

CHAPTER 23

POUCH TYPE LIFE PRESERVER ASSEMBLY

Section 23-1. Description

23-1. GENERAL.

23-2. The Pouch Type Life Preserver Assembly is authorized for use by all troop passengers on Marine Corps helicopters for sea survival situations.

23-3. CONFIGURATION.

23-4. The Pouch Type Life Preserver Assembly weighs two pounds and provides a minimum of 29 pounds of buoyancy. The Pouch Type Life Preserver Assembly consists of a single compartment flotation assembly, an inflation assembly, belt, hoisting strap and a pouch. Survival items included with life preserver are listed in table 23-1. To make up the Pouch Type Life Preserver Assembly, all required components not supplied with the preserver must be requisitioned.



Use only Polychloroprene adhesives and Polychloroprene-coated cloth and patches on Polychloroprene-coated Pouch Type life preserver assemblies.

23-5. The flotation assembly is constructed of polychloroprene-coated nylon cloth. It is equipped with an oral inflation valve, a valve stem, emergency signal light attachment loop, a belt retainer and inflation assembly protective flap. See figure 23-1.

23-6. The rubber-coated nylon cloth pouch contains the flotation assembly and survival items. The waist belt consists of cotton webbing, a buckle and two slide adjusters. The hoisting strap attached to the waist buckle consists of nylon webbing and one slide adjuster. The belt secures the flotation assembly and pouch to wearer by means of the belt loop on the flotation assembly and the slots in the back of the pouch. The lifeline assembly tied

to the belt consists of a wooden toggle and line and is used to secure survivors together while they are in the water. When not in use, the lifeline is wrapped around the wooden toggle and stowed in the pouch with other survival items.

23-7. The inflation assembly consists of a Type I, 25-28 gram CO₂ cylinder and an inflation valve. The inflation assembly is connected to the valve stem on the front of the flotation assembly. The valve stem is equipped with a check valve which prevents leakage.

23-8. APPLICATION.

23-9. The Pouch Type Life Preserver Assemblies are authorized for use by all troop passengers on Marine Corps helicopters. The LPU-32/P is an authorized substitute for the Pouch Type Life Preserver.

23-10. FUNCTION.

23-11. The Pouch Type Life Preserver is manually inflated by pulling the inflation assembly lanyard down. In an emergency situation, the oral inflation valve should be used to top-off an inflated preserver, maintain inflation of a leaky preserver or to inflate a preserver when the inflation assembly malfunctions or fails. The oral inflation valve is also used to inflate a preserver with air during an inspection test and to deflate a preserver in preparation for packing.

NOTE

The pouch must be opened and the flotation assembly unrolled prior to inflation through the oral inflation valve or inflation assembly.

23-12. DONNING PROCEDURES.

23-13. To don the Pouch Type Life Preserver, refer to figure 23-2.

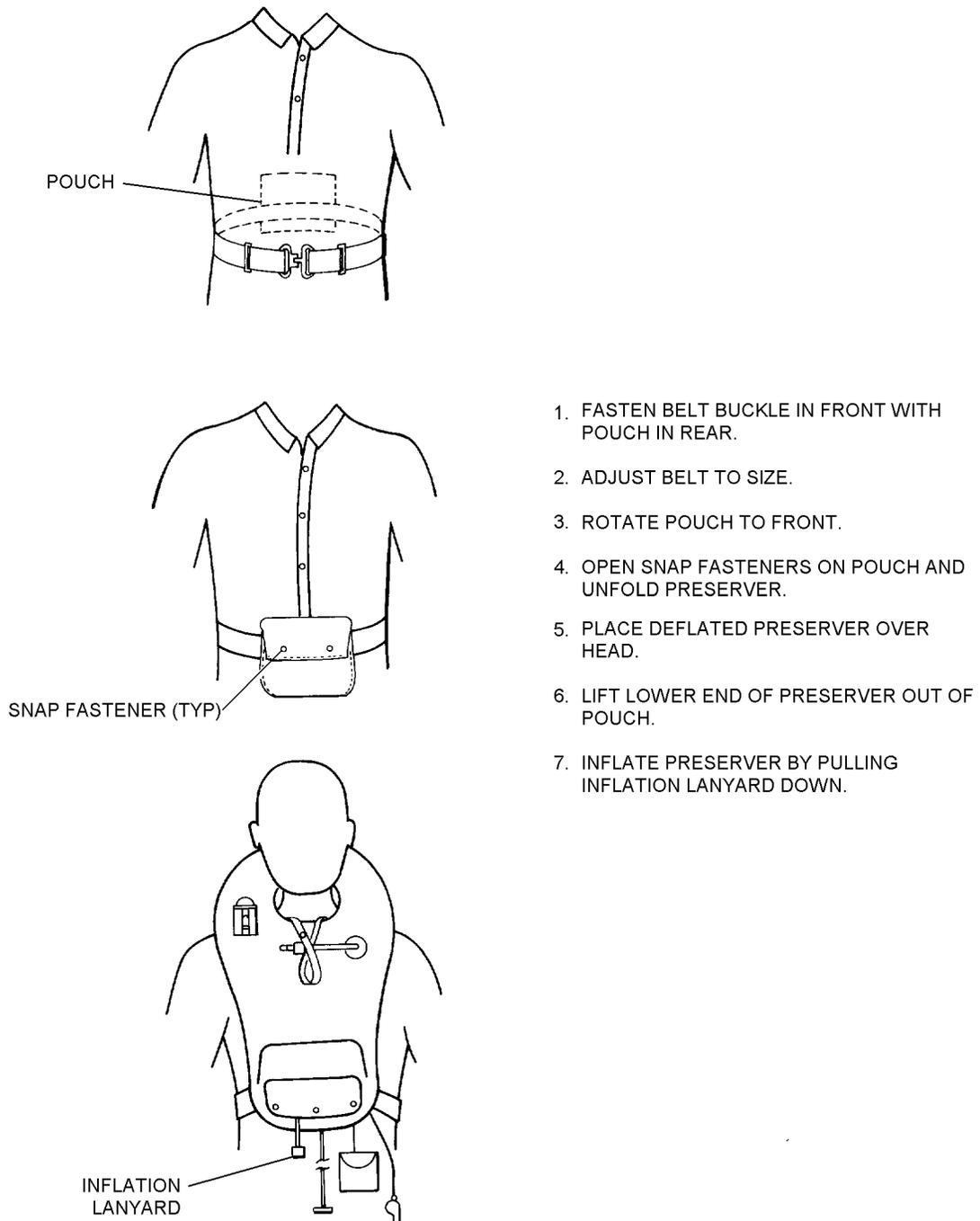


Figure 23-2. Donning Procedure

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Table 23-1. Pouch Type Survival Items

