

CHAPTER 6

LRU-18/U LIFERAFT ASSEMBLY

Section 6-1. Description

6-1. GENERAL.

6-2. The LRU-18/U is one-man liferaft intended for use by aircrewmembers forced down at sea. It can also be used when forced down over land for fording rivers and streams or as shelter. It is a light-weight raft designed to replace the bulkier and heavier LR-1 in certain applications. See [figures 6-1 through 6-4](#).

rigging and packing instructions for the LRU-18/U Liferaft and the SRU-37/P Helicopter Backpack only. Refer to NAVAIR 13-1-6.3-1 for description, inspection, maintenance, and repair procedures for the SKK-9 Liferaft and Survival Kit Container Assembly, including rigging and packing instructions for the LRU-18/U Liferaft into the SKK-9.

6-3. CONFIGURATION.

6-4. The LRU-18/U liferaft assembly consists of a one-man liferaft and an inflation assembly (CO₂ cylinder and inflation valve). The liferaft is fabricated from heat-sealable, polyurethane-coated nylon cloth. It has two separate cells, each comprised of a series of tubes. The upper second, third and fourth tubes are inflated with carbon dioxide, and the remaining tubes are inflated orally.

6-6. The LRU-18/U liferaft assembly is mandatory for use by all authorized helicopter and E-2C aircrewmembers during overwater flights. See [table 6-1](#) for aircraft applications.

6-5. APPLICATION.

NOTE

This chapter contains description, inspection, maintenance and repair procedures,

6-7. FUNCTION.

6-8. The LRU-18/U liferaft assembly is inflated manually by pulling the beaded inflation handle which actuates the CO₂ inflation assembly. The inflation assembly inflates the upper second, third and fourth tubes. After boarding, additional buoyancy and free board may be added by orally inflating the remaining tubes through the oral-cell oral inflation valve.

Table 6-1. LRU-18/U Aircraft Applications

Packaged LRU-18 Liferaft Assembly	Aircraft
SRU-37/P One-Man Vee-Bottom Liferaft and Container Assembly (Helicopter Backpack)	All Helicopters
SKK-9 One-Man Vee-Bottom Liferaft and Survival Kit Container Assembly	E-2C (aircraft equipped with A/P22P-11 Crew Backpack) (See NAVAIR 13-1-6.3-1)

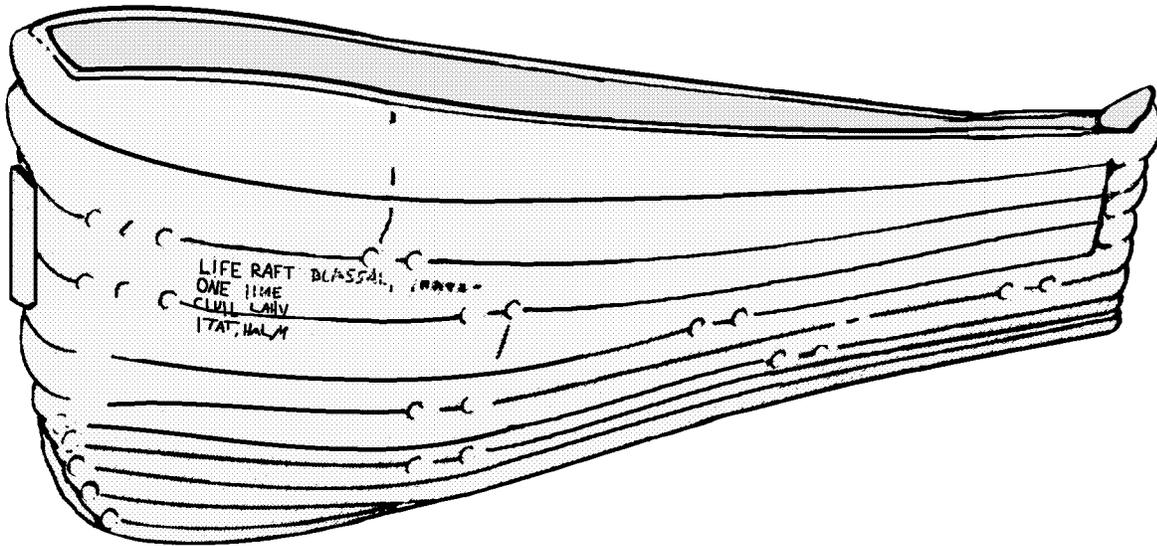


Figure 6-1. LRU-18/U Liferaft Assembly

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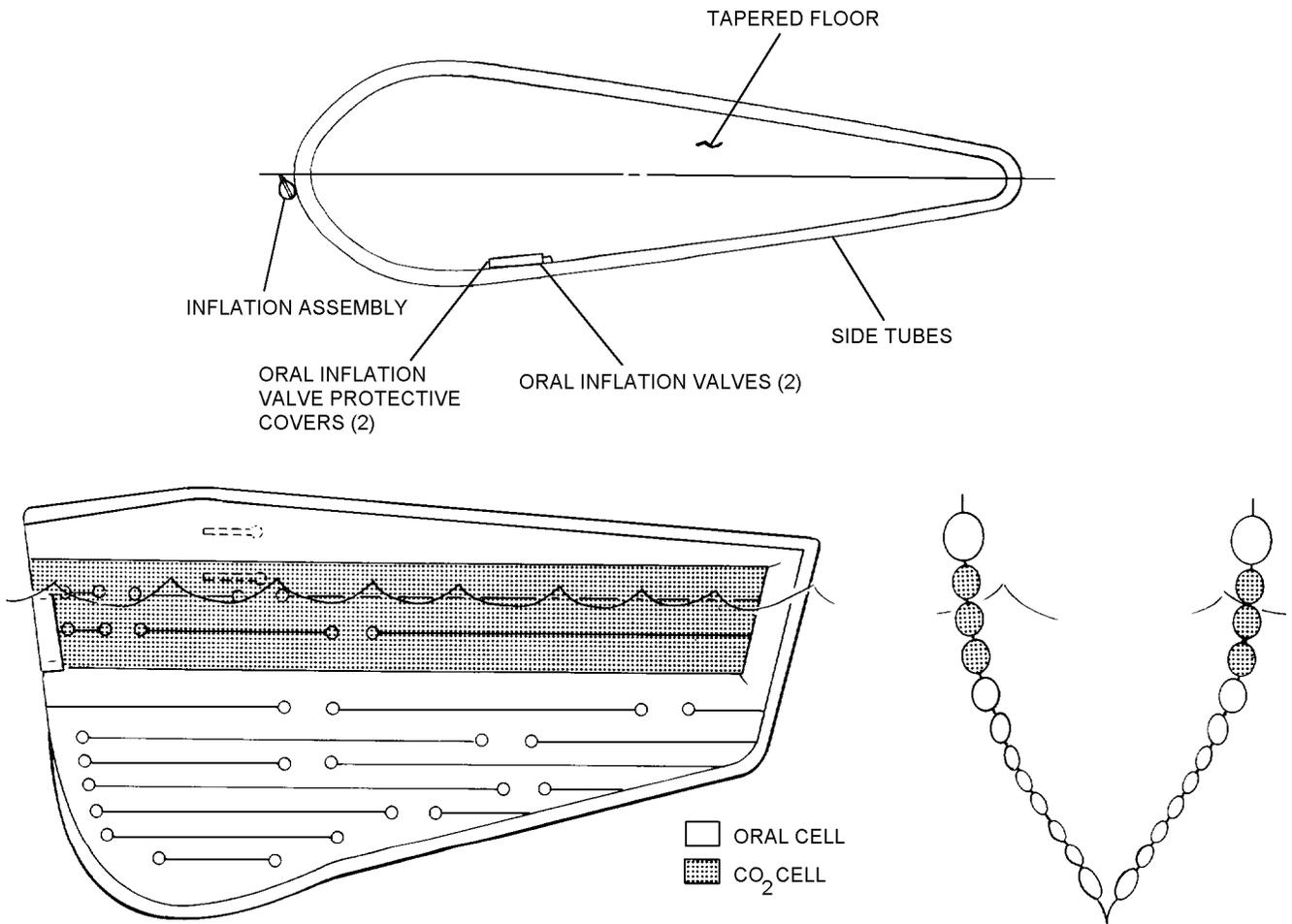


Figure 6-2. LRU-18/U Liferaft, Parts Nomenclature

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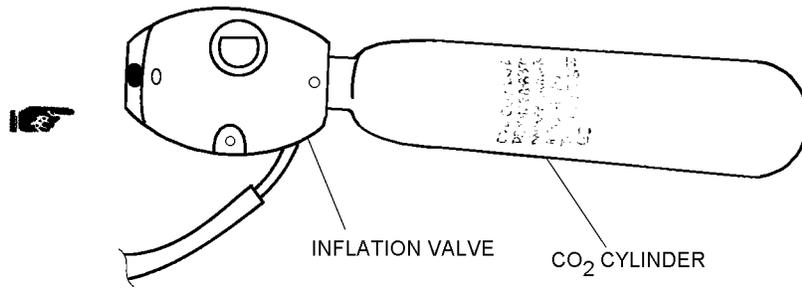


Figure 6-3. Carbon Dioxide Inflation Assembly

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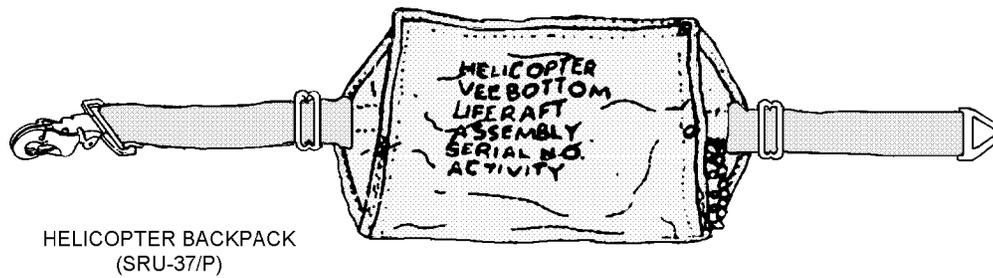
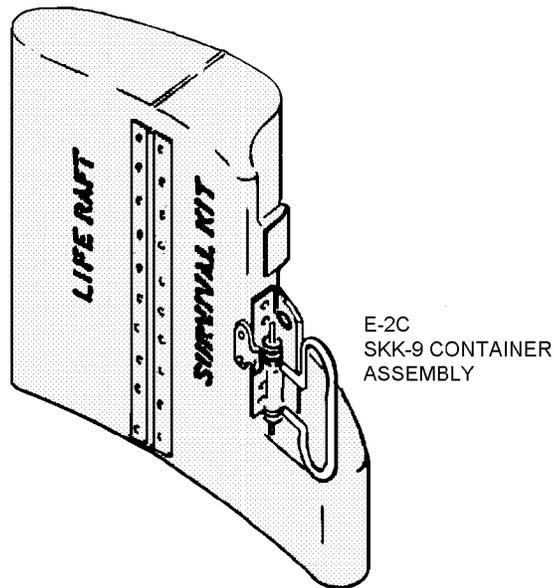


Figure 6-4. Packaged LRU-18/U Liferaft Assemblies

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Section 6-2. Modifications

6-9. GENERAL.

