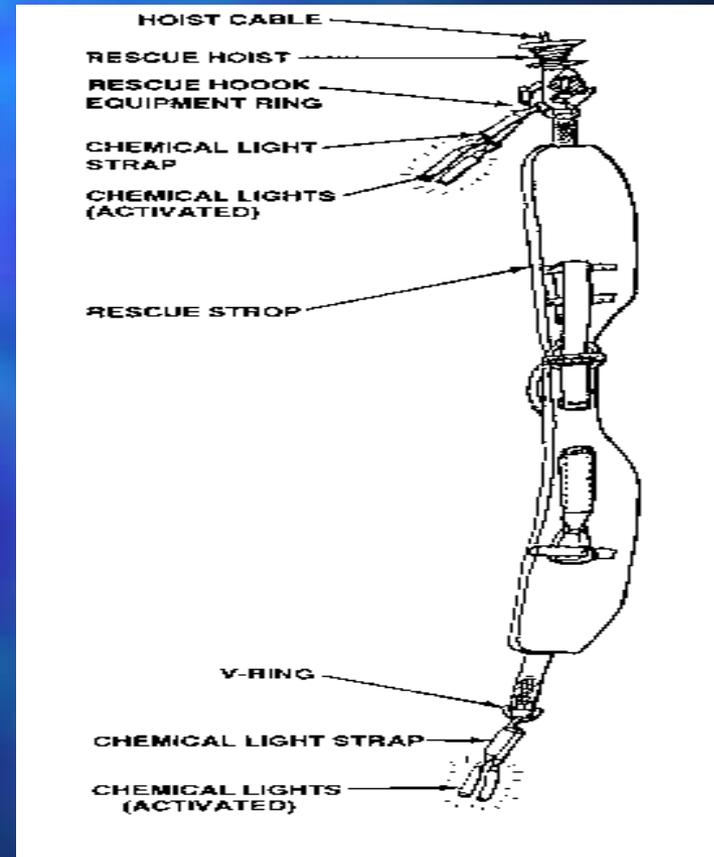
Modified Rescue Strop

- A webbing strap runs through the cover and has a "V"-ring at both ends for attaching the Double Rescue Hook. Two arm retainer straps are attached to the Modified Rescue Strop to hold survivor in the strop.



Modified Rescue Strop

- Night time illumination:
 - Two chemlights are attached to the strap. Strap is attached to Rescue Strop lower "V"-ring by the crewman.



Procedures for the Modified Rescue Strop

- Signal for pickup.
- Allow rescue device to touch water.
- Approach hoist with survivor in an appropriate carry.
- Working behind the survivor, pass Modified Rescue Strop free end under survivor's one arm, around the back, under other arm, making sure that the arm retainer straps are placed outboard. Connect Modified Rescue Strop free end lifting "V"-ring to the large hook on Double Rescue Hook.

Procedures for the Modified Rescue Strop

NOTE

1. Arm retainer straps shall be outboard when placing the Modified Rescue Strop on the survivor.
2. Assure strop is positioned tightly under survivor's armpits and positioned on upper half of survivor's back.

Procedures for the Modified Rescue Strop

WARNING

Arm retainer straps shall always be used when hoisting with the rescue strop. This prevents the survivor's arms from raising and the survivor from slipping out of the rescue strop.

Procedures for the Modified Rescue Strop

- Connect the arm retainer strap by passing the arm retainer straps over the survivor's arms, route under the Modified Rescue Strop and across the survivor's chest.

WARNING

Arm retainer straps shall be routed under the Modified Rescue Strop after they are passed over the survivor's arm.

Procedures for the Modified Rescue Strop

- Connect the snap-hook arm retainer strap to the “V”-ring arm retainer strap.
- Pull webbing on the “V”-ring arm retainer strap until the arm retainer straps are secured tightly around the survivor’s arms.

WARNING

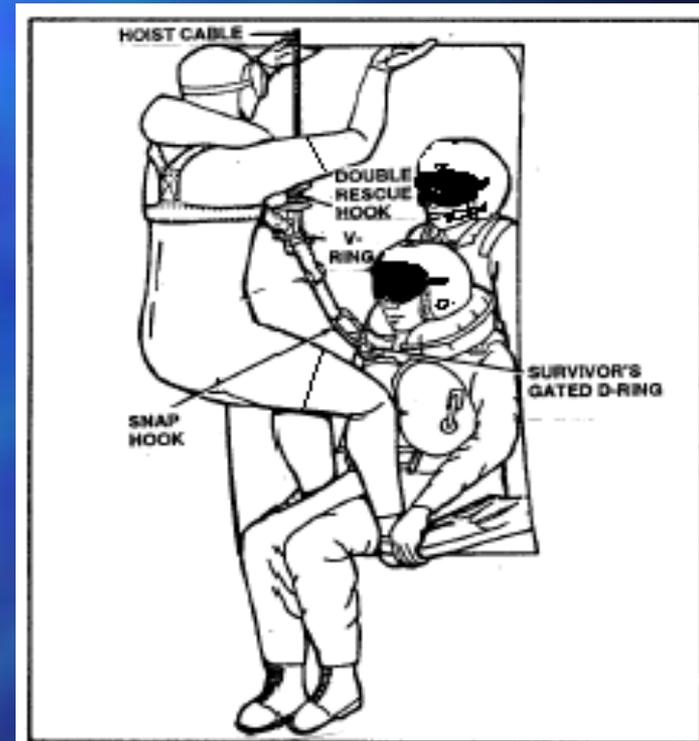
The possibility exists for an unconscious or physically incapacitated survivor to slip through the Rescue Strop if their arms are not secured at the side with the arm retainer straps.

Procedures for the Modified Rescue Strop

- If swimmer is to be hoisted, attach swimmer's "V"-ring to the large hook of the Double Rescue Hook.
- Perform safety check.
- Signal for "up-hoist".

