

CHAPTER 5

SEAT PANS/SOFT PACK SURVIVAL KITS

Section 5-1. Description

5-1. GENERAL.

5-2. The Seat Pans (Douglas, P/N 5811863-503, and the SP-1A, P/N 68A74E1-1) are designed for use with both ejection and non-ejection seats and function as a seat for the aircrewman as well as a container for an emergency oxygen system (figures 5-1 through 5-3).

5-3. The Soft Pack Survival Kits (Standard Soft Pack, Special Soft Pack, High Speed Soft Pack and Modified High Speed Soft Pack) may be used with the seat pans and function as a container for a liferaft and survival items (figures 5-4 through 5-6).

5-4. CONFIGURATION.

5-5. The Douglas Seat Pan is constructed of fabric and a rigid structural member with foam shock and comfort cushion. The seat pan is attached to the High Speed Soft Pack, which houses the liferaft and survival items. Adjustable retaining straps on the soft pack provide for attachment to the seat pan and parachute. Flexible oxygen hoses on the seat pan provide connection between aircrewman and aircraft. The seat pan houses a 22 cu in., 1800 psi, emergency oxygen cylinder and hose assembly capable of supplying just over 10 minutes of breathing oxygen for high altitude bailout. Or, in the event of a failure of the aircraft oxygen system, emergency oxygen is available by pulling the manual oxygen release on the seat pan. Oxygen from the seat pan then flows to the aircrewman through the regulator in the seat pan. A check valve in the manifold prevents emergency oxygen from flowing into the aircraft system or overboard from the seat pan. The regulator is automatically actuated at ejection by a cable attached to the cockpit deck.

5-6. The SP-1A is constructed of a fabric cover and rigid structural member with a foam rubber filler. It is attached to the Standard Soft Pack and parachute harness by reeving the adjustable retaining strap on the soft pack through the keepers on the bottom of the seat pan, and the parachute leg straps through the leg strap slot in the seat pan. A flexible oxygen hose provides connection between aircrewman and oxygen bottle, a 22 cu in., 1800 psi, emergency oxygen cylinder capable of supplying just over 10 minutes of breathing oxygen for high altitude bailout. When the manual oxygen release is pulled, oxygen flows to the aircrewman through a metering orifice. Oxygen is actuated only by the manual oxygen release as no automatic feature is incorporated.

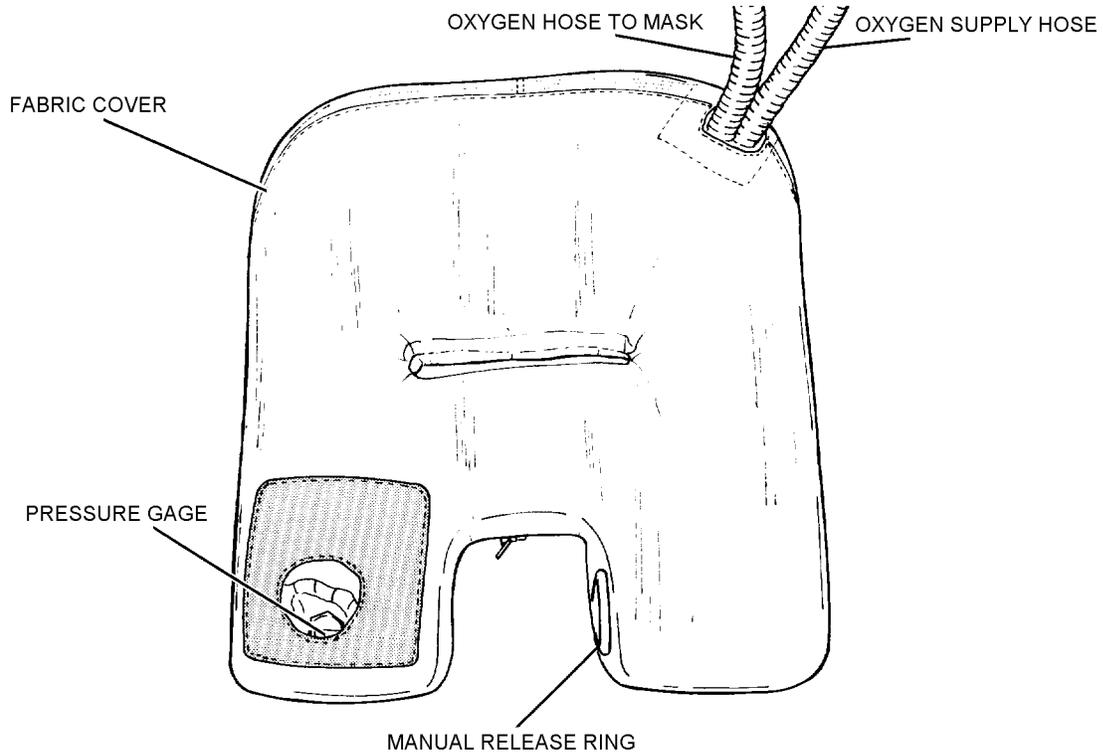
5-7. When seated aboard the aircraft, the aircrewman engages the ejector snaps with the V-rings on his parachute harness. The personal service leads are connected via quick-disconnect fittings.

