

LESSON PLAN

JANUARY 2004

COURSE TITLE: Rescue Swimmer Refresher  
Course, Q-050-0604

TERMINAL OBJECTIVE:  
Partially supported by this lesson topic:

CLASSIFICATION: Unclassified

3.0 Upon completion of this unit of instruction, the student will select and use the appropriate rescue devices, describe the use of survivor marker/locator devices per NWP 3-50.1, use applicable publications to obtain required information relative to Rescue Swimmer procedures, and operate and remove Navy and Air Force Aircrew survival equipment, harnesses and associated hardware, without injury to personnel or damage to equipment.

LESSON PLAN NUMBER: 3.1

LESSON TOPIC: Rescue Devices and  
Procedures

ALLOTTED LESSON TIME: 1.5 Classroom  
5.0 Laboratory

INSTRUCTIONAL SUPPORT:

1 Classroom Instructor  
1 Laboratory Instructor  
Safety personnel as required per Annex E of Curriculum Outline

Enabling Objectives:  
Completely supported by this lesson topic:

INSTRUCTIONAL REFERENCES:

1. NWP 3-50.1, Naval Search and Rescue Manual
2. NAVAIR-13-1-6.5, Rescue and Survival Equipment

3.1 Demonstrate the proper methods of communication between the Rescue Swimmer and the Rescue Platform per NWP3-50.1:

- a. hand signals
- b. radio communication

INSTRUCTIONAL AIDS:

1. Double Rescue Hook
2. Modified Rescue Strop

3.2 Demonstrate the functional operation of the following rescue devices per NWP 3-50.1:

- a. Double Rescue Hook
- b. Modified Rescue Strop

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- |    |  |     |  |
|----|--|-----|--|
| 3. | Rescue Net   | c.  | Rescue Net   |
| 4. | Rescue Litter/SAR MEDEVAC Litter,<br>Trail Line and Gloves | d.  | Rescue Litter/SAR MEDEVAC<br>Litter, Trail Line and<br>Gloves                          |
| 5. | Rescue Seat  | e.  | Rescue Seat  |
| 6. | Hoisting Vest  | f.  | Hoisting Vest  |
|    |  | 3.3 | Place simulated victim into the<br>following rescue devices in a water<br>environment: |
|    |  | a.  | Double Rescue Hook   |
|    |  | b.  | Modified Rescue Strop  |
|    |  | c.  | Rescue Net   |
|    |  | d.  | Rescue Litter/SAR MEDEVAC Litter   |
|    |  | e.  | Rescue Seat  |

CRITERION TEST:

Student will correctly demonstrate  
procedures as presented in this lesson.

HOMEWORK: None

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

INTRODUCTION

A. Establish Contact

Display name and lesson topic.

1. Introduce self, give rank, current job.
2. State background, schools, duty stations, etc.
3. State question and answer policy.
4. Review training time out policy.
5. Ask the following questions:
  - a. Has anyone gone to the hospital/branch clinic for treatment within 24 hours, and are you taking any medications?
  - b. Has anyone taken over-the-counter medications within 24 hours?
  - c. Are there any potentially disqualifying illnesses/conditions for which you are currently being evaluated?

Refer questionable cases to the department's senior medical representative for disposition.

B. State Lesson Objectives

Turn to cover page of Lesson Plan and paraphrase objectives.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

C. Establish Readiness

1. Motivating Statements
2. Lesson Overview
  - a. Lesson Topic: Rescue Devices and Procedures
  - b. Major Teaching Points:
    - (1) Communication Procedures
    - (2) Double Rescue Hook
    - (3) Modified Rescue Strop
    - (4) Rescue Net
    - (5) Rescue Litter/SAR MEDEVAC Litter
    - (6) Rescue Seat
    - (7) Hoisting Vest
    - (8) Inspection and Care of Rescue Devices

Establish importance and relevance of lesson material using personal experience or anecdote.  
Briefly outline material to be covered.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

PRESENTATION

Instructor note: This presentation may be given in the classroom or on the pool deck. This Lesson Plan is designed for use in Refresher training. Tailor the depth of instruction accordingly.