6-10. The LRU-18/U Liferaft Assembly shall be upgraded by comparing the configuration of the assem-

bly with the modification listed in table 6-1A. Common repairs and fabrication instructions to maintain serviceability are listed in [table 6-2](#).

Table 6-1A. LRU-18/U Series Directives

Description of Modification	Application	Modification Code
Replacement of Pneumatic Inflator Valve	All LRU-18/U Liferrafts	66-660

Table 6-2. LRU-18/U Common Repairs and Fabrications

Description of Repair or Fabrication	Paragraph Number
Determination of Repairability	6-49
Cementing	6-50
Patching	6-51
Replacement of Oral Inflation Valve	6-53
Replacement of CO ₂ Inflation Valve	6-54
Replacement of Check Valve Assembly	6-55
Replacement of Beaded Inflation Handle Assembly (Backpack)	6-56
Replacement of Quick Ejector Snap (SRU-37/P)	6-57 (Note 1)
Replacement of Triangular Link (SRU-37/P)	6-58 (Note 1)
Fabrication of Protective Cover	6-59
Fabrication of Tether Line (SRU-37/P)	6-60 (Note 1)
Notes: 1. LRU-18/U Liferrafts used with Helo Backpack	

Section 6-3. Maintenance

6-11. GENERAL.

6-12. This section contains information on inspection, disassembly, repair/replacement, testing, reassembly and rigging/packing of the LRU-18/U Liferaft.

6-13. All maintenance shall be performed in a work area having a stable moderate temperature, ideally not less than 68°F (20°C). The area shall also be free of drafts and direct sunlight and have a smooth-top table free of snags, splinters, and rough surface. There shall be sufficient space to ensure inflated rafts are kept clear of heating equipment, rough surfaces, and other objects capable of causing damage to the liferaft.

6-14. INSPECTION.

6-15. This Section contains inspection and testing procedures applicable to LRU-18/U liferaft assembly.

6-16. All LRU-18/U liferaft assemblies shall be subjected to preflight, Special and Calendar/ Phase Inspections.

NOTE

Refer to NAVAIR 13-1-6.3-1 for inspection requirements for the E-2C SKK-9 container assembly.

6-17. The preflight Inspection shall be performed on LRU-18/U liferafts prior to each flight by the aircrewmembers to whom the liferaft is assigned.

6-18. The Special Inspection shall be performed on all aircraft-installed liferafts 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.

6-19. Upon completion of the inspection, the inspection date and inspector's signature shall be entered on the appropriate form in accordance with OPNAVINST 4790.2 Series.

6-20. All liferafts shall be subjected to the Calendar/Phase Inspection prior to placing in service, or if an aircraft inventory item at the time of the aircraft Acceptance Inspection. The inspection cycle thereafter shall be as follows: coincide with the aircraft inspection cycle in which installed, except the helicopter backpack, which shall be inspected every 360 days. See applicable Planned Maintenance System (PMS) publications for specific intervals. In no case shall the interval exceed 366 days for helicopter backpacks. Unless operational requirements demand otherwise, the liferaft Calendar/Phase Inspection shall be performed by intermediate level maintenance or above. The functional test shall be performed prior to placing in service, during every fourth inspection cycle, and whenever an inflation assembly is replaced. The leakage test shall be performed during every inspection cycle.

6-21. QUALITY ASSURANCE. The procedures detailed present a logical sequence for proper inspection. Quality assurance steps are provided for critical operations. When a step is underlined, the Aircrew Survival Equipmentman shall perform the operation, then have performance verified by a Collateral Duty Quality Assurance Representative (CDQAR) prior to proceeding the next operation. Work center supervisors are primarily responsible for quality assurance and in accordance with OPNAVINST 4790.2 Series may nominate experienced personnel in their work center or be screened and examined by the Quality Assurance Officer as a Collateral Duty Quality Assurance Representative. In no case shall as Aircrew Survival equipmentman perform his own quality assurance inspection. Procedures for quality assurance are listed following major operations.

6-22. PREFLIGHT/SPECIAL INSPECTION (SRU-37/P). To perform a Preflight/Special Inspection, proceed as follows:

WARNING

Ensure that the beaded inflation handle is readily accessible. The beaded inflation handle shall be secured with four snap fasteners to the backpack container.

CAUTION

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

1. Inspect exposed metal parts for corrosion and damage.
2. Inspect casing fabric for cuts, tears, abrasions, security of stitching, and other damage.
3. Inspect hook and pile tape for secure attachment and closure.
4. Inspect safety ties on beaded inflation handles. The beaded inflation handle safety ties may be replaced without removing the liferaft from service.
5. Adjust and don backpack to ensure proper fit.
6. If any discrepancy is noted, the raft shall be removed from service and repaired in accordance with procedures in this chapter.

6-23. ACCEPTANCE/CALENDAR/PHASE INSPECTION. The Acceptance/Calendar/Phase Inspection consists of the following tasks:

1. Beaded Inflation Handle Inspection ([paragraph 6-24](#))
2. Container/Case Inspection ([paragraph 6-25](#))
3. Functional Test ([paragraph 6-26](#))
4. Deflation ([paragraph 6-27](#))
5. Visual Inspection ([paragraph 6-28](#))
6. Liferaft Configuration ([paragraph 6-29](#))
7. General Inspection ([paragraph 6-30](#))
8. Markings Inspection ([paragraph 6-31](#))
9. Inflation Assembly Inspection ([paragraph 6-32](#))
10. Beaded Inflation Handle Pull Test ([paragraph 6-33](#))
11. Leakage Test ([paragraph 6-34](#))
12. Records Updating ([paragraph 6-37](#))

13. Repacking ([paragraph 6-61](#))

6-24. BEADED INFLATION HANDLE INSPECTION. Inspect beaded inflation handle for the following:

1. Attachment of inflation lanyard to beaded handle.
2. Corrosion on snap fasteners and ease of operation.
3. Cuts, tears, deterioration, abrasion, stains, and general cleanliness of fabric.
4. Presence of safety tie on beaded inflation handle.

6-25. CONTAINER/CASE INSPECTION. To inspect containers/cases, examine the following:

1. Fabric for cuts, tears, deterioration, and abrasion.
2. Retention tether line for security and wear ([paragraph 6-60](#)).
3. Seams for proper adhesion and stitching.
4. Straps and handles for security and wear.
5. All hardware for security of attachment, corrosion, damage, wear, and, if applicable, ease of operation.
6. Liferaft container assembly for stains, dirt and general condition ([paragraph 6-41](#)).

6-26. FUNCTIONAL TEST. To functionally test the LRU-18/U liferaft assembly, proceed as follows:

CAUTION

For liferaft inflation, ensure that there is adequate area free of foreign objects.

1. Open liferaft container assembly, unfold liferaft and lay flat.
2. Actuate inflation assembly.
3. Measure time of inflation; liferaft shall inflate to design shape without evidence of restriction in less than 30 seconds.

4. If raft does not properly inflate, determine cause.
5. Examine liferaft for obvious defects such as cuts, tears, and ruptured seams.
6. If no obvious defects are found, remove the CO₂ inflation valve assembly.
7. Ensure that the check valve assembly is clean, free from foreign matter and not damaged. If check valve assembly is damaged, replace in accordance with [paragraph 6-55](#).
8. Repair inflation valve assembly in accordance with [paragraph 6-54](#).
9. If repairs are made, recheck in accordance with [steps 2](#) and [3](#).
10. Deflate liferaft in accordance with [paragraph 6-27](#). Ensure that all carbon dioxide has been removed.

6-27. DEFLATION. To deflate the LRU-18/U liferaft, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Pump, Rotary Vacuum (or equivalent)	61E44688 (CAGE 80049)
As Required	Hose, 3/8 or 1/2 inch Diameter, Rubber	—

1. Attach one end of rubber hose to vacuum pump.

NOTE

The vacuum pump hose should be held at an angle to the inflation valve or air will not properly evacuate the cell.

2. Unlock applicable oral inflation valve, hold in open position, and hold vacuum pump hose against end of inflation valve. When cell is collapsed, release oral inflation valve and screw lock closed.

6-28. VISUAL INSPECTIONS. Included under the heading of Visual Inspections are Liferaft Configuration Inspection, General Inspection of liferaft itself,

Markings Inspection of liferaft markings, Inflation Assembly Inspection and Beaded Inflation Handle Pull Test. To perform these inspections, proceed as follows:



Remove CO₂ cylinder prior to inflating liferaft with air.

1. Remove CO₂ cylinder from inflation assembly.
2. Inflate both liferaft cells with air to 1.0 psig.

NOTE

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

6-29. Liferaft Configuration Inspection. The liferaft shall be updated by comparing it to the applicable configuration illustrations in [Figures 6-1 through 6-4](#), [Section 6-2](#) Modifications, and [Section 6-4](#) Illustrated Parts Breakdown.

6-30. General Inspection. To perform the general inspection, inspect the following:

NOTE

If color, location, or stitching patterns of repaired, replaced, or previously incorporated noncritical items or features do not exactly conform to instructions, do not remove or rework item or feature if flotation stability or capability and security of attachment are not comprised.

1. Liferaft fabric for cuts, tears, punctures, deterioration, and abrasion.
2. Seams for proper adhesion.
3. All patches for proper adhesion ([paragraph 6-51](#)).
4. Liferaft base seam for separation.
5. Oral inflation tubes for deterioration ([paragraph 6-53](#)).
6. All hardware for security of attachment, corrosion, damage, wear, and ease of operation.

NAVAIR 13-1-6.1-1

7. Liferaft for stains, dirt, and general cleanliness (paragraph 6-38).

8. Any other parts for wear or damage.

6-31. Markings Inspection. Compare markings on the liferaft and container assembly to markings shown in [figures 6-3 and 6-4](#). Restore faded markings. Correct any markings which do not agree with the applicable table. To change markings, proceed as follows:

Materials Required

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

1. Paint over any incorrect marking, using black waterproof ink.

2. Add correct marking as close as possible to specified location using yellow waterproof ink.

6-32. Inflation Assembly Inspection. To inspect the inflation assembly, proceed as follows:

1. Remove and discard ordnance tape. Loosen setscrew and remove CO₂ cylinder from valve assembly.

NOTE

Do not discard setscrew.

