

CHAPTER 16

LPU-23/P SERIES LIFE PRESERVER ASSEMBLY

Section 16-1. Description

16-1. GENERAL.

WARNING

The LPU-23/P series life preserver assemblies contain an automatic inflator which is intended for use by an aircrewmember in an ejection seat aircraft ONLY.

16-2. The LPU-23/P series life preserver assemblies are authorized for use by all aircrew personnel operating in high performance ejection seat aircraft. It is designed as a constant wear item for use with the survival vest and will not interfere with the removal of the nonintegrated parachute harness. Survival item pouches are attached to the life preserver casing. The dye marker and signal flares are not initially supplied and must be individually requisitioned. See [figures 16-1](#) and [16-2](#) and [table 16-1](#).

NOTE

LPU-21/P and LPU-21A/P life preserver assemblies that were configured with the FLU-8A/P automatic inflation device have been designated LPU-23A/P assemblies. The FLU-8A/P shall, through attrition, be replaced by the FLU-8B/P automatic inflation device. The newest LPU-23/P series life preserver requisitioned from supply as a complete assembly is the LPU-23C/P ([Chapter 18](#)). The LPU-23A/P and LPU-23B/P life preservers will remain in service until beyond capability of repair.

16-3. The LPU-23B/P flotation assembly may be used in conjunction with the LPU-23C/P casing assembly.

This configuration has been designated LPU-23B(V)1/P. See [Chapter 27](#).

NOTE

The use of the LPU-23C/P flotation assembly with the LPU-23B/P casing is not authorized.

16-4. CONFIGURATION.

NOTE

The LPU-23/P series life preserver assembly weighs 4 pounds (without survival items) and provides a minimum of 65 pounds buoyancy.

CAUTION

Use only Polychloroprene adhesives and Polychloroprene-coated cloth patches on Polychloroprene-coated LPU-23/P flotation assemblies.

16-5. FLOTATION ASSEMBLY. The flotation assembly is constructed of polychloroprene-coated nylon cloth and consists of two independent flotation chambers. One chamber consists of the left waist lobe joined by a tube to the right collar lobe. This chamber contains one automatic/manual CO₂ inflation assembly and the oral inflation valve attached to the left waist lobe. The other chamber consists of the right waist lobe joined by a tube to the left collar lobe. This chamber contains one automatic/manual CO₂ inflation assembly and the oral inflation valve attached to the right waist lobe. The two chambers are sewn together at the collar lobes.

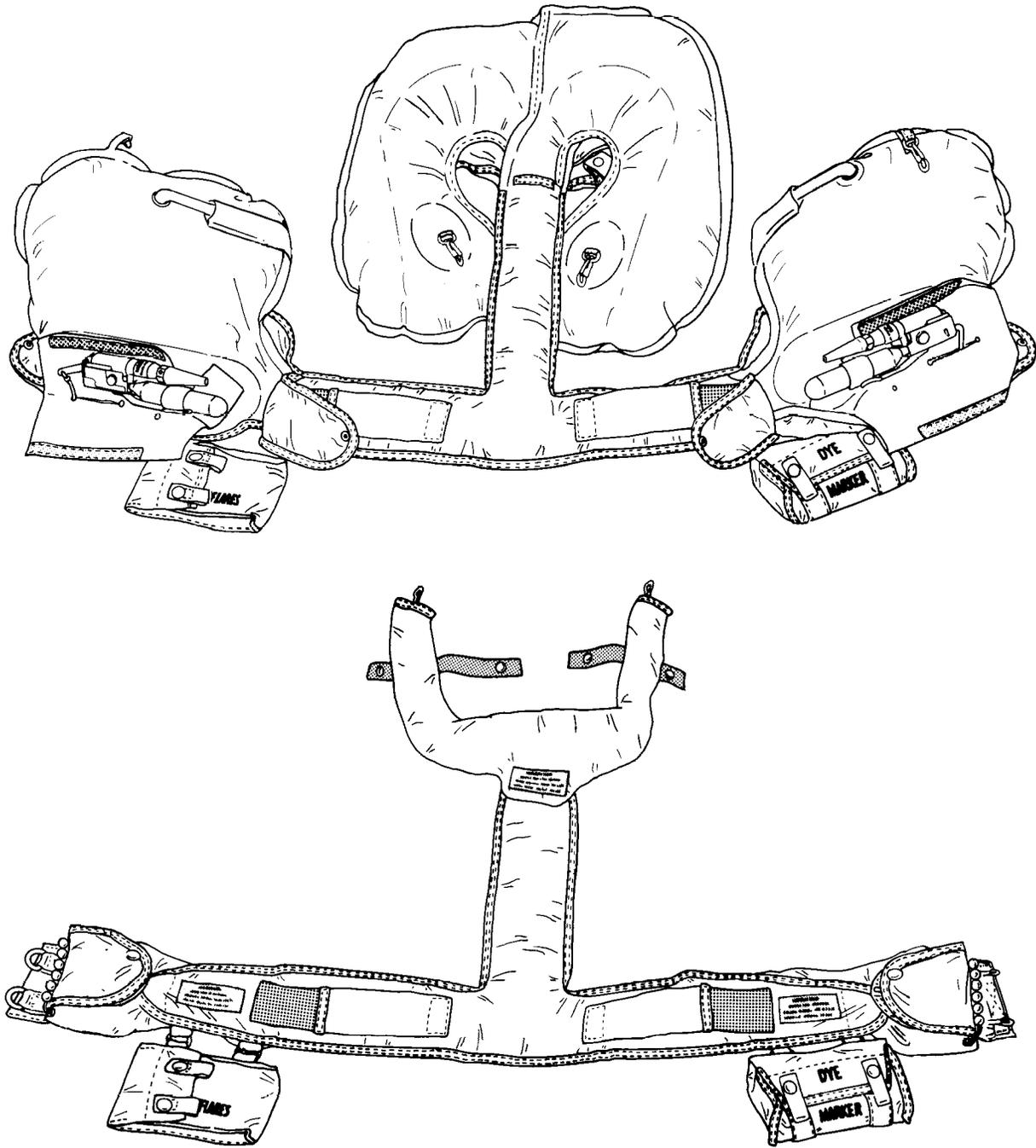
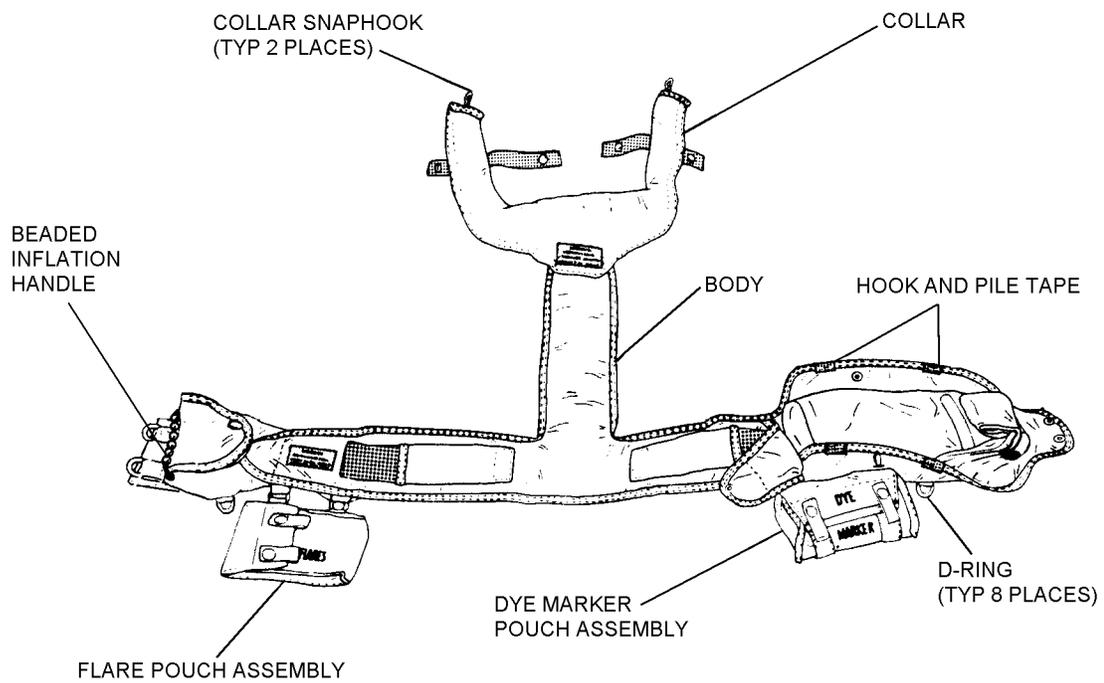
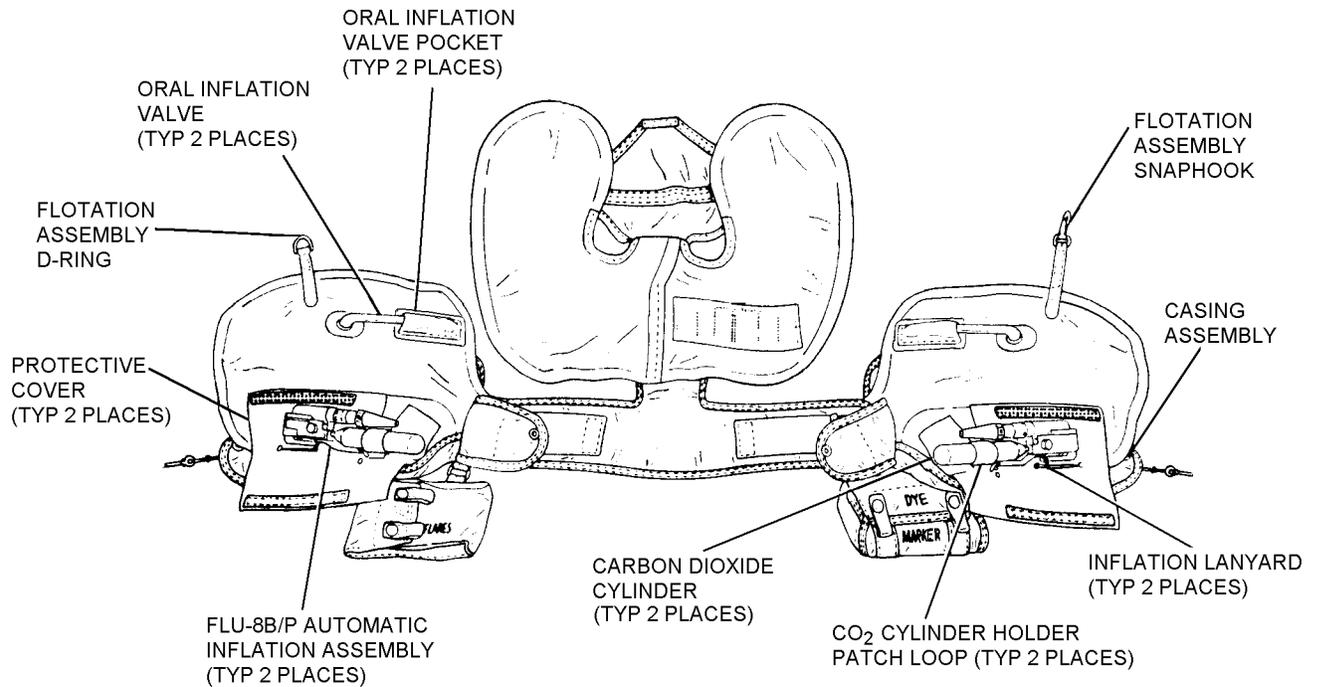


Figure 16-1. LPU-23/P Series Life Preserver Assembly

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Figure 16-2. LPU-23/P Series Life Preserver Assembly, Parts Nomenclature

Table 16-1. LPU-23/P Series Survival Items

Description	Quantity Required	Reference Number	NIIN	SM&R Code
Signal, Smoke and Illumination, Marine MK-124 MOD 0 (Note 1)	2	—	01-030-8330	PA--Z
Dye Marker (Note 1)	2	MIL-S-17980	00-210-9986	PAOZZ

Notes: 1. Optional equipment at the discretion of the Squadron Commander.

NOTE

The designation FLU-8A/P has been left in this chapter, although all FLU-8A/P units should have been replaced with FLU-8B/P units. Any FLU-8A/P Automatic Inflator found in service during scheduled maintenance shall be replaced with a FLU-8B/P Automatic Inflator.

16-6. FLU-8B/P AUTOMATIC INFLATION DEVICE.

The FLU-8B/P automatic/manual CO₂ inflation assembly consists of a 35-gram CO₂ cylinder and an inflation device. The inflation device contains an inflator subassembly, sensor plug assembly, a packaging loop, and a top and bottom gasket. Each inflation assembly is connected to a valve stem attached to each waist lobe. (Each stem is equipped with a replaceable check valve.) In addition, a beaded handle with an inflation lanyard and a casing flap locking pin are connected to each inflation device. See figures 16-1 and 16-2.

16-7. WAIST LOBE. Each waist lobe of the flotation assembly is equipped with an attachment patch used for securing the casing assembly by means of rivets. In addition, the right waist lobe is equipped with a snaphook and the left waist lobe is equipped with a D-ring. The snaphook and D-ring are used to secure the waist lobes together after inflation.

16-8. COLLAR LOBE. Each collar lobe of the inflation assembly is equipped with a snaphook for attachment to the survival vest D-rings. (Parachute risers are routed outside of the collar lobes.) An inspection record patch is also provided on a collar lobe.

16-9. CASING ASSEMBLY. The casing assembly is fabricated from an aramid, fire-resistant fabric. The casing assembly protects the flotation assembly and provides for size adjustment and attachment to the wearer. The casing assembly consists of the adjustable casing, an adjustable webbing belt, belt keepers and D-rings, and the front connector assembly. The casing assembly is secured around the wearer's waist by the front connector assembly, which consists of two snaphooks and two D-rings backed by webbing pads for comfort.

16-10. WEBBING BELT. The webbing belt, attached to the inside waist portion of the casing assembly, provides for waist size adjustment from 30 to 44 inches. The webbing belt keeper loops retain the webbing belt and provide for attachment of the life preserver to the aircrewmember's integrated torso harness suit about the waist. In addition, there are six D-rings secured to the webbing belt keeper loops for attachment of the survival item pouches, liferaft retaining line, and other accessories.

16-11. HOOK AND PILE TAPES. Hook and pile tapes, attached to the outside waist portion of the casing, are used for slack adjustment. In addition, hook and pile tapes attached about the periphery of the collar casing and the lower edge of the back portion of the casing are used to enclose the casing assembly about the flotation assembly.

16-12. APPLICATION.

16-13. The LPU-23/P series life preserver assembly is authorized for use by all aircrew personnel wearing compatible flight clothing while operating in high performance ejection seat aircraft ONLY.

16-14. FUNCTION.

NOTE

The primary means of life preserver inflation is to manually pull the beaded handles.

16-15. The LPU-23/P series life preserver assembly is inflated either automatically (by immersion in fresh or salt water) or manually (by pulling both inflation assembly beaded handles).

16-16. Automatic inflation occurs when immersion in water triggers the electronic circuit, firing the explosive primer. The high-pressure forces the piercing pin forward, releasing the inner end of the packaging cord loop and puncturing the 35-gram CO₂ cylinder which releases the pressurized gas. Automatic inflation is a one-time function of the FLU-8B/P inflator. A new automatic inflator must be installed to replace the previously spent device. Manual inflation occurs when both beaded inflation handles are pulled in a natural, slightly down and straight out position from the body. This action removes

the retaining pins securing the casing assembly about the waist lobes and actuates the inflation assemblies. The hook and pile tapes securing the casing assembly about the collar lobes will separate as the preserver inflates. The FLU-8B/P inflator may be operated manually an unlimited number of times without affecting the one-time automatic feature.

NOTE

The casing must be manually opened and the flotation assembly unfolded prior to inflating the life preserver through the oral inflation valve.

16-17. In an emergency situation, the oral inflation valves should be used to top off the inflated preserver, maintain inflation of a leaky preserver, or inflate a chamber if an inflation assembly malfunctions. The oral inflation valves are also used to inflate a preserver with air during an inspection test or to evacuate a preserver in preparation for packing.

Section 16-2. Modifications

16-18. GENERAL.

NOTE

16-19. The LPU-23/P series life preserver assembly shall be updated by comparing configuration of the assembly to modifications listed in [table 16-2](#). Common repairs and fabrication instructions to maintain serviceability are listed in [table 16-3](#).

After incorporating the FLU-8B/P automatic inflation device, the LPU-21/P series and LPU-23/P series life preservers were redesignated the LPU-23A/P.

Table 16-2. LPU-23/P Series Directives

Description of Modification	Application	Modification Code
Casing change to modify casings that are too tight (small) to securely hold the bladder.	All LPU-23 series	66-507

Table 16-3. LPU-23/P Series Common Repairs and Fabrications

Description of Repair or Fabrication	Paragraph Number
Determination of Repairability	16-58
Casing Repair Procedures	16-60
Casing Grommet Replacement Procedures	16-61
Cementing Life Preservers	16-62
Patching Life Preservers	16-63
Replacement of Oral Inflation Valve	16-65
Recementing of Bladder Fin Seams	16-66
Fabrication of Slip-On Pockets For Life Preserver Hardware	16-68
Replacement of Flare and Dye Marker Pouch Snaphooks	16-69
Replacement of Collar Lobe Snaphooks	16-70
Flare Pouch Repair	16-71
Disassembly of the Life Preserver	16-72
Reassembly of Life Preserver	16-73
Replacement of Beaded Inflation Handle Assembly	16-74
Replacement of FLU-8B/P Automatic Inflator Assembly	16-75
Replacement of Packaging Cord Loop, FLU-8B/P	16-76
Replacement of Sensor Plug Cap Assembly, FLU-8B/P	16-77
Replacement of Top and Bottom Gaskets	16-78
Replacement of Check Valve Assembly	16-79
Fabrication of Protective Cover Assembly	16-80
Addition of Collar Lobe Webbing Loops	16-81
Fabrication and Installation of Locking Pin Cover	16-82

Section 16-3. Maintenance

16-20. GENERAL.

16-21. This section contains information on inspection, disassembly, repair/replacement, testing, and re-assembly of the LPU-23/P series life preserver.

16-22. INSPECTION.

16-23. All life preservers shall be subjected to Preflight, Special and Calendar/Phase Inspections.

16-24. The Preflight Inspection shall be performed on life preservers prior to each flight by the aircrewmember to whom the life preserver is assigned. The Preflight Inspection shall be performed on life preservers installed in aircraft prior to each flight by assigned aircrewmembers.

16-25. The Special Inspection shall be performed on all aircraft installed life preservers at intervals not to exceed 30 days. The inspection shall be performed at the organizational level of maintenance by personnel assigned to the Aviator's Equipment Branch.

16-26. Upon completion of the inspection, the inspection date and inspector's signature shall be entered on appropriate form in accordance with OPNAVINST 4790.2 Series. The 30-Day Special Inspection may be recorded on a separate history card from the history card recording Calendar/Phase Inspections, functional checks, and modifications.

16-27. The Calendar/Phase Inspection shall be performed on all life preservers prior to placing in service. The Inspection cycle thereafter shall be as follows:

personal issue life preservers shall be inspected once every 90 days. Aircraft-installed life preserver inspection shall coincide with the inspection cycle of the aircraft in which installed. See applicable Planned Maintenance System (PMS) publications for specific intervals. In no case shall the interval exceed 231 days. Unless operational requirements demand otherwise, the life preserver Calendar/Phase Inspection shall be performed by the intermediate level of maintenance or above. The functional test shall be performed prior to placing in service, every fourth inspection cycle thereafter, and whenever an inflation assembly is replaced. The leakage test shall be performed during every inspection cycle. The battery visual inspection for the LPU-23/P series will be performed prior to placing life preservers in service. If inspection indicates damage, complete appropriate forms in accordance with OPNAVINST 4790.2 Series and forward entire assembly to supply. Refer to [paragraph 16-58](#) for determination of repairability.

16-28. QUALITY ASSURANCE. Properly detailed procedures present a logical sequence for the inspection process. The more critical procedures are underlined to designate steps which require a Quality Assurance inspection to assure performance of specific requirements. After the underlined step is performed by the Aircrew Survival Equipmentman, the procedure shall be verified before the next step is performed. This verification shall be performed by a Collateral Duty Inspector or Quality Assurance Representative (CDI, CDQAR, or QAR). Work Center supervisors are primarily responsible for quality assurance within their centers. OPNAVINST 4790.2 Series permits supervisors to nominate their more experienced personnel to serve as quality assurance inspectors. Nominated personnel shall be screened and examined by the Quality Assurance Officer prior to their designation as Quality Assurance Inspectors or Quality Assurance Representatives by the Commanding Officer. Under no circumstances shall an Aircrew Survival Equipmentman perform his own quality assurance inspection.

16-29. PREFLIGHT/SPECIAL INSPECTION. To perform a Preflight/Special Inspection, proceed as follows:

WARNING

Ensure that the beaded inflation handles are readily accessible. The beaded inflation handles shall be secured with four snap fasteners to the life preserver end flap.

CAUTION

Do not open any sealed or safety-wired/safety tied portions of preserver for Pre-flight/Special Inspection.

1. Inspect exposed metal parts for corrosion and damage.
2. Inspect for presence, security of attachment and, if applicable, operation of survival items.
3. Inspect casing fabric for cuts, tears, abrasions, security of stitching, and other damage.
4. Check warning label for secure attachment to life preserver fabric.
5. Ensure beaded inflation handles are secured to snap fasteners. Inspect safety ties on beaded inflation handles. The beaded inflation handle safety ties may be replaced without removing the life preserver from service.
6. Inspect safety ties on locking pins.
7. Inspect rivets securing flotation assembly to casing for presence and security of attachment.
8. Inspect uni-directional snap fasteners securing flotation assembly to casing assembly for presence, security of attachment, corrosion, and ease of operation.
9. Inspect hook and pile tape closure at collar for separation; fasten as necessary.
10. Adjust and don preserver to ensure proper fit.
11. If any discrepancy is noted, the preserver shall be removed from service and repaired in accordance with procedures in this volume.