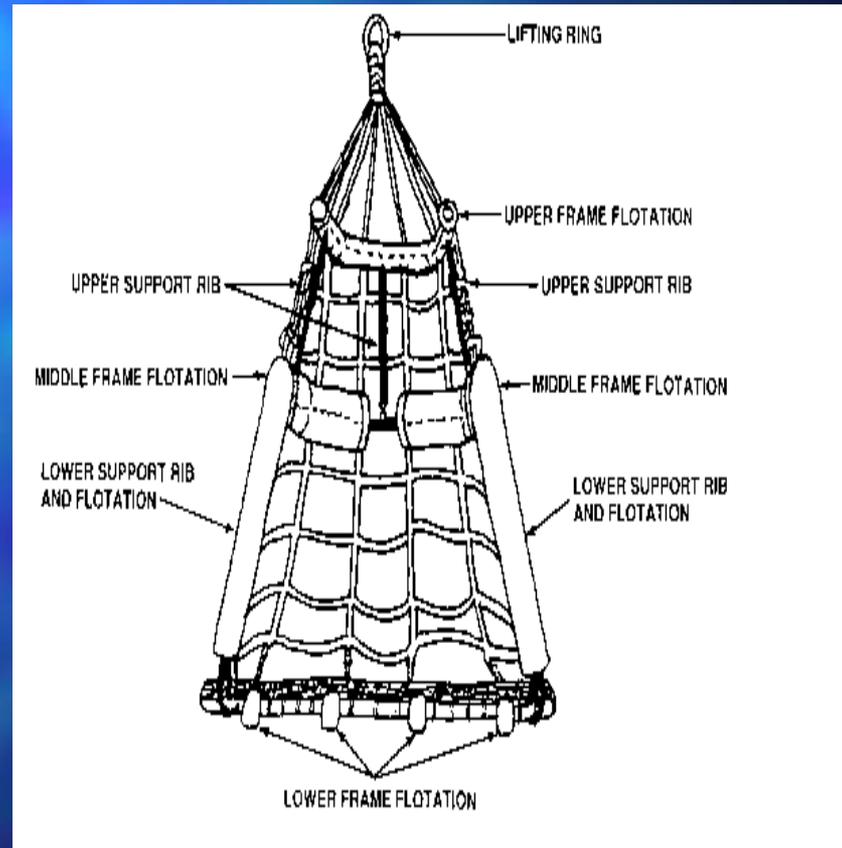
Procedures for the Modified Rescue Strop

- The rescue swimmer may use his feet to stabilize entry of a conscious survivor into the aircraft, but shall not release the survivor's arms until:
 - The survivor is securely on the aircraft deck.
 - The hoist operator signals that they have positive control of the survivor within the aircraft.



Rescue Net

- Conically-Shaped Bird Cage.
- Primarily used for multiple rescues.
- Never send unconscious victim up alone in Rescue Net.
- A "V"-strap is provided for securing the net in the rescue vehicle.



Rescue Net

WARNING

In order to utilize the net, the front support rods must be locked in place to prevent the net from collapsing on the survivors. Collapsing of the net could result in the survivor(s) drowning.

Rescue Net

- Night time illumination:
 - Two chemlights are attached to the strap. Chemlight straps are attached to nylon rope just above the middle frame flotation on both sides of the net opening.

Rescue Net Procedures

- Signal for net.
- Allow device to ground.
- Place Rescue Net opening directly in front of the Rescue Swimmer without disconnecting it from rescue hook.
- Place survivor in a collar/equipment tow and swim into rescue net backwards while positioning the survivor on either side of the net facing out.
- Ensure that survivors body is entirely in the net.

Rescue Net Procedures

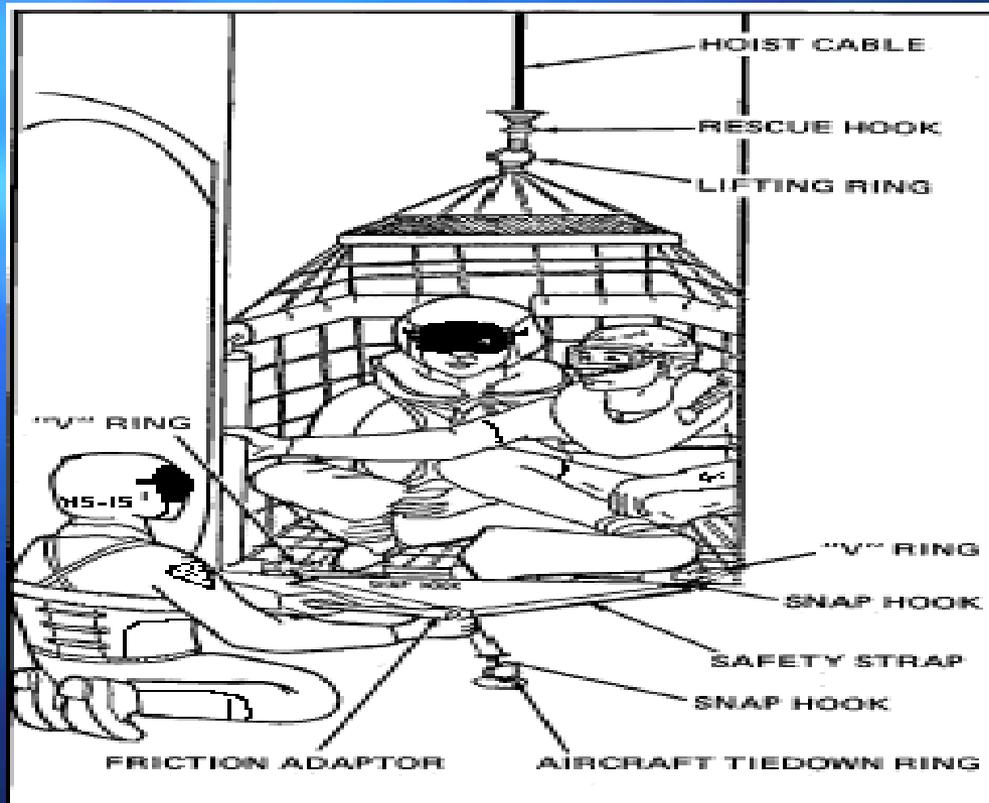
WARNING

Survivor shall not attempt to get out of the rescue net until directed by the crewman.