Description	Quantity Required	Reference Number	NIIN	SM&R Code
Whistle, Type II (Note 1)	1	MIL-W-1053	00-254-8803	PAOZZ
Dye Marker (Note 1)	1	MIL-S-17980	00-270-9986	PAOZZ
Distress Signal Light (Type II) (Note 1) (Note 2)	1	MIL-L-573B	00-255-0166	PAOZZ
Light, Chemiluminescent (Note 2)	1	P/N 9-27058	01-086-8077	PAOZZ

Notes: 1. Items are included in accessory kit NIIN 00-025-9160.
 2. Chemical light is authorized and shall be the preferred light. Distress signal light may be used if chemical light is not available.
 3. The Passenger Helicopter Aircrew Breathing Device System (PHABD) is authorized for use on the Pouch Type Preserver (PTP) for Marine troop passengers during flights over water. Refer to NAVAIR 13-1-6.5 for attachment and maintenance procedures.

Section 23-2. Modifications

23-14. GENERAL.

pairs and fabrications to maintain serviceability are listed in [table 23-2](#).

23-15. There are no authorized modifications to the pouch type life preserver at this time. Common re-

Table 23-2. Pouch Type Common Repairs and Fabrications

Description of Repair or Fabrication	Paragraph Number
Determination of Repairability	23-50
Cementing Life Preserver	23-52
Patching Life Preserver	23-53
Replacement of Oral Inflation Valve	23-55
Replacement of Lanyard Cord	23-56
Replacement of Defective Plastic Snap Fastener with Metal Snap Fasteners	23-57
Repair of Corroded CO ₂ Inflation Valve	23-58
Replacement of Top and Bottom Gaskets	23-59
Replacement of Check Valve Assembly	23-60
Fabrication of Hoisting Strap	23-61
Repair/Fabrication of Lifeline and Toggle Assembly	23-62

Section 23-3. Maintenance

23-16. GENERAL.

23-17. This section contains information on inspection, disassembly repair/replacement, testing, and re-assembly of the Pouch Type preserver.

23-18. INSPECTION.

23-19. All life preservers shall be subjected to Preflight, Special and Calendar/Phase Inspections.

23-20. 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.

23-21. 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.

23-22. Upon completion of the inspection, make necessary entries 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.

23-23. 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. If inspection indicates damage, complete appropriate forms in accordance with OPNAVINST 4790.2

Series and forward entire assembly to supply. Refer to [paragraph 23-50](#) for determination of reparability.

23-24. 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 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.

23-25. PREFLIGHT/SPECIAL INSPECTION. To perform a Preflight/Special Inspection, proceed as follows:

WARNING

Ensure that the inflation pull toggle is readily accessible. The pull toggle shall extend from the protective cover flap.

CAUTION

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

1. Inspect exposed metal parts for corrosion and damage.

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2. Inspect inflation assembly for presence of safety wire and CO₂ cylinders.

3. Inspect seams and harness for wear, snags, tears and abrasions.

4. Inspect for presence, security of attachment and, if applicable, operation of survival items.

5. If any discrepancy is noted, the preserver shall be removed from service and repaired in accordance with procedures in this chapter.

23-26. ACCEPTANCE/CALENDAR/PHASE INSPECTION. The Acceptance/Calendar/Phase Inspection consists of the following tasks:

1. Inflation Knob Inspection
2. Bladder/Pouch Inspection
3. Functional Test (every fourth inspection cycle)
4. Visual Inspection
5. Life Preserver Configuration
6. General Inspection
7. Markings Inspection
8. Survival Items Inspection
9. Inflation Assembly Inspection
10. Inflation Lanyard Inspection
11. Leakage Test
12. Records Updating

23-27. INFLATION KNOB INSPECTION. Inspect inflation knob for the following:

1. Attachment of inflation lanyard to knob.
2. Cuts, tears, deterioration, abrasion, stains, and general cleanliness of lanyard.
3. Presence of safety tie on inflator lever.

23-28. BLADDER/POUCH INSPECTION. To inspect bladder 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.

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.

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

23-29. FUNCTIONAL TEST. To perform a functional test, proceed as follows:



Ensure area surrounding preserver is free of foreign objects.

1. Open storage container and remove preserver. Unfold preserver prior to conducting functional test, and completely lay out flat, over storage container.

2. Actuate inflation assembly.

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 23-30 to remove all CO₂.

23-30. 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. Unlock oral inflation valve, hold in open position, and hold vacuum pump hose against end of oral inflation valve. When compartment is collapsed, release oral inflation valve. Screw lock closed.

23-31. VISUAL INSPECTION. Prior to visually inspecting a life preserver assembly, the life preserver shall be inflated with air to 1.0 psig.



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

NOTE

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

23-32. LIFE PRESERVER CONFIGURATION. The life preserver shall be updated by comparing it to the configuration illustrations and tables contained in this chapter.

23-33. GENERAL INSPECTION. Examine life preservers for the following:

NOTE

Refer to the referenced paragraph number where applicable, at end of inspection for repairs.

1. Preserver for cuts, tears, punctures, deterioration and abrasion. Refer to paragraph 23-50 for repair instructions.

2. Seal for proper adhesion. Refer to paragraph 23-50 for repair instructions.

3. Valve inlet stem for security.

4. Inflator and cylinder for security and corrosion. Refer to paragraph 23-58.

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

7. Any other parts for wear or other damage.

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

9. Preservers for stains, dirt, and general cleanliness. Refer to paragraph 23-42 for cleaning instructions.

10. Cross threading and/or loose manifold nuts.

23-34. 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 figure 23-3.

2. Restore any faded markings.

3. Deleted.

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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.

23-35. SURVIVAL ITEMS INSPECTION. To inspect survival items, proceed as follows:

1. Inventory all items by checking items against [table 23-1](#). 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.

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

23-36. INFLATION ASSEMBLY INSPECTION. To inspect life preserver inflation assembly, proceed as follows:

1. Loosen CO₂ cylinder locking screw, if present, and remove CO₂ cylinder from valve assembly.

2. Examine inflation device, actuating lever and lanyard, and for 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 to ensure that lever moves freely and 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.

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 23-29](#). Use new gaskets when replacing device.

5. If any discrepancy is noted in device that is not repairable in accordance with [paragraph 23-58](#), remove assembly and install a new inflation device.