16-30. ACCEPTANCE/CALENDAR/PHASE INSPECTION. The Acceptance/Calendar/Phase Inspection consists of the following tasks:

1. Beaded Inflation Handle Inspection
2. Case, Container/Pouch Inspection
3. Functional Test (every fourth inspection cycle)
4. Visual Inspection
5. Life Preserver Configuration
6. General Inspection
7. Battery Visual Inspection (every fourth inspection cycle)
8. Battery Voltage Testing (once every 90 days)
9. Markings Inspection
10. Survival Items Inspection
11. Inflation Assembly Inspection
12. Beaded Inflation Handle Pull Test
13. Leakage Test
14. Records Updating
15. Repacking

16-31. BEADED INFLATION HANDLE INSPECTION. Inspect beaded inflation handle for the following:

1. Attachment of inflation lanyard to beaded handle.
2. Attachment of locking pin lanyard to beaded handle. Overhand knot on locking pin lanyard shall be within 3/4 inch from eye of pin.
3. Corrosion on snap fasteners and ease of operation.
4. Cuts, tears, deterioration, abrasion, stains, and general cleanliness of fabric.
5. Presence of safety tie on beaded inflation handle.

16-32. CASE, CONTAINER/POUCH INSPECTION. To inspect cases, containers, and/or pouches, proceed as follows:

1. Inspect fabric for cuts, tears, deterioration, abrasion, stains, and general cleanliness.
2. Inspect seams for proper adhesion or stitching.
3. Inspect straps and loops for security and wear.
4. Inspect any other parts for wear, damage, and security.

NOTE

Life preservers missing the D-rings used to attach dye marker and flare pouches shall be considered serviceable provided the aircrewmember to whom it is issued does not desire to utilize the pouches.

5. All hardware for security of attachment, corrosion, damage, wear and, if applicable, ease of operation.
6. Inspect uni-directional snap fastener assemblies for presence, security of attachment, proper orientation, ease of operation, corrosion, and wear.

NOTE

All uni-directional snap fasteners shall be installed with the dot on the button of the snap fastener socket positioned on the side of the snap fastener to which lift must be applied to disengage the socket from the snap fastener stud.

All snap fasteners on the attachment patch of each flotation lobe shall be installed with the dot on each socket button positioned nearest to, and pointing toward, the center point of the attachment patch.

7. If any discrepancies are found, the case, container, or pouch shall be repaired or removed from service as deemed appropriate by the inspection activity.

16-33. FUNCTIONAL TEST. To perform a functional test, proceed as follows:



Ensure area surrounding preserver is free of foreign objects.

1. Completely open preserver casing prior to conducting functional test. Both release pins shall be removed

from their respective loops, the collar hook and pile tape fasteners shall be separated, and the waist and collar lobes shall be completely unfolded and laid out flat.



The functional test for the LPU-23/P series life preservers will be performed manually. Automatic actuation of the FLU-8B/P automatic inflator is a one-time function. A new FLU-8B/P inflator shall be installed on the life preserver to replace a previously spent one. The FLU-8B/P inflator can be operated manually an unlimited number of times, however, after each manual operation a new O-ring and CO₂ cylinder must be installed. Refer to [paragraph 16-60](#).

2. Actuate inflation assemblies.
3. The preserver shall fully inflate to design shape, without evidence of restriction, in less than 30 seconds.
4. If preserver does not properly inflate, determine cause. Ensure stem and valve are clean and free of foreign matter.
5. If correction is made, the preserver shall be functionally tested again.
6. Deflate preserver in accordance with [paragraph 16-34](#) to remove all CO₂.

16-34. DEFLATION. To deflate a life preserver, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Pump, Rotary Vacuum (or equivalent)	NIIN 00-052-5015 (90567)
As Required	Hose, 3/8- or 1/2-inch Inside Diameter Rubber	—

1. Attach one end of rubber hose to vacuum pump.
2. Deflate through oral inflation valves. Unlock oral inflation valve, hold in open position, and hold vacuum pump hose against end of oral inflation valve. When

NAVAIR 13-1-6.1-2

compartment is collapsed, release oral inflation valve. Screw lock closed.

16-35. VISUAL INSPECTION.



Remove all carbon dioxide cylinders prior to inflating life preserver with air.

NOTE

If suitable air source is not available, water-pumped nitrogen (FED SPEC BB-N-411) may be substituted.

16-36. Prior to visually inspecting a life preserver assembly, the life preserver shall be inflated with air to 1.0 psig.

16-37. LIFE PRESERVER CONFIGURATION. The life preserver shall be updated by comparing it to [figures 16-1](#) and [16-2](#), and [tables 16-1](#) and [16-2](#).

16-38. GENERAL INSPECTION. Examine life preservers for the following:

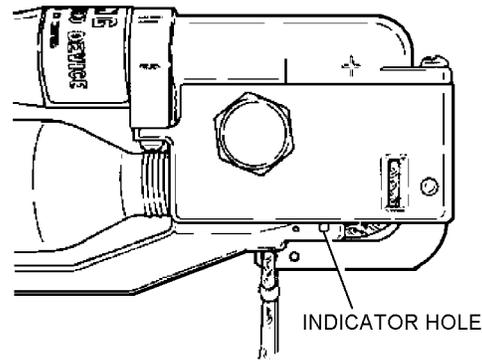
1. Preserver fabric for cuts, tears, punctures, deterioration and abrasion. Refer to [paragraph 16-63](#) for repair instructions.

2. Seam tapes for proper adhesion. Refer to [paragraph 16-62](#) for repair instructions.

3. Valve inlet stems for security.

4. Check that silver indicator is not visible in firing check port. If the silver indicator is visible, the inflator is spent and the automatic feature of the inflator is ne-

gated. A new inflator shall be installed on the life preserver to replace the previously spent inflator. Refer to [paragraph 16-75](#).



Step 4 - Para 16-38

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NOTE

For data on total life of the FLU-8B/P automatic inflation assemblies, refer to NAV-AIR 11-100-1.1. If total life expiration date occurs before date of next scheduled calendar inspection, replace inflator assembly. The manganese dioxide batteries used in the assembly have a total life of 3 years from the date of manufacture.

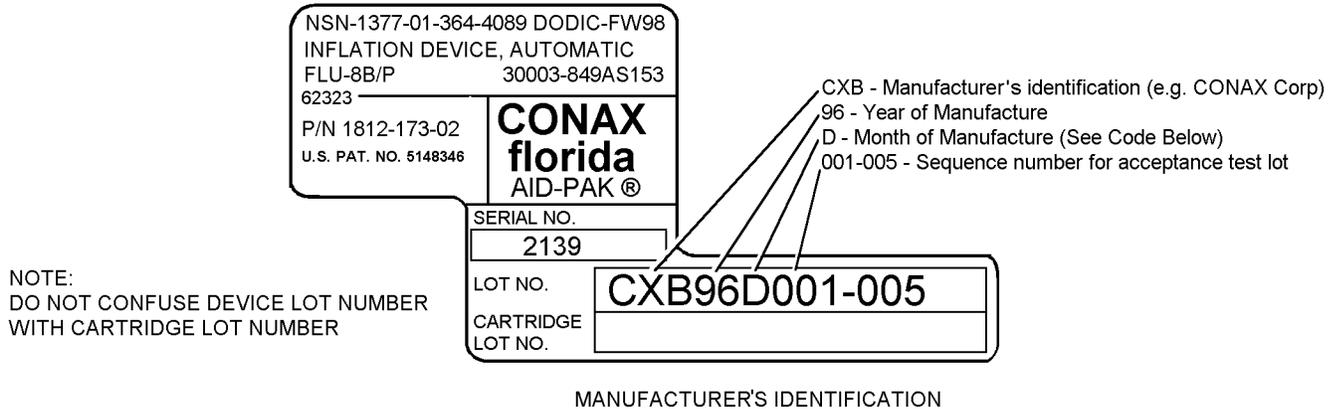
5. Check records (see OPNAVINST 4790.2 Series) for date of installation of each FLU-8B/P automatic inflator. For date of manufacture, refer to the manufacturer's identification plate each inflator. See [figure 16-3](#) for lot numbering system.

6. Oral inflation valve(s) for cracks, security, ease of operation, and corrosion.

7. Patches for proper adhesion and wear. Refer to [paragraph 16-63](#) for repair instructions.

8. Any other parts for wear or other damage.

9. All hardware for security of attachment, corrosion, damage, wear and, if applicable, ease of operation.



Code for Month of Manufacture

- | | | | |
|---------|---------|---------|---------|
| A - Jan | D - Apr | G - Jul | K - Oct |
| B - Feb | E - May | H - Aug | L - Nov |
| C - Mar | F - Jun | J - Sep | M - Dec |

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Figure 16-3. Lot Numbering System for FLU-8B/P Automatic Inflators

10. Preservers for stains, dirt, and general cleanliness. Refer to [paragraph 16-49](#) for cleaning instructions.

11. Cross threading and/or loose manifold nuts.

16-39. BATTERY VISUAL INSPECTION. To inspect the batteries installed in the FLU-8B/P inflator, proceed as follows:

2A. Inspect end of battery insulating sleeve that protrudes from battery compartment for cracks/tears. Replace battery insulating sleeves that have cracks and tears that continue into the battery compartment. Small defects that do not travel into the wall of the battery compartment are acceptable.

3. Check sensor plug cap for cracks.

NOTE

The total service life for the manganese dioxide battery (FW14) is three years from date of manufacture. For date coding information on the FW14 battery, refer to NAVAIR 11-100-1.1. Replace both batteries if life of either battery expires prior to the next calendar inspection.

Support Equipment Required

Quantity	Description	Reference Number
1	Multimeter (Digital)	8600A or equivalent (CAGE 89536) NIIN 01-010-0088
1	Wrench 3/4-Inch	—



No foreign object should be inserted into sensor plug ports for any reason.

1. Remove sensor plug cap using a standard 3/4-inch wrench. See [figure 16-4](#).

2. Remove batteries and check for the following: leakage, corrosion, dents, depressions and cracks. If found, the batteries shall be rejected.

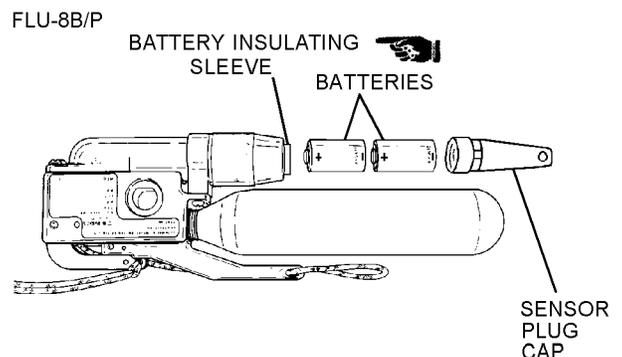


Figure 16-4. Battery Removal

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4. Check date of manufacture stamped on the battery. Also check date of installation recorded on records (OPNAVINST 4790.2 Series).

4A. Using multimeter set-up to measure dc voltage, check each battery for shorted casing. Place one lead on the positive terminal and the other on the battery case. If a voltage reading of 0.1 volts dc or higher is obtained, reject the battery for use and discard battery in an appropriate manner.

5. Reinstall or replace batteries if needed. Torque FLU-8B/P sensor plug cap to 15 lb-in using 3/4-inch socket and torque wrench. Ensure that date of installation and date of manufacture are recorded on appropriate form in accordance with OPNAVINST 4790.2 Series. See [figure 16-4](#) for proper battery arrangement and refer to [paragraph 16-54](#) for battery replacement.

16-40. BATTERY VOLTAGE TESTING.

CAUTION

Do not use analog (needle) voltage multimeter. Use digital reading voltage multimeter.

Support Equipment Required

Quantity	Description	Reference Number
1	Multimeter (Digital) (Note 1)	8600A or equivalent (CAGE 89536) NIIN 01-010-0088

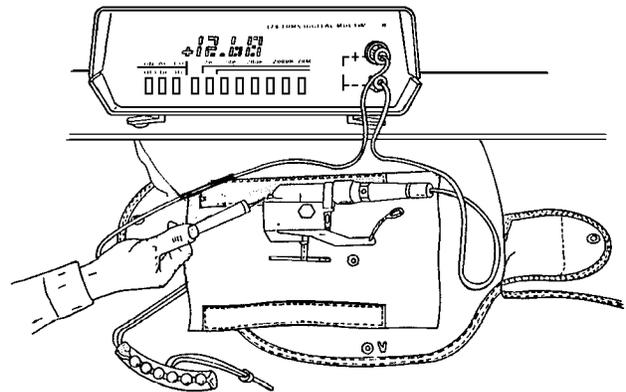
Notes: 1. Provide the positive (+) test lead with a standard test probe (1/16-inch size) on a standard handle (3-4-inch nominal length). Provide the negative (-) test lead with a banana type-test plug (1/8-inch size) on a short handle (one-inch nominal length). Adjust the tension on the ribs of the banana plug so that when inserted into a sensor plug end port (7/16-inch nominal depth) the weight of the test lead will not withdraw the plug. (Use an undamaged uninstalled sensor plug for verification, not an inflator with batteries installed).

WARNING

Ensure that the multimeter is set in the voltage measuring mode and NOT the resistance measuring mode as a resistance measurement will trigger the squib and fire the inflator. The inflator will also fire with any conductive material making contact from the sensor pin to any conductive surface of the inflator device.

Do not touch the inflator with your bare hands or any conductive material while performing this test. Faulty readings may be obtained, or the squib may be fired if the body becomes an electrical pathway between the sensor pin and any conductive part of the inflator assembly.

1. Insert the negative (-) test probe into the end port of the sensor plug. Remove hand. Using the pointed positive (+) probe, touch and maintain contact with one of the screw heads near the lever-end of the inflator.



Step 1 - Para 16-40

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2. Wait 15 seconds for the FLU-8B/P circuits to stabilize after connecting the test leads before taking the voltage reading.

WARNING

The voltage reading should begin at a high value and then gradually shift downward (0.15 volts typical) before final stabilization. If no downward shift in meter reading occurs, or if the shift continues steadily downward more than 1.0 volt during battery test, the FLU-8B/P inflator shall be rejected.

CAUTION

Never replace one battery. Always replace the pair.

3. Interpret battery test readings and respond as indicated below:

a. A reading of +12 volts or more indicates that the batteries are at full power and correctly installed.

b. A reading of -12 volts or more indicates that both batteries are installed backwards. Batteries must be reversed.

c. A reading of zero volts indicates one battery is inserted backwards, battery contact is faulty or batteries are not installed. Inspect and correct.

d. If a correct battery voltage reading cannot be obtained with batteries of verified full charge properly installed, the inflator is defective. Reject and report for engineering investigation according to OP-NAVINST 4790.2 Series.

NOTE

The same multimeter and test leads may be used to test batteries singly or in pairs external to the inflator. Voltage readings will be slightly higher and will not drift downward when testing outside the inflator.

4. If batteries need to be rearranged or replaced, refer to paragraph 16-54.

5. After replacing or rearranging batteries, repeat steps 1 and 2.

16-41. MARKINGS INSPECTION. To inspect and restore marking, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Ink, Marking, Laundry, Black	SPE-92 NIIN 00-161-4229
-or-		
As Required	Ink, Drawing, Waterproof, Yellow	A-A-59291 NIIN 00-634-6583

1. Compare markings on preserver to those listed in table 16-4.

2. Restore any faded markings.

3. Deleted.

4. Correct any markings which do not agree with the applicable table. Paint out old marking and enter new marking as close to proper position as possible.

16-42. SURVIVAL ITEMS INSPECTION. To inspect survival items, proceed as follows:

1. Inventory all items by checking items against table 16-1. Replace any missing or unsatisfactory item.

NOTE

NAVAIR 13-1-6.5, Rescue and Survival Equipment contains detailed information on the inspection of survival items.

2. Inspect all items for damage, spent contents and expired service life. Replace as necessary.

Table 16-4. LPU-23/P Life Preserver Markings (Cont)

Marking	Location	Letter Height
 AUTOMATIC INFLATION DEVICE INSTALLED FOR USE IN EJECTION SEAT AIRCRAFT <u>ONLY</u>	Right and Left side of waist casing (outside) collar lobe casing (outside)	1/4 inch 3/16 inch
Notes: 1. Replacement markings shall be stamped or stenciled using waterproof black ink.		

3. Operate all items which are not intended for one-time use. Replace as necessary.

16-43. INFLATION ASSEMBLY INSPECTION. To inspect life preserver inflation assemblies, proceed as follows:

1. Remove CO₂ cylinder locking screws, if present, and remove CO₂ cylinders from valve assembly.

2. Examine inflation device, actuating lever and lanyard, and locking pins for fraying, corrosion, stripped threads, and other damage.

3. If required, remove any sharp edges from valve with a fine round file.

4. Operate actuating lever several times. Ensure that lever moves freely and ensure that piercing pin moves properly inside valve body. Inspect point of piercing pin for serviceability. If point is flat, rounded, dull, or otherwise worn or damaged, replace inflation assembly.

5. Ensure that packaging cord loop is not pinched between piercing pin and actuating lever. If there is free play in the actuating lever when it is in its cocked position, the packaging cord loop is pinched. If necessary, reinstall in accordance with paragraph 16-76.

NOTE

Each time inflation assembly gaskets or inflation assembly is removed and replaced for any reason, a functional test shall be conducted. Refer to [paragraph 16-33](#). Use new gaskets when replacing device.

6. If any discrepancy is noted in device that is not repairable in accordance with [paragraph 16-58](#), remove assembly and install a new inflation device.

7. If CO₂ cylinder locking screws were installed, discard them.

16-44. BEADED INFLATION HANDLE PULL TEST. To perform the beaded inflation handle pull test, proceed as follows:

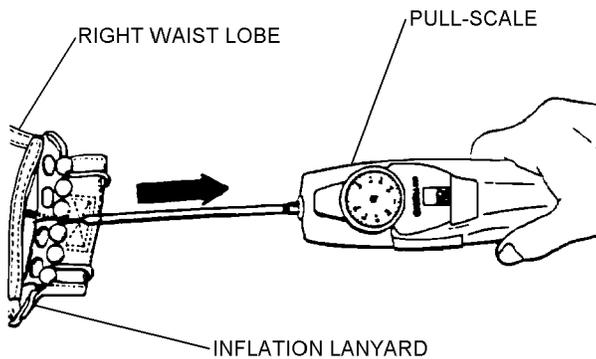
Support Equipment Required

Quantity	Description	Reference Number
1	Gage, Dial, Push/Pull, 0 to 50 lb	DPPH50 (CAGE 11710) or equivalent NIIN 00-473-0108

1. Ensure that CO₂ cylinders have been removed. Actuate the inflator assembly. All snap fasteners on beaded inflation handle must be fully engaged.

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2. Attach gage to webbing between third and fourth bead on inflation handle.



Step 2 - Para 16-44

P0044002

3. Hold inflator steady. Slowly exert up to a 25-pound straight pull on webbing. All snap fasteners should release at or before 25 pounds.

4. If all snap fasteners do not release at or before the 25 pound limit, inspect the male and female snap fasteners for damage. Replace the entire beaded inflation handle assembly if required and repeat [steps 1 through 4](#).

5. If the snap fasteners release properly, leave the pull scale attached, add an additional 25 pound force to check the security of the beaded handle attachment to the inflation lanyard. Examine the lanyard for frays, ruptures, thin spots, split casing and security of stitches and knots. If unsatisfactory, replace the entire beaded inflation handle. Refer to [paragraph 16-74](#).

6. Ensure that packaging cord loop is not pinched between piercing pin and actuating lever. If there is free play in the actuating lever when it is in its cocked position, the packaging cord loop is pinched. If necessary, reinstall in accordance with [paragraph 16-76](#).

16-45. LEAKAGE TEST. All life preservers shall be subjected to a leakage test each Calendar/Phase Inspection. To perform a leakage test proceed in accordance with [paragraph 16-47](#).

16-46. Test Fixture. A suggested test fixture, consisting of a three-way valve, pressure gage, and adapters for compartments being tested, is shown in [Chapter 3](#). Fixtures must be fabricated to meet the requirements of the schematic shown in [figure 16-5](#).

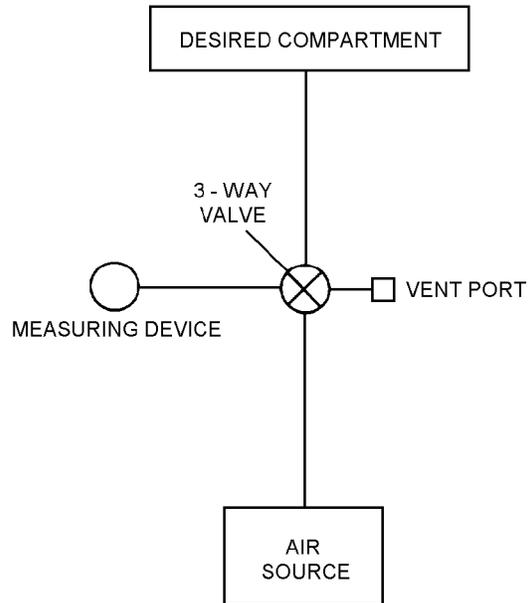


Figure 16-5. Test Fixture Schematic

10160005

16-47. Test Procedure. To test life preservers, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Test Fixture (or equivalent)	See Chapter 3

CAUTION

Ensure test area is free of foreign objects.