5-8. SUBASSEMBLIES. The major subassemblies of the seat pans are:

1. Emergency Oxygen Bottle
2. Pressure Regulator (Douglas only)
3. Check Valve (Douglas only)

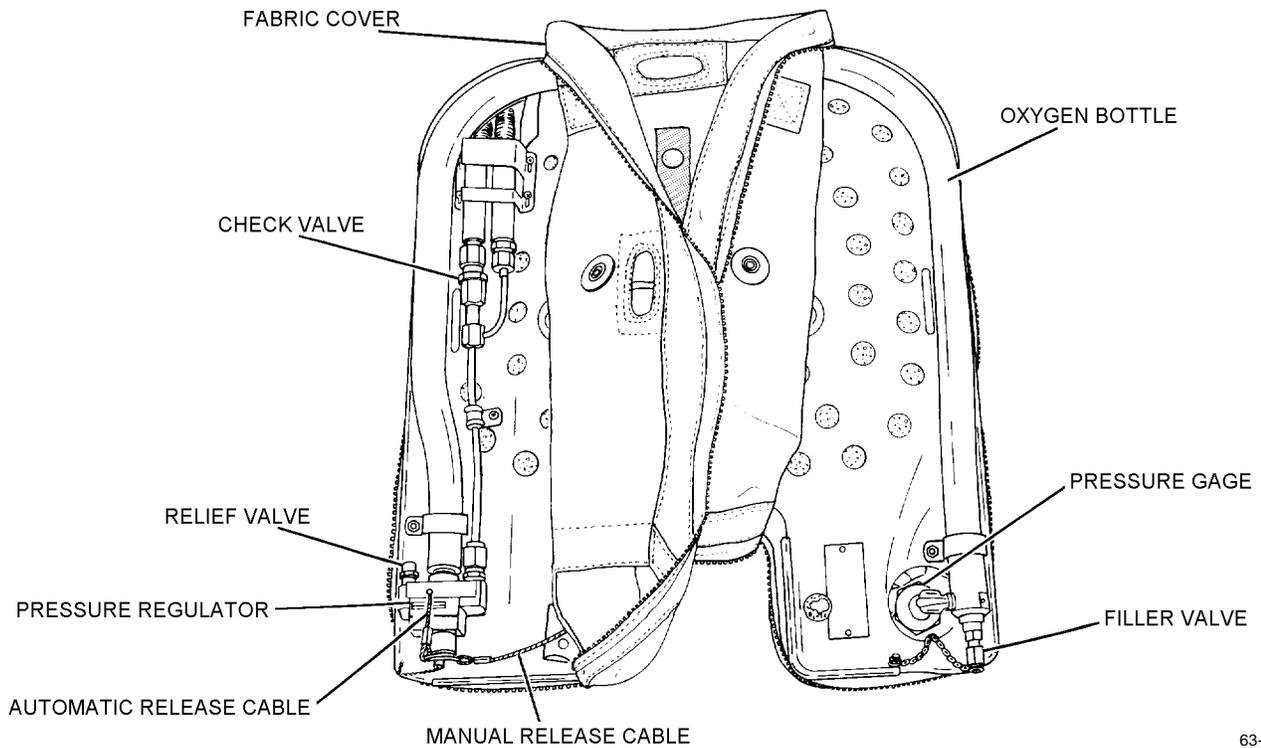
5-9. REFERENCE NUMBERS, ITEMS AND SUPPLY DATA.