A. Communication Procedures

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

Demonstrate all signals.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

B. Double Rescue Hook

Display device, indicating hooks and equipment ring.

1. The Double Rescue Hook is the primary rescue device. All other rescue devices can only be utilized with the Double Rescue Hook. In accordance with NAVAIR 13-1-6.5, the large hook, rated at 3,000 lbs., shall be the only hook used to hoist personnel; the small hook, rated at 1,000 lbs., is to be used only for lightweight items such as mail. The equipment ring, rated at 1500 lbs., can be used to hoist light equipment and mail.

2. Night-time Illumination

Attach chemlight strap to equipment ring of the Double Rescue Hook and attach two chemlights to the strap.

3. Procedures for Helo-Deployed Rescue Hook

Walk-through procedures with equipment and "survivor".

**WARNING**

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.

**WARNING**

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

**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.**

- a. If swimmer and survivor are to be hooked directly to the Double Rescue Hook and hoisted simultaneously:

- (1) Signal for pickup.
- (2) Allow hook to ground.
- (3) Hook up survivor.
- (4) Hook up swimmer.
- (5) Perform safety check.
- (6) Signal for "up-hoist".

Demonstrate procedure.

- b. 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:

- (1) Attach survivor's gated "D"/"V"-ring to swimmer's "D"-ring.
- (2) Signal for pickup.
- (3) Allow hook to ground.

Demonstrate procedure.

DISCUSSION POINT

- (4) Hook up swimmer's "V"-ring to large hook of Double Rescue Hook.
- (5) Perform safety check.
- (6) Signal for "up-hoist".

**WARNING**

**Do not place fingers in or around the bumper compressing spring of the Double Rescue Hook, due to the possibility of a crushing injury to fingers or hands during hoisting operations.**

RELATED INSTRUCTOR ACTIVITY

Point out the bumper compressing spring.

C. Modified Rescue Strop

Display device

- 1. 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. A webbing strap runs through the cover and has a "V"-ring at both ends for attaching to the Double Rescue Hook. Two arm retainer straps are attached to the Modified Rescue Strop to hold survivor in the strop.
- 2. Night-time Illumination Two chemlights are attached to the strap. Strap is attached to the Rescue Strop lower "V"-ring by the crewman.
- 3. Procedures for use:

Walk-through procedures with equipment and "survivor".

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- a. Signal for pick-up.
- b. Allow rescue device to touch water.
- c. Approach hoist with survivor in an appropriate carry.

**NOTE**

Arm retainer straps shall be outboard when placing the Modified Rescue Strop on the survivor.

- d. Working behind 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.

**NOTE**

Assure strop is positioned tightly under survivor's armpits and positioned on upper half of survivor's back.

**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.

- e. Connect the arm retainer strap, by

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

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.**

f. 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 survivor or physically incapacitated survivor to slip through the Rescue Strop if their arms are not secured at the side with the arm retainer straps.**

- g. If swimmer is to be hoisted, attach swimmer's "V"-ring to large hook of the Double Rescue Hook.
- h. Perform safety check.
- i. Signal for "up-hoist".
- j. The Rescue Swimmer may use his feet to stabilize entry of a conscious survivor into the aircraft, but shall not release

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

the survivor's arms until:

- (1) The survivor is securely on the aircraft deck.
- (2) The hoist operator signals that he has the survivor in positive control within the aircraft.

D. Rescue Net

Display device.

1. Conically-Shaped Bird Cage

**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 net could result in the survivor(s) drowning.**

Demonstrate locking support rods into place.

- 2. Primarily used for multiple rescues.
- 3. Never send unconscious victim up alone in Rescue Net.
- 4. Flotation for two persons.
- 5. A "V"-strap is provided for securing the net in the rescue vehicle door.
- 6. Night-time Illumination

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

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

7. Procedures:
- (a) Signal for net.
  - (b) Allow device to ground.
  - (c) Place Rescue Net opening directly in front of the Rescue Swimmer without disconnecting it from the rescue hook.
  - (d) 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.
  - (e) Ensure that survivor's body is entirely in the net. Instruct survivor not to exit the net until directed by crewman in helicopter.