1. Ensure all carbon dioxide has been removed from any preserver which has been functionally tested.

CAUTION

If 3-way valve is not used, measuring device valve must be closed when air feed valve is open.

Damage may occur to oral inflation valve if air supply pressure entering the life preserver exceeds ten (10) psi during this test.

NOTE

If a suitable air source is not available, water-pumped nitrogen (BB-N-411) may be substituted.

2. Unlock oral inflation valve and insert into rubber hose. Rotate valve to air supply position and inflate chamber. Alternately position valve between measuring device, vent and air supply until proper pressure of 2.0 psig is attained in both chambers.

3. The air supply shall be securely shut off and after a minimum of 15 minutes, the pressures shall be readjusted, if necessary, to the leakage test pressures. Record time.

4. Disconnect air supply and check for leaks. Ensure all valves are closed.

5. Record temperature and barometric pressure.

6. After a minimum of 4 hours after completing [step 3](#), record test pressure of both chambers. Test pressure shall not decrease to less than 1.6 psig for a life preserver chamber, from a maximum test pressure of 2.0 psig.

7. Record temperature and barometric pressure and correct test pressure for any changes in temperature and barometric pressure. Refer to [tables 16-5](#) and [16-6](#).

EXAMPLE

UNCORRECTED TEST READING 1.70 PSI

	TEMP.	BARO.
START	75° F	29.90 IN. Hg
END	70° F	29.70 IN. Hg
DIFFERENCE	- 5° F	-0.20
CORRECTION	+0.155	-0.098

TEMP. CORRECTION	+ 0.155
+ BARO. CORRECTION	- 0.098
CORRECTION	+ 0.057

UNCORRECTED READING	1.700 PSI
+ CORRECTION	+ 0.057
CORRECTED READING	1.757 PSI

P0047007

Step 7 - Para 16-47

Table 16-5. Temperature Conversion Chart

Temperature Difference (°F)	Correction (psi)
1	0.031
2	0.062
3	0.093
4	0.124
5	0.155
6	0.186
7	0.217
8	0.248
9	0.279
10	0.310

Rise in temperature: subtract from gage reading.
Fall in temperature: add to gage reading.

8. If pressure of chamber is below 1.6 psig inflate to leakage test pressure and coat with a soap solution to locate leaks. Mark leak areas. Rinse preserver with fresh water, air dry and repair in accordance with [paragraph 16-62](#).

9. Deflate preserver in accordance with [paragraph 16-34](#).

Table 16-6. Barometric Pressure Conversion Chart

Press. Diff. (inHG)	Corr. (psi)								
0.01	0.005	0.16	0.078	0.31	0.152	0.46	0.225	0.61	0.299
0.02	0.010	0.17	0.083	0.32	0.157	0.47	0.230	0.62	0.304
0.03	0.015	0.18	0.088	0.33	0.162	0.48	0.235	0.63	0.309
0.04	0.020	0.19	0.093	0.34	0.167	0.49	0.240	0.64	0.314
0.05	0.025	0.20	0.098	0.35	0.172	0.50	0.245	0.65	0.319
0.06	0.030	0.21	0.103	0.36	0.176	0.51	0.250	0.66	0.323
0.07	0.035	0.22	0.108	0.37	0.181	0.52	0.254	0.67	0.328
0.08	0.040	0.23	0.113	0.38	0.186	0.53	0.260	0.68	0.333
0.09	0.045	0.24	0.118	0.39	0.191	0.54	0.265	0.69	0.338
0.10	0.049	0.25	0.123	0.40	0.196	0.55	0.270	0.70	0.343
0.11	0.054	0.26	0.127	0.41	0.201	0.56	0.275	0.71	0.348
0.12	0.060	0.27	0.132	0.42	0.206	0.57	0.279	0.72	0.353
0.13	0.064	0.28	0.137	0.43	0.211	0.58	0.284	0.73	0.358
0.14	0.069	0.29	0.142	0.44	0.216	0.59	0.289	0.74	0.363
0.15	0.073	0.30	0.147	0.45	0.221	0.60	0.294	0.75	0.368

Rise in pressure: add to gage reading.
 Fall in pressure: subtract from gage reading.

10. Ensure that inflation valve lever is cocked. Install CO₂ cylinder in accordance with [paragraph 16-53](#).

16-48. RECORDS UPDATING. Make necessary entries on appropriate form in accordance with OPNAV-INST 4790.2 Series.

16-49. CLEANING AND SERVICING.

16-50. GENERAL. Cleaning and servicing consist of cleaning the life preserver, case, container and/or pouch, installation of the inflation valve protective covers and CO₂ cylinders and, when required, safety wiring of the inflation valve actuating lever.

16-51. CLEANING OF LIFE PRESERVER CASINGS/BLADDERS. To clean life preservers, machine washing is preferred on casings, containers, and pouches. Alternate method is by hand. Remove any survival items and other detachable items and proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Detergent, General Purpose	MIL-D-16791 NIIN 00-282-9699
As Required	Cloth, Lint-Free, Type II	MIL-C-85043 NIIN 00-044-9281
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589



Solvents are not to be used in cleaning life preservers.

1. Prepare solution of detergent (MIL-D-16791) consisting of 1/4 to 1/2 ounce of detergent per gallon of water.

2. Apply cleaning solution to soiled area with a spray or sponge.

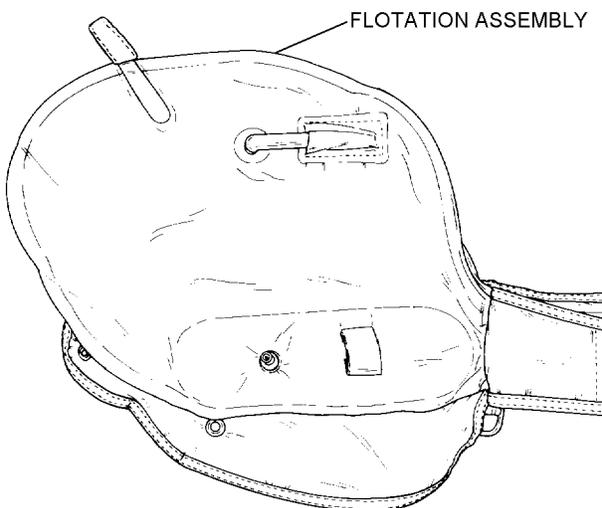
3. Allow solution to remain on surface for several minutes, then agitate with a soft brush or rag.

4. Rinse surface thoroughly with water; wipe with a cloth or sponge. Repeat this application until surface is free from all solution.

5. Dry casing before use and dry bladder with a lint-free cloth (MIL-C-85043). Apply a light coating of talc (MIL-T-50036A).

16-52. INSTALLATION OF INFLATION VALVE PROTECTIVE COVERS. To install inflation valve protective covers, proceed as follows:

1. Open life preserver flotation assembly, then position on a flat surface.

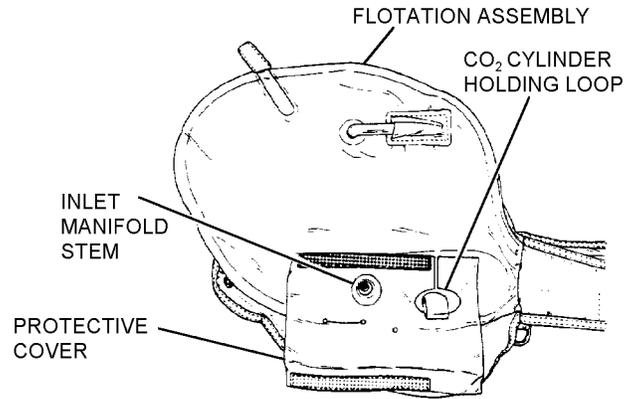


NOTE: Inflator not shown for clarity.

Step 1 - Para 16-52

P0052001

2. Place inflation valve protective cover upon the life preserver. Ensure that inlet manifold stem hole and CO₂ cylinder holding loop hole are aligned according to figure 16-6.



NOTE: Inflator not shown for clarity.

10160006

Figure 16-6. Installation of Inflation Valve Protective Cover

16-53. INSTALLATION OF CO₂ CYLINDERS. To install CO₂ cylinders proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Scale (Gram)	A-A-52021-1 NIIN 00-514-4117 or equivalent
1	Die, Cylinder Thread Chaser	1842-008-01 (CAGE 03688) NIIN 00-069-4040

Materials Required

Quantity	Description	Reference Number
As Required	Cylinder, CO ₂ Type III, 35-Gram	MIL-C-25369
As Required	Seat Seal, O-Ring, Multi	NIIN 01-046-3300



Ensure that packaging cord is not pinched between piercing pin and actuating lever. If there is free play in actuating lever when in its cocked position, packaging cord loop is pinched. If necessary, reinstall in accordance with [paragraph 16-76](#).

NOTE

During intermediate inspection, inspect condition of O-ring and replace as necessary. After each functional inspection, the O-ring seal shall be replaced.

1. Weigh a charged CO₂ cylinder and compare the minimum stamped weight with the scale weight. Discard and replace cylinder if scale weight is 2 grams less than minimum stamped weight.

2. The proper configuration of an inflator assembly is a FLU-8B/P and a CO₂ Cylinder, MIL-C- 25369, Type III, 35 gram, NIIN 00-077-8773.

3. To assure a firm cylinder seat, conduct a cylinder thread count. Threaded portion of cylinder neck shall contain a minimum of seven full threads to assure a firm cylinder seat within valve body. Any cylinder found with less than seven full threads shall be discarded. See [figure 16-7](#).

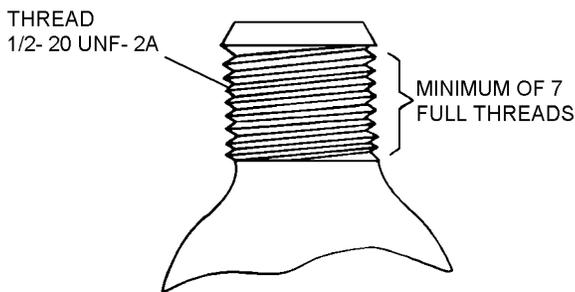


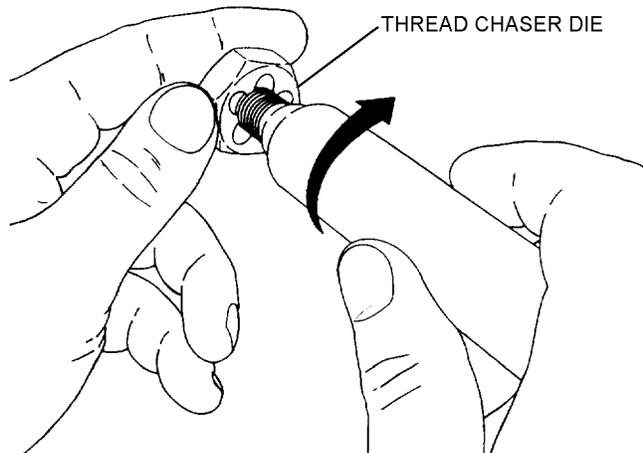
Figure 16-7. Cylinder Thread Count

10160007



Steel threads on CO₂ cylinder can cause damage to aluminum threads on inflator if cylinder is not carefully threaded. If binding occurs during installation on cylinder, use thread chaser dye on cylinder thread to cut free excessive plating. Reinstall cylinder. If binding still occurs, replace cylinder.

4. Using the cylinder thread chaser die, turn the thread chaser to the full extent of the threads on the CO₂ cylinder to cut free any excessive plating covering the threads.



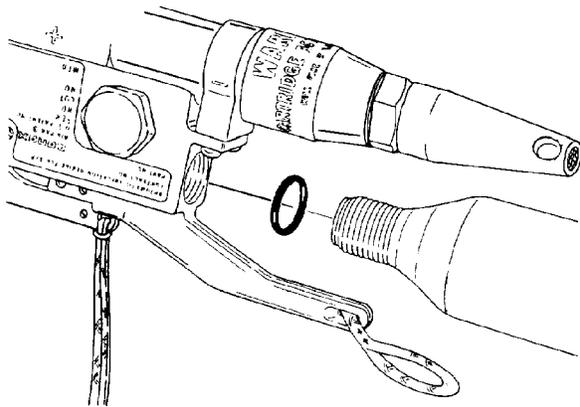
Step 4 - Para 16-53

P0053004

NOTE

During intermediate inspection, inspect condition of O-ring and replace as necessary. After each functional inspection, the O-ring seal shall be replaced.

5. Insert new O-ring and turn CO₂ cylinder into inflator body as far as hand twisting will permit. See [figure 16-8](#).



10160008

Figure 16-8. Inserting New O-ring and CO₂ Cylinder

NOTE

Check for secure cylinder fit and ensure that CO₂ cylinder passes through the CO₂ cylinder holding patch loop.

6. Close inflation valve protective covers; then secure with hook and pile tape provided.

16-54. BATTERY REPLACEMENT. To replace batteries, proceed as follows:

NOTE

Only FW14 batteries, part number 849AS103, NIIN 01-334-0724, requisitioned through the CAD/PAD ordering process are authorized for use in the FW98 Automatic Inflation Device. NAVSURF-WARCENDIV Indian Head MD must approve substitute batteries in writing before installation.

Materials Required

Quantity	Description	Reference Number
2	Battery, 6-Volt Manganese Dioxide	849AS103 NIIN 01-334-0724 (FW14)

Support Equipment Required

Quantity	Description	Reference Number
1	Multimeter (Digital)	8600A or equivalent (CAGE 89536) NIIN 01-010-0088
1	Wrench, 3/4-Inch	—

WARNING

No foreign object should be inserted into sensor plug ports for any reason.

1. Remove sensor plug cap using a standard 3/4-inch wrench.

WARNING

Battery may explode if recharged or disposed of in fire.

CAUTION

Never replace one battery. Always replace the pair.

2. Remove old batteries and discard.

3. Refer to NAVAIR 11-100-1.1 for battery manufacture code dates. Record date of manufacture and date of installation of new batteries in accordance with OPNAVINST 4790.2 Series.

NOTE

Manganese Dioxide batteries (FW14) have a life of three years from the date of manufacture. Do not install battery if its life expires prior to the next scheduled Calendar Inspection.

3A. Check new batteries for leakage, corrosion, dents, depressions, and cracks. If found, the batteries shall be rejected.

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3B. Using multimeter set-up to measure dc voltage check each battery for shorted casing. Place one lead on the positive terminal and the other on the battery case. If a voltage reading of 0.1 volts dc or higher is obtained reject the battery for use and discard battery in an appropriate manner.

4. Install batteries in accordance with figure 16-9.

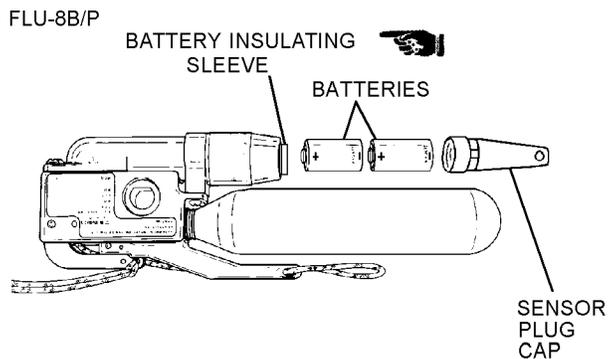
5. Install sensor plug cap. Plug shall be held in square alignment with housing while engaging threads.

WARNING

Ensure that sensor plug cap is torqued to correct value. Do not overtighten sensor plug cap.

6. Torque FLU-8B/P sensor plug cap to 15 in-lbs, using 3/4-inch socket and torque wrench.

7. Test batteries in accordance with paragraph 16-40.



10160009

Figure 16-9. Battery Arrangement

16-55. REPAIR/REPLACEMENT.

16-56. This section contains instructions for the repair or modification of various components or subassemblies of life preservers to ensure that appropriate items of equipment remain in Ready For Issue (RFI) status. Reference numbers for parts which are defective, corroded or worn and require replacement are included in the applicable paragraph of this section. Other replacement parts, such as carrying cases and personal survival equipment, are listed in the applicable table of each chapter. Procedures are applicable to the type life preserver described in parentheses following the title of the repair or modification, or before a step.

16-57. Replacement of easily removed assembly components such as CO₂ inflation valves and survival items are authorized in addition to repair and replacement procedures documented in this section. The life preserver shall be subjected to a functional and leakage test each time CO₂ inflation valves are removed and replaced for any reason, and each time inflation valve gaskets are replaced.

16-58. DETERMINATION OF REPAIRABILITY.

Patching of holes, cuts, tears or punctures 1-inch square or less are the only repairs authorized in a life preserver bladder.

16-59. Life preserver shall be considered beyond repair for any of the following reasons:

1. Porous fabric areas on flotation bladder.
2. Split or open bladder seams with the exception of non-leaking bladder fin seams.
3. Leakage test failure resulting from other than repairable cut, tear or puncture.
4. Holes, cuts, tears or punctures within 1-inch of flotation bladder seams.
5. Deterioration of the rubberized fabric caused by oil, grease, or any other foreign substance.
6. Deterioration of the rubberized fabric caused by a heavily mildewed condition.

16-60. CASING REPAIR PROCEDURES. To re-pair casings, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
As Required	Thread, Nylon, High Temperature Resistant, Sage Green	MIL-T-83193 NIIN 00-405-2252
-or-		
As Required	Thread, Nylon, Type II, Size E, Sage Green	V-T-295 NIIN 00-204-3884
As Required	Cloth, Nylon, Polychloroprene-coated, Type I, Sage Green	MIL-C-83429 NIIN 01-147-2064
As Required	Tape, Hook, Sage Green, Type II	MIL-F-21840 NIIN 00-405-2266
As Required	Tape, Pile, Sage Green, Type II	MIL-F-21840 NIIN 00-405-2263

1. Minor holes, rips, tears, or abrasions in casing assembly may be repaired if they do not exceed 2 inches.

2. Repair or replace loose or damaged hook and pile tape as required.

3. Remove bladder in areas being repaired.

4. For all repairs plus loose or broken stitching use 6 to 8 stitches per inch and back stitch one half inch.

5. Casing assembly worn beyond economical repair shall be discarded.

16-61. CASING GROMMET REPLACEMENT PROCEDURES. To replace casing grommet, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Punch, Cutting, 3/16"	3GGG-P-833 NIIN 00-180-0941
1	Pencil, Solder	W-S-570 NIIN 00-204-3855

Materials Required		
Quantity	Description	Reference Number
1"	Tape, Nylon, Sage Green, 1" Wide	MIL-T-5038 NIIN 00-753-6144
-or-		
1 1/2" X 1 1/2"	Cloth, Aramid, Sage Green, Type 456, Class I	MIL-C-83429 NIIN 01-147-2064
2	Grommet, Brass, Size 00	MS202030B20 NIIN 00-291-0302

1. Remove bladder in areas being repaired.

2. Remove loose grommet.

3. Reinforce worn grommet hole in casing by using either nylon tape or aramid cloth.

a. Prepare reinforcing material.

(1) Cut and sear edges of a 1" piece of nylon tape

or

(2) Cut a 1 1/2" X 1 1/2" piece of aramid cloth and fold under 1/4" on all edges.

b. Sew reinforcing material to outside of casing, centered where possible over original grommet location. Use a cross boxstitch with 6 to 8 stitches per inch, 1/8 inch from edge.

4. Install new grommet.

a. Locate original grommet hole. Cut hole in reinforcing material using 3/16" cutting punch.

b. (For nylon tape only.) Carefully sear hole to prevent fraying using solder pencil.

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c. Install grommet using 00 grommet setter and base.

16-62. CEMENTING LIFE PRESERVERS. All cementing of life preservers shall be performed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Roller, Wooden	GGG-R-00620 NIIN 00-243-9401

NOTE

Toluene shall be the primary solvent used in the fabrication or repair of this assembly. MEK may be used if toluene is not available. Always use solvents sparingly and wipe up excess solvents; do not allow to dry by evaporation.

Materials Required

Quantity	Description	Reference Number
1	Brush, Disposable	NIIN 00-514-2417
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
As Required	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Cement, Class 3, Polychloroprene	MIL-A-5540 NIIN 00-142-9913
As Required	Talc, Technical	MIL-T-50036A NIIN 01-089-9589

WARNING

Do not use toluene or MEK near open flame, heat or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in a well ventilated area.

CAUTION

Use only Polychloroprene adhesives and Polychloroprene-coated cloth patches on Polychloroprene-coated LPU-23/P flotation assemblies.

NOTE

Toluene or MEK must be applied vigorously to life preserver material over three years old in order to reactivate the material prior to cementing. Pigment from the material coloring staining a cloth rubbed over the treated surface will indicate the material has been reactivated. Cement shall be applied immediately after the surface has dried.

1. Clean both surfaces to be cemented with four applications of toluene or MEK. Apply toluene or MEK with back-and-forth strokes on the first and third applications, and one-way strokes on the second and fourth applications. Allow area to dry between applications.

CAUTION

The effective active period of adhesive mixtures composed of polychloroprene and an accelerator is eight (8) hours. Do not use mixture if older than eight hours.

2. Prepare only enough mixture for 8 hours. Dispose of any remaining mixture.

3. Using a disposable brush, apply cement to completely cover surfaces to be cemented. Use long, one direction strokes and complete each surface before cement becomes tacky as the brush may pull tacky cement from the surface. Allow to dry for 10 minutes.

4. Apply a second coat of cement as in [step 3](#). Use brush strokes perpendicular to the original direction.

5. When second coat of cement has become tacky, place pieces together. If cemented area has a cut or tear, butt edges of damage before applying patch. Roll out bubbles with a wooden roller.