- Place one arm across the net.
- Signal for “up-hoist”.
- When net reaches the helicopter, crewman shall hook up safety strap from the Rescue Net to the decking of the helicopter. The crewman shall assist the survivor inside the helicopter.

Rescue Net Procedures

V-Strap attachment to aircraft:



Rescue Litter / SAR MEDEVAC Litter

- Litter Characteristics:

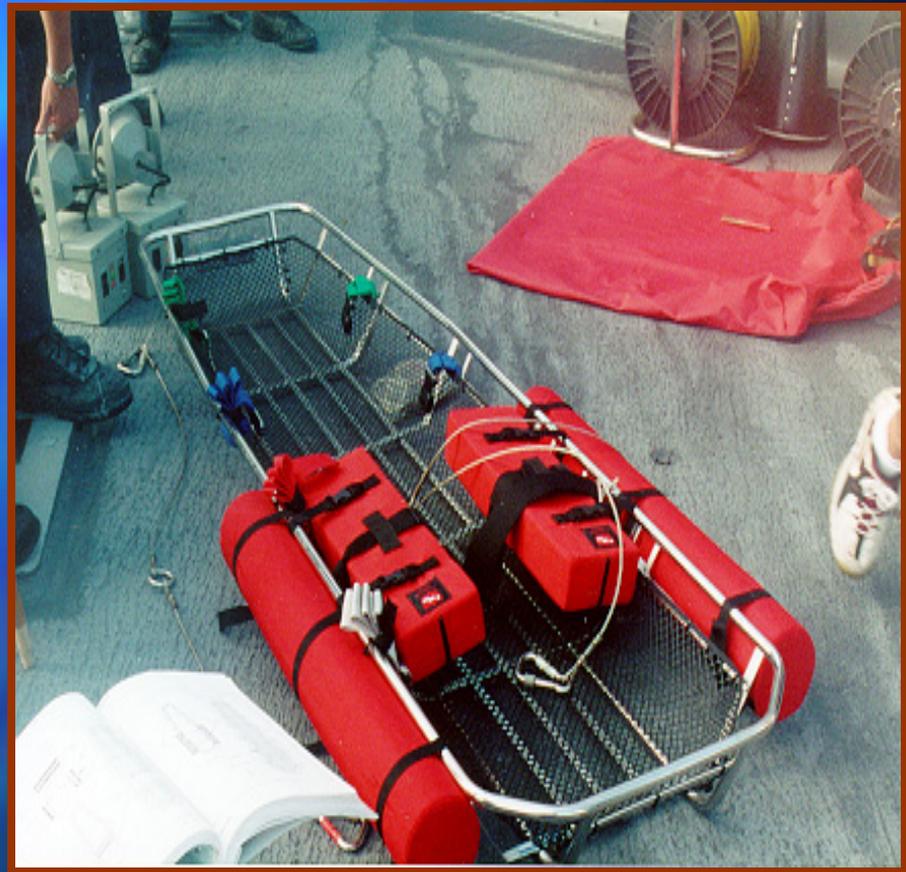
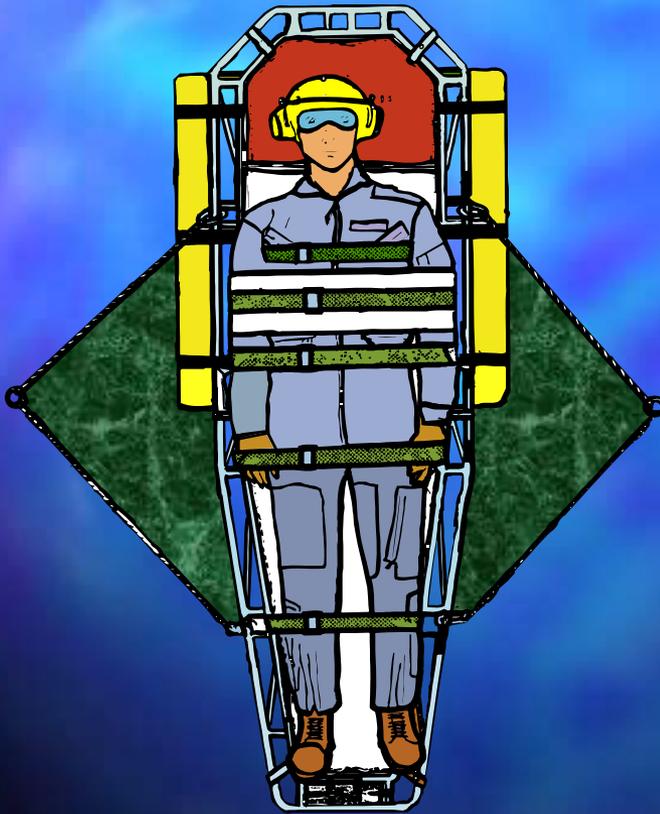
- Both are for use with suspected back injury victims and unconscious survivors.

WARNING

An aircrewman who has ejected and/or is unconscious may potentially have a spinal injury, assess the situation and treat accordingly. Loss of ABC's or other life threatening injuries will take precedence over a spinal injury.