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

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

4. Operate actuation lever three or four times. Ensure that lever moves freely and ensure that piercing pin moves properly inside valve body.

NOTE

Each time inflation assembly gaskets or inflation assembly is removed and replaced

for any reason, a function test shall be conducted. Refer to [paragraph 6-26](#). Use new gaskets when replacing device.

5. If any discrepancy is noted in device that is not repairable in accordance with [paragraph 6-54](#), remove assembly and install a new inflation device.

6-33. Beaded Inflation Handle Pull Test. To perform the beaded inflation handle pull test, proceed as follows:

Support Equipment Required

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

1. Ensure that CO₂ cylinder has been removed. Actuate inflation assembly. All snap fasteners on beaded inflation handle must be fully engaged.

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

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 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 inflation 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 6-56](#).

6-34. LEAKAGE TEST. The LRU-18/U shall be subjected to a leakage test each Calendar/Phase Inspection. To perform a leakage test, proceed in accordance with [paragraph 6-35](#).

Table 6-3. LRU-18/U Liferaft Markings

Marking	Location	Letter Height
LIFERAFT, INFLATABLE, ONE-MAN TYPE LRU-18/U MANUFACTURER [APPLICABLE NAME] CONTRACT NO. [applicable number] DATE OF MANUFACTURE [month and year] SERIAL NO. [applicable number]	Outboard side forward end	1/2 inch Yellow (See Note)
ORAL CELL: TO ORALLY INFLATE, UNSCREW KNURLED RING, PUSH VALVE MOUTHPIECE DOWN, AND IMMEDIATELY BLOW THROUGH INLET. CO ₂ CELL: TO INCREASE PRESSURE, UNSCREW KNURLED RING, PUSH MOUTHPIECE DOWN, AND IMMEDIATELY BLOW THROUGH INLET.	Inboard starboard side adjacent to re- spective oral inflation valve	1/4 inch Yellow (See Note)
NOTE: Replacement marking shall be stamped or stenciled using wash-proof yellow ink.		

Table 6-4. LRU-18/U Container Markings

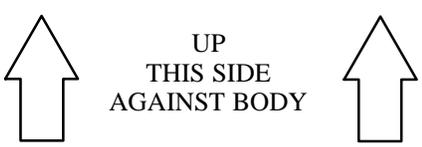
Container	Marking	Location	Letter Height
SRU-37/P One-Man Vee-Bottom Liferaft and Container Assem- bly (Helo Backpack)	HELICOPTER VEE-BOTTOM ASSEMBLY	Back panel (Beaded Handle Side)	1 inch
	 <p>UP THIS SIDE AGAINST BODY</p>	Front Panel (Webbing belt Side)	1/2 inch
	CONTAINER ASSEMBLY, VEE-BOTTOM LIFERAFT, HELICOPTER MIL-C-81543 TYPE X MANUFACTURE [applicable name] CONTRACT NO. [applicable name] DATE OF MANUFACTURE [month and year] SERIAL NO. [applicable number]	Inside back panel	1/4 inch
SKK-9 Liferaft and Survival Kit Container Assembly (E-2C)	SURVIVAL KIT LIFERAFT	On Container Front- Lower Section of Backpack Assembly	1 inch

Figure 6-5. Deleted

6-35. Test Fixture. As assembled, test fixtures are not stocked in the supply system; test fixtures must be fabricated to meet the requirements of the schematic shown in [figure 6-6](#). A suggested test fixture, consisting of a three-way valve, pressure gage and adapters, is given in [Chapter 3](#).

NOTE

The LRU-18/U test fixture is equivalent to the life preserver test fixture shown in [Chapter 3](#).

6-36. Test Procedure. To test LRU-18/U Liferaft, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Test Fixture	See Chapter 3



Ensure test area is free of foreign objects.

1. Ensure all carbon dioxide and the CO₂ cylinder has been removed from any raft which has been functionally tested.



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

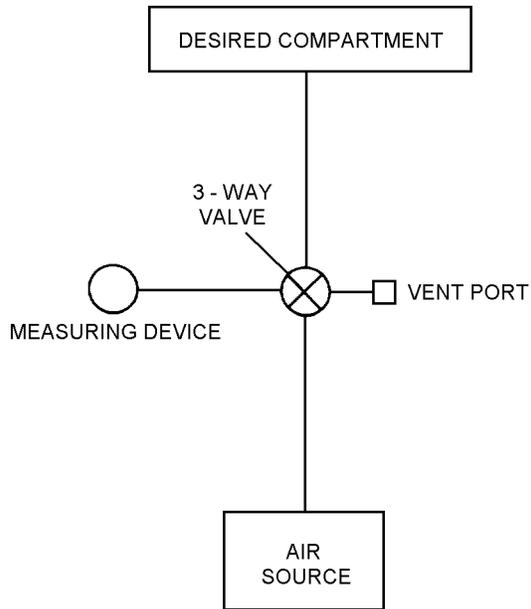


Figure 6-6. Test Fixture Schematic

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NOTE

Refer to [table 6-5](#) for liferaft test pressures. Both cells may be tested simultaneously.

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

2. Unlock oral inflation valve of CO₂ cell and insert into 1/2-inch diameter rubber hose. Open valve to air supply and inflate liferaft. Alternately position

valve at measuring device, vent, and air supply until proper pressure of 2.0 psig is attained. Repeat procedure for oral cell but inflate to 1.0 psig.

3. The air supply shall be securely shut off. After a minimum of 15 minutes, the pressure shall be re-adjusted in both cells to the leakage test pressures. Record time.

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

5. Record temperature and barometric pressure and allow liferaft to remain undisturbed for a minimum of 4 hours.

NOTE

If the liferaft has been stacked during the 4-hour inspection period remove from stacking and place in a horizontal position on the floor or table in the inspection area and take test pressure reading. In no event shall the pressure in the raft be determined with another raft stacked upon it.

6. At the end of a minimum of 4 hours after the readjustment period in [step 3](#), record test pressures of both cells.

NOTE

[Steps 7 through 10](#) shall be performed only after leakage test readings have been recorded.

Table 6-5. LRU-18/U Test Pressures

Compartment	Leakage Test Pressure (psig)	Minimum Pressure (psig)
CO ₂ Cell	2.0	1.6
Oral Cell	1.0	0.6

NAVAIR 13-1-6.1-1

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

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

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Step 7 - Para 6-36

8. If corrected pressure in CO₂ cell is below 1.60 psig or corrected pressure in oral cell is below 0.60 psig, inflate to leakage test pressure and coat with a soap solution to locate leaks. Mark leak areas. Rinse liferaft with fresh water; air dry and repair in accordance with [paragraphs 6-49](#) and [6-51](#).

Table 6-6. 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.

9. Deflate raft in accordance with [paragraph 6-27](#).

10. Ensure that inflation valve lever is cocked. Ensure CO₂ cylinder has been installed in accordance with [paragraph 6-45](#).

6-37. RECORDS UPDATING. Make necessary entries on appropriate form in accordance with [OPNAV-INST 4790.2 Series](#).

6-38. CLEANING AND SERVICING.

6-39. Cleaning and servicing consists of cleaning the liferaft and containers, and installation of the inflation valve protective covers and CO₂ cylinders.

6-40. CLEANING THE LRU-18/U LIFERAFT. To clean the LRU-18/U liferaft, 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	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 the cleaning of liferafts.

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.

Table 6-7. 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.

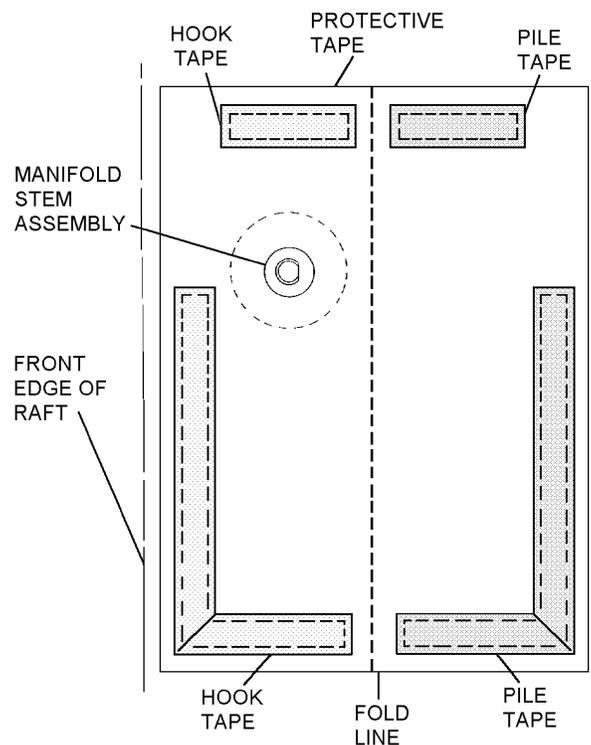
4. Rinse surface thoroughly with water; wipe with a cloth or sponge. Repeat this application until surface is free from all solution.

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

6-41. CLEANING OF CASES AND CONTAINERS. Clean in accordance with paragraph 6-40.

6-42. INSTALLATION OF CO₂ INFLATION ASSEMBLY PROTECTIVE COVER. To install the CO₂ inflation assembly protective cover, proceed as follows:

1. Open liferaft assembly, then position assembly on a flat surface.
2. Remove CO₂ cylinder from valve assembly.
3. Remove inflation valve and gaskets.
4. Place inflation valve protective cover upon the liferaft. Ensure that inlet manifold stem hole is aligned as shown.



Step 4 - Para 6-42

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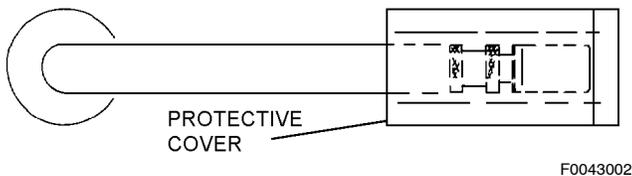
5. Reinstall inflation valve with new gaskets. Reinstall cap nut onto valve stem and torque to a value of 8 ± 1 in-lb.

