

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: 3.4

LESSON TOPIC: Navy and Air Force Aircrew Survival Equipment, Harnesses and Associated Hardware

ALLOTTED LESSON TIME: 2.0 Classroom

INSTRUCTIONAL SUPPORT:

Enabling Objectives:
Completely supported by this lesson topic:

INSTRUCTIONAL REFERENCES:

1. NAVAIR 13-1-6.5, Rescue and Survival Equipment
2. NAVAIR 13-1-6.7, Aircrew Personnel Protective Equipment
3. NWP 3-50.1, Naval Search and Rescue Manual

- 3.7 Perform the procedures for removing the following assemblies:
- a. Helmet assemblies
 - b. RSSK/SKU assemblies
 - c. Oxygen mask assemblies
 - d. Survival vest/flotation assemblies

INSTRUCTIONAL AIDS:

1. HGU 33 Series Helmet
2. SPH-3C Helmet
3. MBU-12/P Oxygen Mask Assembly
4. RSSK/SKU
5. SV-2 Series Vest
6. HGU-55 Series Helmet
7. SRU-21 Series Survival Vest

- 3.8 Operate hardware associated with parachute harnesses.
- 3.9 Remove parachute harnesses.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

8. LPU-21
9. LPU-9
10. LPU-2/10
11. CWU-17 Torso Harness
12. USAF Koch Fitting
13. J-1 Capewell Fitting
14. USAF BA-18/22 Quick Donning Back Pack
Type Parachute
15. LPU-30
16. PCU Parachute Restraint Harness
Assembly
17. NB-6/8 Parachute Container and Harness
18. Koch Fitting with Seawater Activated
Release System (SEAWARS) Installed

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. | |
| B. State Lesson Objectives | Turn to cover page of Lesson Plan and paraphrase objectives. |
| C. Establish Readiness | |
| 1. Motivating Statements | Establish importance and relevance of lesson material using personal experience or anecdote. |
| | Briefly outline material to be covered. |
| 2. Lesson Overview | |
| a. Lesson Topic: Navy and Air Force Aircrew Survival Equipment, Harnesses and Associated Hardware. | |

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- b. Major Teaching Points:
- (1) Navy Aircrew Survival Equipment
 - (2) Air Force Aircrew Survival Equipment
 - (3) PCU-Parachute Restraint Harness Assembly
 - (4) NB-6/8 Back Pack Type Parachute with Quick Donning Harness
 - (5) NB-6/8 Harness Hardware
 - (6) Seawater Activated Release System (SEAWARS)
 - (8) USAF Parachute Harnesses and Hardware

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

PRESENTATION

A. Navy Aircrew Survival Equipment

1. Anti-Exposure Suits

- a. Anti-Exposure Suits and Dry Suits are worn under the flight suit.
- b. Imperial Wetsuit (Quick-Donning)
 - (1) Bright orange in color.
 - (2) Worn over the flight suit clothing.

2. Flight Helmets

- a. HGU-33 through 52 Series Helmet
 - (1) Primary Navy helmet in use today by fixed wing aircrew.
 - (2) HGU-33 is basic helmet, different number designations denote specific aircraft applications (i.e., HGU-33P is for F-18'S).
 - (3) May be configured with one or two visors
 - (a) Tinted
 - (b) Clear

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- (4) Oxygen mask connects with Bayonet fittings.
 - (5) HGU-37 helmet assembly has a VTAS (Visual Target Acquisition) sight assembly mounted on the visor and has separate sensor electrical cable and communication cord on the rear of the helmet that must be removed/cut before removing RSSK/SKU.
- b. SPH-3C, and HGU-54 through 64 Series Helmet
- (1) This is the primary Navy helmet for rotary wing aircrews.
 - (2) SPH-3C is the basic helmet, different number designations denote specific helicopter applications (i.e., HGU-54 is for the AH-1).
 - (3) Provides better sound attenuation from high frequency vibrations than the HGU-33 Series helmet.
 - (4) Dual Visor - tinted and clear.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