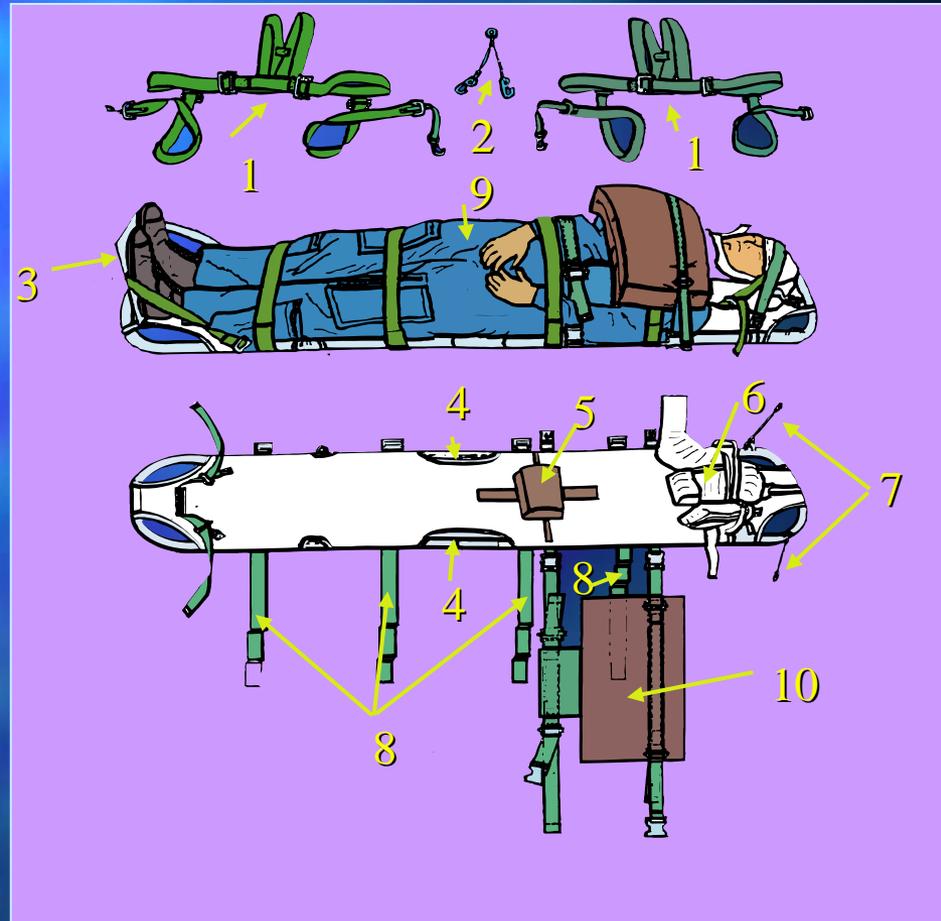
- Both are designed to be used over land or in water with flotation assemblies.
- Rescue Litter requires a flotation kit for over water use. When flotation is installed, litter floats with patients head slightly reclined from vertical.

Rescue Litter / SAR MEDEVAC Litter



Rescue Litter / SAR MEDEVAC Litter

- 1. Adjustable Carrying Harness (2 ea.)
- 2. Vertical Hoisting Sling
- 3. Foot Restraint Assembly
- 4. Locking Couplers
- 5. Lumbar Support Pad
- 6. Head Restraint
- 7. Hoisting Connecting Cable
- 8. Patient Straps
- 9. Patient in Litter
- 10. Chest Flotation



Rescue Litter / SAR MEDEVAC Litter

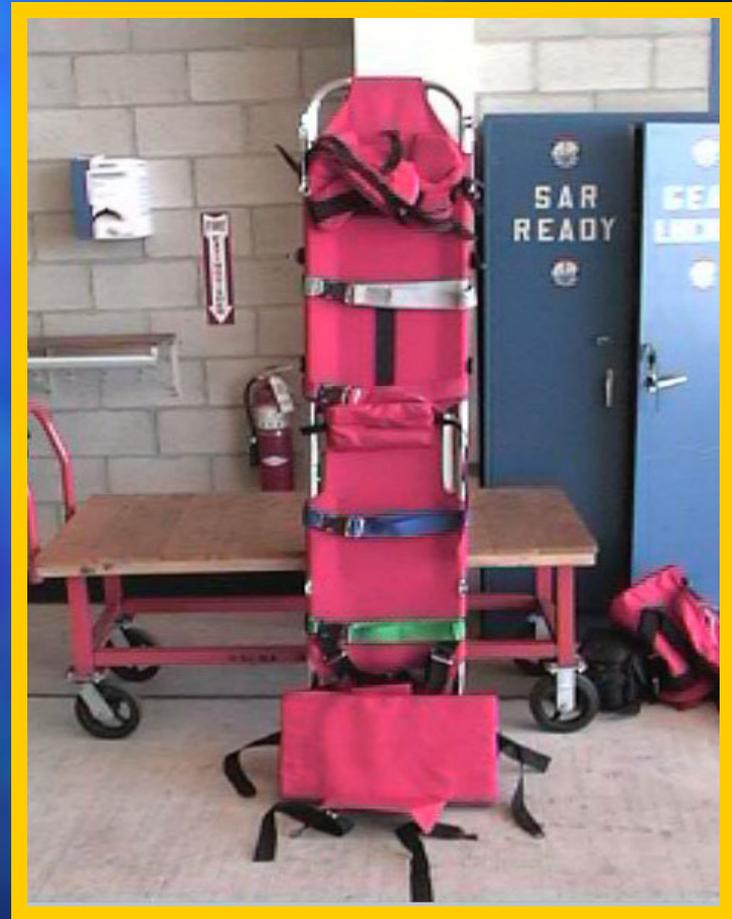
WARNING

If survivor is wearing the bright orange Quick Donning Anti-Exposure Suit, it may counteract the self-righting feature of the Rescue Litter and the SAR MEDEVAC Litter.

Rescue Litter / SAR MEDEVAC Litter

- Both have a two piece Rescue Litter Hoisting Sling which attached to the Double Rescue Hook. Sling is color coded short red to head and long white to feet.
- The SAR MEDEVAC Litter folds in half and can be stored in a backpack and weighs approximately 40 lbs. It can be hoisted vertically or horizontally with its own sling, making it especially useful in mountainous and restricted access situations. It has replaced the Neil Robertson Litter for use on submarines, and is an alternative to the Rescue Litter.