5-10. Figures 5-17 through 5-20 contain information on each assembly, subassembly and component part of the seat pans. The figure and index number, reference or part number, description and units per assembly are provided.



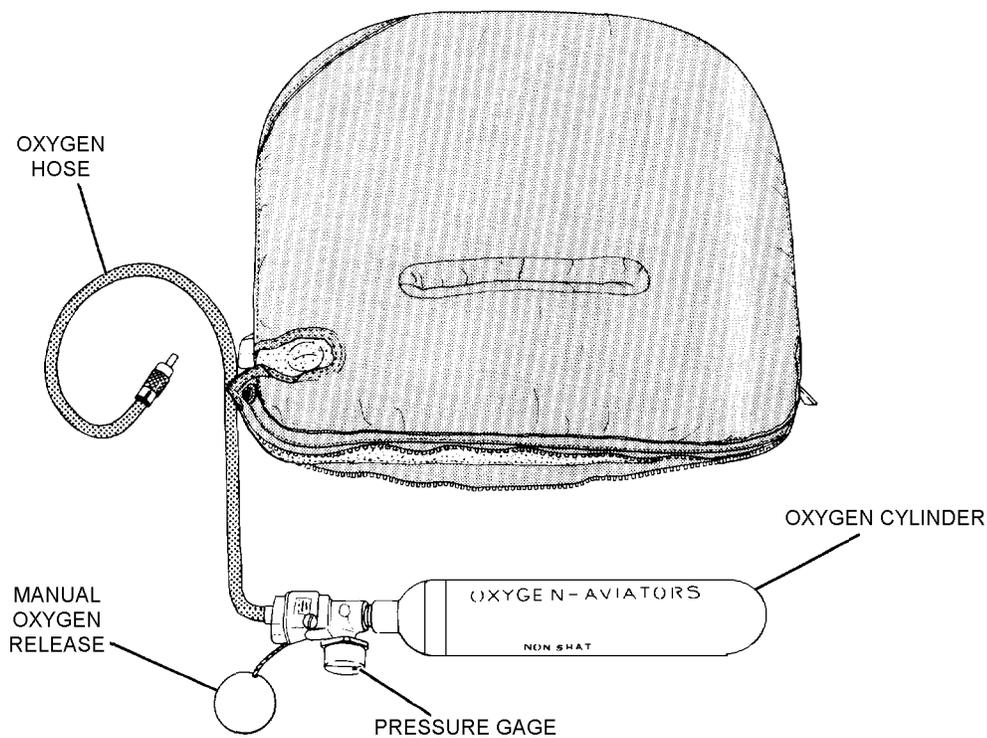
63-248

Figure 5-1. Douglas Seat Pan (Top)



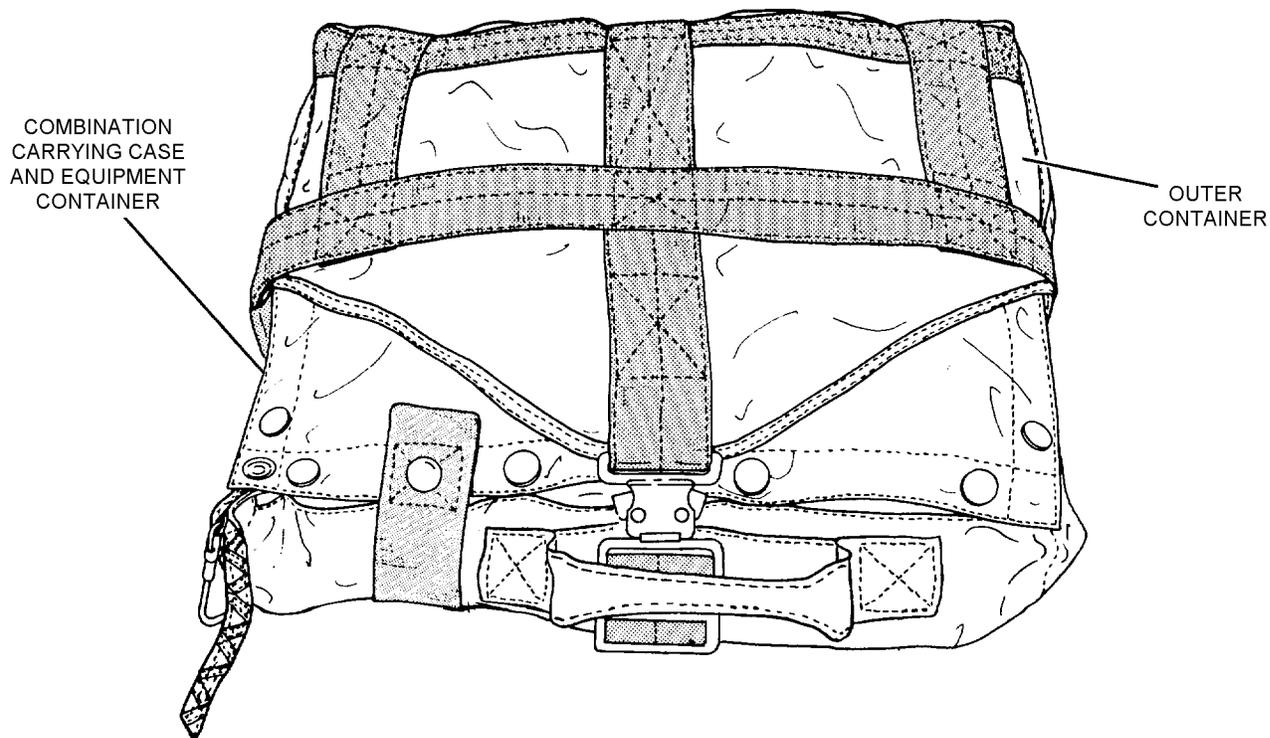
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Figure 5-2. Douglas Seat Pan (Bottom)