Demonstrate procedures

**WARNING**

**Survivor shall not attempt to get out of the Rescue Net until directed by the crewman.**

- (f) Place one arm across the net.
- (g) Signal for up-hoist.
- (h) When net reaches the helicopter, the crewman shall hook up the safety strap from the rescue net to the decking of the helicopter. The crewman shall assist the survivor inside the helicopter.

E. Rescue Litter/SAR MEDEVAC Litter

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

1. Litter Characteristics:
  - a. Both are for use with suspected back injuries and unconscious survivors.

Display Litter.

**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.**

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

**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.**

- d. Both have a two piece Rescue Litter Hoisting Sling which are attached to the Double Rescue Hook. Sling is color coded short red to head and long white to feet.
- e. The SAR MEDEVAC Litter folds in half to

Display SAR MEDEVAC Litter,

DISCUSSION POINT

reduce space requirements and is more easily used for rappelling and backpacking. It weighs approximately 40 pounds. It can be vertically hoisted 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.

f. Night-time Illumination

Two chemlights are attached to each strap. One Strap is attached to the head of the litter; one to the foot of the litter.

g. Both litters utilize a "trail line" controlled by the swimmer in the water to control litter deployment and stabilize the litter during hoisting.

- (1) One hundred and twenty feet in length.
- (2) Three eighths inch thick polyethylene, diamond-braided rope.
- (3) Weak link for breakaway capability.
- (4) Gloves and line are deployed together via a five pound shot bag.

2. Securing Survivor to the Rescue Litter:

RELATED INSTRUCTOR ACTIVITY

indicating features.

Display trail line assembly and gloves.

Demonstrate each procedure as it is presented.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- a. Rescue Litter has five restraint straps.  
They are stowed with four retaining straps.
- b. Procedure for securing survivor:
  - (1) Position survivor in litter.
  - (2) Place the top restraint strap under the arms but over the chest and attach to the fitting on the left side.
  - (3) Next, working from the chest strap down, secure the rest of the restraint straps.
  - (4) Once the restraint straps are secured, attach the chest pad over the survivor's arms. The rescue swimmer may encounter some difficulty if the survivor has inflated flotation. However, the survivor's flotation is not to 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.
- 3. Securing survivor to the SAR MEDEVAC Litter:
  - a. Litter will need to be assembled by hoist operator prior to lowering to swimmer.

Display SAR MEDEVAC Litter securing features.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

b. Litter has integral cervical collar and head restraint, four patient restraint straps, one chest flotation pad assembly strap, and one foot restraint assembly.

c. Procedure for securing survivor:

(1) Position survivor in litter.

(2) Place the top restraint strap under the arms but over the chest and attach to fitting on the left side.

(3) Next, working from the chest strap down, secure the rest of the restraint straps.

(4) Once the restraint straps are secured, attach the flotation pad assembly over the arms. The rescue swimmer may encounter some difficulty if survivor has inflated flotation. However, flotation shall not be removed. Instead, remove flotation pad assembly from litter and continue with rescue, if practical swimmer will return chest pad assembly back to helicopter when hoisted.

(5) Properly adjust foot restraint assembly.

Demonstrate each procedure as it is presented.

DISCUSSION POINT

- (6) Secure head restraint assembly if possible. Do not remove survivor's helmet if neck or back injury is suspected.

4. General Litter Procedures:

- a. Signal for litter. (Trail line will be deployed first.)

**WARNING**

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

RELATED INSTRUCTOR ACTIVITY

Demonstrate procedures.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- b. The hoist operator shall deploy the trail line ensuring that it is attached to the litter.