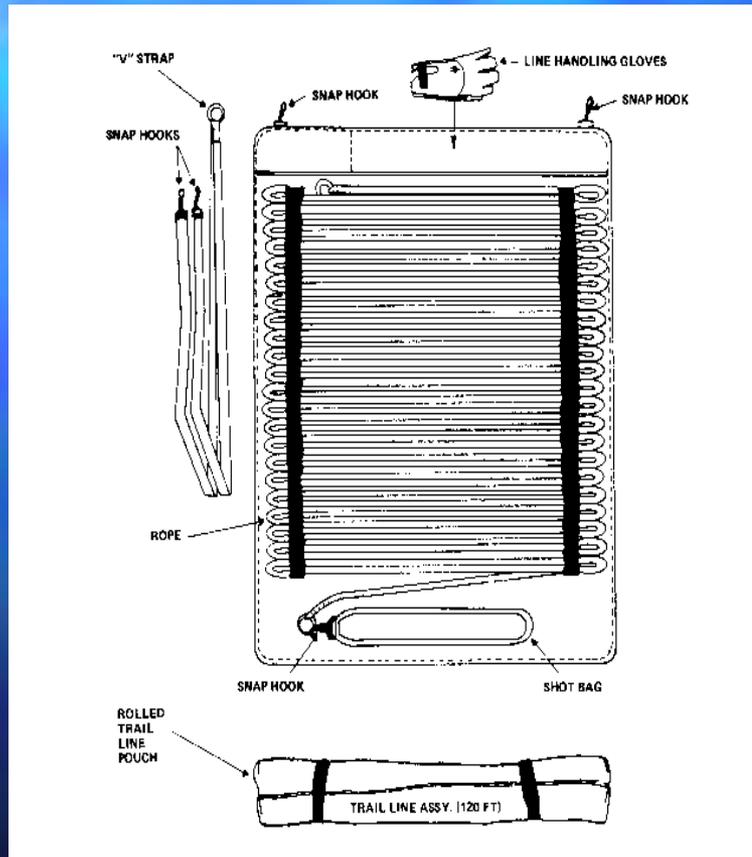
SAR MEDEVAC Litter



Rescue Litter / SAR MEDEVAC Litter

- Night time illumination:
 - Two chemlights are attached to each strap. One strap is attached to the head of the litter, one to the foot.
- Both litters utilize a “trail line” controlled by the swimmer in the water to control litter deployment and stabilize the litter during hoisting.

Trail Line Assembly

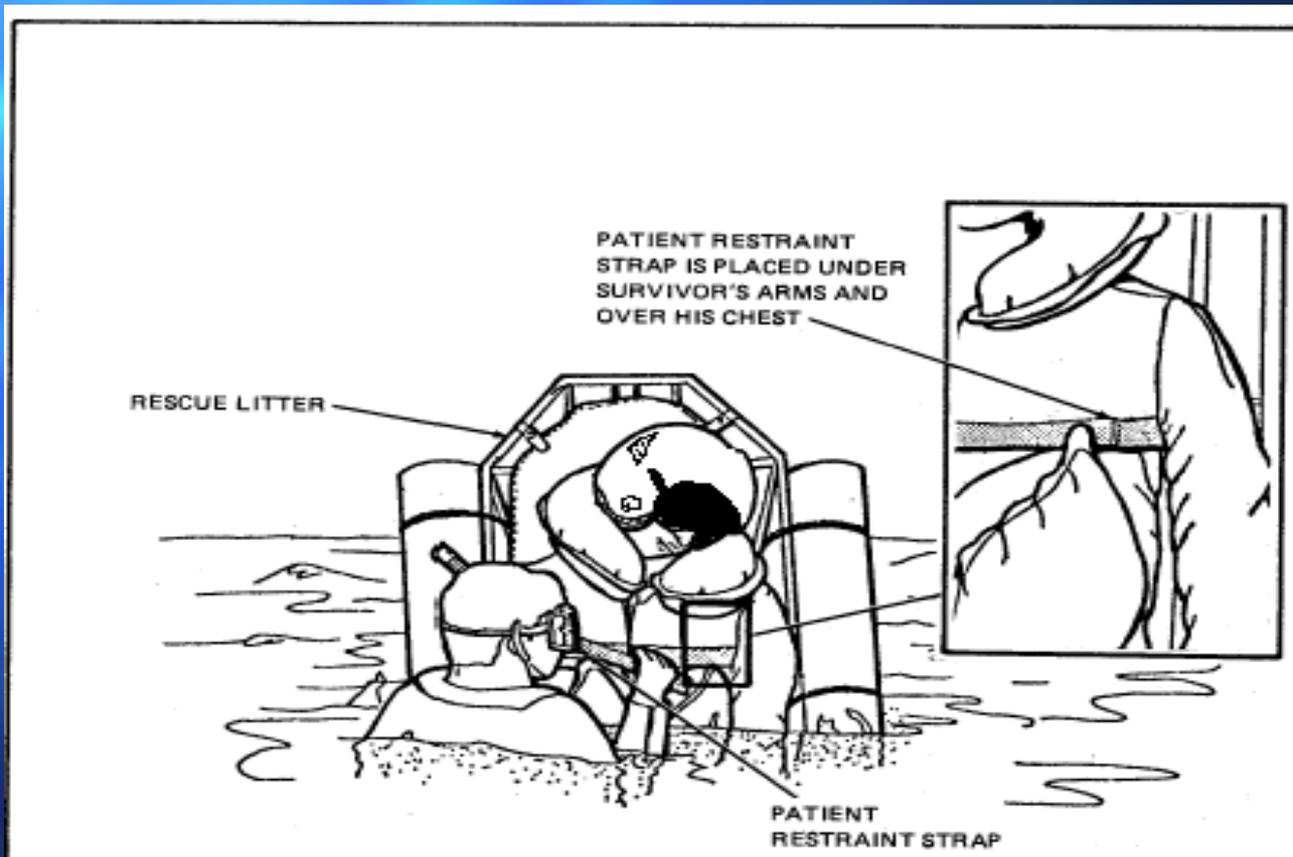


- One hundred and twenty (120') feet in length.
- Three eighths inch thick polyethylene, diamond braided rope.
- A weak link for breakaway capability.
- Gloves and line are deployed together via a 5 pound shot bag.