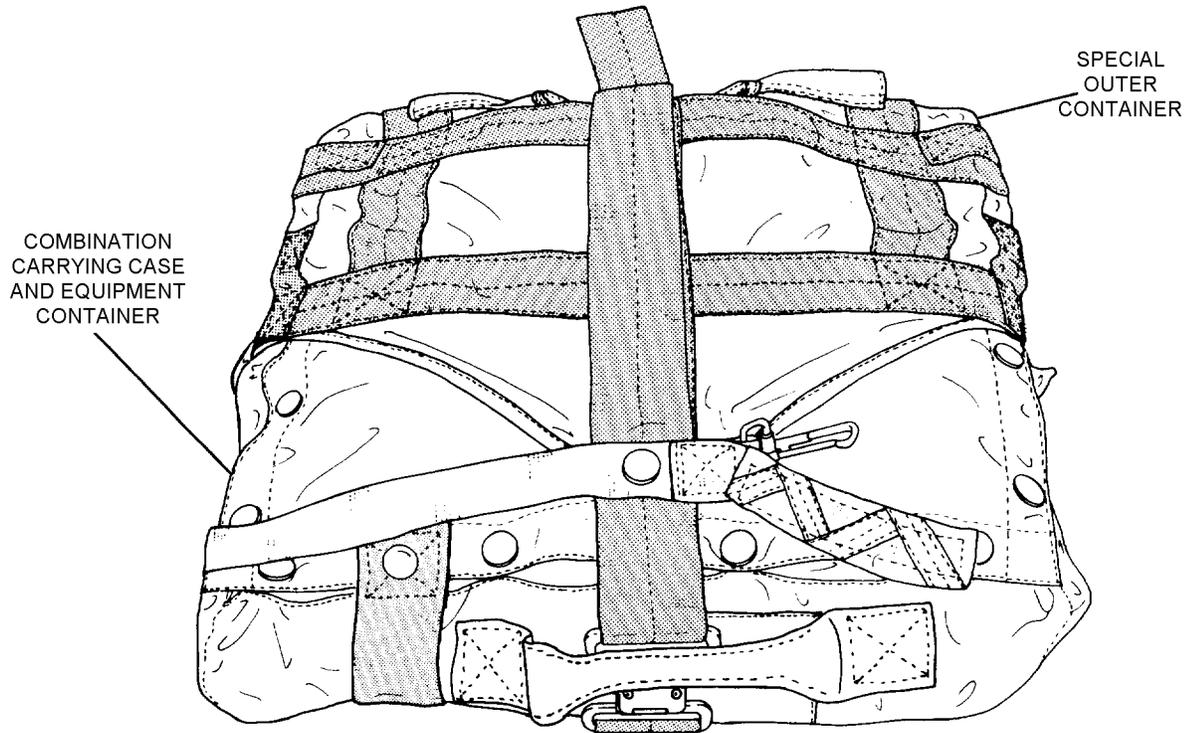
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Figure 5-3. SP-1A Seat Pan