6. Perform functional test in accordance with [paragraph 6-26](#).

6-43. COVERING OF CO₂ CELL ORAL INFLATION VALVE. To protect the CO₂ cell oral inflation valve, proceed as follows:

1. Ensure that knurled locking ring on the inflation valve is locked.

2. Insert inflation valve into the protective pocket attached to raft as shown.

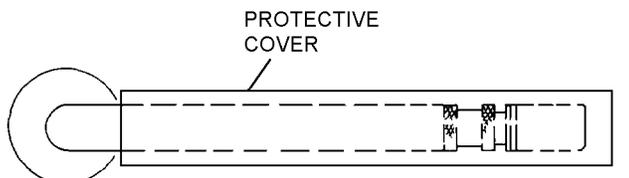


Step 2 - Para 6-43

6-44. COVERING OF ORAL CELL ORAL INFLATION VALVE. To protect the oral cell oral inflation valve, proceed as follows:

1. Ensure that knurled locking ring on the inflation valve is locked.

2. Slide protective cover over inflation valve.



Step 2 - Para 6-44

6-45. INSTALLATION OF CO₂ CYLINDER. To install a CO₂ cylinder on the liferaft, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Scale (gram)	NIIN 00-514-4117 or equivalent
1	Die, Cylinder Thread Chaser	1842-008-01 (CAGE 03688)
1	Seat Seal	849AML NIIN 00-113-8290
1	Cylinder, CO ₂	NIIN 00-837-3322

NOTE

Weight will vary according to manufacturer.

1. Ensure that knurled locking ring on the inflation valve is locked.

2. Weigh a charged CO₂ cylinder (1521AS102-7, MIL-C-52053TC, 56.7 grams) 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.

3. Ensure that inflator lever is in a cocked position.

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 6-7.)

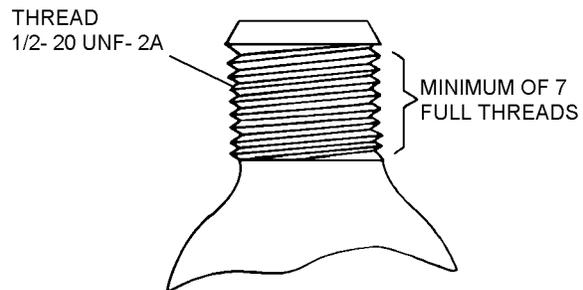


Figure 6-7. Cylinder Thread Count

CAUTION

Steel threads on CO₂ cylinder can cause damage to aluminum threads on inflator if cylinder is not carefully threaded. If binding occurs during threading, replace cylinder.

5. 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.

6. Install new seat seal into inflator. Install CO₂ cylinder into inflator body as far as hand twisting will permit.

7. Deleted.

8. Deleted.

6-46. REPAIR/REPLACEMENT.

6-47. This section contains instructions for the repair or replacement of various components or subassemblies of the LRU-18/U liferaft to ensure that appropriate items of equipment remain in Ready For Issue (RFI) status. Reference numbers for minor parts which are defective, corroded or worn and require replacement are included in the applicable paragraph of this section. Otherwise, refer to [Section 6-4](#). All repairs shall be documented by making necessary entries on appropriate form in accordance with OPNAV-INST 4790.2 Series.

6-48. Replacement of easily removed assembly components such as CO₂ inflation valves are authorized in addition to repair and replacement procedures documented in this section. The liferaft shall be sub-

jected 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.

6-49. DETERMINATION OF REPAIRABILITY. The LRU-18/U liferaft shall be considered beyond repair for any of the following reasons.

1. Porous fabric areas on tubes.

2. Split or open tube seams.

3. Leakage test failure resulting from other than repairable cut, tear or puncture.

4. Holes, cuts, tears or punctures within 1 inch of tube seams.

5. Damaged, malfunctioning, or excessively corroded inlet valve, manifold assembly, oral inflation valves, or oral inflation tubes.

6. Holes or abrasions exceeding 1 inch in length or diameter on tubes.

7. Oral inflation or inlet valve stem separating from the fabric.

8. Deterioration of the nylon fabric caused by oil, grease, or any other foreign substance.

9. Deterioration of the nylon fabric caused by an excessive mildewed condition.

10. In the judgement of a competent inspector, requiring excessive repair.

6-50. CEMENTING THE LRU-18/U LIFERAFT. To cement the liferaft, proceed as follows:

NAVAIR 13-1-6.1-1

Support Equipment Required

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

Materials Required

Quantity	Description	Reference Number
1	Disposable Brush	NIIN 00-514-2417
As Required	Toluene	TT-T-548 NIIN 00-281-2002
As Required	Adhesive, Polyurethane	UR-1092 NIIN LH-000-1650
As Required	Talc, Technical	MIL-T-50036A NIIN 01-089-9589

1. Place liferaft on a flat surface.

WARNING

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

CAUTION

Toluene shall be the only solvent used in the fabrication or repair of this assembly. Do not use methyl ethyl ketone (MEK) to clean the LRU-18/U liferaft. MEK will break down the polyurethane coating on the inside surface of the raft. Always use solvent sparingly and wipe up excess solvent; do not allow to dry by evaporation.

Only polyurethane adhesives and polyurethane-coated cloth and patches shall be used on LRU-18/U liferaft assemblies.

2. Clean both surfaces to be cemented with four applications of toluene. Apply toluene with back-and-

forth strokes on the first and third applications, and one-way strokes on the second and fourth applications. Allow areas to dry between applications.

3. Prepare cement and accelerator mixture. Prepare only enough mixture for 8 hours use, as this is the effective active period for this mixture. Dispose of any remaining mixture at this time.

4. Using a small 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.

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

6. 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 or rubber roller. Inspect for proper application/cement.

7. Place a small weight over cemented area and allow to cure for a minimum of 48 hours.

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

6-51. PATCHING THE LRU-18/U LIFERAFT. Patching of the LRU-18/U liferaft shall be performed as follows:

NOTE

Holes, cuts, tears, or punctures over 1-inch square are considered non-repairable on the LRU-18/U liferaft.

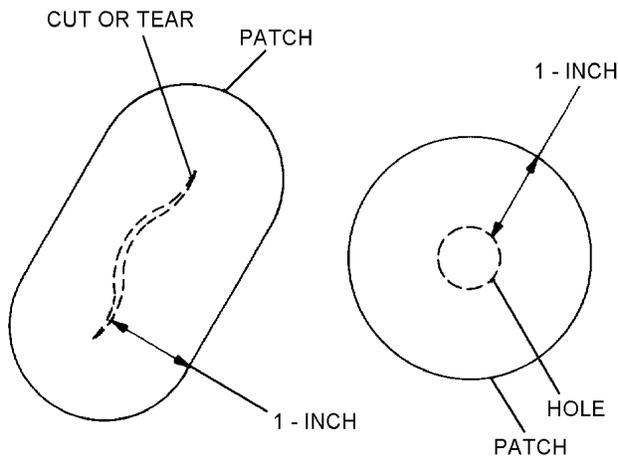
Materials Required

Quantity	Description	Reference Number
As Required	Polyurethane-coated nylon cloth, Type I	MIL-C-83489 NIIN 01-335-3129

CAUTION

Only polyurethane adhesives and polyurethane-coated cloth and patches shall be used on LRU-18/U liferaft assemblies.

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



F0051001

Step 1 - Para 6-51

2. Center patch over damaged area and trace an outline of patch on fabric.
3. Cement patch to damaged area in accordance with [paragraph 6-50](#).
4. Dust area with talc (MIL-T-50036A).
5. Perform leakage test in accordance with [paragraph 6-34](#).

6-52. 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-rafts. The requirement for all other record documentation remains unchanged. The reason for this change is that most Inspection Record Patches are unreadable, and the packer's and inspector's names, including the type of inspection (leak/functional), are documented on Aviation Crew Systems Records.

6-53. 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

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
As Required	Toluene	T-T-548 NIIN 00-281-2002
	-or-	
	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-T-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 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 6-34](#).

6-54. REPLACEMENT OF CO₂ INFLATION VALVE. To replace the MIL-I-23145 Type II to comply with ACC 660, or to replace a damaged or defective 840-AMLS proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Pneumatic Inflator Valve	840-AMLS (CAGE 98021) NIIN 01-218-6737

Materials Required (Cont)

Quantity	Description	Reference Number
1	Valve Stem Kit (Note 1)	105AS100-6 NIIN 00-113-8290
1	Seat Seal	849AML NIIN 00-113-8290

Notes: 1. Kit contains one top and one bottom gasket.

1. Remove CO₂ cylinder from CO₂ inflation valve if installed. Remove inflation lanyard with beaded handle from inflator valve. Unscrew and remove cap nut on valve stem.

2. Retain CO₂ cylinder, inflation lanyard with beaded handle and valve stem cap nut for reinstallation.

3. Remove top gasket, inflator valve and bottom gasket and discard.

4. Reinstall inflation lanyard with beaded handle onto new inflator (840-AMLS) valve. Pass the beaded handles lanyard loop through the hole in the actuator lever on the inflation assembly.

5. Install new bottom and top gaskets from gasket kit by first placing the bottom gasket (small internal diameter (ID)) on valve stem. Place inflation valve protective cover over valve stem in accordance with [paragraph 6-42 step 4](#). Install new inflator valve onto valve stem, actuation lever shall be in an up pull with hole for CO₂ bottle facing bottom of raft, ensure protective cover is not pinched between inflator and valve stem. Install new top gasket (large ID).

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

7. Perform functional check of inflation valve in accordance with [paragraph 6-26](#).

8. Deleted

9. Deleted

Figure 6-8. Deleted

6-55. REPLACEMENT OF PNEUMATIC INFLATOR VALVE (CHECK VALVE) ASSEMBLY. To replace a defective check valve assembly, proceed as follows:

Support Equipment Required

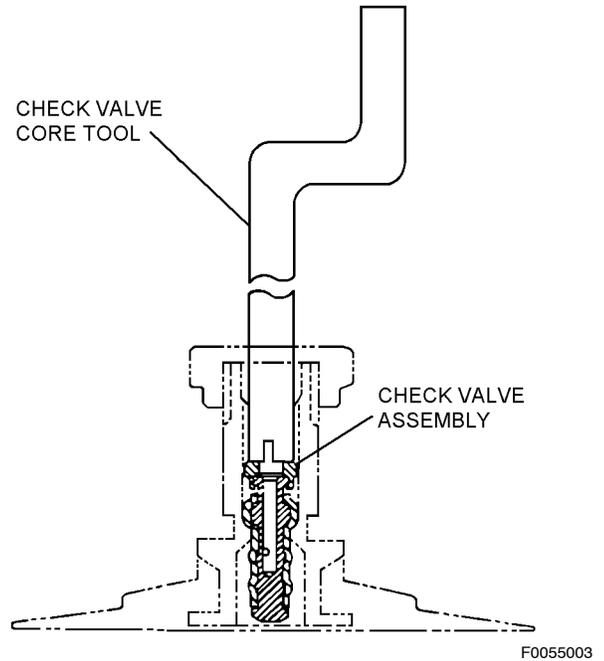
Quantity	Description	Reference Number
1	Valve, Pneumatic Inflator (Check Valve Assembly)	Schrader-Bridgeport P/N 768 (Note 1)
1	Tool, Valve Core	318M0007P001 NIIN 00-308-3809 or equivalent
1	Wrench, Torque	—

Notes: 1. Schrader-Bridgeport P/N 768 must be open purchased from:
Schrader-Bridgeport Intl
205 Frazier Rd
P.O. Box 668
Altivista, VA 24517
Phone 804-369-8826

1. If not available, fabricate a check 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 6-55

4. Insert new check valve in valve stem and tighten with valve core tool hand tight, ensuring that check valve is not Pam type core.