Securing the Survivor to the Rescue Litter

- Rescue Litter has five restraint straps. They are stowed with four retaining straps.
- Procedure for securing survivor:
 - Position survivor in litter.
 - Place the top restraint strap under the arms but over the chest and attach to the fitting on the left side.
 - Next, working from the chest strap down, secure the rest of the restraint straps.
 - Once the restraint straps are secured, attach the chest pad over the survivor's arms. The rescue swimmer may encounter some difficulty if survivor has flotation. However, flotation is not be removed or deflated. Instead, remove chest pad from litter and continue with rescue. If practical, swimmer will return chest pad back to helicopter when hoisted.

Securing the Survivor to the Rescue Litter



Securing the Survivor to the SAR MEDEVAC Litter

- Litter will need to be assembled by hoist operator prior to lowering to swimmer.
- Litter has integral cervical collar and head restraint, four patient restraint straps, one chest flotation pad assembly strap, and one foot restraint assembly.

Securing the Survivor to the SAR MEDEVAC Litter

- Procedure for securing survivor:
 - Position survivor in litter.
 - Placed the top restraint strap under the arms but over the chest and attach to the fitting on the left side.
 - Next, working from the chest strap down, secure the rest of the restraint straps.
 - Once the restraint straps are secured, attach the chest pad over survivor's arms. The rescue swimmer may encounter some difficulty if survivor has flotation. Flotation shall not be removed. Instead, remove chest pad from litter and continue with rescue. If practical, swimmer will return chest pad back to helicopter when hoisted.
 - Properly adjust foot restraint assembly.
 - Secure head restraint assembly if possible. Do not remove survivor's helmet if neck or back injury is suspected.

General Litter Procedures

- Signal for litter - Trail line will come out first.

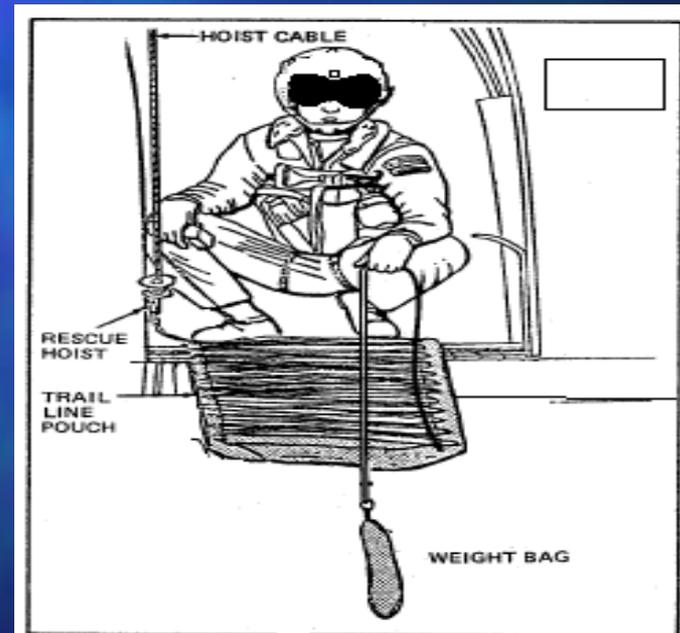


General Litter Procedures

WARNING

The weight bag shall be deployed so as not to strike Rescue Swimmer or survivor.

- The hoist operator shall deploy the trail line ensuring that it is attached to the litter. The gloves shall be tied on by a slip knot located just above the weight bag.



General Litter Procedures

WARNING

The rescue swimmer shall wear trail line or authorized rescue swimmer gloves with leather palms in order to prevent rope burns to the hands.

General Litter Procedures

- Rescue Swimmer shall wear trail line gloves.
- The Rescue Swimmer shall pull on the trail line gently until the entire line is deployed.
- Signal “thumbs-up” indicating ready for litter.
- Use trail line to control the litter and pull it into position as it is lowered.
- Allow rescue device to touch water.
- Disconnect hoisting slings from rescue hook placing hoisting slings outside of litter. Do not allow hoisting slings to foul restraining straps.

General Litter Procedures

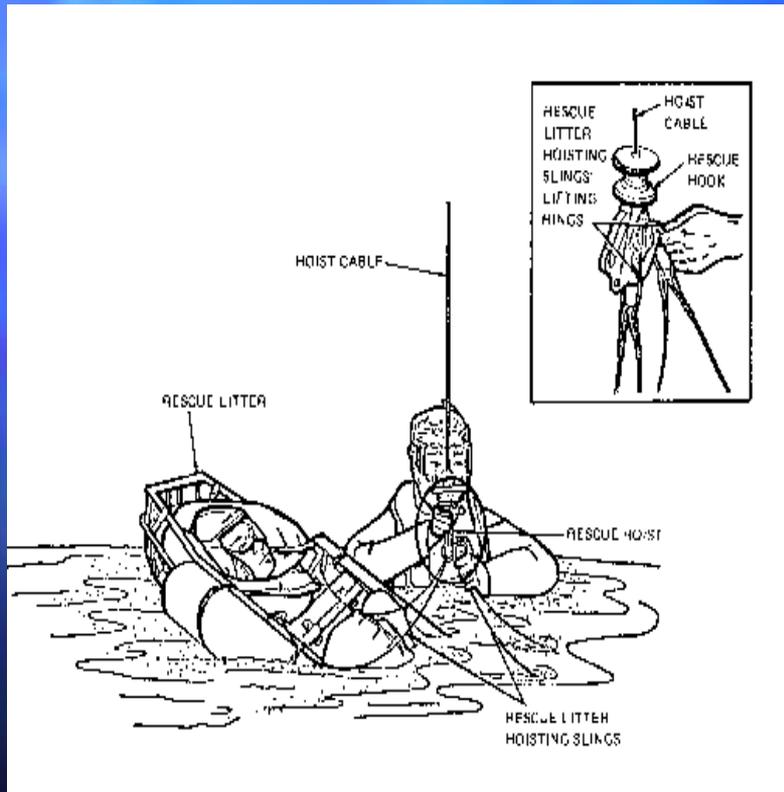
- The Rescue Swimmer shall guide the survivor into the positioned rescue litter using the collar tow or equipment carry.
- Position survivor on litter, adhering to warning regarding survivor's buoyancy and the self-righting feature of the litter.
- Secure survivor using procedures appropriate to the litter.