6. If CO₂ cylinder locking screws are installed, remove them.

23-37. INFLATION LANYARD INSPECTION. To perform the inflation lanyard inspection, proceed as follows:

1. Ensure that CO₂ cylinders have been removed. Actuate inflation assembly.

2. Examine inflation lanyard for frays, ruptures, thin spots, split casing, and security of knots.

3. Replace unsatisfactory inflation lanyard.

4. Safety-wire inflation assembly in accordance with [paragraph 23-46](#).

Table 23-3. Pouch Type Life Preserver Markings

Marking	Location	Letter Height
DATE OF MANUFACTURE [month and year] CONTRACT OR ORDER NO. [applicable number] SPECIFICATION NO. [applicable number] MANUFACTURERS NAME AND TRADEMARK PROPERTY - U.S. NAVY	Upper portion of marking patch (outside front) and outside surface of pouch flap.	1/4 inch
Notes: 1. Replacement markings shall be stamped or stenciled using waterproof black ink.		

23-38. 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 23-40](#).

23-39. 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](#). Test fixtures must be fabricated to meet the requirements of the schematic shown in [figure 23-3](#).

23-40. Test Procedure. To test life preservers, proceed as follows:

Support Equipment Required

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



Ensure test area is free of foreign objects.

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



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

Refer to [step 3](#) for test pressures.

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 of test fixture. 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.

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

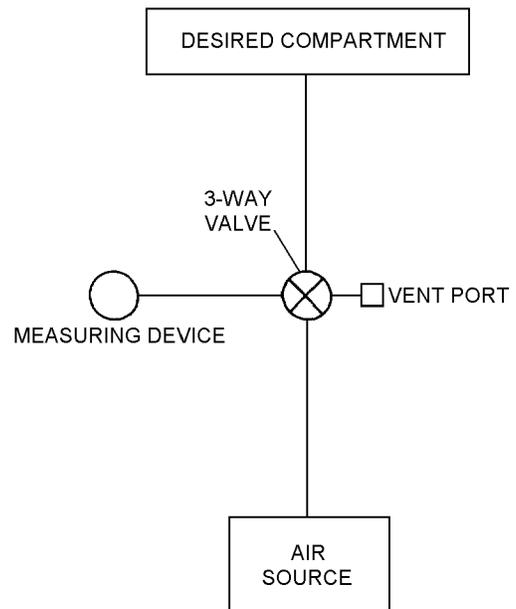


Figure 23-3. Test Fixture Schematic

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7. Record temperature and barometric pressure and correct test pressure for any changes in temperature and barometric pressure. Refer to [tables 23-4 and 23-5](#).

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

Step 7 - Para 23-40

W0040007

Table 23-4. 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 23-53](#).

9. Deflate preserver in accordance with [paragraph 23-30](#).

10. Ensure that inflation valve lever is cocked. Install CO₂ cylinder in accordance with [paragraph 23-45](#).

23-41. RECORDS UPDATING. Make necessary entries on appropriate form in accordance with OPNAV-INST 4790.2 Series.

23-42. CLEANING AND SERVICING.

23-43. Cleaning and servicing consist of cleaning the life preserver, bladder and/or pouch, installation of the inflation valve protective cover, CO₂ cylinder, and when required, safety wiring of the inflation valve actuating lever.

23-44. CLEANING OF LIFE PRESERVER BLADDER. To clean life preservers, machine washing is preferred on 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.

Table 23-5. 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.

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

23-45. INSTALLATION OF CO₂ CYLINDERS. To install CO₂ cylinders, proceed as follows:

Materials Required (Cont)

Notes: 1. Seat Seal is obtained from Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, which contains two top, two bottom, and two seat seal gaskets.

NOTE

Weight of charged cylinder will vary according to manufacturer.

1. Weigh a charged 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 the inflation assembly is an inflation valve (S9300-1411524) using a 25 to 28 gram CO₂ cylinder (MIL-C-25369, Type I, NIIN 00-372-0585), or an inflation valve, Type II (NIIN 00-561-0094) using a 28 to 31 gram CO₂ cylinder (MIL-C-225369, Type II, NIIN 00-543-6693).

3. Loosen inflator setscrew(s) if installed. Ensure that inflator lever is in a closed position.

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

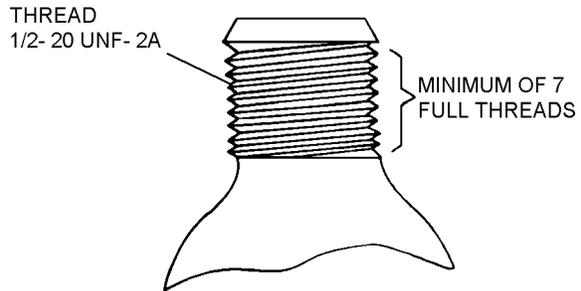
Materials Required

Quantity	Description	Reference Number
1	Valve Stem and Seat Seal Kit (Not E)	105AS100-5 (CAGE 30003) NIIN 00-498-6964

CAUTION

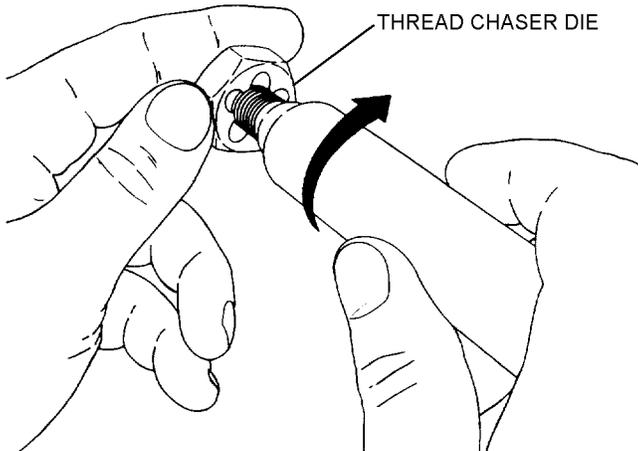
Steel threads on CO₂ cylinder can cause damage to aluminum threads on inflator if cylinder is not carefully threaded. If binding occurs during installation of cylinder, use thread chaser die on cylinder thread to cut free excessive plating. Reinstall cylinder. If binding still occurs, replace cylinder.

4. 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 23-4.



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Figure 23-4. Cylinder Thread Count



W0045004

Step 4 - Para 23-45

5. After performing functional test, insert a new seat seal gasket. At intermediate inspection intervals, inspect condition of gasket and replace if necessary.