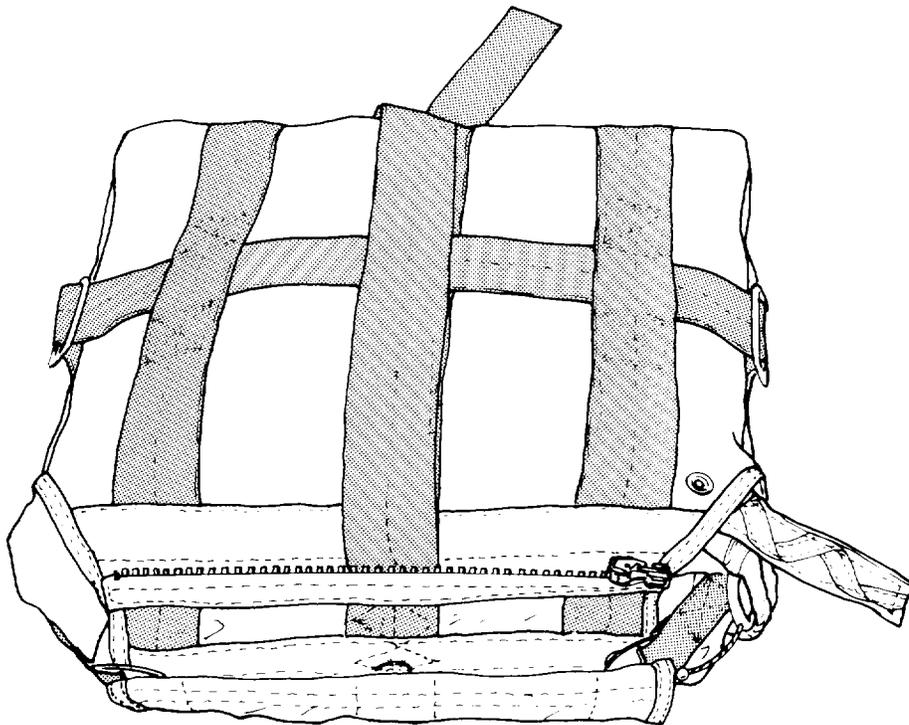
63-831

Figure 5-4. Standard Soft Pack



63-832

Figure 5-5. Special Soft Pack



63-833

Figure 5-6. High Speed Soft Pack

5-11. APPLICATION.

5-12. The Douglas Seat Pan and High Speed Soft Pack are part of the survival equipment used by aircrewmembers aboard A-4B, C, E and L aircraft. The SP-1A and Standard Soft Pack are part of the survival equipment used aboard aircraft using NC-3, NB-6, NB-8 and NS-3 parachute assemblies. The Special Soft Pack is part of the survival equipment used aboard A-6 series aircraft incorporating the MK-GRU5 Escape System. The Modified High Speed Soft Pack is part of the survival equipment used with the NB-8 parachute assembly aboard T-39 aircraft. Refer to NAVAIR 13-1-6.2.

5-13. FUNCTION.

5-14. When the aircrewman exits the aircraft, the following functions occur:

1. (Douglas Seat Pan) At seat ejection, the automatic actuation lanyard for the emergency oxygen system actuates the regulator assembly and supplies the aircrewman with emergency oxygen for descent. If automatic actuation of the emergency oxygen system fails, the emergency oxygen system may be actuated by means of the manual oxygen release. The liferaft, stowed with survival items in the High Speed Soft Pack, is inflated manually by pulling the inflation assembly pull toggle. The radio beacon is actuated by means of an automatic actuation lanyard at seat ejection. The beacon will provide a continuous signal during descent (figure 5-7).

2. (SP-1A Seat Pan) The aircrewman must manually actuate the emergency oxygen system by means of the manual oxygen release. There is no automatic actuation lanyard on this seat pan assembly. The liferaft, stowed with survival items in the Standard Soft Pack, is inflated manually by pulling the inflation assembly pull toggle. The radio beacon is actuated by means of an automatic actuation lanyard at man/seat separation. The beacon will provide a continuous signal during descent.

3. The Special Soft Pack, used in conjunction with a ventilated seat pad in A-6 series aircraft, houses the liferaft and survival items. The liferaft is inflated manually by pulling the inflation assembly pull toggle. The radio beacon is actuated by means of an automatic actuation lanyard at man/seat separation. The beacon will provide a continuous signal during descent.