6. Allow cement to cure a minimum of 48 hours.

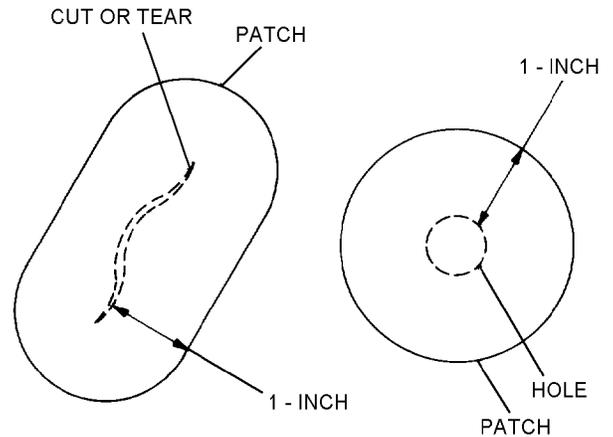
7. Dust area with talc (MIL-T-50036A).

16-63. PATCHING LIFE PRESERVERS. Patching of life preservers shall be performed as follows:

NOTE

Life preserver is not repairable if it has holes, cuts, tears, or punctures over one inch square.

1. Cut a rounded patch 1 inch larger than damage on all sides.



P0063001

Step 1 - Para 16-63

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon, Polychloroprene-coated, Type I, Sage Green	MIL-C-19002 NIIN 00-935-1759

2. Center patch over damage and trace an outline of patch on fabric.

3. Cement patch to damaged area in accordance with paragraph 16-62.

4. Dust area with talc (MIL-T-50036A).

5. Perform a leakage test.



Use only Polychloroprene adhesives and Polychloroprene-coated cloth patches on Polychloroprene-coated LPU-23/P flotation assemblies.

NOTE

Select patch color as near as possible to color of life preserver being repaired.

NOTE

The 28th In-Service Management Panel meeting for Aviation Life Support Systems rescinded the requirement for the packer to sign the Inspection Record Patch on life preservers. The requirement for all documentation remains unchanged. The reason for this change is that most history patches are unreadable and the packer's and inspector's names are documented on Aviation Crew Systems Records.

16-64. INSPECTION RECORD PATCH.

Figure 16-10 Deleted.

16-65. REPLACEMENT OF ORAL INFLATION VALVE. To replace the oral inflation valve, proceed as follows:

NOTE

Replacement oral inflation valves can only be obtained through salvage of BCM'ed or surveyed inflatable survival equipment.

Materials Required (Cont)

Quantity	Description	Reference Number
As Required	Toluene	TT-T-548 NIIN 00-281-2002
-or-		
As Required	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762



Materials Required

Quantity	Description	Reference Number
1	Valve, Oral Inflation	—
As Required	Cement, Polychloroprene	MIL-A-5540 NIIN 00-142-9913
As Required	Brush, Disposable	NIIN 00-514-2417

Only toluene or MEK shall be used to clean oral inflation valve and tube. Only Polychloroprene cement (MIL-A-5540, NIIN 00-142-9913) shall be used to cement oral inflation valve into oral inflation tube.

1. Carefully cut through metal clamp securing oral inflation valve to oral inflation tube, and remove the metal band and oral inflation valve.

2. If the oral inflation tube was damaged during removal of valve, trim off damaged section.

3. Clean both surfaces to be cemented with toluene or MEK. Allow areas to dry.

4. Using a small disposable brush, carefully apply a small amount of Polychloroprene cement to the surfaces to be cemented together.

5. Immediately place oral inflation valve into oral inflation tube. Oral inflation valve should be inserted up to the valve shoulder. Inspect for proper application/cement.

6. Tightly wrap the cemented portion of the oral inflation tube with cord or wire and allow to cure for 48 hours before removing wrap.

7. Perform leakage test in accordance with [paragraph 16-45](#).

16-66. RECEMENTING OF BLADDER FIN SEAMS. This repair shall be performed only if a polychloroprene flotation bladder does not leak, that is, if only outer seam around bladder is split or separating. To recement an open fin seam proceed as follows:

1. If fin seam is not leaking, recement open material surrounding flotation bladder in accordance with [paragraph 16-62](#).

2. Perform a leakage test in accordance with [paragraph 16-45](#).

NOTE

If bladder exhibits leakage from fin seam, "V" tape on inside of bladder cell has ruptured. Dispose of life preserver after usable parts have been salvaged.

16-67. DELETED

Figure 16-11. Deleted

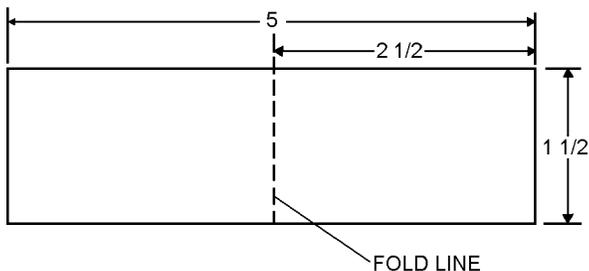
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16-68. FABRICATION OF SLIP-ON POCKETS FOR LIFE PRESERVER HARDWARE. To fabricate slip-on pockets for life preserver hardware, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon, Polychloroprene-coated, Type I	MIL-C-19002 NIIN 00-935-1759
As Required	Thread, Nylon Size E	V-T-295 NIIN 00-204-3884

1. Cut two pieces of coated nylon cloth as shown.



Step 1 - Para 16-68

P0068001

2. Fold piece of cloth in half along fold line.
3. Sew two sides adjacent to fold forming a pocket. Use stitch type 301 stitching 8 to 10 stitches per inch.
4. Repeat [steps 2](#) and [3](#) for other piece of cloth.

5. When packing life preserver, slip pockets over applicable pieces of hardware.

16-69. REPLACEMENT OF FLARE AND DYE MARKER POUCH SNAPHOOKS. To replace a broken snaphook, proceed as follows:

Materials Required

Quantity	Description	Reference Number
12 inches	Cord, Nylon, Type I	MIL-C-5040 NIIN 00-014-6690

1. Cut through ring portion of snaphook.
2. Remove snaphook and discard.
3. Pass end of cord through webbing loops on pouch and preserver ring.
4. Secure cord ends with binder knot, cut excess cord, and sear ends.

16-70. REPLACEMENT OF COLLAR LOBE SNAPHOOKS. To replace the collar lobe snaphook or webbing which is attached to the snaphook, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon, Polychloroprene-coated, Type I	MIL-C-19002 NIIN 00-935-1759
As Required	Webbing, Textile, Woven Nylon, Type Ia, 3/4-inch	MIL-W-4088H NIIN 00-782-3224

Materials Required (Cont)

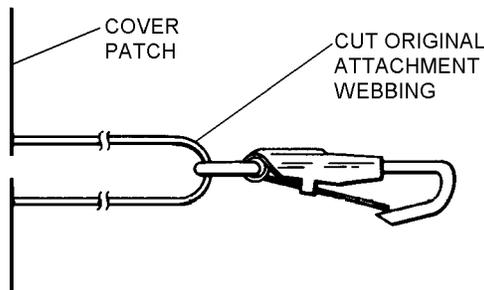
Quantity	Description	Reference Number
2	Snaphook, CWBC1	MIL-S-43770/1 NIIN 01-087-9402
As Required	Thread, Nylon, Size E, Type I or II	V-T-295 NIIN 00-204-3884
As Required	Adhesive, Polychloroprene	MIL-A-5540 NIIN 00-515-2246
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589

NOTE

Procedural [step 1](#) is for replacement of worn webbing and broken snaphook. [Step 2](#) is for replacement of the snaphook patch assembly.

1. To replace worn webbing and broken snaphook, proceed as follows:

a. Cut original attachment webbing at point where it passes through eye of snaphook and sear ends.



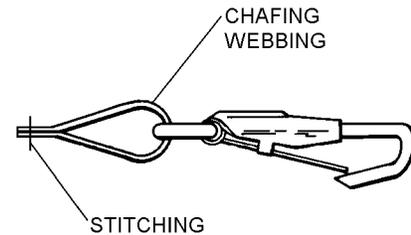
Step 1a - Para 16-70

P007001A

b. Replace original snaphook with copper alloy wire snaphook.

c. Cut one 2-inch length and one 1 1/2-inch length of nylon webbing and sear ends.

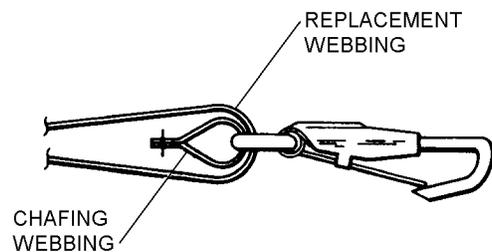
d. Pass the 1 1/2-inch length of webbing through snaphook eye and stitch one row of stitching, 10 to 12 stitches per inch, close to seared ends, securing chafing webbing to snaphook eye.



Step 1d - Para 16-70

P007001D

e. Pass the 2-inch length of webbing (replacement webbing) through snaphook eye and over chafing webbing.

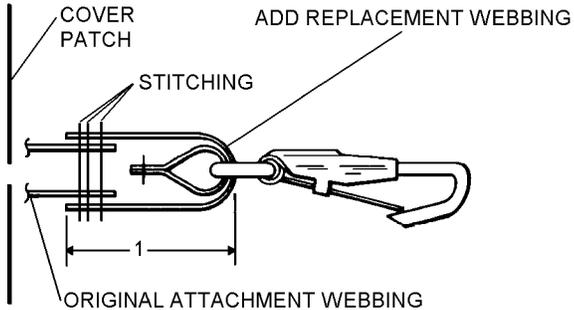


Step 1e - Para 16-70

P007001E

NAVAIR 13-1-6.1-2

f. Sandwich each side of original webbing between chafing webbing and replacement webbing. Stitch across webbing and backstitch forming three rows of stitching. The finished length of new webbing attachment shall be approximately 1 inch.



Step 1f - Para 16-70

P007001F

g. Repeat [steps a through f](#) for opposite side.

2. To replace the snaphook patch assembly, proceed as follows:

WARNING

Do not use toluene or MEK near open flame, heat, or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in well-ventilated area.

NOTE

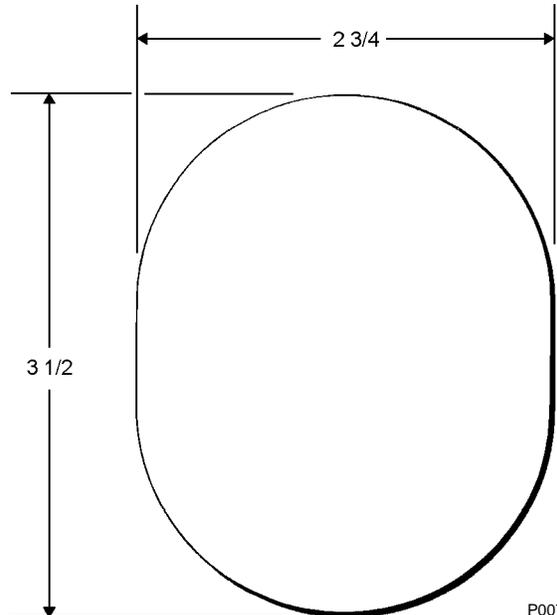
Toluene shall be the primary solvent used in the fabrication or repair of this assembly. MEK may be used if toluene is not available. Always use solvents sparingly and wipe up excess solvents; do not allow to dry by evaporation.

a. Apply toluene or MEK to loosen patches. Remove patches from life preserver flotation bladder.

CAUTION

Use Polychloroprene-coated adhesives and Polychloroprene-coated cloth and patches on Polychloroprene-coated LPU-23/P life preserver assemblies.

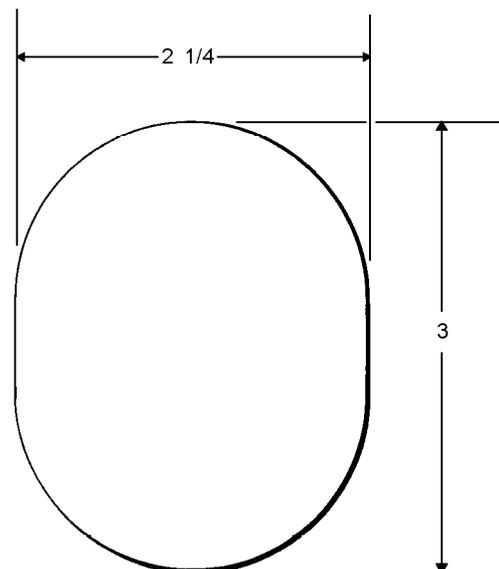
b. Fabricate cover patch from coated nylon cloth.



Step 2b - Para 16-70

P007002B

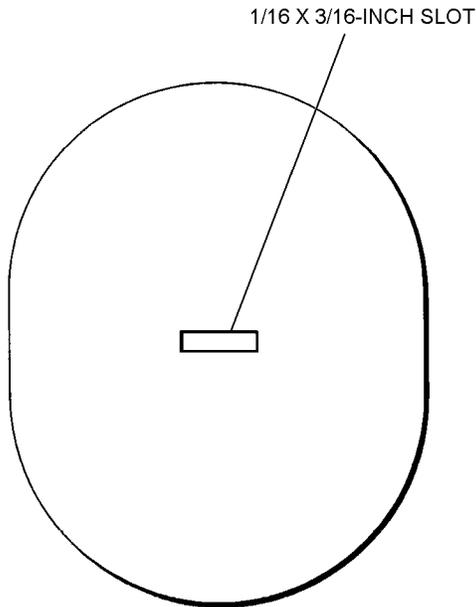
c. Fabricate base patch from coated nylon cloth.



Step 2c - Para 16-70

P007002C

d. Cut a 1/16 x 3/16-inch slot in cover patch.

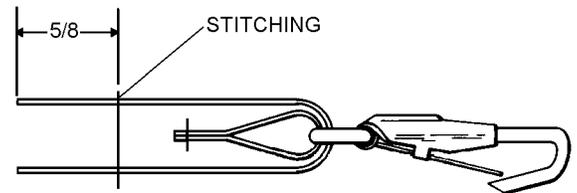


Step 2d - Para 16-70

P007002D

g. Pass 2 1/2-inch length of webbing through snaphook eye and over chafing webbing.

h. Sew a single row of stitching across webbing approximately 5/8 inch from end of webbing.



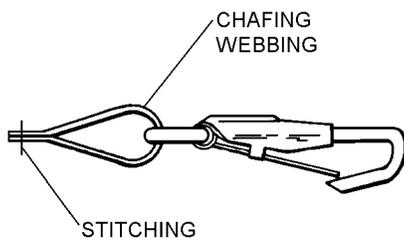
Step 2h - Para 16-70

P007002H

j. Insert webbing through slot opening in cover patch and sew a 7/16 x 5/8-inch boxstitch on each end of webbing to base patch.

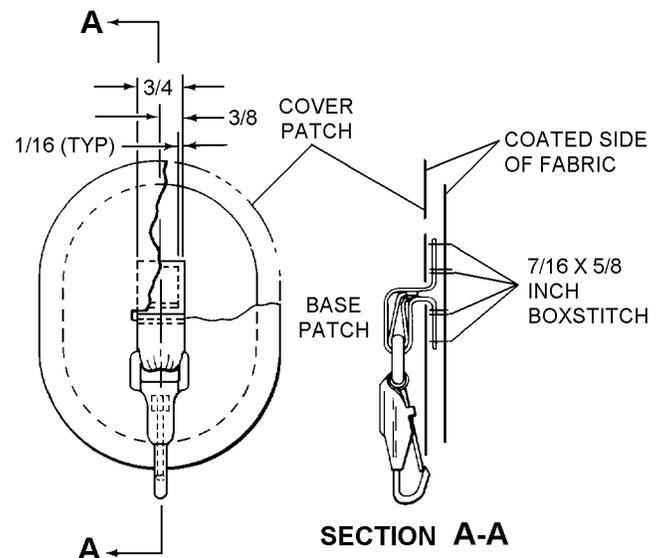
e. Cut one 2 1/2-inch length and one 1 1/2-inch length of nylon webbing and sear ends.

f. Pass the 1 1/2-inch length of webbing through snaphook eye and stitch one row of stitching, 10 to 12 stitches per inch, close to seared ends, securing chafing webbing to snaphook eye.



Step 2f - Para 16-70

P007002F

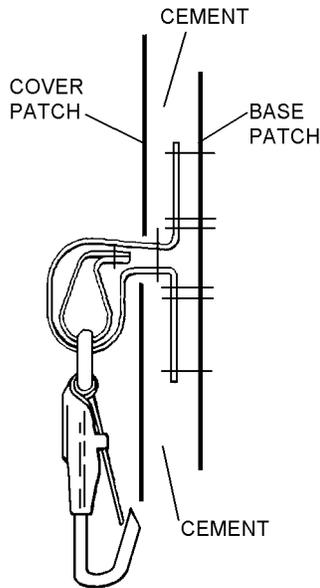


Step 2j - Para 16-70

P007002J

NAVAIR 13-1-6.1-2

k. Cement cover patch to base patch in accordance with paragraph 16-62.



Step 2k - Para 16-70

P007002K

l. Cement base patch to collar lobe on life preserver in accordance with paragraph 16-62.

m. Dust area with talc.

n. Repeat steps a through m for opposite side.

16-71. FLARE POUCH REPAIR. To repair flare pouch which will not close or is extremely difficult to close with flares installed, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Thread, Nylon, Size E	V-T-295 NIIN 00-204-3884
2	Socket, Snap Fastener	MS27983-2 NIIN 00-945-2577
2	Cap, Snap Fastener	MS27983-1 NIIN 00-891-9073
3 1/2 inches	Webbing, Type VIII	MIL-W-4008

1. Remove both sets of sockets, caps, and pull tabs from pouch closure flap. Save pull tabs.

2. Position MIL-W-4008 Type VIII webbing on outside surface of pouch flap. Cut and sear webbing ends to match contour of flap end. Boxstitch webbing to flap using size E nylon thread (V-T-295). See figure 16-12.

3. Reposition both sets of sockets, caps, and pull tabs 3/8 inch closer to flap end. Use original pull tabs.

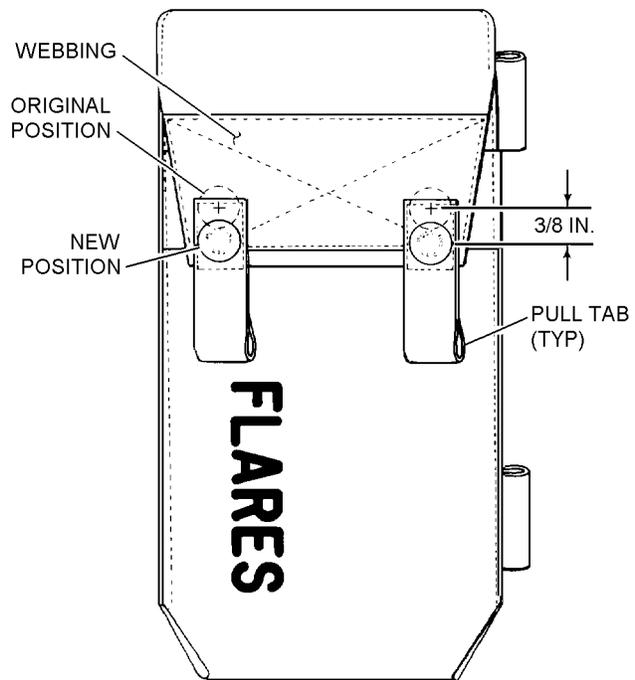


Figure 16-12. Flare Pouch Repair

10160012

16-72. DISASSEMBLY OF THE LIFE PRESERVER. To disassemble the life preserver for bladder or case repairs, proceed as follows:

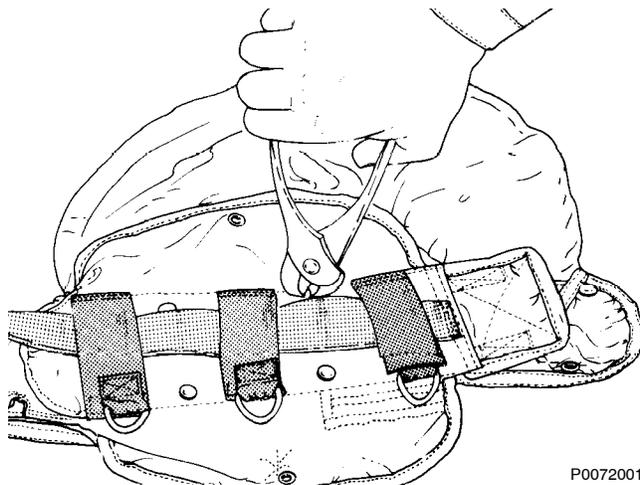
Support Equipment Required

Quantity	Description	Reference Number
1	Nipper, End Cutting	—

NOTE

Life preserver shall be disassembled only to the extent necessary to perform required maintenance or inspection.

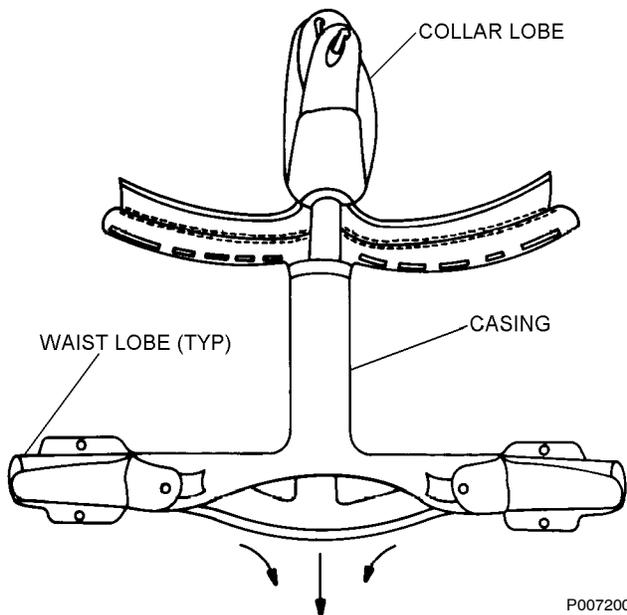
1. Remove six rivets securing each waist lobe to casing with a pair of nippers.