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

6. Perform a functional and leakage test on the liferaft CO₂ cell in accordance with [paragraph 6-26](#) and [6-34](#).

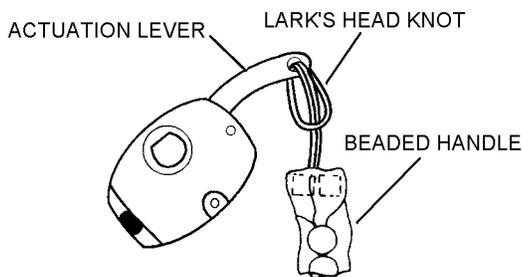
6-56. REPLACEMENT OF BEADED INFLATION HANDLE ASSEMBLY. To replace the beaded inflation handle, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Handle, Beaded Inflation	975AS121-12
As Required	Thread, Nylon Size E	V-T-295 NIIN 00-204-3884

NAVAIR 13-1-6.1-1

1. Ensure that inflation assembly will not actuate by removing CO₂ cylinder.
2. Remove inflation lanyard from inflation assembly.
3. Pass the beaded handle's lanyard loop through the hole in the actuation lever on the CO₂ inflation assembly.



F0056006

Step 3 - Para 6-56

4. Form a lark's head knot and pull tight.
5. Perform Beaded Inflation Handle pull test in accordance with [paragraph 6-33](#).
6. Recoek CO₂ inflator and reinstall CO₂ cylinder.
7. Pack liferaft in accordance with [paragraph 6-61](#).

6-57. REPLACEMENT OF QUICK EJECTOR SNAP (SRU-37/P). To remove and replace the quick ejector snap, proceed as follows:

Materials Required

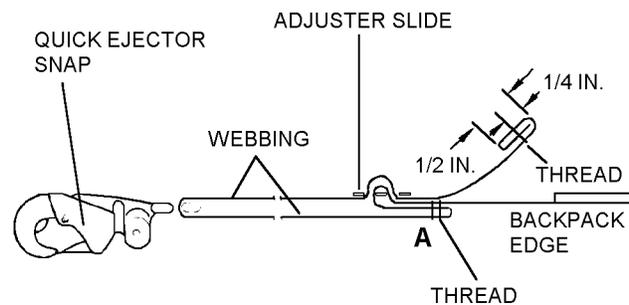
Quantity	Description	Reference Number
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884
1	Ejector Snap	MS22017-1

1. Carefully cut stitching at 'A' and remove defective ejector snap by unreeving webbing belt from adjuster slide and ejector snap.

2. Inspect adjuster slide and replace if corroded.

3. Inspect replacement ejector snap for proper operation.

4. Reeve webbing through adjuster slide and ejector snap, and restitch as shown.



F0057004

Step 1 and 4 - Para 6-57

6-58. REPLACEMENT OF TRIANGLE LINK (SRU-37/P). To remove and replace the triangle link, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884
1	Triangle Link	MS22020-1

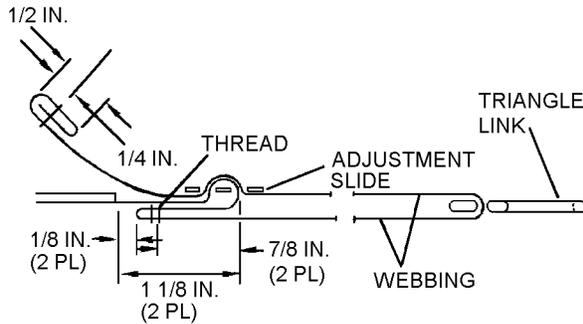
1. Carefully cut stitching at 'A' and remove defective triangle link by unreeving webbing belt from adjuster slide and triangle link.

2. Inspect adjuster slide and replace if corroded.

3. Inspect replacement triangle link for any damage or corrosion.

4. Reeve webbing through adjuster slide and triangle link, and restitch as shown.

1. Cut one 5 1/2-inch length and two 2-inch lengths of hook and pile tape. Sew to the coated side of the coated nylon cloth. Use stitch type 301 stitching 8 to 10 stitches per inch.



F0058004

Step 1 and 4 - Para 6-58

6-59. FABRICATION OF PROTECTIVE COVER.

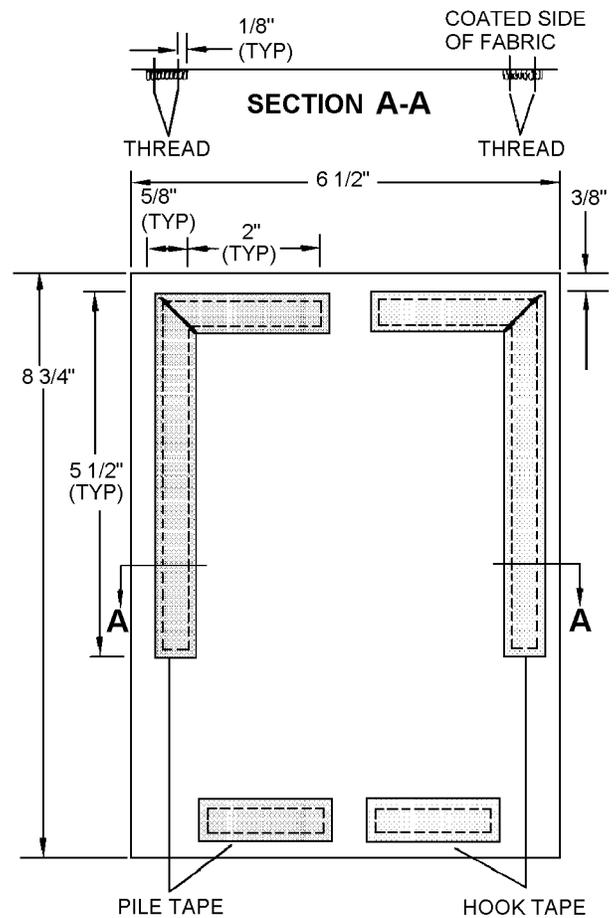
To fabricate a protective cover for the CO₂ inflation assembly, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Punch, Cutting, Type 1, Class B Style 1, Size 9	GGG-P-833A NIIN 00-180-0925

Materials Required

Quantity	Description	Reference Number
8 3/4 x 6 1/2 inches	Polyurethane-coated nylon cloth, Type I	MIL-C-83489 NIIN 01-335-3129
10 x 5/8 inches	Fastener Tape, Hook, Type II, Synthetic, Black	MIL-F-21840 NIIN 00-935-6762
10 x 5/8 inches	Fastener Tape, Pile, Type II, Synthetic, Black	MIL-F-21840 NIIN 00-935-6763
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884

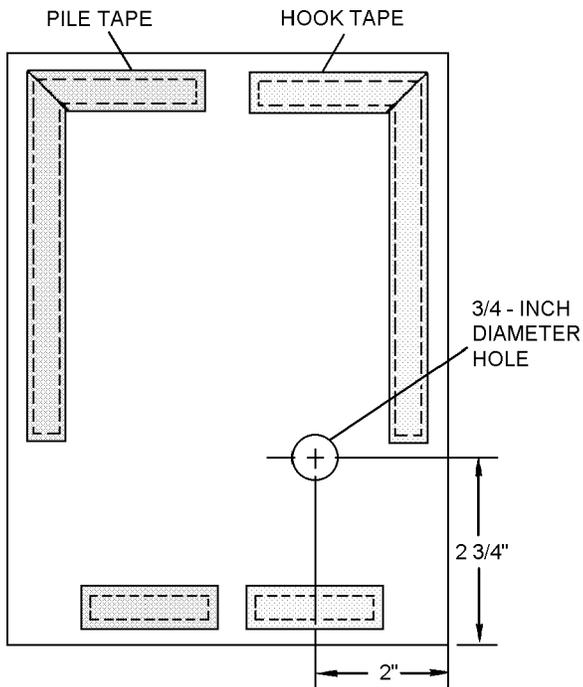


F0059001

Step 1 - Para 6-59

NAVAIR 13-1-6.1-1

2. Position coated nylon cloth, coated side up, over cutting board and punch a 3/4-inch hole.



Step 2 - Para 6-59

F0059002

6-60. FABRICATION OF TETHER LINE (SRU-37/P).

To fabricate a retaining line for the (SRU-37/P) Helicopter Backpack, proceed as follows:

Materials Required

Quantity	Description	Reference Number
6 feet	Webbing Nylon, Type II, 1 inch, Yellow	MIL-W-4088 NIIN 00-262-1643
As Required	Thread, Nylon, Type II, Size E	V-T-295 NIIN 00-204-3884

1. Fold webbing to dimensions shown in figure 6-9, and stitch as shown using size E nylon thread (V-T-295, Type II), 8 to 10 stitches per inch. Backstitch a minimum 1/2 inch.

6-61. PACKING LRU-18/U LIFERAFT.

6-62. This section contains information on packing the LRU-18/U in the SRU-37/P helicopter backpack. Information on packing the LRU-18/U in the E-2C SKK-9 container assembly can be found in NAVAIR 13-1-6.3-1. Packing of the LRU-18/U liferaft shall be carried out by qualified personnel at the intermediate level of maintenance or above. Cleaning and servicing instructions may be found in [paragraph 6-38](#).