3. MBU-12 Series Oxygen Mask
 - a. Form fits to face.
 - b. Attaches to helmet with bayonet fitting.
 - c. Oxygen supply hose connects to RSSK/SKU or Aircraft console.
 - d. To disconnect hose from RSSK/SKU, lift the knurled locking ring and pull firmly on the supply hose.
 - e. The mask should always be disconnected from the helmet first to eliminate any possibility of suffocating the aircrewman.
4. Rigid Seat Survival Kit/Seat Kit Unit (RSSK/SKU)
 - a. Attaches aviator to ejection seat.
 - b. Has a bottom which separates from the top portion by pulling yellow and black handle on right hand side.
 - c. Contains LR-1/LRU-18, emergency locator transmitter, and other items of survival gear.
5. Survival Vest
 - a. SV-2 Series.
 - b. Nylon multi-pouched vest containing general and medical survival items.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- c. Those used by helicopter and propeller aircraft, have a chest strap and a lifting V-ring for hoisting sewn into the vest.
- d. Designed to incorporate the LPU 21-24 and FLU-8 Series flotation gear. Can be inflated by CO₂ or orally.
- e. Inflation of the LPU is done by pulling the beaded toggles at the waist.
- f. The FLU-8A/P equipped life preserver will have four warning labels that will read:

WARNING

**AUTOMATIC INFLATION DEVICE INSTALLED FOR USE WITH
EJECTION SEAT AIRCRAFT ONLY!**

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- g. The FLU-8A/P is a self-contained Cartridge Activated Device (CAD) which provides automatic inflation of the life preserver upon water entry. It is used by aircrew who wear the PCU parachute restraint harness assembly flying ejection seat equipped aircraft. The automatic activator is designed to prevent drowning in the event the crew member is incapacitated and/or is not able to manually activate the LPU. The FLU-8A/P will inflate the life preserver with 8-15 seconds upon immersion into seawater. The FLU-8A/P is a backup system only. The primary mode of life preserver inflation is manual.

6. Flight Deck Personal Vest (MK-1/LPU-30)

- a. Inflated by CO₂ or orally.
- b. Pull cord for CO₂ inflation on right hand side at bottom of vest.
- c. Oral inflation on right side of chest.

B. Air Force Aircrew Survival Equipment

1. HGU-55 Series Helmet

- a. Primary flight helmet used by the Air Force.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- b. Identical to Navy Fixed Wing Helmet (HGU-33).
 - c. Oxygen mask attaches via bayonet fittings.
 - d. May be configured with a single soft visor or a dual hard visor.
2. MBU-12 Oxygen Mask Assembly
- a. Identical to Navy Oxygen mask.
 - b. Bayonet fittings secure mask to helmet.
 - c. Oxygen mask supply hose connects to a manifold block mounted on the right shoulder strap of the CW-17 Torso Harness. To disconnect the hose turn the locking ring counter-clockwise while pulling on the hose.
 - d. The mask should always be disconnected from the helmet first to eliminate any possibility of suffocating the aircrewman.
3. Seat Survival Kit
- a. Identical to Navy RSSK.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- b. Attached to the aircrewman's parachute harness by quick-disconnect buckles. These are released by depressing a button in the center of the buckle, as in automobile seat belts.
4. SRU-21 Series Survival Vest
- a. Nylon multi-pouched vest containing general and medical survival items.
 - b. One piece garment worn independently of all other survival equipment.
5. Flotation
- a. LPU-9 Series
 - (1) Worn in conjunction with CW-17 Torso Harness by aircrew flying ejection seat equipped aircraft.
 - (2) One piece garment worn over the torso harness and survival vest.
 - (3) Consists of two separate cells, mounted waist high one above each hip. Each cell has its own CO₂ cartridge and activation toggles. Can also be inflated manually with oral inflation tube.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

b. LPU-2 and LPU 10 Series

- (1) Worn in conjunction with BA-18/22 Parachute Harness by aircrew's flying larger fixed wing aircraft (i.e., C-130, C-141, C-5, KC-10) not equipped with ejection seats.
- (2) One piece garment worn under the parachute harness.
- (3) Consists of two separate cells, mounted waist high one above each hip. Each cell has its own CO₂ cartridge and activation toggles. Can also be inflated manually with oral inflation tube.

C. PCU-Parachute Restraint Harness Assembly

Show students PCU.