**WARNING**

**The Rescue Swimmer shall wear trail line gloves in order to prevent rope burns to the hands.**

- c. Rescue Swimmer shall wear trail line gloves.
- d. The Rescue Swimmer shall pull on the trail line gently until the entire line is deployed.
- e. Signal "thumbs-up" indicating ready for litter.
- f. Use the trail line to control the litter and pull it into position as it is lowered.
- g. Allow rescue device to touch water.
- h. Disconnect hoisting slings from rescue hook, placing hoisting slings outside litter. Do not allow hoisting slings to foul restraining straps.
- i. The Rescue Swimmer shall guide the survivor into the positioned rescue litter using the collar tow or equipment carry.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- j. Position survivor on litter, adhering to warning regarding survivor's buoyancy and the self righting feature of the litter.

**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.**

- k. Secure survivor using procedures appropriate to the litter.
- l. Ready the Rescue Litter Hoisting Sling and signal the aircraft to move in for pick-up.
- m. Hook the Rescue Litter Hoisting Sling (both sides) to the large hook.
- n. Conduct pre-hoisting safety check, ensuring survivor is securely within litter, litter is attached to large hook, tending line is attached to the proper side of the litter (aircraft dependent), swimmer is wearing gloves, and cable is clear and not wrapped around litter or swimmer.
- o. Signal for pick up.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- p. Swimmer remains in water, taking a slight strain on trail line, stabilizing the hoist, and keeping the litter oriented parallel to the aircraft. Upon reaching the rescue platform, maneuver survivor aboard per platform specific procedures.
- q. When the litter is at the aircraft entrance, the swimmer shall use the trail line to maneuver the litter such that survivor's head enters the aircraft per specific platform.
- r. With the litter and trail line on board, the crewman shall lower the hoist cable and recover Rescue Swimmer.

F. Rescue Seat

Display device.

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

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

6. Night-time Illumination: There is no available place to attach the chemlight strap to the Rescue Seat. The chemlights shall be attached to the rescue hook during night operations.
7. Procedures for use:
  - a. Signal for device.
  - b. Allow device to ground.
  - c. Pull down fluke and have survivor sit on it, facing the rescue seat.

Demonstrate hand signal for device.

**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.

- d. Position riders, pass adjustable safety strap under rider's arms and around their back and secure strap to the V-ring and tighten until survivor is secured against flotation collar.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- e. Have the survivor wrap arms and legs around the flotation collar.
- f. Perform safety check.
- g. Signal for "up-hoist".

**NOTE**

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

G. Hoisting Vest

Display vest.

- 1. The hoisting vest is not a water rescue device.
- 2. Nylon fish net vest.
- 3. Adjustable for each survivor.
- 4. Used for over-land recovery or ship to ship transfer. If used for overwater hoist, flotation must be placed over the vest.
- 5. Night-time Illumination: There is no available place to attach the chemlight strap to the Hoisting Vest. The chemlight strap shall be attached to the rescue hook on all night operations.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

6. Procedures for use:
  - a. Place survivor in vest. Place flotation over hoisting vest.
  - b. Perform safety check.
  - c. Signal for "up-hoist".
  - d. Trail line procedures may be used with this device.

H. Rescue Equipment Inspection and Care

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

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

2. Care After Use
  - a. Fresh water wash all gear after use.
  - b. Per NAVAIR 13-1-6.5, the Rescue Strop must be inspected after every immersion in salt water.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

SUMMARY

A. State Lesson Objectives

Turn to cover page for objectives.

B. Review Major Teaching Points

Briefly summarize.

APPLICATION

Initial students practice procedures dry-land until comfortable.

Break initial students into small groups for dry land practice.

Students place "survivor" into the following rescue devices in a pool environment.

Students practice skills in water under observation and instruction of an in-water instructor. Instructor demonstrate skills as required.

- a. Double Rescue Hook
- b. Modified Rescue Strop
- c. Rescue Net
- d. Rescue Seat
- e. Rescue Litter/SAR MEDEVAC Litter

EVALUATION

Student utilize the procedures presented in this lesson to place a student "survivor" into the following rescue devices in a pool environment:

In-water instructor evaluate students ability to correctly perform the procedures presented in this lesson.

- a. Double Rescue Hook
- b. Modified Rescue Strop
- c. Rescue Net
- d. Rescue Seat
- e. Rescue Litter/SAR MEDEVAC Litter

ASSIGNMENT: None