General Litter Procedures

WARNING

If the survivor is wearing a buoyant antiexposure suit such as the Imperial Dry Suit, it will affect the flotation characteristics of the litter and may negate the self-righting feature.

General Litter Procedures

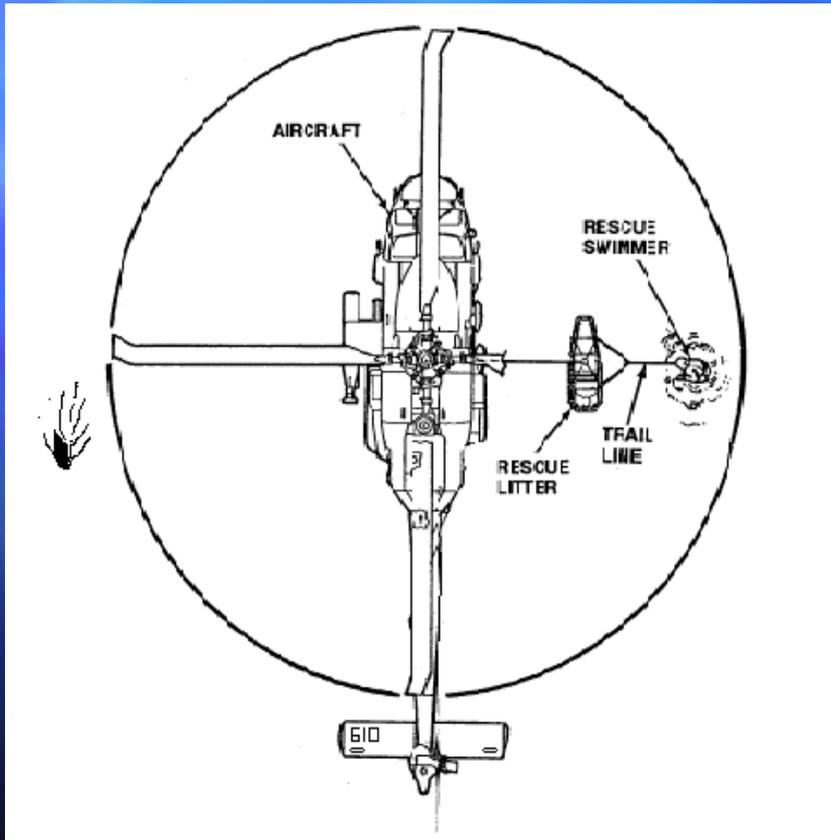


- Ready the Rescue Litter Hoisting Sling and signal the aircraft to move in for pickup.
- Hook the Rescue Litter hoisting sling (both sides) to the large hook.

General Litter Procedures

- Conduct pre-hoisting safety check, ensuring survivor is securely within litter, litter is attached to large hook, trail line is attached to proper side of the litter (aircraft dependent), sling cables are in correct positioning, swimmer is wearing gloves, and cable is clear and not wrapped around the litter or the swimmer.
- Signal for "up-hoist".

General Litter Procedures



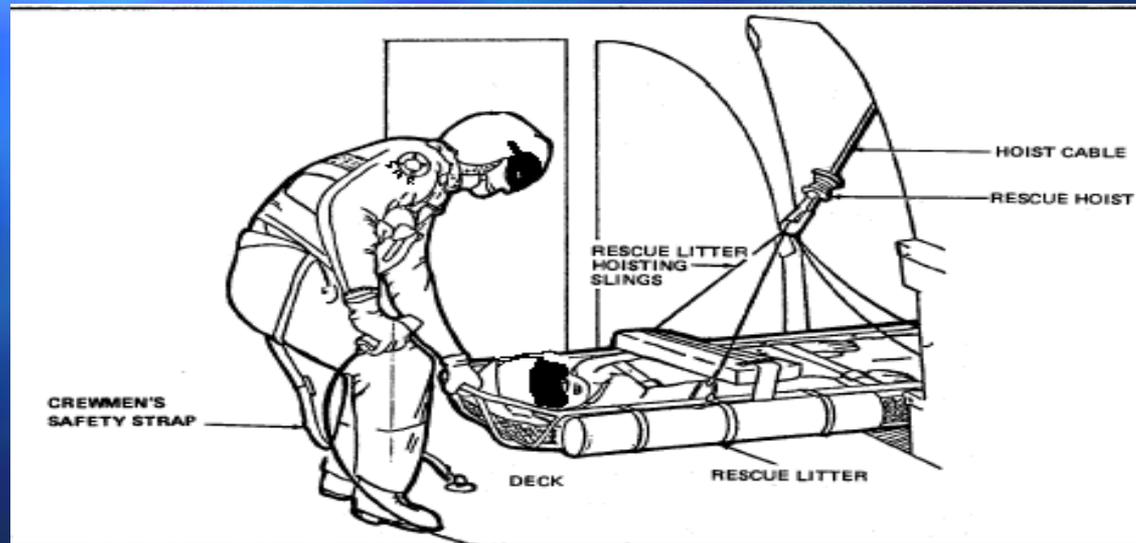
- Swimmer remains in water, taking a slight strain on trail line, stabilizing the hoist, and keeping the litter oriented parallel to the the rescue platform. Upon reaching the rescue platform, maneuver survivor aboard per platform specific procedures.

General Litter Procedures

- When the litter is at the aircraft entrance, the swimmer shall use the trail line to maneuver the litter such that the survivor enters the rescue platform per platform specific procedures.

General Litter Procedures

- With the litter and trail line on board, the crewman shall lower the hoist cable and recover Rescue Swimmer.