1. Worn by Carrier-based tactical jet aircrew who use ejection seats for emergency egress.
2. The harness is a self contained one piece garment that can have pockets for survival equipment sewn directly into the harness. Flotation is also attached to the harness.
3. A gated D-ring for lifting is located under the right koch fitting.
4. The male portion of the koch fitting assembly is located on the right and left upper chest area.

Show students D-ring.

Show students koch/mini-koch fittings and their operations.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

5. Lap belt with mini-koch fittings is located on the front lower panel. Used to secure the RSSK/SKU to the survivor.
 6. Friction adapter is used for chest strap adjustments.
 7. Gated D-ring is used to attach the aviator to the double rescue hook for hoisting.
 8. Koch fittings and mini-koch come in male and female assemblies.
 - a. Koch fittings used to attach parachute to the parachute restraint harness. The male end of the Koch fitting is attached to the PCU-parachute restraint harness, the female end is attached to the riser assembly.
 - b. Mini-koch fittings used to attach lap belt assembly to the rigid seat survival kit (RSSK/SKU).
- D. NB-6/8 Back Pack Type Parachute with Quick Donning Harness
1. Used by larger land based fixed wing aircraft (e.g., C-130, P-3).
 2. Normally only worn in anticipation of bailout. Harness is easily adjusted to any crew member.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

3. Harness is worn over the SV-2 and flotation.
4. Secured/Removed by the use of the three quick ejector snaps and "V" rings, one at the chest, and one for each leg.

E. NB-6/8 Harness Hardware

1. Parachute harness strap adapter used for shoulder adjustments.
2. Friction adapter is usually used for chest strap and adjustments.
3. Three quick ejector snaps are connected to three "V" rings on leg straps and chest strap.

Two types of Quick Ejector Snaps: Friction and Non-friction.

F. Seawater Activated Release System (SEAWARS)

1. Designed to automatically release the parachute upon immersion in seawater.
2. Is a back-up system intended to aid the survivor if injured, or where there is not enough time to manually release parachute as in low altitude ejection.
3. A totally self-contained, automatic release system.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

4. Will separate the canopy release fittings from the parachute risers releasing the parachute within two seconds after complete immersion into seawater.
5. Consists of two SEAWARS units that weigh seven and one half ounces each.
6. Installed on the female end of the koch fittings on the parachute risers. If SEAWARS fails to operate, the koch fittings can be released by normal means. The SEAWARS does not pose any threat to the rescue swimmer.

G. USAF Parachute Harnesses and Hardware

1. CW-17 Torso Harness
 - a. Worn by tactical jet aircrew who use ejection seats for emergency egress. Similar in appearance to the Navy NB-6/8 quick donning harness.
 - b. Secured in place by three quick ejector snaps and "V" rings, one at the chest, and one for each leg.
 - c. Survival Vest and flotation are worn over the torso harness. The parachute must be disconnected where the riser attaches to the harness.
 - d. Harness hardware varies with aircraft.

Show USAF version of Koch Fitting and operation.

- (1) A-10, F-4, and F-15 use a Koch
3.4-15

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

fitting similar in appearance and operation to what the Navy uses. On USAF Torso Harness, female end is attached to harness, and the male end is attached to the parachute riser. May have SEAWARS installed.

- (2) F-16 uses the Frost fitting to attach the aviator to the parachute. Male end is attached to the harness, female end is attached to parachute risers.

- (3) F-5 and T-38 use the J-1 Capewell fitting.

Show J-1 Capewell fitting and how it releases.

- 2. BA-18/22 Quick-Donning Back Pack Type Parachute
 - a. Used by larger fixed wing aircraft (e.g., C-130, C-141, C-5, KC-10) not equipped with ejection seats.
 - b. Identical in appearance to the Navy NB-6/8 Back Pack type parachute.
 - c. Normally only worn in anticipation of bailout. Harness is easily adjusted to any crew member.
 - d. Harness is worn over survival vest and flotation.
 - e. Hardware is the similar to the NB-6/8.

DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

SUMMARY

A. State Lesson Objectives

Turn to cover page for objectives.

B. Review Major Teaching Points

Briefly summarize.

APPLICATION

None.

EVALUATION

None.

ASSIGNMENT

None.