6. Install CO₂ cylinder into inflator body as far as hand twisting will permit. Tighten setscrews, if installed.

NOTE

When replacing CO₂ cylinder to inflator, ensure that CO₂ cylinder passes through the holding patch loop.

7. Safety-wire inflator as required in accordance with paragraph 23-46.

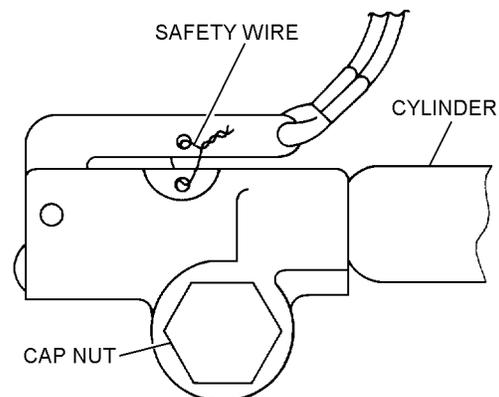
23-46. SAFETY-WIRING. To safety-wire the inflation assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Copper Wire, Uncoated, Type S, 0.0159-inch Diameter	QQ-W-343 NIIN 00-236-9501

1. Pass a single strand of uncoated 0.0159-inch Type S copper wire through hole in inflation assembly body and through hole in actuation lever.

2. Twist the wire a minimum of four times and trim the excess.



W0046002

Step 2 - Para 23-46

23-47. REPAIR/REPLACEMENT.

23-48. These instructions for the repair or fabrication of various components or subassemblies of life preservers are 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. Other replacement parts, such as carrying cases and personal survival equipment, are listed in the applicable table.

23-49. 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.

23-50. 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.

23-51. 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.
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.

23-52. CEMENTING LIFE PRESERVERS. All cementing of life preservers shall be performed as follows:

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.

Support Equipment Required

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

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 and patches on polychloroprene-coated pouch type life preserver 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 a cloth using 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).

23-53. PATCHING LIFE PRESERVERS. Patching of life preservers must be performed as follows:

NOTE

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

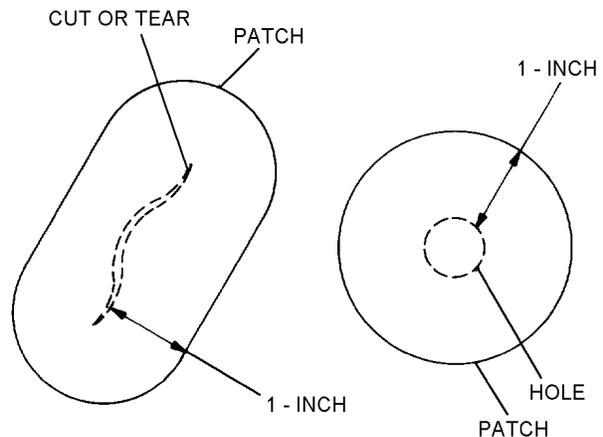
Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon, Polychloroprene-coated, Type I, Orange	MIL-C-19002 NIIN 00-060-9136

NOTE

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

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



W0053001

Step 1 - Para 23-53

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

3. Cement patch to damaged area in accordance with [paragraph 23-52](#).

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

5. Perform a leakage test.

23-54. INSPECTION RECORD PATCH.

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 other 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 in Aviation Crew Systems Records.

Figure 23-5 Deleted.

23-55. REPLACEMENT OF ORAL INFLATION VALVE. To replace the oral inflation valve, proceed as follows:

NOTE

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

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

NAVAIR 13-1-6.1-2

Materials Required (Cont)

Quantity	Description	Reference Number
As Required	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



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 tip of 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 brush, carefully apply a small amount of Polychloroprene cement to the surfaces of the tube and the valve which are to be cemented together.

5. Immediately place oral inflation valve into oral inflation tube. Oral inflation valve should be inserted up to 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 23-38](#).

23-56. REPLACEMENT OF LANYARD CORD. To replace lanyard cord, proceed as follows:

Materials Required

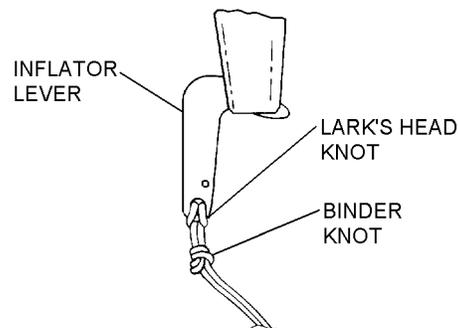
Quantity	Description	Reference Number
15 inches	Cord, Nylon, Type I (color optional)	MIL-C-5040 NIIN 00-240-2154

1. Carefully remove carbon dioxide cylinder from the inflator assembly.

2. If desired, remove nut and rubber gasket retaining the inflator and remove inflator and lanyard assembly.

3. Cut lanyard to be replaced and discard along with the two brass clips.

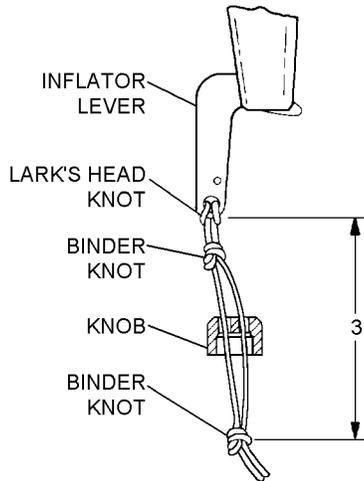
4. Fold the 15-inch length of cord in half, pass folded end through hole in end of inflator lever and tie the cord strands with a lark's head knot, followed by binder knot.



Step 4 - Para 23-56

W0056004

5. Thread the cord strands through the top of the knob (one strand through each hole) and tie a binder knot three inches from the lever end.



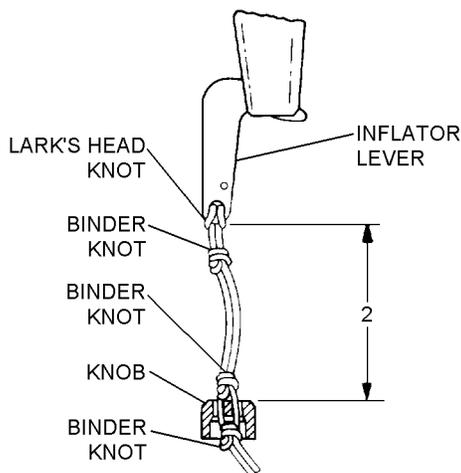
Step 5 - Para 23-56

W0056005

6. Slide knob down to bottom knot and tie a binder knot on the top of the knot to secure it in position.

NOTE

Ensure 2-inch length of lanyard exits from the end of the lever to the top of the knob.