Step 1 - Para 16-72

P0072001

2. Open casing and remove both inflation assemblies.
3. Reattach cap nuts to valve stems.
4. Release all hook and pile tape fasteners.
5. Fold collar lobe and waist lobes to width of casing.
6. Hold casing at collar and pull flotation assembly down and out of casing, one lobe at a time.



Step 6 - Para 16-72

P0072006

16-73. REASSEMBLY OF THE LIFE PRESERVER.

To reassemble the life preserver proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Press	M114 (CAGE 83058)

Materials Required

Quantity	Description	Reference Number
12	Post, Rivet	MS27986-3B NIIN 00-281-4359
12	Cap, Rivet	MS27986-4B NIIN 00-281-2553
2	Valve Stem Kit (Note 1)	105AS100-6 (CAGE 30003) NIIN 00-113-8290
3 feet	Cord, Nylon, Type III	MIL-C-5040 NIIN 00-240-2146

- Notes: 1. Valve Stem Kit, P/N 105AS100-6, NIIN 00-113-8290, contains one top and one bottom gasket.

NOTE

The quantity of materials listed is sufficient for reassembly of one life preserver.

1. Attach one end of a 3-foot length of Type III nylon cord to snaphook on collar lobe.



Ensure flotation assembly is not twisted in casing channels.

2. Insert free end of nylon cord through back channel of casing and pull collar lobe into casing. Remove nylon cord from collar snaphook. Insert waist lobes through casing waist channels.

3. When flotation assembly is in casing assembly, ensure that it is in proper configuration and is not twisted inside casing.

NAVAIR 13-1-6.1-2

4. Align rivet holes in flotation assembly attachment patches (on waist lobes) over rivet holes in casing. Insert rivets through holes and seat.

NOTE

The rivet cap shall be on the inside of the casing.

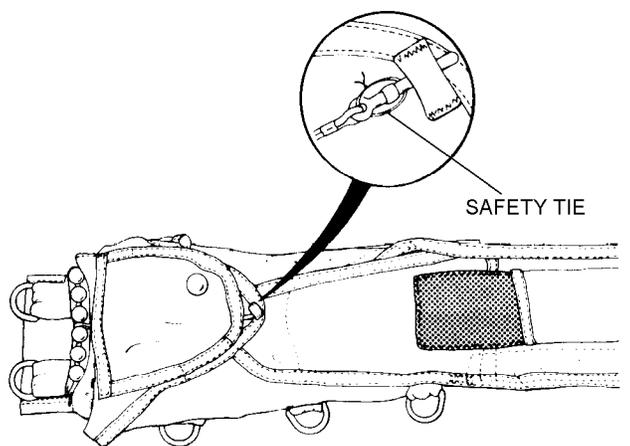
5. Remove old inflation stem gaskets and replace with new gaskets. Reinstall inflation assemblies and protective covers. Pack life preserver in accordance with [paragraph 16-84](#).

16-74. REPLACEMENT OF BEADED INFLATION HANDLE ASSEMBLY. To replace the beaded inflation handle, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Handle, Beaded, Inflation	975AS121-11 NIIN 01-120-4752 (CAGE 30003)
As Required	Thread, Nylon, Size E	V-T-295 NIIN 00-204-3884

1. Open snap fastener on locking pin cover; then cut and remove safety tie securing eye of locking pin to retaining loop. Carefully remove locking pin from pin keeper and retaining loop.



Step 1 - Para 16-74

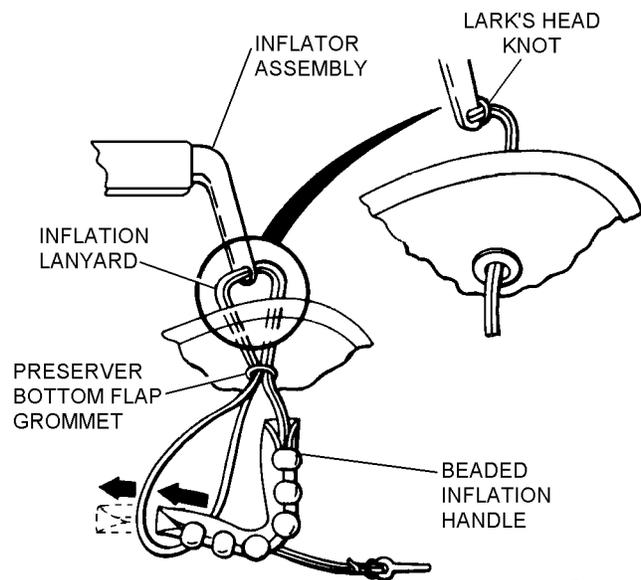
P0074001

2. Open flaps and unfold life preserver assembly.

3. Remove CO₂ cylinder from CO₂ inflator assembly. Retain CO₂ cylinder for reinstallation.

4. Remove inflation lanyard from inflator assembly; then unsnap beaded inflation handle from life preserver casing.

5. Secure new beaded handle inflation lanyard to actuating lever by passing lanyard through grommet in bottom casing flap and through hole in end of actuating lever. Pass lanyard back through grommet in bottom casing flap and form lark's head knot.



Step 5 - Para 16-74

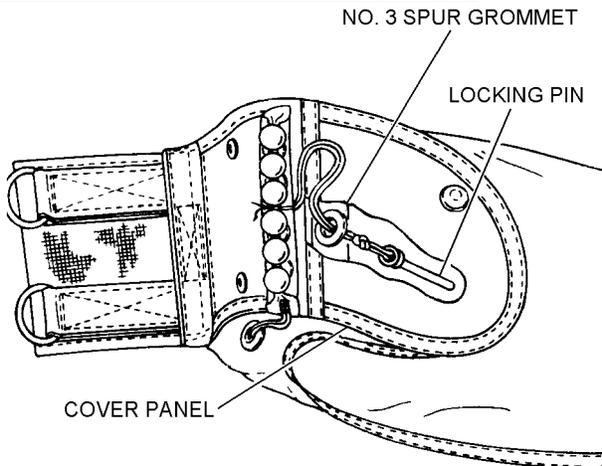
P0074005

6. Fasten beaded inflation handle to casing with snap fasteners provided; then safety-tie beaded inflation handle with one turn of size E nylon thread, single. Draw thread sufficiently to permit 1/2-inch ± 1/8-inch space between the middle beads and webbing on the preserver. Tie ends of both safety ties with a surgeon's knot followed by a square knot.

NOTE

Ensure that overhand knot on locking pin lanyard is within 3/4 inch from eye of pin.

7. Route locking pin under outboard flap cover panel and through No. 3 spur grommet.



NOTE: LEFT LOBE SHOWN

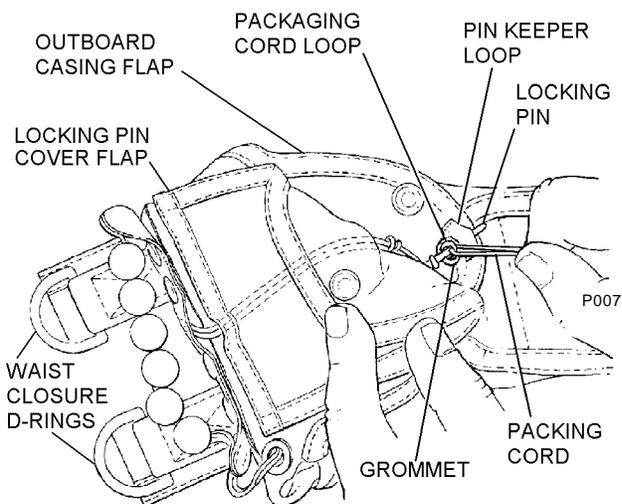
P0074007

Step 7 - Para 16-74

NOTE

On some late issue LPU-23 series life preservers, the No. 3 spur grommet has been deleted.

8. Route the locking pin under the locking pin cover flap through the opening in the stitching at the base of the flap, through the retaining loop/packaging cord loop, and under the pin keeper loop.



(WITHOUT NO. 3 SPUR GROMMET)

NOTE: LEFT LOBE SHOWN

P0074008

Step 8 - Para 16-74

9. Perform beaded inflation handle pull test. Refer to [paragraph 16-44](#).

10. Recock CO₂ inflator and install CO₂ cylinder.

NOTE

Ensure that all hook and pile tapes are securely mated.

11. Pack life preserver in accordance with the applicable paragraph.

12. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

NOTE

FLU-8A/P Automatic Inflators shall be replaced with FLU-8B/P Automatic Inflators if found in service during scheduled maintenance.

16-75. REPLACEMENT OF FLU-8B/P AUTOMATIC INFLATOR ASSEMBLY. To replace damaged, over-age, or spent FLU-8B/P automatic inflators proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	3/4-inch Deep Socket	—
1	Wrench, Torque	—

Materials Required

Quantity	Description	Reference Number
1	Cylinder, CO ₂ Type III, 35 Grams	MIL-C-25369
As Required	Thread, Nylon, Size A, Type I or II	V-T-295

Materials Required (Cont)

Quantity	Description	Reference Number
1	FLU-8B/P Automatic Inflation Device consisting of:	FW-98 849AS153 (CAGE 30003) NIIN 01-364-4089
1	Inflator Subassembly	1612-009 (CAGE 03688)
1	Sensor Plug Cap Assembly	P/N 1813-044-02 (CAGE 03688)
1	Valve Stem Kit (Note 1)	105AS100-6 (CAGE 30003) NIIN 00-113-8290
1	Seat Seal, O-Ring, Multi	NIIN 01-046-3300
1	Packaging Cord	1138-003-01 (CAGE 03688) NIIN 01-066-3357
1	Sleeve, Battery Insulating (Note 2)	1122-095

NOTE

The following component parts may be re-used and retained as spares: sensor plug cap, CO₂ cylinder, packaging cord loop, and cap nut.

3. Handle damaged or spent FLU-8B/P inflators in accordance with Federal Regulation 49, CFR 173.55.

4. Examine inflation actuating lever, beaded handle, inflation lanyard, nylon locking pin, sensor plug cap, and packaging cord loop for fraying, corrosion, stripped threads, and other damage.

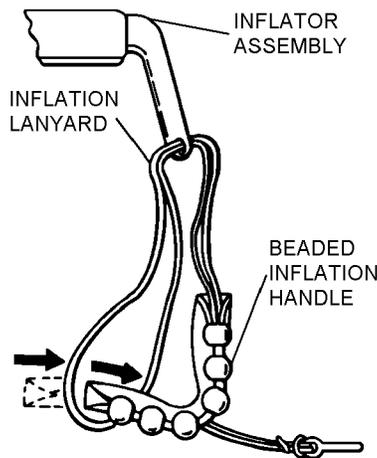
5. Remove beaded handle inflation lanyard from actuating lever by removing lark's head knot. Retain beaded inflation handle for reinstallation.

- Notes:
1. Valve Stem Kit, P/N 105AS100-6, NIIN 00-113-8290, contains one top and one bottom gasket
 2. The battery insulating sleeve is not a stocked item. After installation directed by Aircrew Systems Bulletin 976, it becomes part of the FLU-8B/P Unit. Replacement sleeves are issued by Indian Head Division, NSWC.

WARNING

The FLU-8B/P automatic inflator is a cartridge-activated device and will fire if immersed in fresh or salt water. This device is to be installed only on life preservers used by aircrewmembers in ejection seat type aircraft.

1. Remove CO₂ cylinder from inflator.
2. Remove inflation lanyard from inflation actuating lever; then remove damaged, overage, or spent FLU-8B/P automatic inflation assembly.



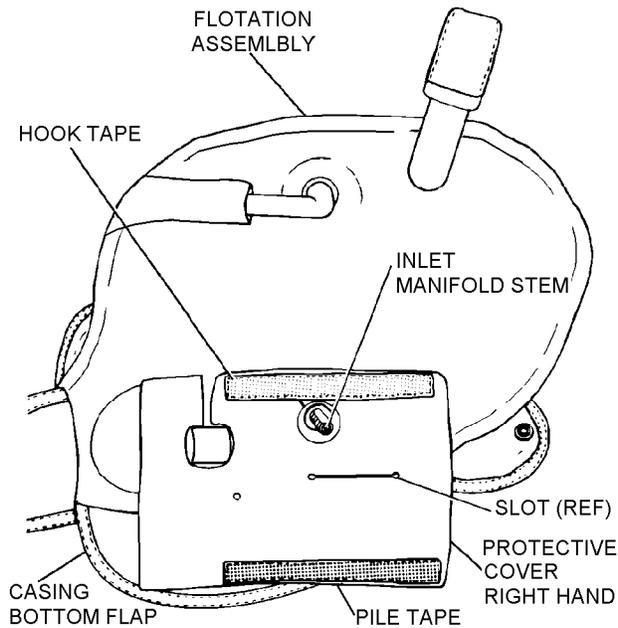
Step 5 - Para 16-75

P0075005

6. Operate manual actuating lever several times to ensure that lever moves freely. Check to ensure that piercing pin moves freely inside valve body and goes through center of packaging cord loop.

7. Ensure that packaging cord loop is not pinched between piercing pin and actuating lever. If there is free play in actuating lever when it is in its cocked position, packaging cord loop is pinched. If necessary, reinstall in accordance with paragraph 16-76.

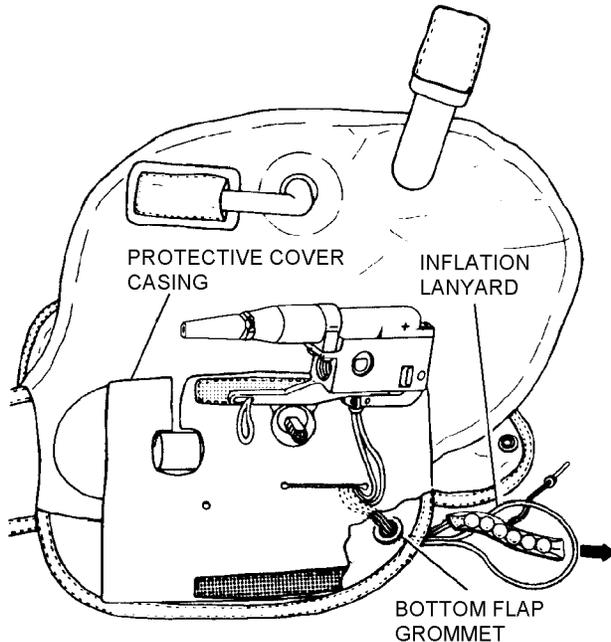
8. Install protective cover onto life preserver assembly.



P0075008

Step 8 - Para 16-75

9. Install beaded handle inflation lanyard to actuating lever by passing inflation lanyard through bottom flap grommet of life preserver assembly and protective cover. Then attach inflation lanyard to actuating lever by a lark's head knot.



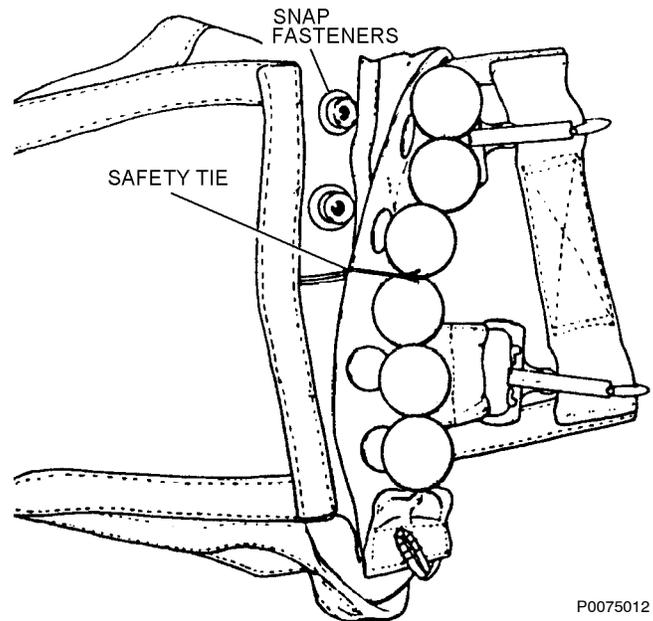
P0075009

Step 9 - Para 16-75

10. Fasten beaded inflation handle to casing with snap fasteners provided.

11. Perform beaded inflation handle pull test in accordance with [paragraph 16-44](#).

12. Replace beaded inflation handle to casing with snap fasteners; then safety-tie with size E nylon thread. Ensure that thread is drawn sufficiently to permit a 1/2-inch ± 1/8-inch space between the middle beads and webbing on preserver.



P0075012

Step 12 - Para 16-75

13. Ensure that packaging cord is not pinched between piercing pin and actuating lever. If there is free play in the actuating lever when it is in its cocked position, packaging cord loop is pinched. If necessary, reinstall in accordance with [paragraph 16-76](#).

14. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series, including:

- a. Date of installation of each FLU-8B/P.
- b. Date of manufacture of each FLU-8B/P. See [figure 16-3](#).
- c. Lot number of each FLU-8B/P. See [figure 16-3](#).

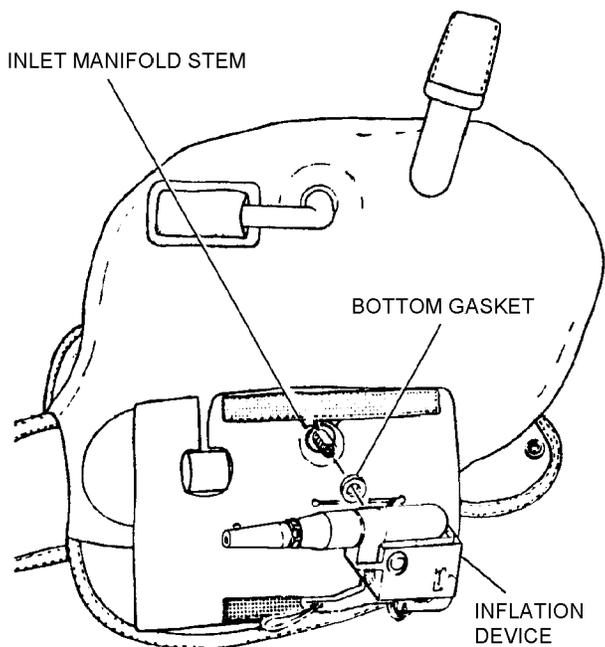
NAVAIR 13-1-6.1-2

- d. Serial number of each FLU-8B/P.
- e. Date of installation of batteries.
- f. Date of manufacture of batteries. Refer to [paragraph 16-39.](#)

NOTE

For data on total life of the FLU-8B/P automatic inflation assembly, refer to NAVAIR 11-100-1.1. If total life expiration date occurs before date of next scheduled calendar inspection, replace inflator assembly. The manganese dioxide batteries used in the assembly have a total life of 3 years from the date of manufacture.

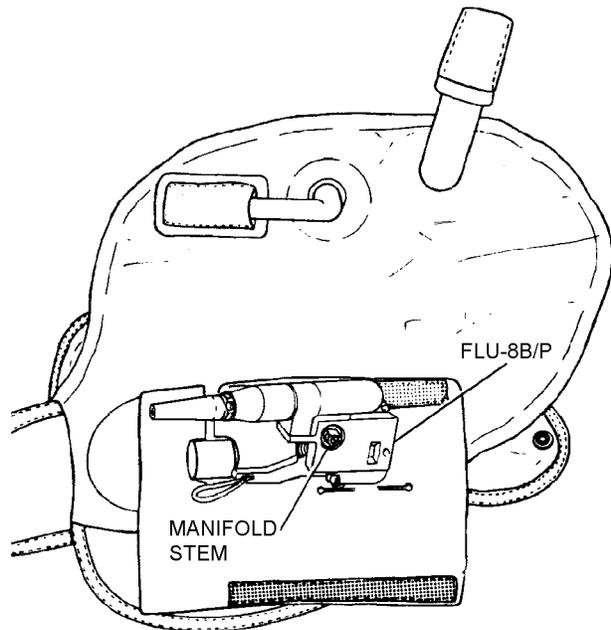
- 15. Install bottom gasket over manifold stem and position at manifold base. The bottom gasket has a smaller internal diameter than the top gasket.



Step 15 - Para 16-75

P0075015

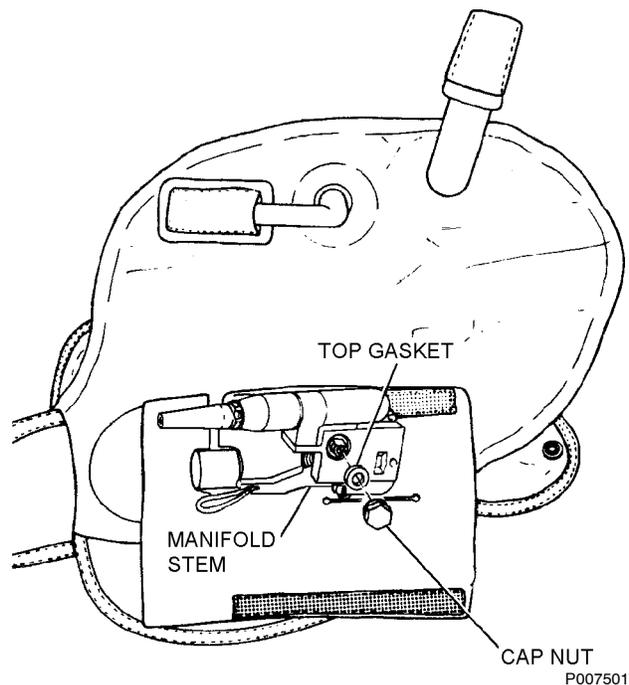
- 16. Install inflator body on manifold stem.