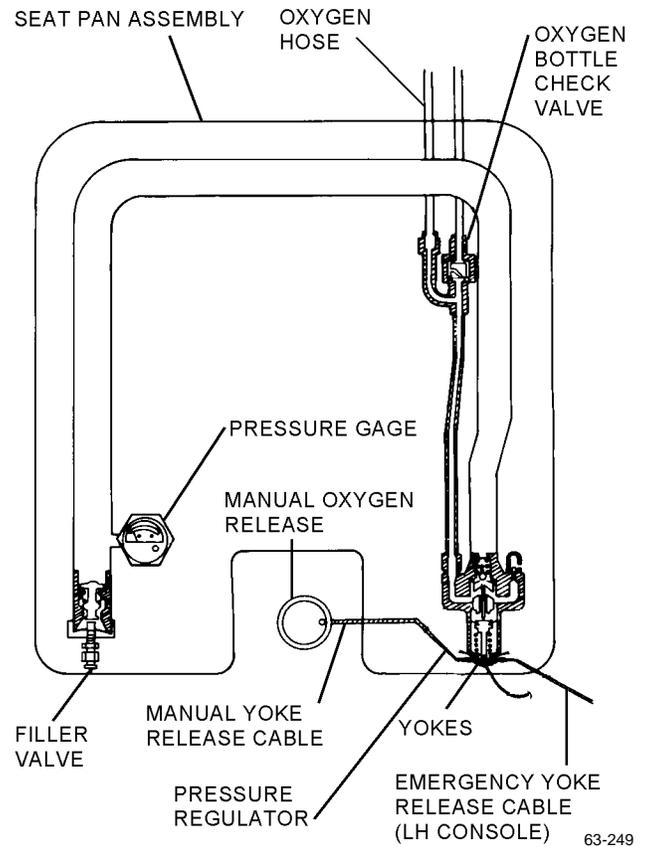


Figure 5-7. (Douglas) Oxygen Schematic

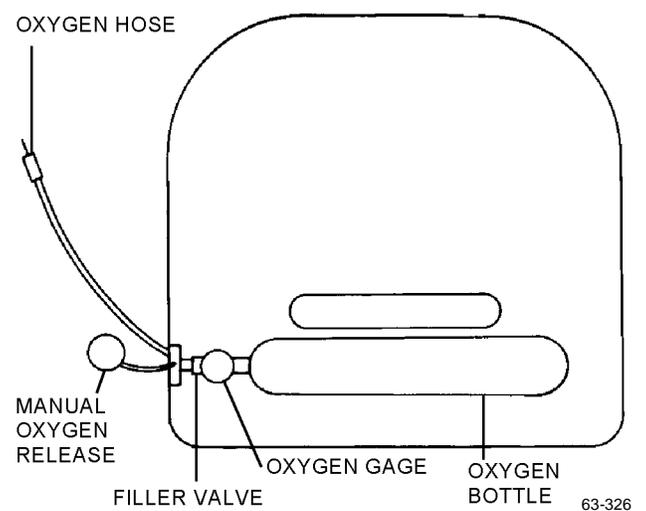


Figure 5-8. (SP-1A) Oxygen Schematic

Section 5-2. Modifications

5-15. GENERAL.

5-16. The seat pan/soft pack survival kit shall be updated by comparing the configuration of the assembly with the directives listed in [table 5-1](#).

Table 5-1. Seat Pan/Soft Pack Survival Kit Directives

Description Of Modification	Application	Modification Code
Installation of AN/URT-33A Emergency Radio Beacon in Douglas Seat Pan	All Douglas Seat Pans installed in A-4 series aircraft	66-161, Part IV, Amend. 1
Installation of AN/URT-33A Emergency Radio Beacon in the LR-1 (Special) Survival Kit	All LR-1 (Special) Survival Kits installed in A-6 series aircraft	66-161, Part VI
Addition of Slide Fastener to SP-1A Seat Pan	All SP-1A Seat Pans used with LRU-7/P Liferaft System in QT-33A aircraft	66-181
Addition of Pile Tape to High speed Soft Pack	All High speed Soft Packs installed in T-39 aircraft	60-19
Removal of AN/URT-33A Radio Beacon	All LR-1 Standard Soft Packs installed in E-2 aircraft	66-473 Amend. 1

Section 5-3. Rigging and Packing

5-17. GENERAL.