Step 6 - Para 23-56

W0056006

7. Trim excess cord and sear ends.

8. If inflator was removed, reinstall in accordance with [paragraph 23-59](#).

9. Reinstall CO₂ cylinder in accordance with [paragraph 23-45](#).

10. Safety wire in accordance with [paragraph 23-46](#).

23-57. REPLACEMENT OF DEFECTIVE PLASTIC SNAP FASTENERS WITH METAL SNAP FASTENERS. To replace defective plastic snap fasteners, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Cap, Snap Fastener	MS27981-1B NIIN 00-276-4954
1	Socket, Snap Fastener	MS27981-3B NIIN 00-276-4966
1	Stud, Snap Fastener	MS27981-4B NIIN 00-901-9660
2	Post, Snap Fastener	MS27981-5B NIIN 00-250-6858

NOTE

When replacing a defective snap fastener, the mating snap fastener must also be replaced.

1. Using end cutters, remove damaged plastic snap fastener stud and mating socket from eyelets and buttons

2. Install new metal snap fasteners as necessary.

23-58. REPAIR OF CORRODED CO₂ INFLATION VALVE S9300-1411524 (CAGE 62465) OR SAF-T-PAK. To repair CO₂ inflation valve, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Lubricant, Silicone	DC7 (CAGE 71984) NIIN 00-975-0712

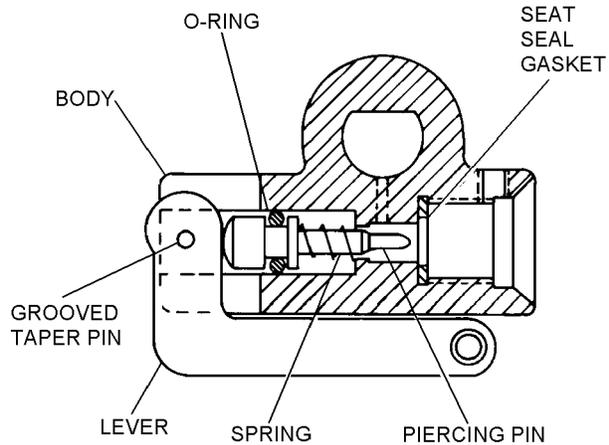
NAVAIR 13-1-6.1-2

Materials Required (Cont)

Quantity	Description	Reference Number
1	Valve Stem and Seat Seal Kit (Note 1)	105AS100-5 (CAGE 30003) NIIN 00-498-6964
As Required	Cloth, Emery No. 240	—
1	Valve, Inflation	S9300-1411524 (CAGE 62465) -or- SAF-T-PAK
As Required	Abrasive Mat	MIL-A-9962 NIIN 00-967-5093
As Required	Corrosion Preventive Compound (Amiguard) Type I	MIL-C-85054 NIIN 01-041-1596

Notes: 1. Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, contains two top, two bottom, and two seat seal gaskets.

1. Remove CO₂ cylinder from valve and retain.
2. Remove inflation valve from preserver. Discard two gaskets on valve stem.
3. Remove grooved taper pin (retaining lever) from inflation valve, using awl and mallet. See [figure 23-6](#).
4. Remove lever, spring, and piercing pin. If spring is broken or corroded, replace entire valve.
5. If piercing pin or actuating lever is corroded, remove corrosion with abrasive mat. If abrasive mat is ineffective, use 240 grit emery cloth. Do not damage O-ring on piercing pin. Wipe off any dirt or moisture from actuating lever and apply a thin coat of MIL-C-85054 and allow to dry.



10230006

Figure 23-6. CO₂ Inflation Assembly

6. Clean residue from actuating lever on piercing pin. Lightly coat base of piercing pin with silicone lubricant.

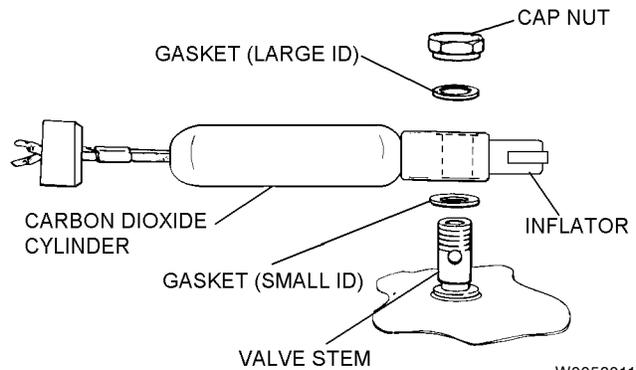
7. Reassemble inflation valve and operate actuating lever three or four times. Ensure that lever and piercing pin move freely.

8. If piercing pin and lever do not move freely, obtain replacement valve.

9. Reinstall inflation valve on life preserver using new gaskets.

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

11. Reinstall CO₂ cylinder using new seat seal gaskets.



W0058011

Step 11 - Para 23-58

23-59. REPLACEMENT OF TOP AND BOTTOM GASKETS. To replace the top and bottom gaskets on the inflator, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Wrench, 9/16-inch	—

Materials Required

Quantity	Description	Reference Number
1	Valve Stem and Seat Seal Kit (Note 1)	105AS100-5 (CAGE 30003) NIIN 00-498-6964

Notes: 1. Seat Seal is obtained from Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, which contains two top, two bottom, and two seat seal gaskets.

1. Remove cap nut and top gasket from inflator.



Ensure that gaskets are properly positioned. The top gasket has a larger internal diameter than the bottom gasket.

2. Remove inflator and replace bottom gasket.
3. Carefully place inflator onto valve stem.
4. Install top gasket onto valve stem.
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 preserver cell that was repaired. Refer to paragraphs 23-29 and 23-38.