Rescue Seat



- Two folding flukes for sitting.
- Bright orange flotation collar for high visibility.
- Swimmer or survivor must lower the flukes.
- Two adjustable yellow safety straps with friction adjusters.
- Used for both land and sea rescue.

Rescue Seat

- Night time illumination
 - There is no available place to attach the chemlight strap to the Rescue Seat. Chemlights shall be attached to the rescue hook equipment ring during night operations.
- Procedures for use:
 - Signal for device.
 - Allow device to ground.
 - Pull down fluke and have survivor sit on it, facing the rescue seat.

Rescue Seat

WARNING

If hoisting an unconscious survivor with the rescue seat, the rescue swimmer shall be hoisted along with the survivor.

NOTE

If survivor is wearing an inflated LPU Life Preserver, the waist lobes may need to be disconnected prior to attaching the adjustable safety strap.

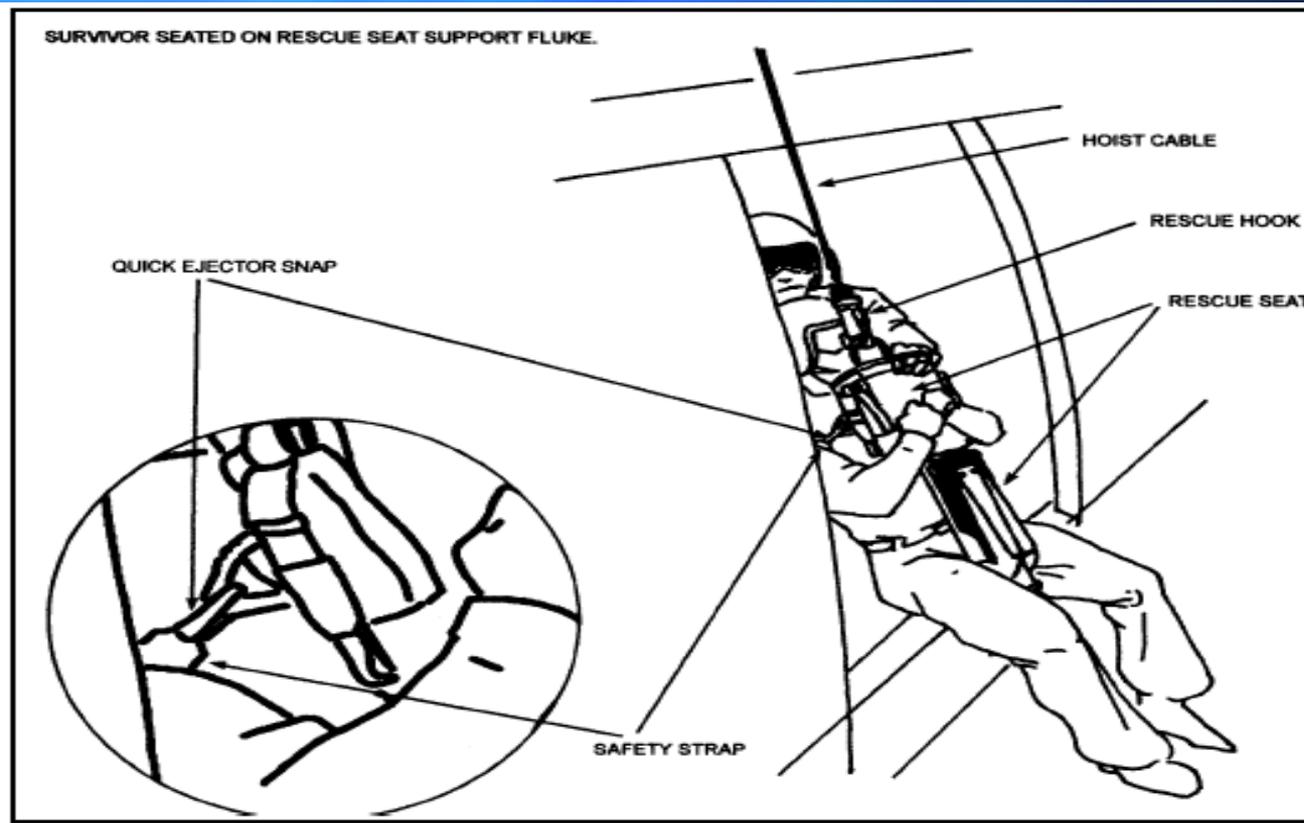
Rescue Seat

- Position riders, pass adjustable safety straps under riders arms and around their back and secure strap to the "V"-ring. Tighten until survivor is secured against flotation collar.
- Have the survivor wrap arms and legs around the flotation collar.
- Perform final safety check.
- Signal for "Up-hoist".

NOTE

If the rescue swimmer elects to be hoisted with the survivor, the rescue swimmer shall wear the adjustable safety strap in the same manner as the survivor.

Rescue Seat



RESCUE EQUIPMENT INSPECTION

- Visual Inspection Prior to Use
 - Inspect fabric for cuts, deterioration, and abrasion.
 - Inspect seams for proper adhesion and stitching
 - Inspect all hardware for security of attachment, corrosion, damage, wear, and if applicable, ease of operation.
 - Check for sharp edges and projections.
 - Ninety day inspection cycle for equipment conducted by maintenance personnel.

RESCUE EQUIPMENT INSPECTION

WARNING

Unauthorized modification to, and deviation from, prescribed life support and survival equipment by individual crewmembers could create unknown safety hazards.

SUMMARY

- True or False: The swimmer is the only one on the crew who must know his/her hand signals?

False: All crewmembers must be familiar with the meaning of standard hand signals.

- What is the night hand signal for “move in for pickup”?

Wave chemlight

SUMMARY

- What are the load ratings of the Double Rescue Hook?

Large Hook: 3000 lbs

Small Hook: 1000 lbs

*Equipment Ring: 1500
lbs*

- The rescue net provides flotation for how many?

Two (2) persons.

SUMMARY

- When stored in the backpack, how much does the SAR MEDEVAC Litter weigh?

40 lbs

Questions?