Step 16 - Para 16-75

P0075016

- 17. Install top gasket on manifold stem. Position on top of the inflator body.



Step 17 - Para 16-75

P0075017

CAUTION

Valve stem may rotate if cap nut is over torqued.

18. Install cap nut on manifold stem, securing inflator to a torque value of 8 ± 1 in-lb.

19. Replace batteries in accordance with [paragraph 16-54](#).

CAUTION

The functional test will be performed in the manual mode only. The automatic inflator (FLU-8B/P) may be operated an unlimited amount of times in the manual mode without affecting its automatic capability. Automatic actuation requires replacement of the inflation assembly.

20. Install CO₂ cylinder in accordance with [paragraph 16-53](#). Perform functional test in accordance with [paragraph 16-33](#).

21. Deflate life preserver in accordance with [paragraph 16-34](#), and remove spent CO₂ cylinder and O-ring.

NOTE

During intermediate inspection, inspect condition of O-ring and replace if necessary. After each functional inspection the O-ring seal shall be replaced.

22. Perform a leakage test in accordance with [paragraph 16-45](#).

23. Install a 35-gram, Type III CO₂ cylinder in accordance with [paragraph 16-53](#).

WARNING

The packaging cord loop must be routed under the manual actuating lever, under the valve guide arm, then up through the valve guide arm hole. (See [figure 16-13](#).)

24. Ensure that packaging cord loop is routed as in [figure 16-13](#).

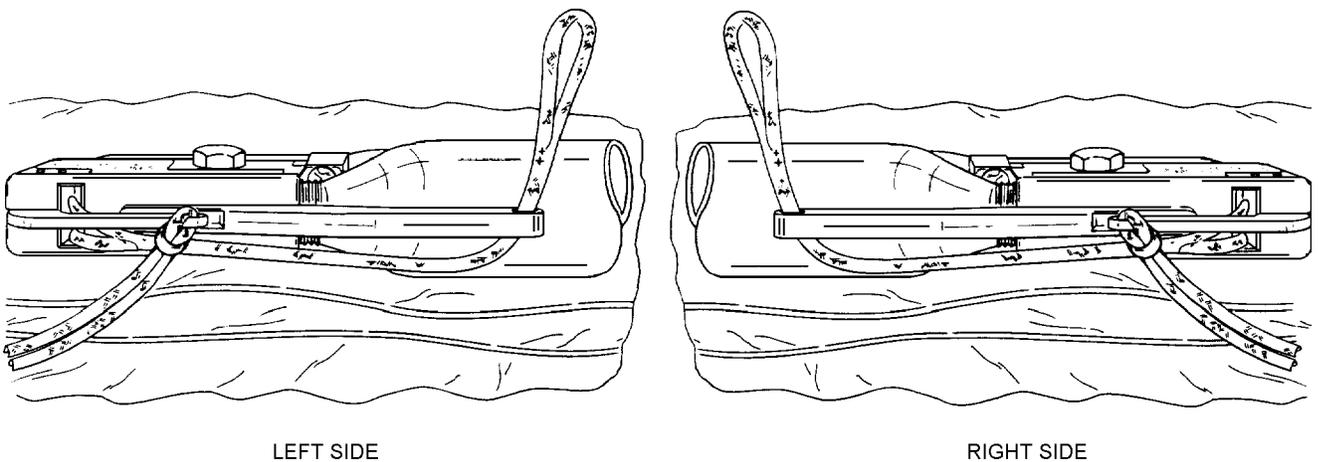


Figure 16-13. Packaging Cord Loop Routing

10160013

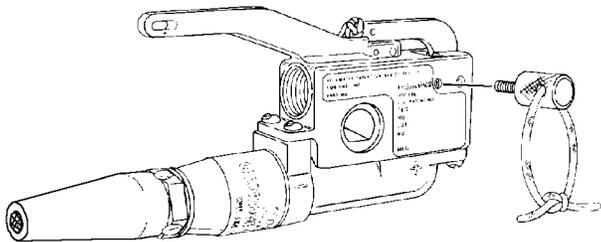
NAVAIR 13-1-6.1-2

16-76. REPLACEMENT OF PACKAGING CORD ON THE FLU-8B/P AUTOMATIC INFLATOR. To replace packaging cord loop on the FLU-8B/P automatic inflator proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Screw, Retaining, Piercing Pin	1842-006-01 (CAGE 03688)
1	O-ring (Seat Seal)	MS28775-012 NIIN 00-005-0426
1	Packaging Cord	1138-003-01 (CAGE 03688) NIIN 01-066-3357

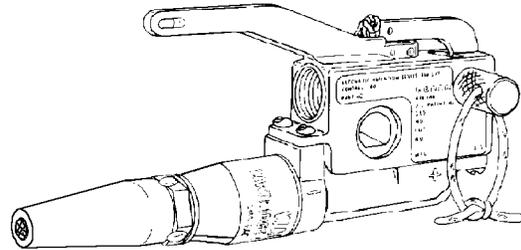
1. Remove CO₂ cylinder and O-ring from inflator.
2. Carefully remove inflator from life preserver.
3. Remove damaged cord.
4. Start the piercing pin retaining screw into the appropriate hole.



Step 4 - Para 16-76

P0076004

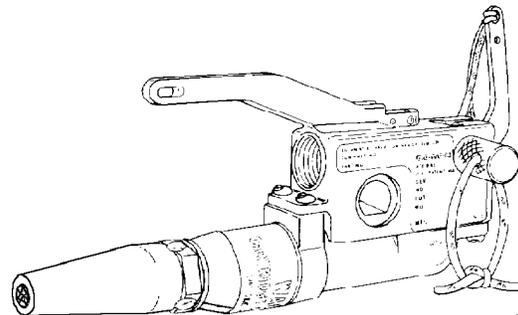
5. Turn the screw until it just touches the piercing pin then back off one turn.



Step 5 - Para 16-76

P0076005

6. Operate the actuating lever to its mid-actuated position.

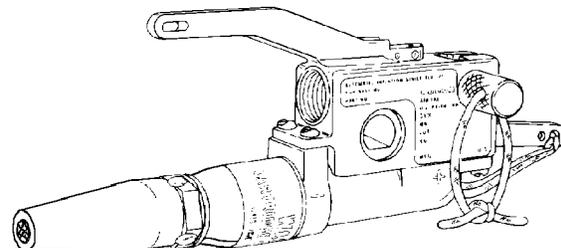


Step 6 - Para 16-76

P0076006

7. While holding the actuator lever in the mid actuated position, tighten the retaining screw to hold the piercing pin in its full penetrating position.

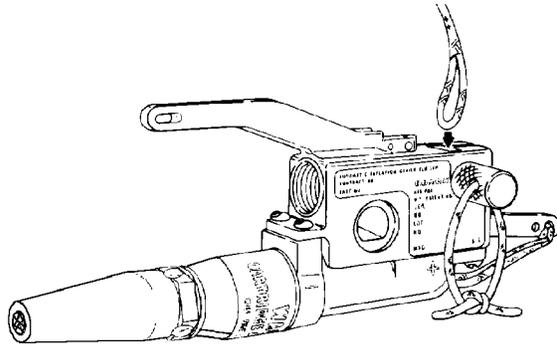
8. Operate the actuating lever to its full actuated position.



Step 8 - Para 16-76

P0076008

9. Insert the new packaging cord loop in the open lot on the inflator body.



Step 9 - Para 16-76

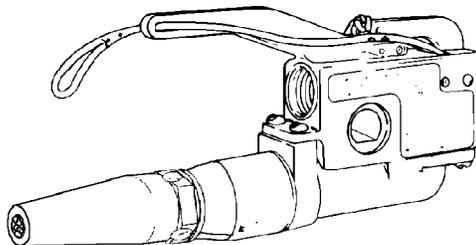
P0076009

NOTE

There is an open slot on the opposite side of the body from the retaining screw hole. This slot may help in positioning the loop such that the piercing pin, when released, will pass through the loop.

10. Operate the actuating lever to mid-actuating position. Remove the retaining pin, allowing the piercing pin to retract securing the loop.

11. Return actuating lever to normal position and ensure that actuating lever is properly cocked. If there is free play in actuating lever when it is in its cocked position, packaging cord loop is pinched. If necessary repeat steps 4 through 11 until actuating lever is properly cocked.



Step 11 - Para 16-76

P0076011



The packaging cord loop is always routed under the guide arm and then up through the guide arm hole. See figure 16-13.

12. Replace inflator onto life preserver. Refer to paragraph 16-75, steps 13 through 16.

13. Install new O-ring and charged CO₂ cylinder. Refer to paragraph 16-53; see figure 16-8.

14. Perform function test (refer to paragraph 16-33) and leakage test (refer to paragraph 16-45) and return to service.

16-77. REPLACEMENT OF SENSOR PLUG CAP ASSEMBLY ON FLU-8B/P AUTOMATIC INFLATOR.

To replace damaged or defective sensor plug cap, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Sensor Plug Cap Assembly	P/N 1813-044-02 (CAGE 03688)

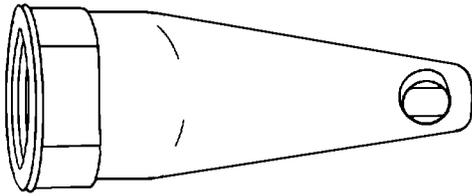


No foreign object should be inserted into sensor plug ports for any reason.

1. Remove damaged or defective sensor plug cap using a standard 3/4-inch wrench. See figure 16-14. ■

2. Ensure sensor plug spring is symmetrical in form and securely mounted.

3. Install new sensor plug cap. Plug shall be held in square alignment with housing while engaging threads. Ensure batteries are installed in accordance with paragraph 16-54.



10160014

Figure 16-14. FLU-8B/P Sensor Plug Cap

4. Torque FLU-8B/P sensor plug cap to 15 in-lb using 3/4-inch socket and torque wrench.

5. Test batteries in accordance with [paragraph 16-40](#).

16-78. REPLACEMENT OF TOP AND BOTTOM GASKETS. To replace the top and bottom gaskets on the FLU-8B/P inflators, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Valve Stem Kit (Note 1)	105AS100-6 (CAGE 30003) NIIN 00-113-8290

Notes: 1. Valve Stem Kit, P/N 105AS100-6, NIIN 00-113-8290, contains one top and one bottom gasket.

1. Remove cap nut and top gasket from inflator.
2. Remove inflator and replace bottom gasket.
3. Carefully place inflator onto valve stem.
4. Install top gasket onto valve stem.



Valve stem may rotate if cap nut is over torqued.

5. Tighten cap nut onto valve stem and torque to a value of 8 ± 1 in-lb.

6. Perform functional and leakage tests on life pre-server cell that was repaired. Refer to [paragraphs 16-33](#) and [16-45](#).

16-79. REPLACEMENT OF CHECK VALVE ASSEMBLY. To replace a defective check valve assembly, proceed as follows:

Support Equipment Required

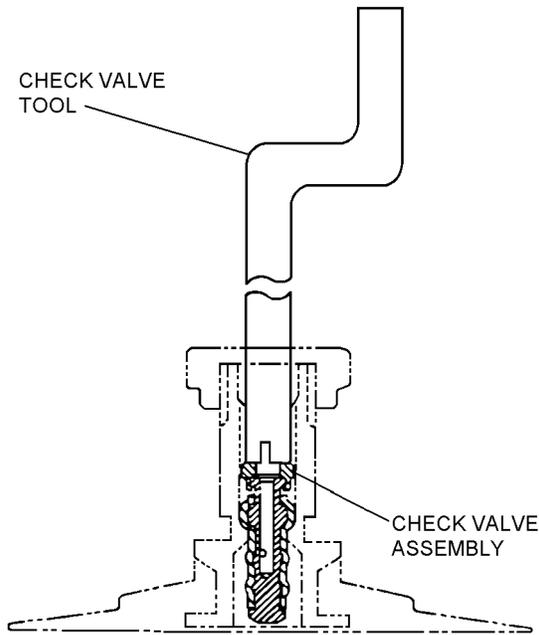
Quantity	Description	Reference Number
1	Tool, Valve Core	8769A or equivalent (CAGE 27783) NIIN 01-354-5423
1	Wrench, Torque	—

Materials Required

Quantity	Description	Reference Number
1	Valve, Pneumatic Inflator (Check Valve Assembly) (Note 1)	Schrader-Bridgeport P/N 8457500047

Notes: 1. Schrader-Bridgeport P/N 8457500047 must be open purchased from:
Schrader-Bridgeport Intl
205 Frazier Rd
P.O. Box 668
Altivista, VA 24517
Phone (804) 369-8875

1. If not available, fabricate a valve core tool as shown in [Chapter 3](#).
2. Remove inflator cap nut.
3. Insert valve core tool and unscrew check valve from valve stem.



Step 3 - Para 16-79

P0079003

4. Insert new check valve in valve stem and tighten with valve core tool hand tight.



Valve stem may rotate if cap nut is over torqued.

5. Replace cap nut and torque to a value of 8 ± 1 in-lb.

6. Perform a functional and leakage test on life preserver cell that was repaired. Refer to [paragraphs 16-33](#) and [16-45](#).

16-80. FABRICATION OF PROTECTIVE COVER ASSEMBLY. To fabricate a protective cover, proceed as follows:

Materials Required

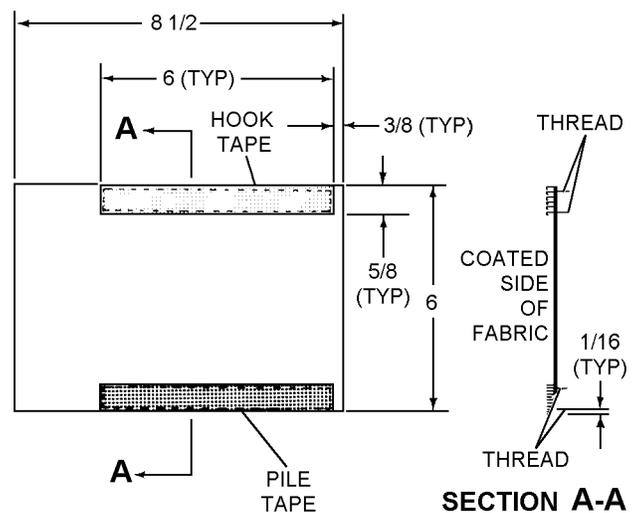
Quantity	Description	Reference Number
17 x 6 inches	Cloth, Nylon, Polychloroprene-coated	MIL-C-19002 NIIN 00-935-1759
12 x 5/8 inches	Fastener Tape, Hook, Type II	MIL-F-21840
12 x 5/8 inches	Fastener Tape, Pile, Type II	MIL-F-21840
As Required	Thread, Nylon, Type I or II, Size E, Sage Green	V-T-295 NIIN 00-204-3884

NOTE

Procedural [step 1](#) is for a right protective cover and [step 2](#) is for a left protective cover.

1. To fabricate a right protective cover, proceed as follows:

- a. Cut an 8 1/2-inch length of coated nylon cloth.
- b. Cut a 6-inch length of hook and pile tape and sew to the coated side of the coated nylon cloth. Use stitch type 301 stitching 8 to 10 stitches per inch.

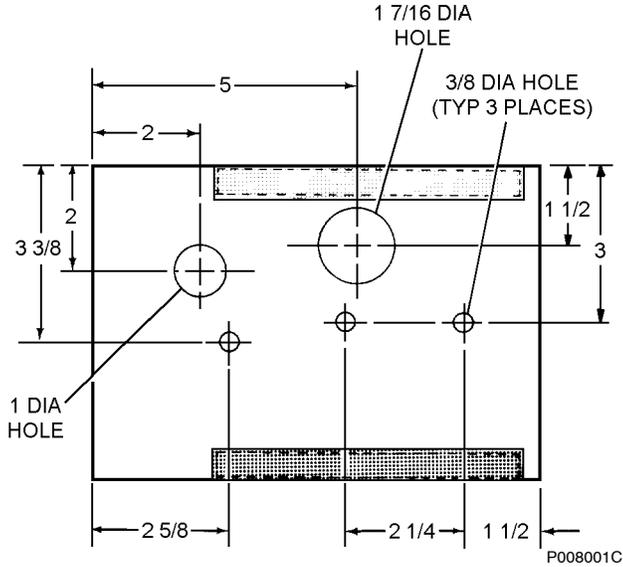


Step 1b - Para 16-80

P008001B

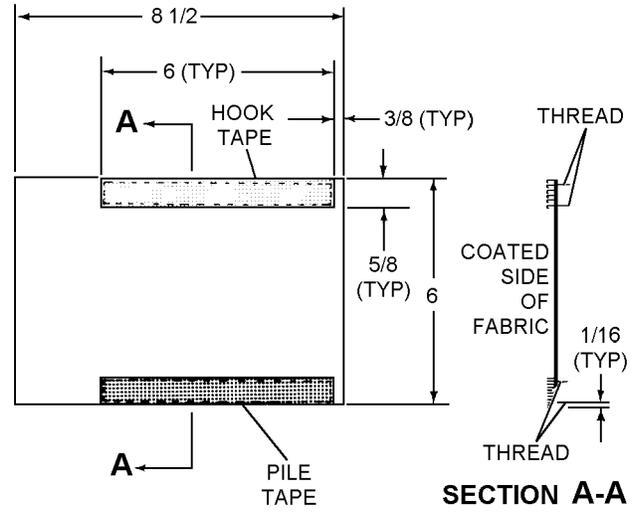
NAVAIR 13-1-6.1-2

c. Position coated nylon cloth, coated side up, over cutting board and punch a 1 7/16-inch diameter hole, a 1-inch diameter hole and three 3/8-inch diameter holes.



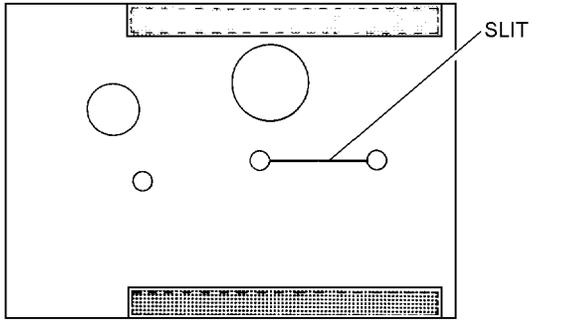
Step 1c - Para 16-80

b. Cut a 6-inch length of hook and pile tape and sew to the coated side of the coated nylon cloth.



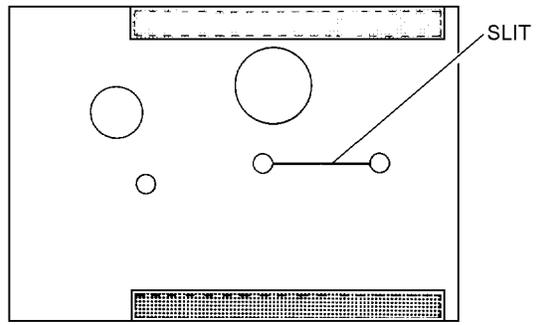
Step 2b - Para 16-80

d. Cut slit between two 3/8-inch diameter holes.



Step 1d - Para 16-80

c. Position coated nylon cloth, coated side up, over cutting board and punch a 1 7/16-inch diameter hole, a 1-inch diameter hole and three 3/8-inch diameter holes.

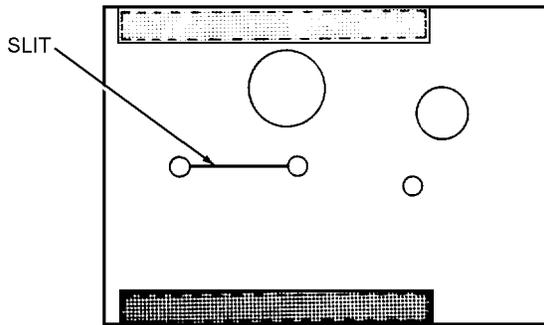


Step 2c - Para 16-80

2. To fabricate a left protective cover, proceed as follows:

a. Cut an 8 1/2-inch length of coated nylon cloth.

d. Cut slit between two 3/8-inch diameter holes.



Step 2d - Para 16-80

P008002D

1. Cut two 9-inch lengths of 1-inch wide nylon webbing and sear ends.

2. Sew one piece of webbing to outer side of each collar lobe casing in accordance with dimensions shown in figure 16-15.

3. Position and install snap fasteners in accordance with dimensions shown in figure 16-15, and ensure proper mate.

16-82. FABRICATION AND INSTALLATION OF LOCKING PIN COVER (PRESERVERS WITHOUT NO. 3 SPUR GROMMET). For life preservers without No. 3 spur grommet, fabricate and install the locking pin cover as follows:

16-81. FABRICATION OF COLLAR LOBE WEBBING LOOPS. To fabricate collar lobe webbing loops, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
18-inch Length	Webbing, Nylon, Type IV, 1-inch Width	MIL-T-5038, NIIN 00-261-8579 (CAGE 81349)
2	Post, Snap Fastener	MS27981-5B, NIIN 00-250-6858 (CAGE 96906)
2	Stud, Snap Fastener	MS27981-4B, NIIN 00-901-9660 (CAGE 96906)
2	Socket, Snap Fastener	MS27981-3B, NIIN 00-276-4966 (CAGE 96906)
2	Cap, Snap Fastener	MS27981-1B, NIIN 00-276-4954 (CAGE 96906)
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884

NOTE

All stitching shall be 10 to 12 stitches per inch, size E nylon thread.