23-60. 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

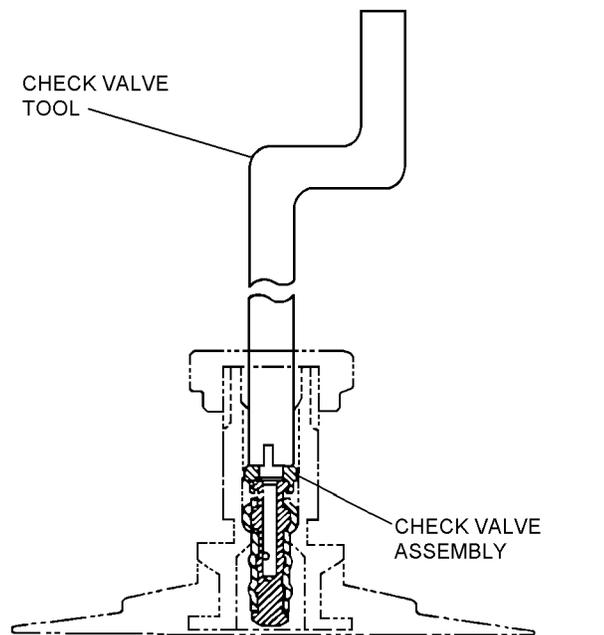
Quantity	Description	Reference Number
1	Valve, Pneumatic Inflator (Check Valve Assembly) (Note 1)	Schrader-Bridgeport P/N 8457500047

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 23-60

NAVAIR 13-1-6.1-2

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

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 23-29](#) and [23-38](#).

23-61. FABRICATION OF HOISTING STRAP (POUCH TYPE). To fabricate a hoisting strap, see [figure 23-7](#) and proceed as follows:

Materials Required

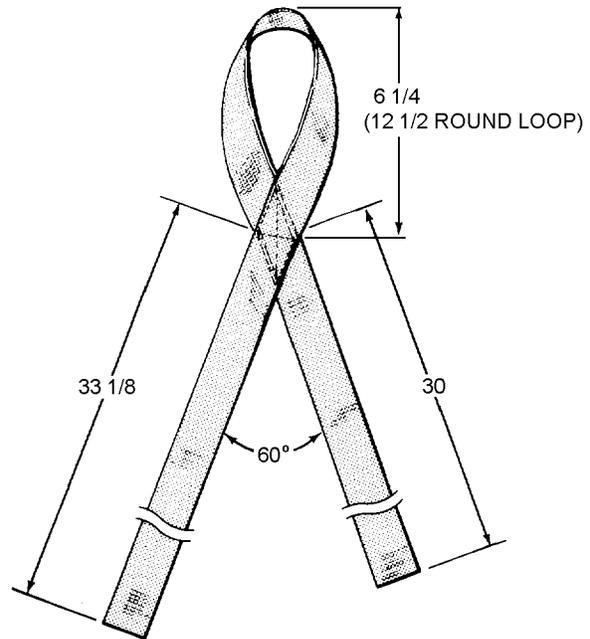
Quantity	Description	Reference Number
3	Cap, Snap Fastener	MS27983-6
3	Socket, Snap Fastener	MS27983-7
1	Tip, Ball Type, Brass, 1-inch Tip	MIL-B-895
1	Adjuster, Slide, 1-inch Adjuster	MIL-G-383
As Required	Webbing, Nylon, 1-inch	MIL-W-17337
As Required	Thread, Nylon, Type II, Size E	V-T-295 NIIN 00-204-3884

NOTE

Unless otherwise specified, all machine stitching shall be in accordance with ASTM-D-6193, type 301 lockstitch, 8 to 10 stitches per inch.

1. Cut a $75 \frac{5}{8}$ -inch length of webbing and sear ends.

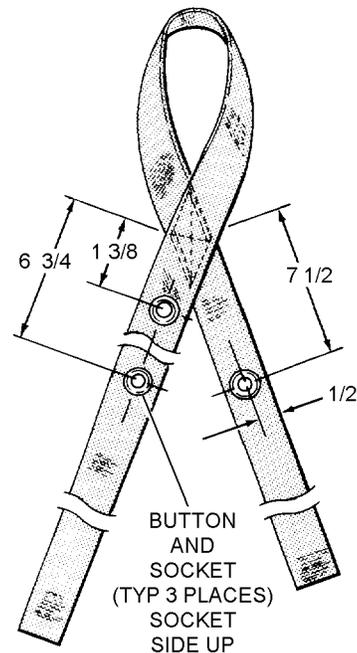
2. Position a $12 \frac{1}{2}$ -inch loop on the webbing, maintaining 60° of arc; stitch the webbing back onto itself.



Step 2 - Para 23-61

W0061002

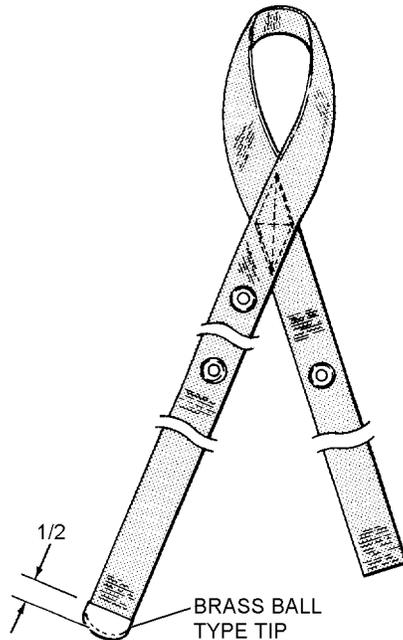
3. Install three button and socket assemblies onto webbing, socket side up.



Step 3 - Para 23-61

W0061003

4. Crimp brass ball type tip 1/2 inch onto webbing.



Step 4 - Para 23-61

W0061004

5. Cut a 6-inch length of webbing and sear ends.

6. Reeve webbing through adjuster; fold and stitch.

7. Insert webbing through slot opening in male portion of buckle assembly; fold and stitch. See figure 23-7, detail A.

8. Insert webbing through slot opening in female portion of buckle assembly, and reeve through slide adjuster. See figure 23-7, detail B.

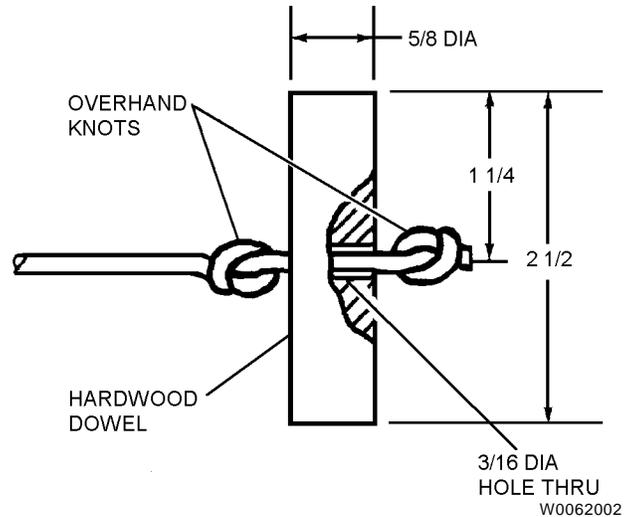
23-62. REPAIR/FABRICATION OF LIFELINE AND TOGGLE ASSEMBLY. To repair or fabricate life line and toggle assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
36-inch length	Cord, Nylon, Type III	MIL-C-5040 NIIN 0-240-2154
1	Dowel, hard wood 2 1/2-inch X 5/8-inch diameter	—
1	3/16-inch drill	—
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884

1. Drill a 3/16-inch diameter hole in the center of a 2 1/2-inch X 5/8-inch diameter wooden dowel.

2. Pass one end of a 36-inch length of Type III nylon cord (MIL-C-5040) through the 3/16 inch diameter hole in center of wooden dowel. Secure cord with an overhand knot on each side of dowel.