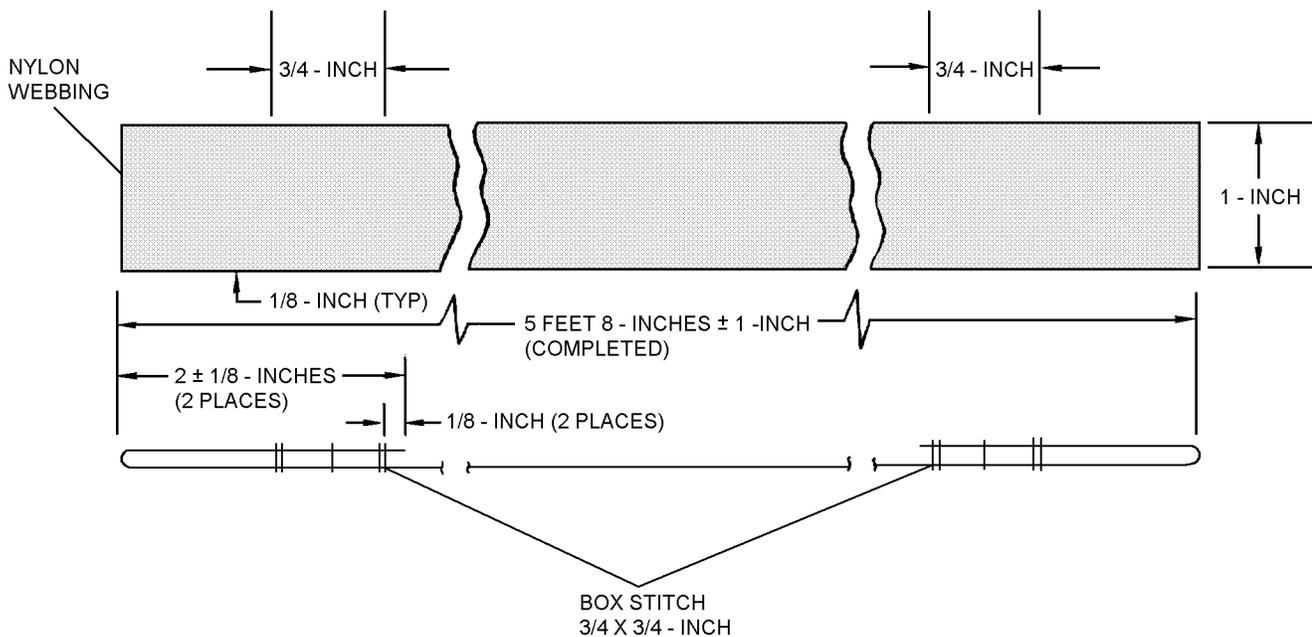


Figure 6-9. Tether Line Assembly

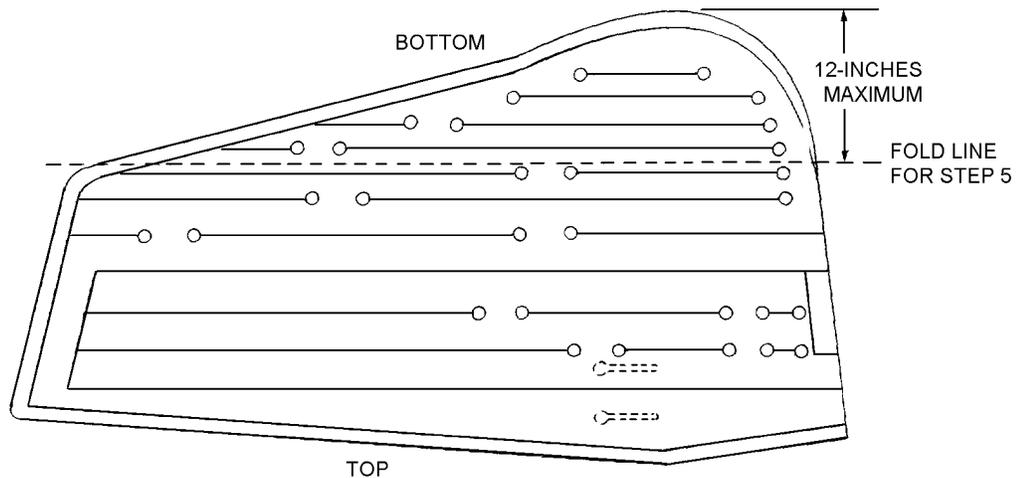
10060009

6-63. PACKING LRU-18/U LIFERAFT IN SRU-37/P HELICOPTER BACKPACK. To pack an LRU-18/U liferaft in an SRU-37/P helicopter backpack, proceed as follows:

1. Ensure liferaft and back pack have been inspected in accordance with paragraph 6-14.
2. Prior to packing, ensure that both cells have been thoroughly deflated. Ensure oral inflation valves are locked then placed in protective pockets. Refer to paragraphs 6-43 and 6-44.

3. Ensure CO₂ cylinder is properly installed and seated in accordance with paragraph 6-45 and that beaded inflation handle is properly attached to actuation lever in accordance with paragraph 6-56. Cover CO₂ inflation assembly with anti-chafing cover.

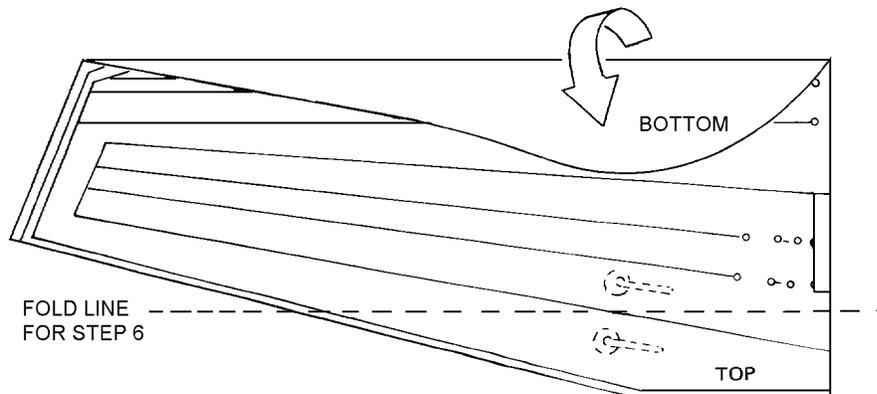
4. Lay the liferaft on the packing table as shown below and lightly dust entire raft with talc (MIL-T-500036A). Note fold line for the next step (one inch below the fourth seal line). For simplicity, the beaded handle is omitted in the following folding diagrams.



Step 4 - Para 6-63

F0063004

5. Fold bottom over and down, as shown below. Note the fold line for the next step.

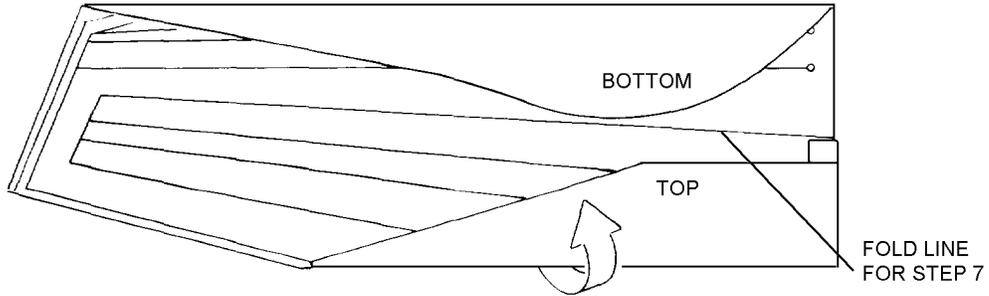


Step 5 - Para 6-63

F0063005

NAVAIR 13-1-6.1-1

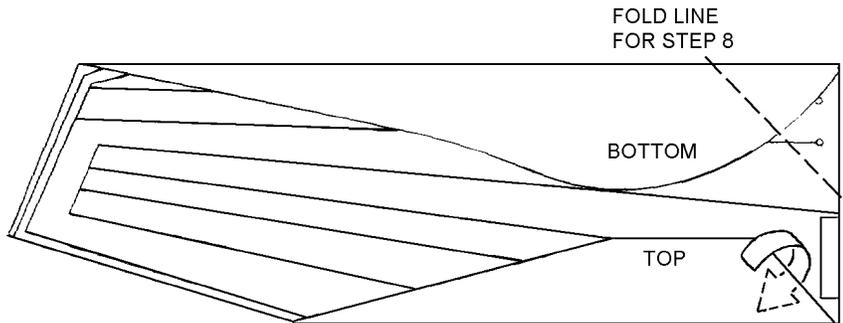
6. Fold top over and up and note fold line for the next step.



Step 6 - Para 6-63

F0063006

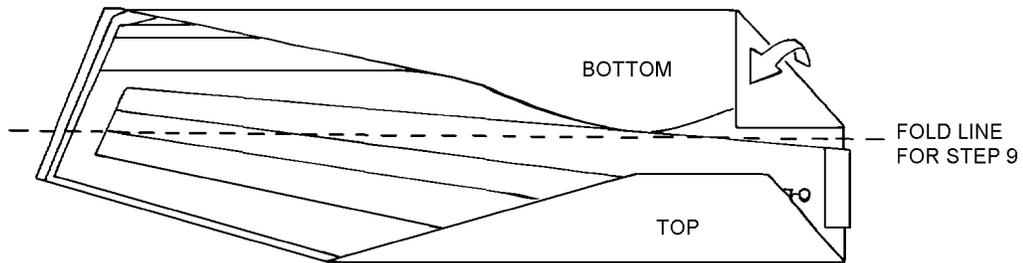
7. Tuck flap under as shown below to uncover the CO₂ inflation assembly. Note fold line for the next step.



Step 7 - Para 6-63

F0063007

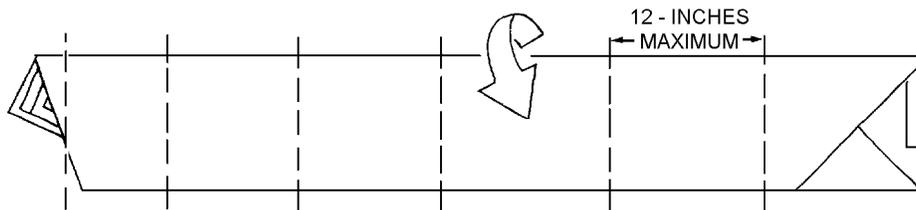
8. Fold the top right corner of the bottom down as shown, and note the fold line for the next step is halfway between the top and bottom.



Step 8 - Para 6-63

F0063008

9. Fold down bottom as shown and note the fold lines to complete the folding. The width of the folded raft should not exceed 12 inches.