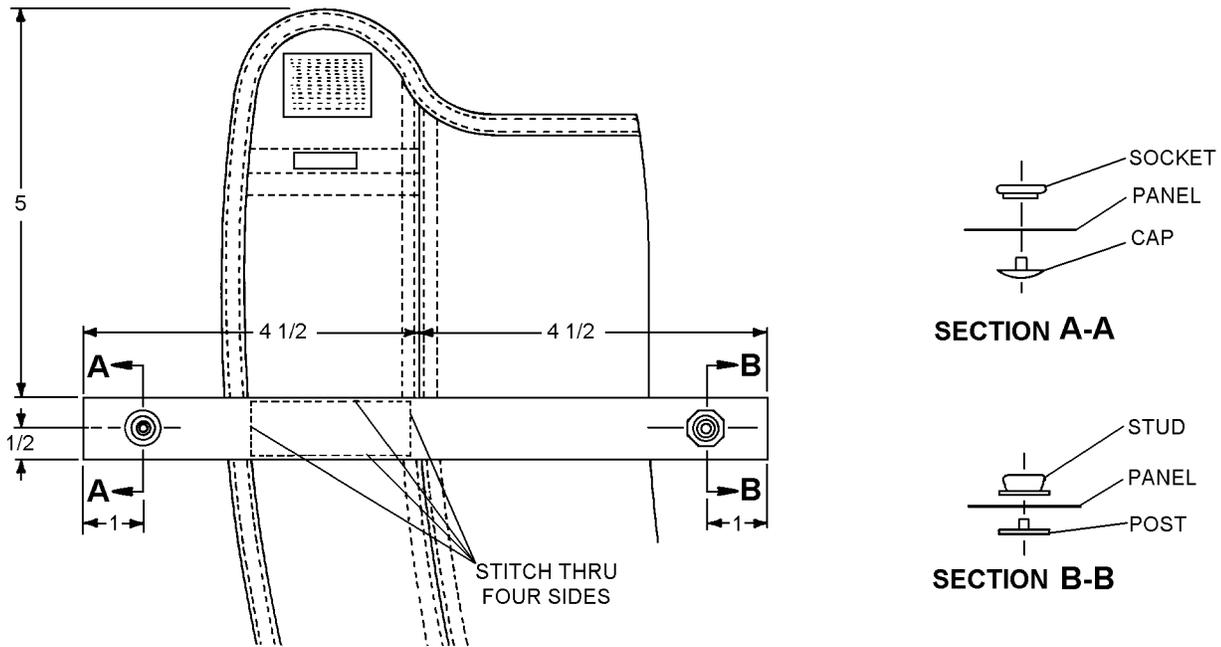
Materials Required

Quantity	Description	Reference Number
1	Socket, Snap Fastener	MS27981-3B NIIN 00-276-4966
1	Cap, Snap Fastener	MS27981-1B NIIN 00-276-4954
As Required	Cloth, Nylon, Polychloroprene-coated, Type I, Sage Green	MIL-C-19002 NIIN 00-935-1759
As Required	Thread, Stitching, Nylon, Type I or II, Size E	V-T-295 NIIN 00-240-3884
As Required	Tape, Binding, Nylon, 3/4-inch Wide, Sage Green 1551 Type III	MIL-T-5038 NIIN 00-176-8083

1. Cut basic locking pin cover from polychloroprene cloth or nylon cloth of dimensions shown in figure 16-16. Define form of locking pin cover using appropriate end of casing waist lobe assembly as pattern.

2. Reinforce fabric with single row stitching around entire perimeter of locking pin cover.

3. Apply 3/4 inch binding tape to perimeter of cover as shown in figure 16-16.



10160015

Figure 16-15. Addition of Webbing Loops

NOTE

Binding tape may be in one continuous strip or two sections.

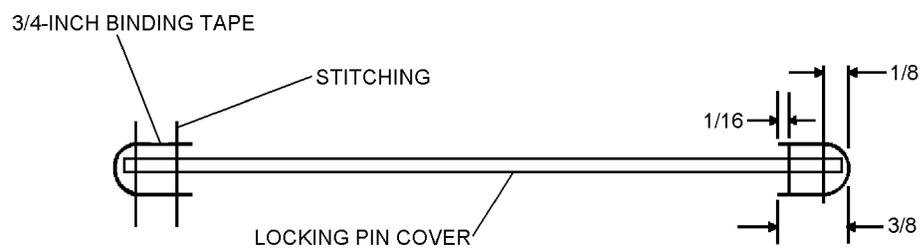
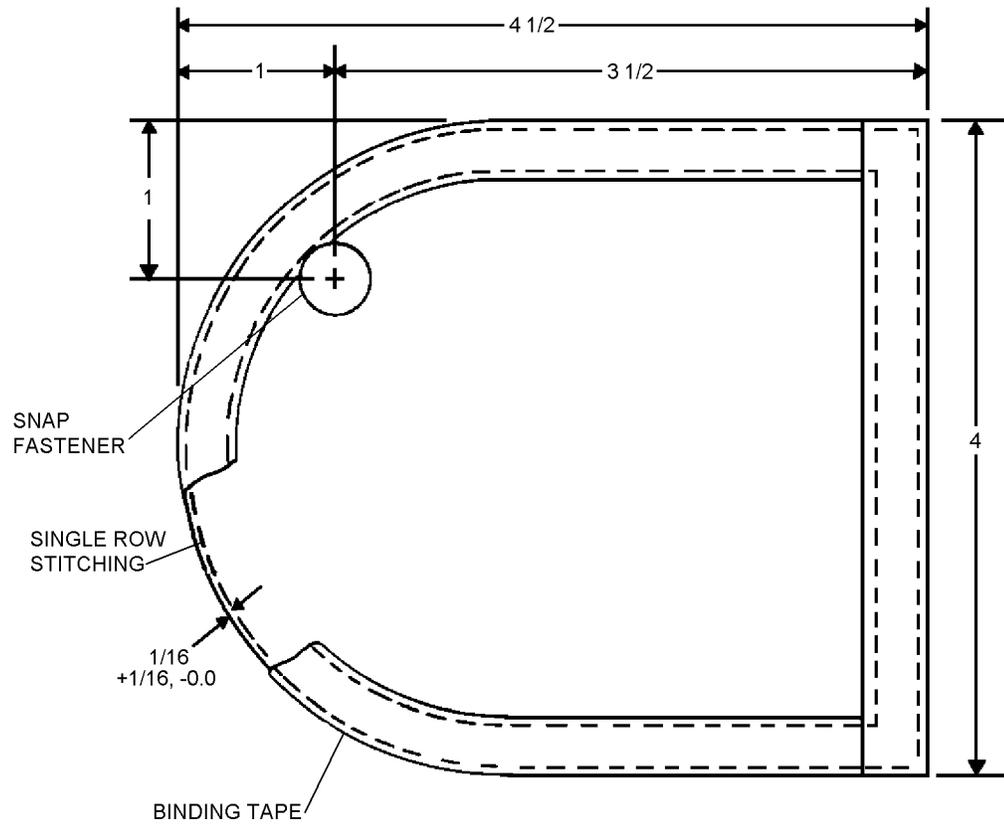
4. Align locking pin cover with mating surface of casing assembly and install in accordance with [figure 16-17](#).

5. Mark snap fastener alignment and install locking pin cover, snap fastener socket and button.

NOTE

When properly aligned with casing assembly, the straight edge of locking pin cover will be butted 1/8 inch from edge of beaded inflation handle snap fastener stud installation (casing main panel subassembly).

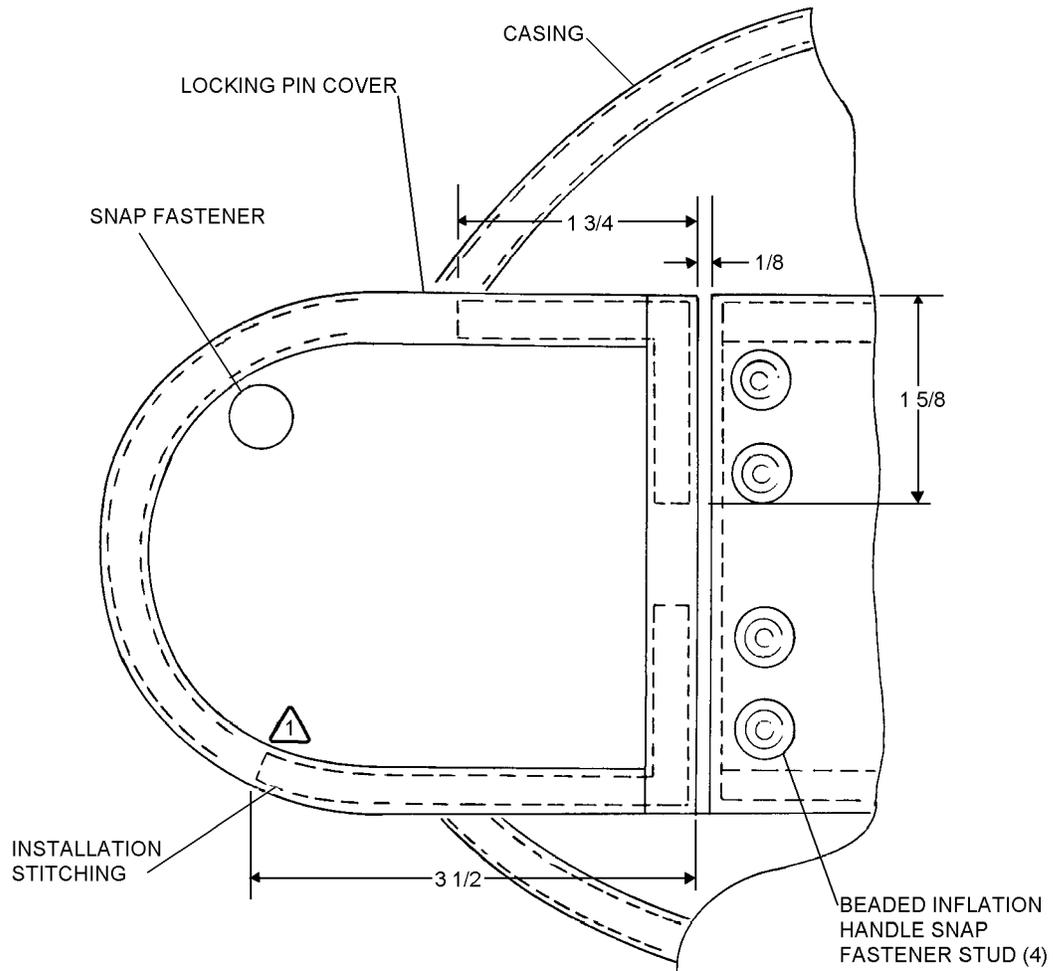
16-83. Deleted.



BINDING TAPE INSTALLATION

RIGHT HAND SHOWN - LEFT HAND OPPOSITE

Figure 16-16. Fabrication of Locking Pin Cover



RIGHT HAND SHOWN - LEFT HAND OPPOSITE

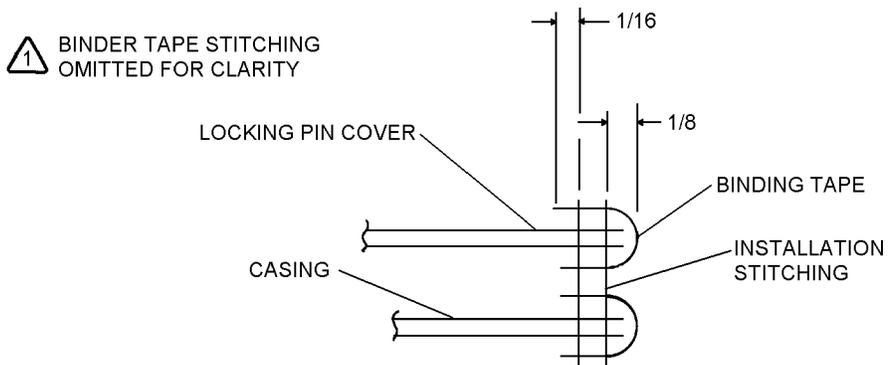


Figure 16-17. Locking Pin Cover Installation

10160017

Figure 16-18 Deleted.



16-84. PACKING PROCEDURES FOR LPU-23/P SERIES LIFE PRESERVER ASSEMBLY.

16-85. The LPU-23/P series shall be packed by qualified personnel at the intermediate maintenance level. For cleaning and servicing procedures, refer to [paragraph 16-51](#).

16-86. To pack the LPU-23/P series life preserver assembly, proceed as follows:

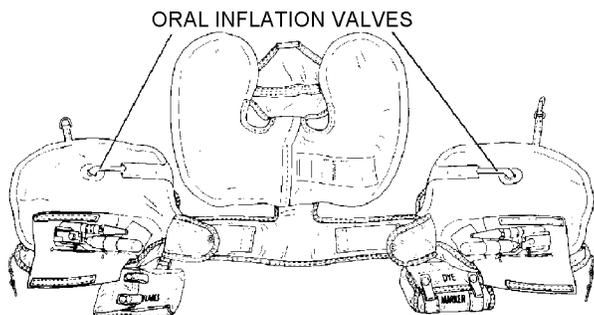
Materials Required

Quantity	Description	Reference Number
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589
As Required	Cord, Nylon Type I	MIL-C-5040 NIIN 00-240-2154
As Required	Thread, Nylon Size A	V-T-295 NIIN 00-240-3803
As Required	Thread, Nylon Size E	V-T-295 NIIN 00-240-3884

1. Ensure that life preserver has been inspected in accordance with [paragraph 16-22](#) of this manual.

2. Prior to packing, ensure that chambers are thoroughly deflated. Ensure all bladder surfaces front and rear are lightly dusted with talc.

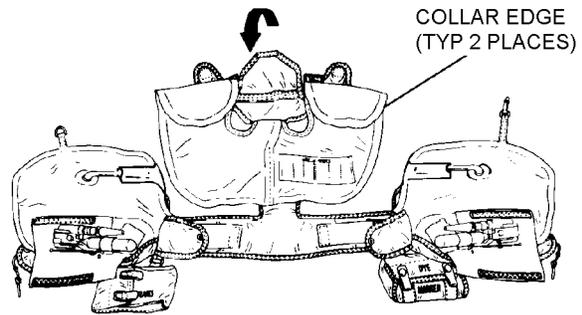
3. Oral inflation valve shall be locked by knurled ring and placed in oral inflation valve pocket. Position life preserver assembly with collar panel folded down.



Step 3 - Para 16-86

P0086003

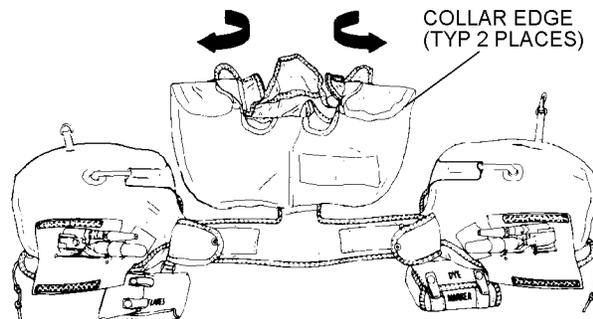
4. Insert collar snaphooks through slots in collar casing and fold collar edge over slots in casing.



Step 4 - Para 16-86

P0086004

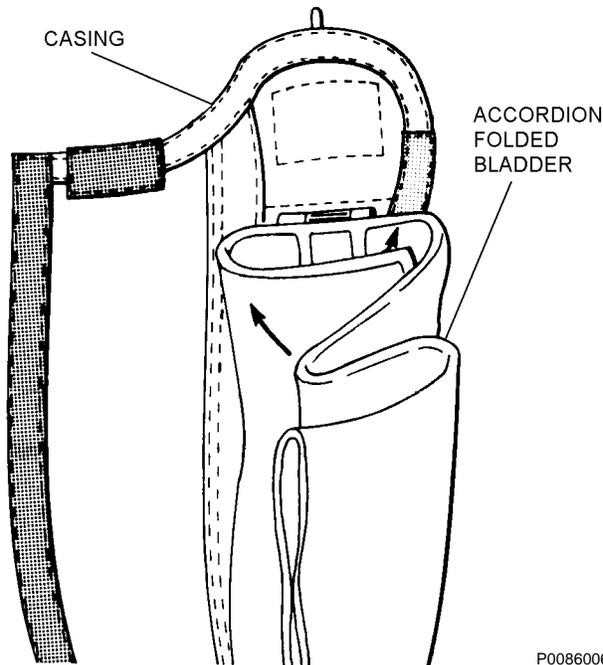
5. Fold over edge of collar panels.



Step 5 - Para 16-86

P0086005

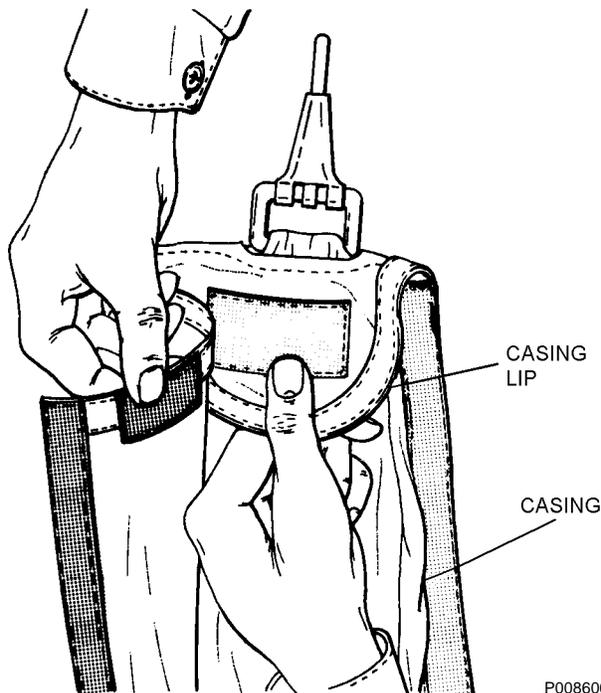
6. Accordion-fold sides of collar lobes into the collar casing.



Step 6 - Para 16-86

P0086006

7. Tuck in casing lip and secure collar casing with hook and pile tape.



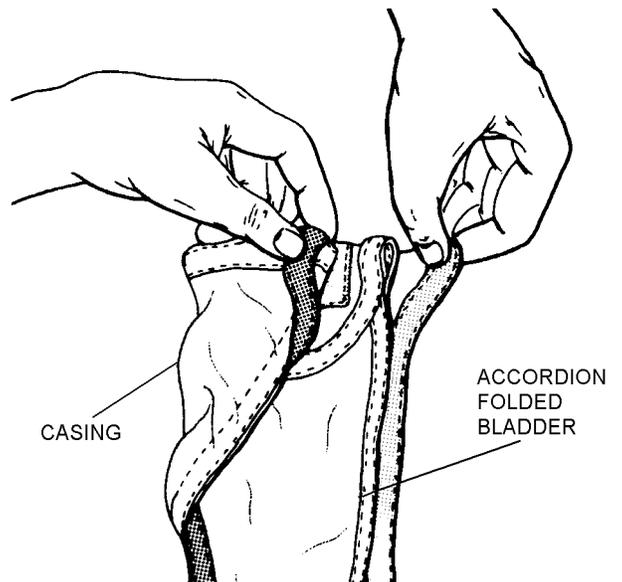
Step 7 - Para 16-86

P0086007

NOTE

The unsewn 3/8- to 1/2-inch end tab of hook tape located on the front edge of the collar lobe casing shall be attached to the mating pile tape on the collar casing cover.

8. Close collar lobe section by engaging the 3/8 to 1/2-inch unsewn portion of hook tape to pile tape on casing cover.

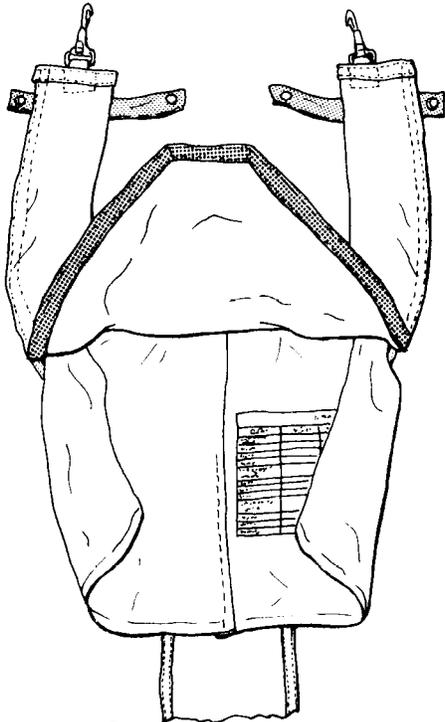


Step 8 - Para 16-86

P0086008

NAVAIR 13-1-6.1-2

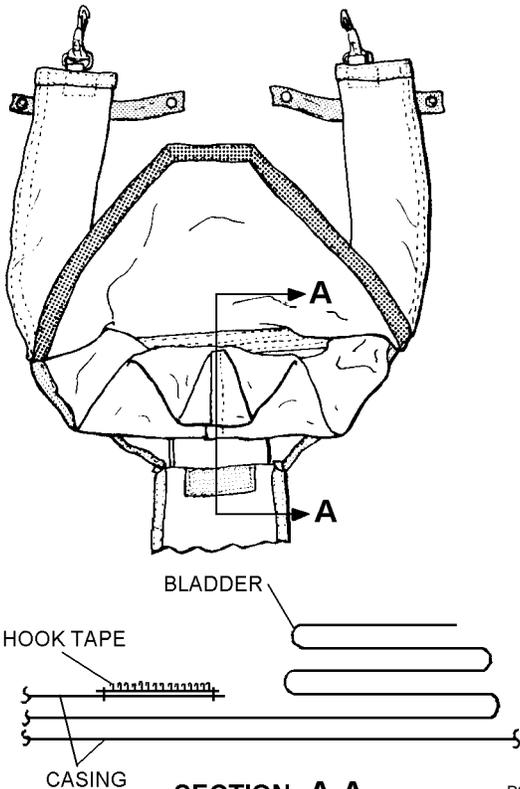
9. Secure hook and pile tape approximately 8 inches along casing cover edge, securing the accordion-folded bladder within casing cover.