Steps 1 and 2 - Para 23-62

3. Place a 1 1/4-inch diameter bowline loop in nylon cord 8 1/2 inches from center of wooden dowel.

4. Attach free end of Type III nylon cord to belt using bowline knot only.

23-63. PACKING PROCEDURE FOR POUCH TYPE LIFE PRESERVER ASSEMBLY.

23-64. To pack a Pouch Type Life Preserver Assembly, proceed as follows:

1. Ensure that preserver, pouch, belt and hoisting strap have been inspected in accordance with paragraph 23-18.

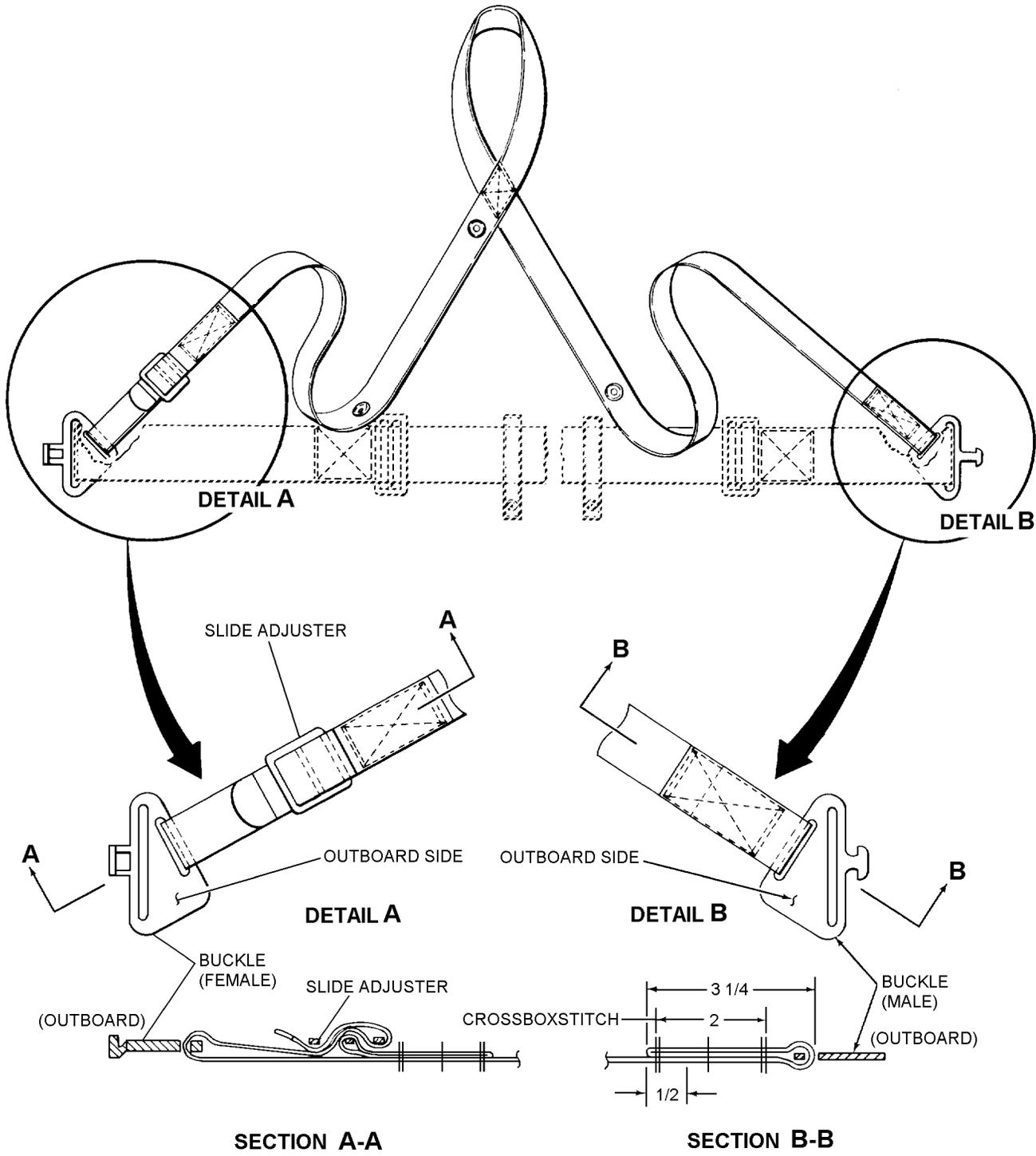


Figure 23-7. Hoisting Strap, Details

10230007

NOTE

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

2. Ensure that survival items have been inspected for expiration and damage. See [table 23-1](#) for items used.

3. Ensure belt is inserted through retaining patch on rear of preserver.

4. Lay preserver on a clean surface with inflation assembly facing up.

5. Insert ends of belt through slots in pouch.

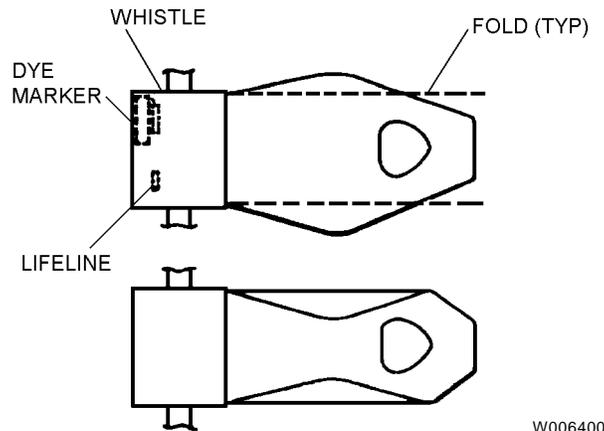
NOTE

The dye marker and whistle are tied to the belt with a 24 ± 2-inch length of Type I nylon cord (MIL-C-5040). Use bowline knots only.