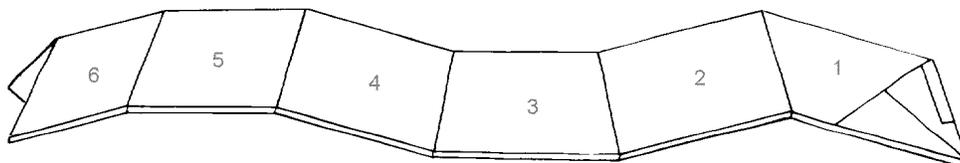


Step 9 - Para 6-63

F0063009

10. Step 10 is the perspective, partially folded view of step 9. Steps 11 through 14 indicate the proper folding method. The packer shall ensure that

the overall width of the panels, when folded, does not exceed 12 inches. Note the numbers assigned to the panels.

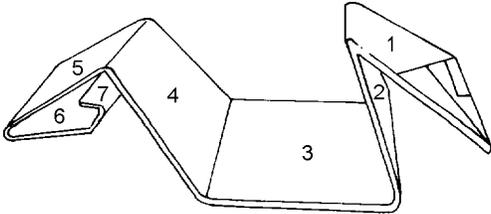


Step 10 - Para 6-63

F0063010

NAVAIR 13-1-6.1-1

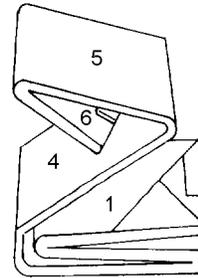
11. Fold panels 1 through 7 as shown.



Step 11 - Para 6-63

F0063011

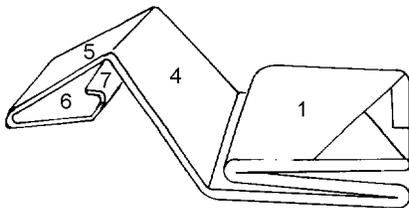
13. Fold panel 4 over panel 1, then proceed to close panel 5 over panels 6 and 7.



Step 13 - Para 6-63

F0063013

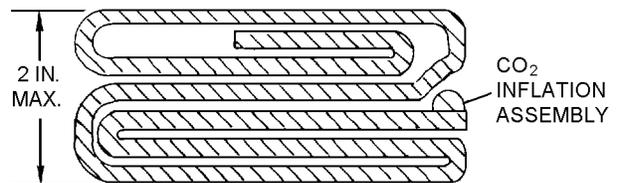
12. The top panel (panel 1) shall cover panels 2 and 3.



Step 12 - Para 6-63

F0063012

14. Shown is an exaggerated end-view of the raft, folded as required for proper fit and optimum performance. The overall height when compacted shall not exceed 2 inches.

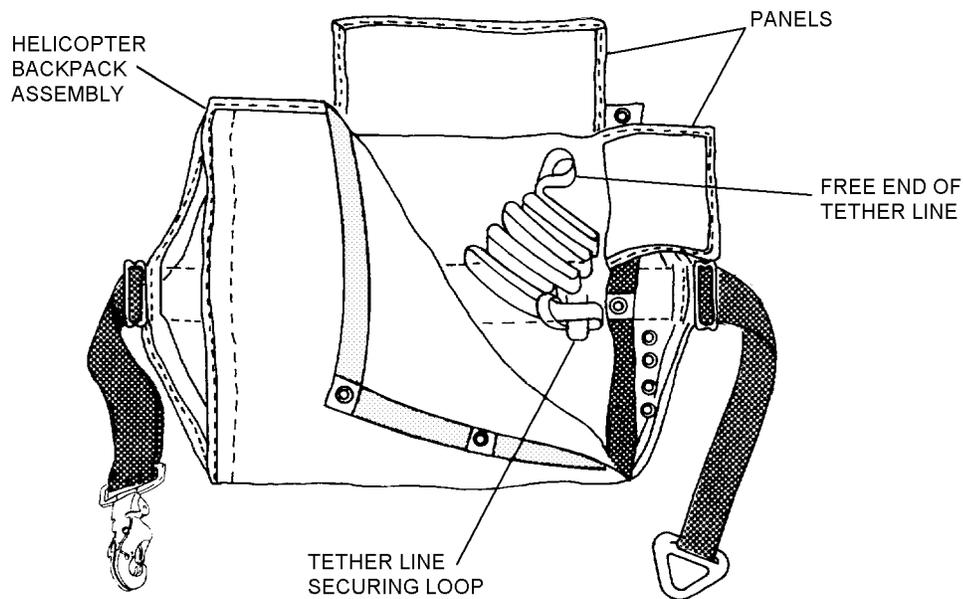


Step 14 - Para 6-63

F0063014

15. Place the helicopter backpack on the table as shown so that the panels are open and the outside

facing of the backpack is folded back so to allow for insertion of the liferaft.

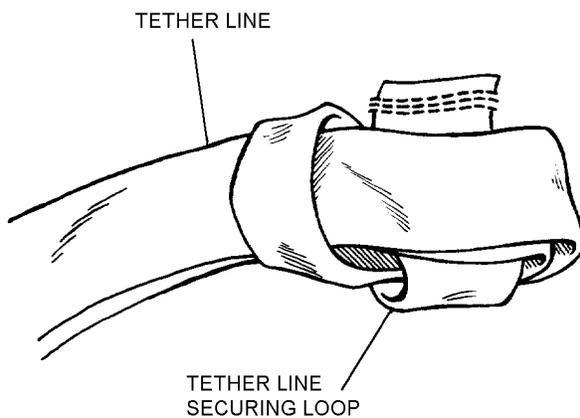


Step 15 - Para 6-63

F0063015

16. Secure the tether line to the securing loop with a lark's head knot.

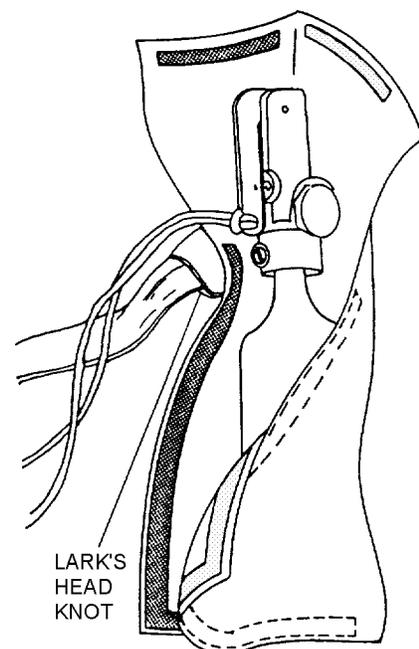
turns of waxed, size 6 cord, single. Tie the ends of the thread with a surgeon's knot, followed by a square knot.



Step 16 - Para 6-63

F0063016

17. Form a lark's head knot on the free end of the tether line large enough to pass over the entire CO₂ inflation assembly (between the anti-chafing cover and the liferaft). Tighten the knot around the manifold stem. This knot will lie between the raft and the CO₂ inflation assembly. Tack the knot with two



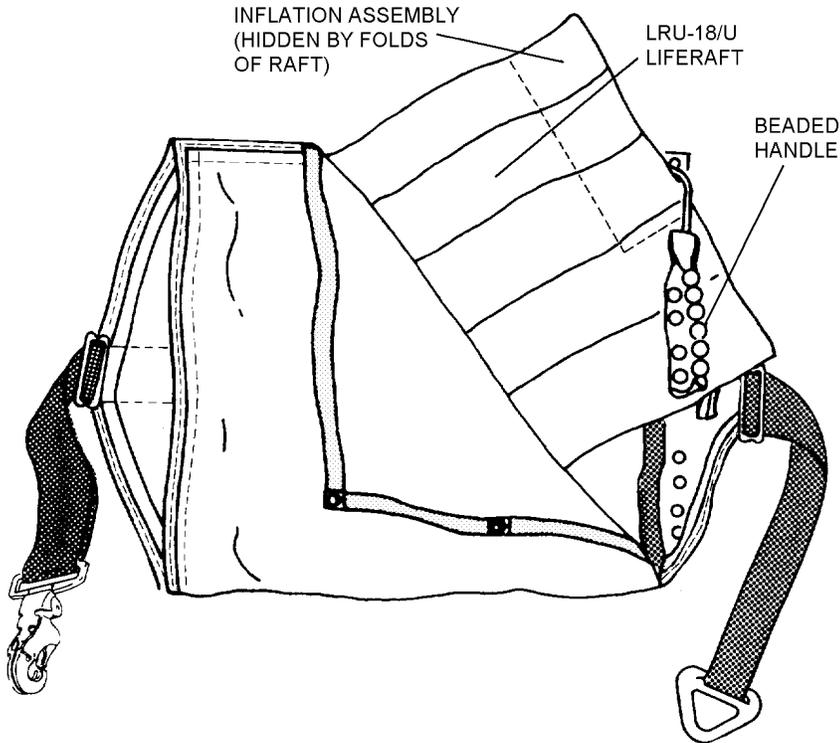
Step 17 - Para 6-63

F0063017

NAVAIR 13-1-6.1-1

18. Fold the tetherline in bights of approximately six inches, secure with a rubberband and stow to the left of the CO₂ inflation assembly, between panels 1 and 4. Allow enough slack in the tether, between the raft and the securing loop, to allow for the insertion

of the raft into the pouch of the container assembly. Insert the raft, as shown, forcing it firmly into the pouch with the CO₂ inflation assembly on the upper right hand side.

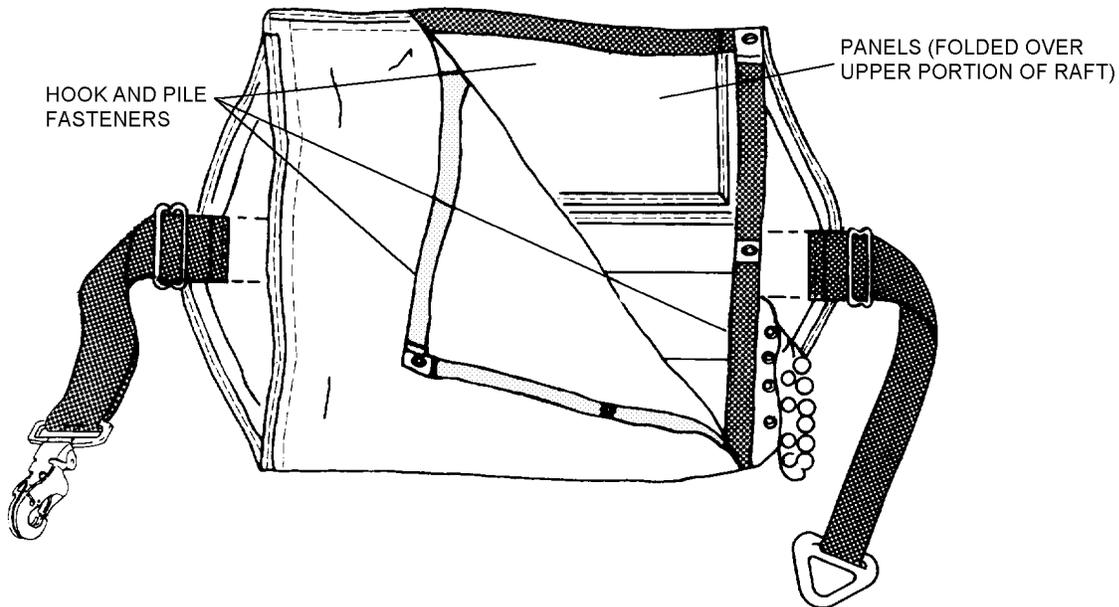


Step 18 - Para 6-63

F0063018

19. Cover the upper right and top portions of the raft with the container panels as shown and ensure that the beaded inflation handle lanyard is placed

above the center snap fastener before securing the hook and pile facing and the two snaps of the container facing.