Step 9 - Para 16-86

P0086009

10. Accordion-fold bottom of collar lobe into collar casing.



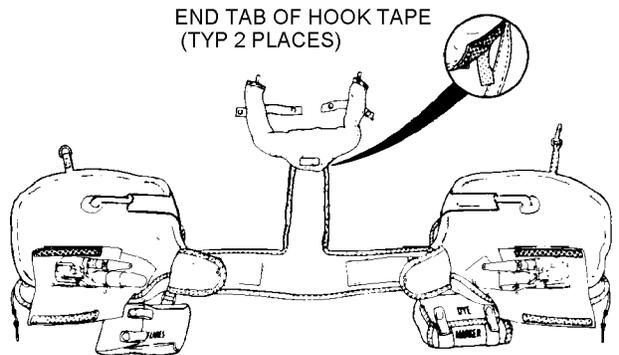
SECTION A-A
Step 10 - Para 16-86

P0086010

NOTE

The unsewn 3/8- to 1/2-inch end tab of hook tape located on the rear edges of the collar lobe casing shall be attached to the mating pile tape on the collar casing cover.

11. Continue securing hook and pile tape along casing cover edge and casing lip, ending on unsewn end tabs of hook tape, completely enclosing collar lobe bladder within casing cover. Ensure all hook tape is engaged with pile tape and not exposed.



Step 11 - Para 16-86

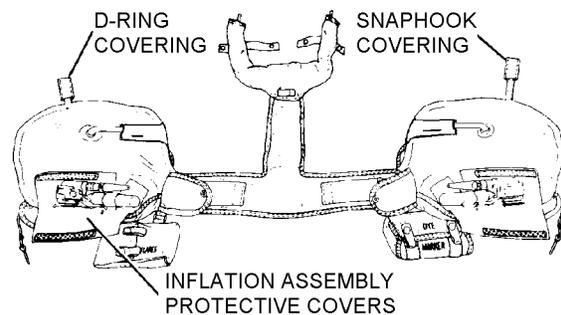
P0086011

WARNING

The packaging cord closure loops on both inflation assemblies must be routed under the manual actuating lever, under the valve guide arm, then up through the valve guide arm hole. See figure 16-13.

Ensure that rubber bands are not used to retain slip-on pockets to D-ring and snap-hook fittings.

12. Insert snaphook and D-ring on waist lobes into slip-on pockets.



Step 12 - Para 16-86

P0086012

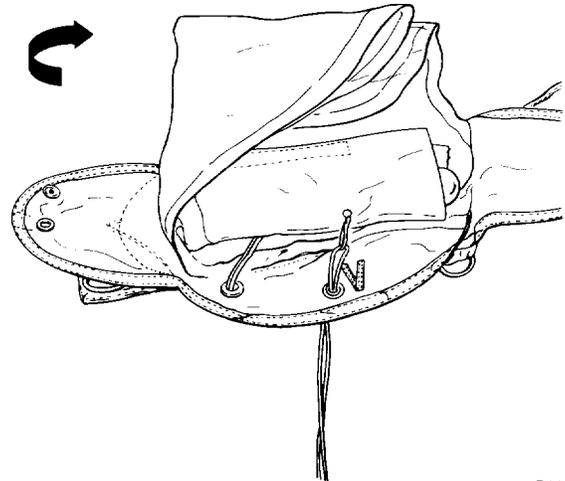
13. Ensure that beaded handle with inflation lanyard is through 2 1/4-inch slot in protective cover, then route packaging cord loop through 3/8-inch diameter hole in protective cover. Secure protective cover using hook and pile tape.

NOTE

Packing cord shall be used to aid in closing life preserver casing.

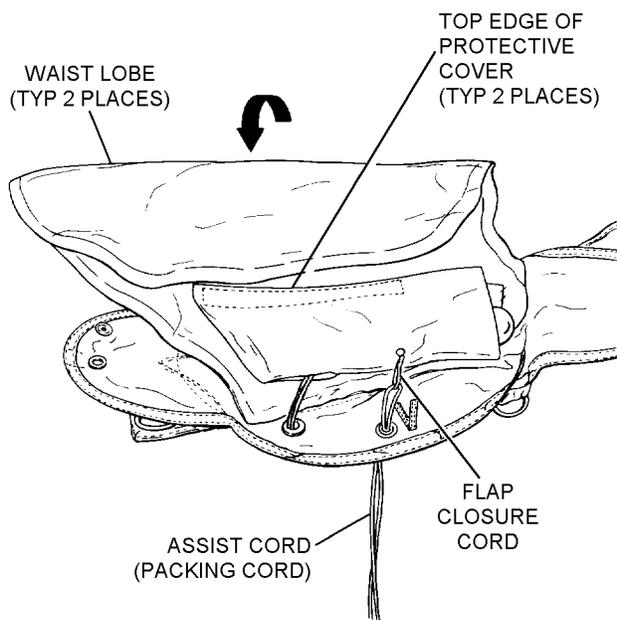
14. Insert a 2-foot piece of Type I nylon cord through packaging cord loop. Insert ends of packing cord through grommet in bottom casing flap. Make first fold in waist lobe by bringing top of lobe over to top edge of protective cover.

15. Fold outboard of waist lobe in, clearing outer casing flap.



Step 15 - Para 16-86

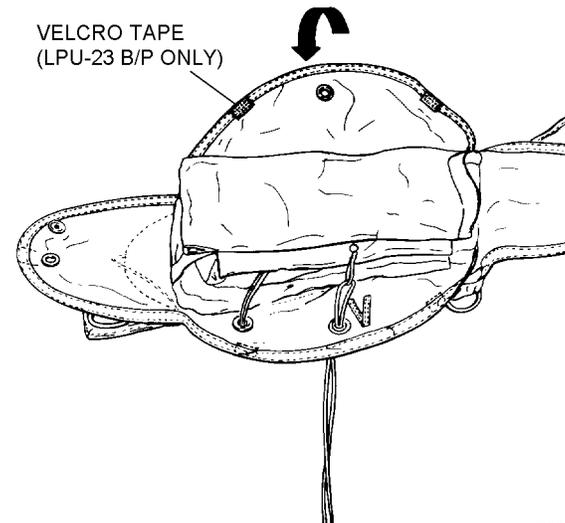
P0086015



Step 14 - Para 16-86

P0086014

16. Fold waist lobe over to bottom edge of protective cover.



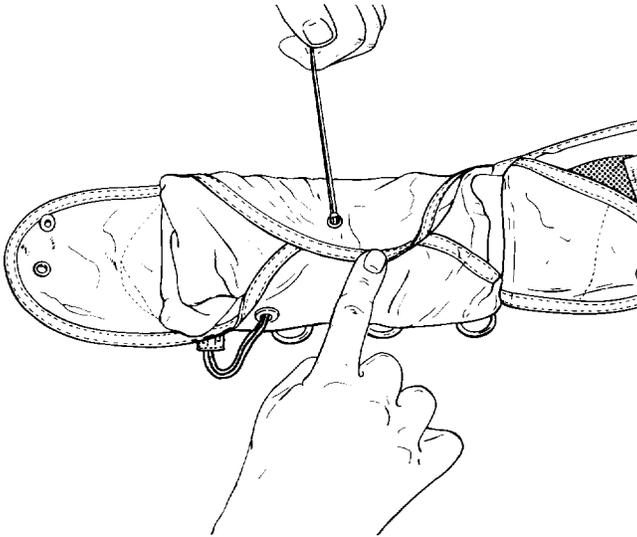
Step 16 - Para 16-86

P0086018

17. Pass ends of assist cord through grommet in upper casing flap, and bring bottom flap over folded waist lobe.

NAVAIR 13-1-6.1-2

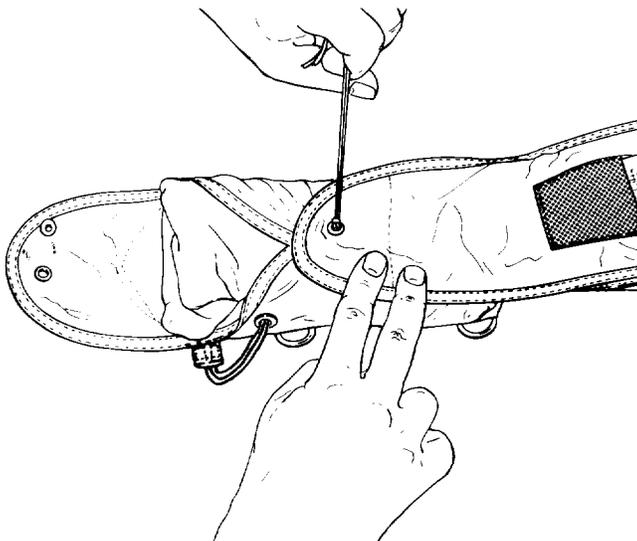
18. Fold upper casing flap over bottom casing flap, and pull free end of packaging cord loop through grommet. Ensure velcro hook and pile strips mate (LPU-23B/P only).



Step 18 - Para 16-86

P0086018

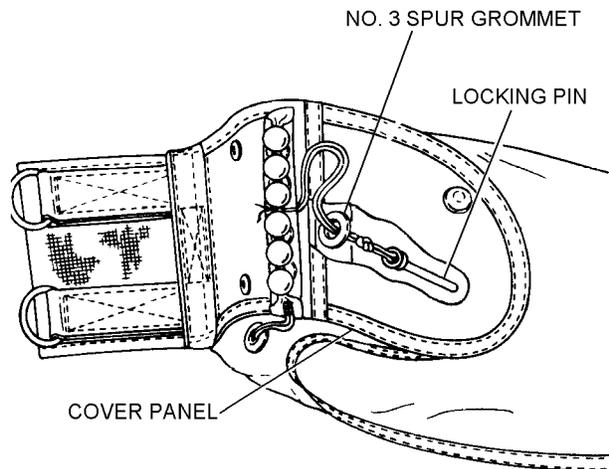
19. Thread packing cord through inboard flap grommet. Pull packaging loop through grommet.



Step 19 - Para 16-86

P0086019

20. Route locking pin under locking pin cover flap and through No. 3 spur grommet.



NOTE: LEFT LOBE SHOWN

P0086020

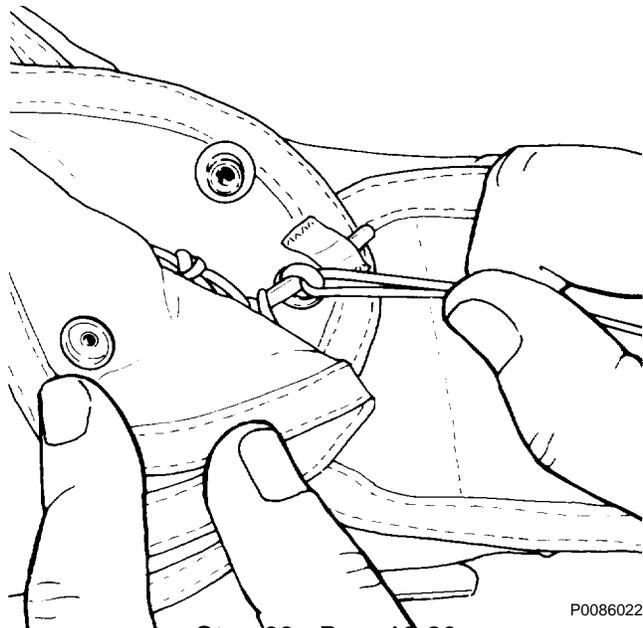
Step 20 - Para 16-86

21. (LPU-23B/P assembly) Route locking pin under locking pin cover flap. Webbing panel and spur grommet have been deleted on newly procured life preserver assemblies.

WARNING

To avoid possible injury when closing casing of right waist lobe, do not place palm of hand on waist closure snaphooks.

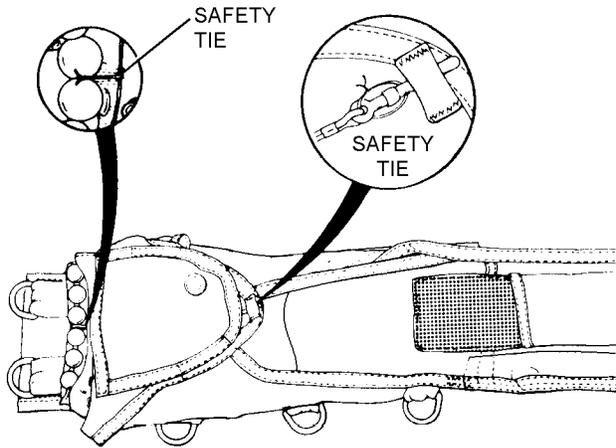
22. Fold outboard casing flap over, passing packing cord through grommet. Pull packaging loop through grommet. Insert locking pin through packaging loop and into pin keeper loop. Remove packing cord.



Step 22 - Para 16-86

P0086022

23. Safety-tie eye of locking pin by passing one turn of size A nylon thread through eye of pin, around packaging cord loop, then under pin. Safety-tie beaded inflation handle with one turn of size E nylon thread, single. Draw threads sufficiently to permit 1/2 ± 1/8-inch space between the middle beads and webbing on the preserver. Tie ends of both safety ties with a surgeon's knot followed by a square knot.



P0086023

Step 23 - Para 16-86

24. Close pin protector flap.

NOTE

NAVAIR 13-1-6.5, Rescue and Survival Equipment, contains information on inspection and replacement of survival items.

25. When required, ensure survival items have been inspected for expiration and damage.

NOTE

Each survival item shall be secured to the snap fastener tab of its respective pouch with a 36-inch length (DYE MARKER) or 80-inch length (FLARES) of nylon cord (MIL-C-5040, Type I). Sear ends of each cord.

26. When required, insert two dye markers into pouch labeled DYE MARKER. Insert two Marine Smoke and Illumination Signals into pouch labeled FLARES. Fake excess line and secure with rubber bands.

27. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

Section 16-4. Illustrated Parts Breakdown (IPB)

16-87. GENERAL.

16-88. This section lists and illustrates the assemblies and detail parts of the LPU-23A/P and LPU-23B/P

components. For information on the LPU-23C/P, see [Chapter 18](#).

16-89. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.

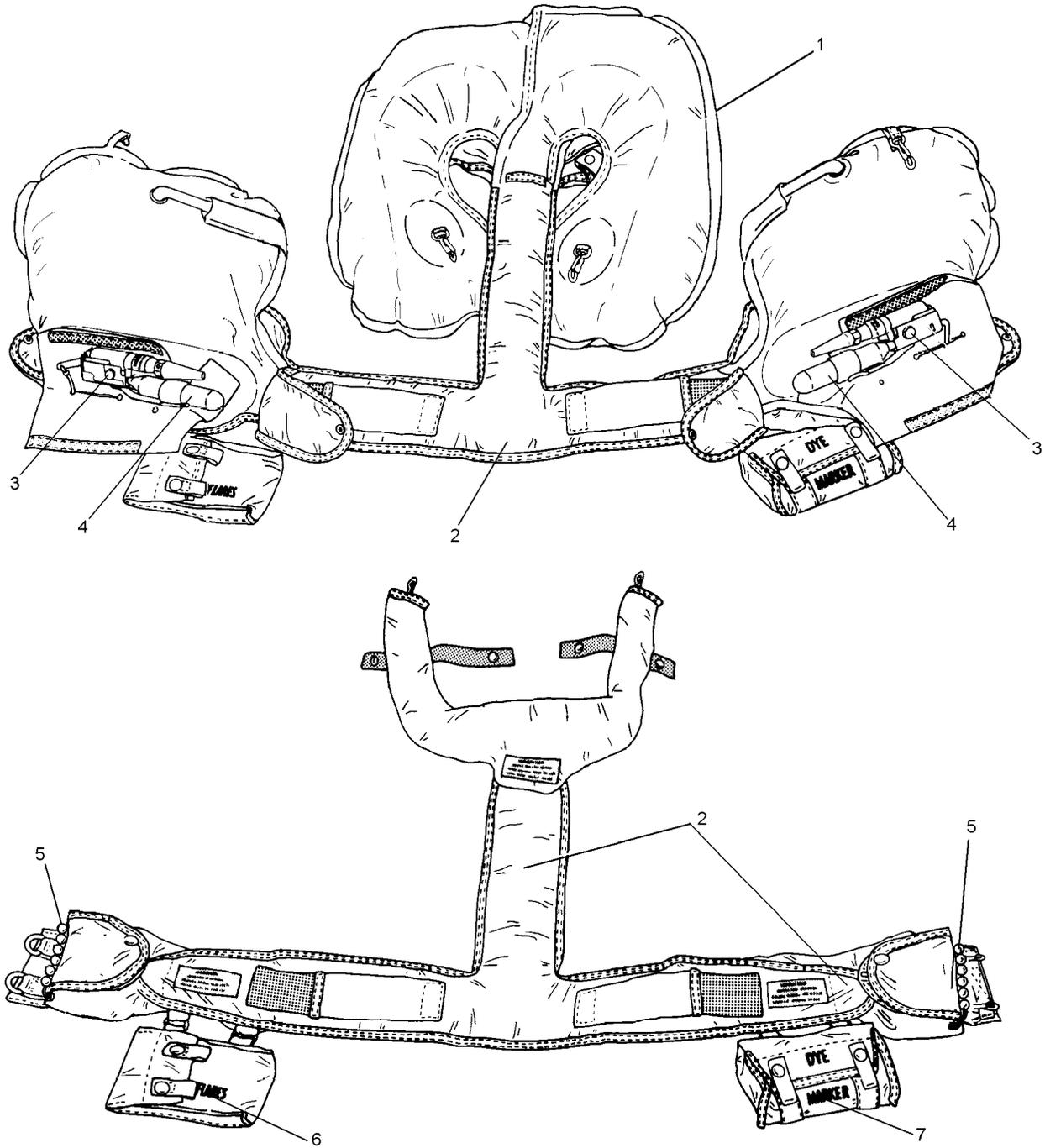


Figure 16-19. LPU-23/P Series Life Preserver, Illustrated Parts Breakdown

10160019

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
		1 2 3 4 5 6 7		
16-19	No Number	LPU-23A/P and LPU-23B/P SERIES LIFE PRESERVER	REF	
-1	68A73H1-102 (NIIN 01-138-4329)	. INFLATABLE LIFE PRESERVER LPU-23A/P (Note 3)	1	A
	68A73H1-104 (NIIN 01-138-4329)	. INFLATABLE LIFE PRESERVER LPU-23B/P (Note 3)	1	B
-2	975AS103-302 (NIIN 01-120-4753)	. . CASING ASSEMBLY, LPU-23A/P	1	A
	975AS103-304 (NIIN 01-120-4753)	. . CASING ASSEMBLY, LPU-23B/P	1	B
-3	849AS153 (NIIN 01-364-4089)	. . INFLATION ASSEMBLY, FLU-8B/P	2	
	849AS103	. . . BATTERY, 6-Volt, Manganese Dioxide	4	
	1122-095	. . . SLEEVE, Battery Insulating (Note 4)	1	
	1813-044-02	. . . SENSOR PLUG CAP, FLU-8B/P	2	
	105AS100-3	. . . GASKET, Top (30003) (Note 1)	2	
	105AS100-4	. . . GASKET, Bottom (30003) (Note 1)	2	
	NIIN 01-046-3300	. . . SEAT SEAL, O-Ring, Multi	2	
	1138-003-01 (NIIN 01-584-0265)	. . . PACKAGING CORD LOOP	2	
-4	MIL-C-25369 (NIIN 01-077-8773)	. . . CO ₂ CYLINDER, Type III, 35 Gram	2	
-5	975AS121-11 (NIIN 01-120-4752)	. . . BEADED INFLATION HANDLE, Type I	2	
-6	68A73D3-61 (NIIN 01-123-2194)	. . FLARE POUCH ASSEMBLY (Note 2)	1	
-7	68A73D2-41 (NIIN 01-124-3806)	. . DYE MARKER POUCH ASSEMBLY (Note 2)	1	
<p>Notes: 1. Valve Stem Kit, P/N 105AS100-6, NIIN 00-113-8290, contains one top and one bottom gasket.</p> <p>2. Optional equipment at the discretion of the Squadron Commander.</p> <p>3. No longer available in supply. Must order LPU-23C/P.</p> <p>4. The battery insulating sleeve is not a stocked item. After installation directed by Aircrew Systems Bulletin 976, it becomes part of the FLU-8B/P Unit. Replacement sleeves are issued by Indian Head Division, NSWC.</p>				

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code
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Part Number	Figure and Index Number	SM&R Code
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MIL-C-25369	16-19-4	PAGZZ
NIIN 01-046-3300	16-19-3	
105AS100-3	16-19-3	
105AS100-4	16-19-3	
1122-095	16-19-3	
1138-003-01	16-19-3	PA--Z
1618-012-01	16-19-3	PA--Z
68A73H1-102	16-19-1	PAOGG

68A73H1-104	16-19-1	PAOGG
68A73D2-41	16-19-7	PAGZZ
68A73D3-61	16-19-6	PAGZZ
849AS103	16-19-3	PA--Z
849AS153	16-19-3	PA--Z
975AS103-302	16-19-2	PAGZZ
975AS103-304	16-19-2	PAGZZ
975AS121-11	16-19-5	PAGZZ