6. Ensure each survival item is properly attached and flotation chamber completely deflated.

7. Position lifeline with toggle, whistle and dye marker in bottom of pouch. Lock oral inflation valve.

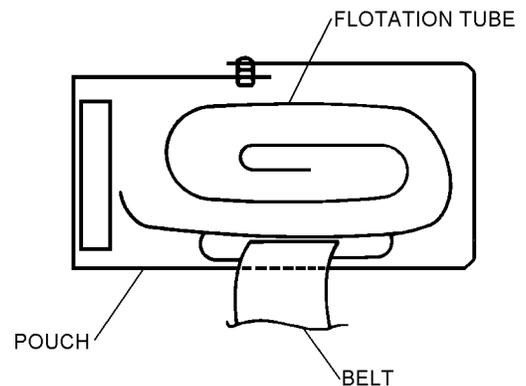
8. Fold flotation tube sides over to width of pouch.



Step 8 - Para 23-64

W0064008

9. Roll flotation tube into pouch and close pouch.



Step 9 - Para 23-64

W0064009

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

Section 23-4. Illustrated Parts Breakdown (IPB)

23-65. GENERAL.

23-66. This section lists and illustrates the assemblies and detail parts of the Pouch Type Life Preserver Assembly.

23-67. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.

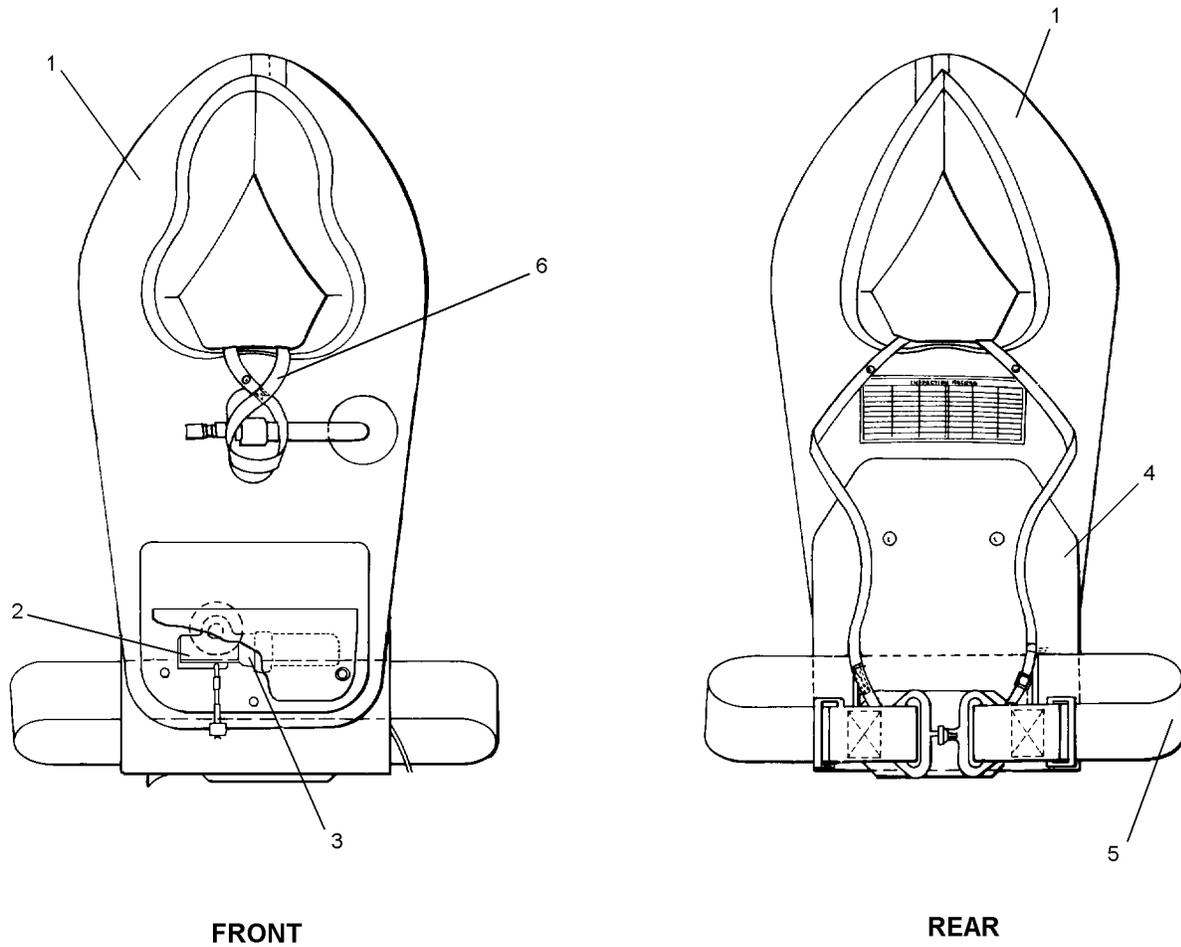


Figure 23-8. Pouch Type Life Preserver Assembly, Illustrated Parts Breakdown

10230008

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
		1 2 3 4 5 6 7		
23-8	No Number	POUCH TYPE LIFE PRESERVER	REF	
-1	S3306-1230582 (CAGE 80068)	FLOTATION CELL	1	
-2	S9300-1411524 (CAGE 62465)	. INFLATION VALVE	1	A
	NIIN 00-561-0094	. INFLATION VALVE (Type II)	1	B
-3	NIIN 00-372-0585	. . CO ₂ CYLINDER, 25-28 Grams	1	A
	NIIN 00-543-6693	. . CO ₂ CYLINDER, 28-31 Grams	1	B
-4	—	. POUCH	1	
-5	MIL-W-530	. BELT (Type III)	1	
-6	MIL-W-17337	. HOISTING STRAP	1	
NOTE: CO ₂ Cylinder must be requisitioned separately.				

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code
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MIL-W-17337	23-8-6	PA--Z
MIL-W-530	23-8-5	PA--Z
NIIN 00-372-0585	23-8-3	PAOZZ
NIIN 00-543-6693	23-8-3	PAOZZ
NIIN 00-561-0094	23-8-2	PAOGG

Part Number	Figure and Index Number	SM&R Code
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S3306-1230582 (CAGE 80068)	23-8-1	PA--Z
S9300-1411524 (CAGE 62465)	23-8-2	PAOZZ