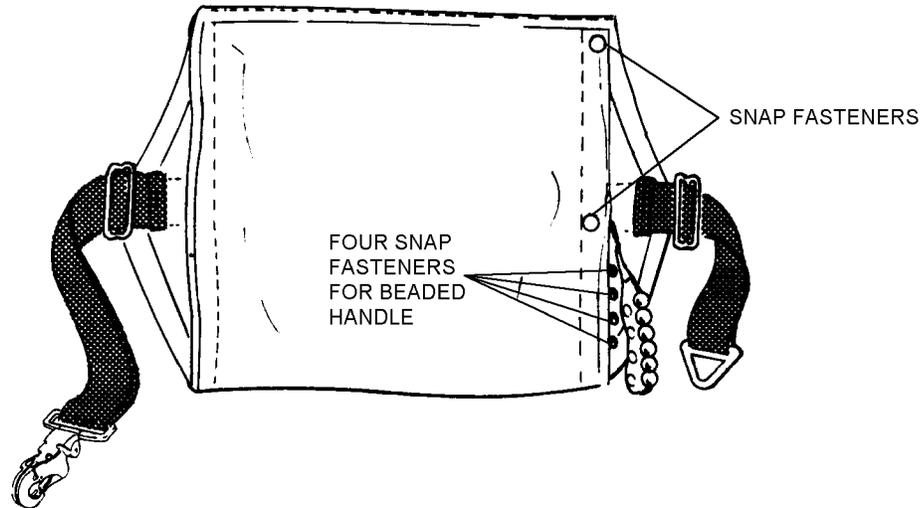


Step 19 - Para 6-63

F0063019

20. Secure cover with the hook and pile fasteners and the two snap fasteners, then snap the beaded

inflation handle to the four snap fasteners (shown unfastened).



Step 20 - Para 6-63

F0063020

21. Safety tie beaded inflation handle with turn of size E nylon thread single. Draw thread sufficiently to permit a $1/2 \pm 1/8$ -inch space between the middle beads and webbing. Tie off ends with a surgeon's knot followed by a square knot.

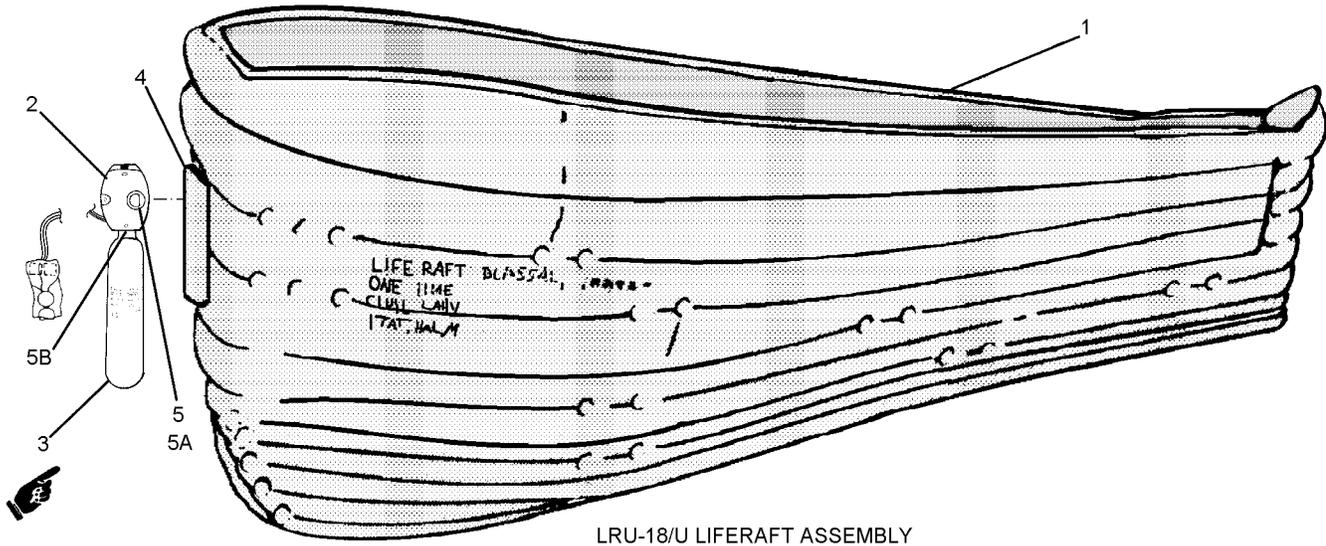
22. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

Section 6-4. Illustrated Parts Breakdown (IPB)

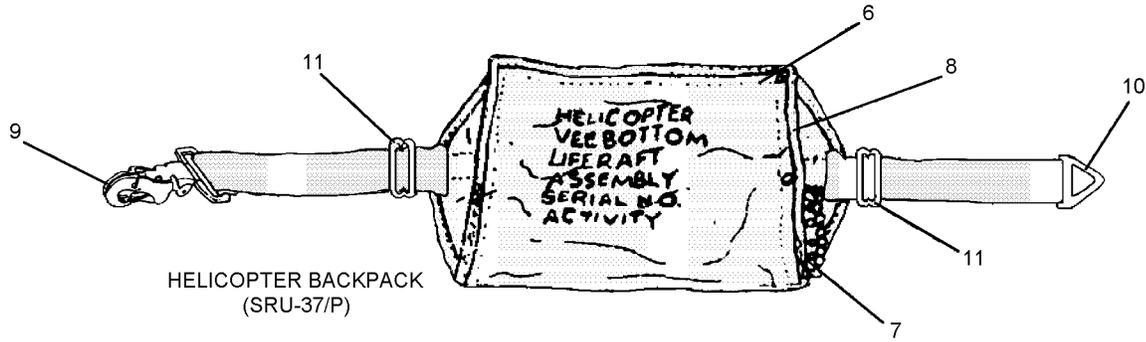
6-64. GENERAL.

6-65. This section lists and illustrates the assemblies and detail parts of the LRU-18/U Liferaft.

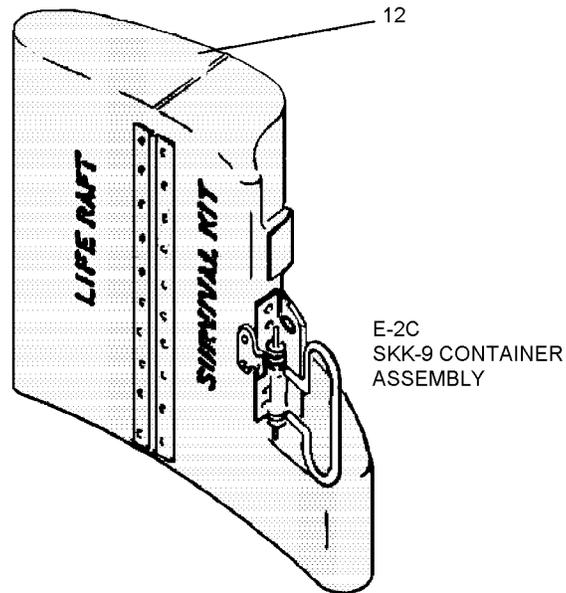
6-66. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.



LRU-18/U LIFERAFT ASSEMBLY



HELICOPTER BACKPACK (SRU-37/P)



E-2C SKK-9 CONTAINER ASSEMBLY

Figure 6-10. LRU-18/U Liferaft Assembly

10060010

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
		1 2 3 4 5 6 7		
6-10		LRU-18/U LIFERAFT ASSEMBLY	REF	
-1	1521AS102-1	. LIFERAFT, One-man, Inflatable	1	
-2	840-AMLS	. . INFLATION VALVE ASSEMBLY	1	
-3	MIL-C-52053A	. . . CO ₂ CYLINDER (2 OZ.)	1	
-4	768	. . . CHECK VALVE ASSEMBLY (Note 2)	1	
-5	105AS100-3	. . . GASKET, Top (Note 1)	1	
-5A	105AS100-4	. . . GASKET, Bottom (Note 1)	1	
-5B	849AML	. . . SEAT SEAL	1	
-6	133AS111-11	. HELICOPTER BACKPACK ASSEMBLY	1	
-7	975AS121-12	. . BEADED INFLATION HANDLE	1	
-8	1332AS114-1	. . TETHER LINE	1	
-9	MS22017	. . QUICK-EJECT SNAP	1	
-10	MS22020-1	. . TRIANGLE LINK	1	
-11	MS90297-1	. . BUCKLE (Adjuster Slides)	1	
-12	123AB50512-3	. E-2C SKK-9 CONTAINER ASSEMBLY	1	
		Notes: 1. Top and bottom gaskets are obtained from valve stem kit P/N 105AS100-6, NIIN 00-113-8290 which contains one top and one bottom gasket.		
		2. Schrader-Bridgeport P/N 768 must be open purchased from: Schrader-Bridgeport Intl 205 Frazier Rd P.O. Box 668 Altivista, VA 24517 Phone 804-369-8826		

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-52053TC	6-10-3	PAGZZ	1332AS111-11	6-10-6	PAGGG
MS22017	6-10-9	PAOZZ	133AS114-1	6-10-8	XAGGG
MS22020-1	6-10-10	PAOZZ	1521AS102-1	6-10-1	PAGGG
MS90297-1	6-10-11	PAOZZ	768	6-10-4	PAGZZ
105AS100-3	6-10-5	PAGZZ	840-AMLS	6-10-2	PAGZZ
105AS100-4	6-10-5A	PAGZZ	849AML	6-10-5B	PAGZZ
123AB50512-3	6-10-12	AG---	975AS121-1	6-10-7	PAGZZ