5-18. Unless operational requirements demand otherwise, rigging and packing of the seat pans and soft pack survival kits shall be accomplished at the Intermediate Level of maintenance by qualified personnel every 448 days.

NOTE

Quality assurance steps are provided for critical operations. When a step is underlined, the Aircrew Survival Equipmentman shall

perform the operation and then have performance verified by Quality Assurance (QA).

5-19. RIGGING AND PACKING PROCEDURES.

5-20. Rigging and packing of the seat pans and soft pack survival kits is accomplished in twelve separate operations as follows:

1. Preliminary Procedures
2. Radio Beacon Rigging and Installation (Douglas Seat Pan)

3. Radio Beacon Rigging and Installation (Special Soft Pack)

4. Radio Beacon Rigging and Installation (Standard Soft Pack)

5. Survival Equipment Binding

6. Survival Equipment Packing (High Speed Soft Pack)

7. Survival Equipment Packing (Standard and Special Soft Packs)

8. Liferaft Preparation, Folding, Rigging and Packing (Standard, Special and High Speed Soft Packs)

9. Liferaft Preparation, Folding, Rigging and Packing (Modified High Speed Soft Pack)

10. Attachment of Seat Pan and Soft Pack to Parachute (Refer to NAVAIR 13-1-6.2)

11. Cockpit Routing and Installation of the Emergency Radio Beacon Lanyard (Douglas Seat Pan)

12. Cockpit Routing and Installation of the Emergency Radio Beacon Lanyard (Special Soft Pack)

5-21. PRELIMINARY PROCEDURES. The following preliminary procedures shall be accomplished prior to rigging and packing the seat pans and soft pack survival kits.

1. Ensure that the seat pan and soft pack survival kit and components have been inspected in accordance with [Section 5-5](#).

2. Inspect oxygen hose assemblies in accordance with [Chapter 4](#).

3. Disassemble seat pan and soft pack by removing combination carrying case and equipment container from special outer container.

4. Inspect special outer covering for damage, fabric for loose, broken or frayed stitching, and hardware for security of attachment, corrosion, damage, wear, and ease of operation.

WARNING

CO₂ bottle is under pressure. Use caution when disconnecting CO₂ bottle from life-raft. Do not loosen or attempt to remove inflation valve assembly from CO₂ cylinder.

CAUTION

Ensure actuating line is disconnected from CO₂ cylinder inflation valve before removal of CO₂ cylinder from liferaft.

5. Disconnect CO₂ cylinder from liferaft as follows:

a. Carefully remove liferaft from container.

b. Disconnect actuation line from CO₂ cylinder.

c. Disconnect CO₂ cylinder from liferaft.

d. Remove liferaft retaining line from CO₂ cylinders neck.

e. Ensure anti-chafing disc is installed. Reconnect CO₂ cylinder to liferaft finger tight. If functional test is required torque valve 80 to 90 in-lbs.

6. Ensure liferaft and CO₂ cylinder have been inspected in accordance with NAVAIR 13-1-6.1-1.

7. Ensure survival items have been inspected in accordance with NAVAIR 13-1-6.5.

NOTE

Ensure battery service life does not expire prior to the next scheduled inspection cycle of the assembly in which the radio set is installed. Refer to NAVAIR 16-30URT33-1 for battery service life.

8. Remove radio beacon set from kit and ensure that the battery and radio beacon have been inspected in accordance with NAVAIR 16-30URT33-1.

9. Check soft pack assembly for cuts, tears and abrasions and hardware for security of attachment, corrosion, damage, wear, and if applicable, ease of operation.

NAVAIR 13-1-6.3-1

5-22. RADIO BEACON RIGGING AND INSTALLATION (DOUGLAS SEAT PAN). To rig and install the AN/URT-33 Emergency Radio Beacon in the Douglas Seat Pan, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Beacon Set, Radio AN/URT-33A	MIL-B-38401A
1	Actuator Indicator Assembly	CL204D3-11 (CAGE 80206) NIIN 00-127-5597
1	Lanyard, Actuation	CL204C4-4 (CAGE 80206)
As Required	Thread, Nylon, Type II, Class A, Size E	V-T-295 NIIN 00-244-0609

Support Equipment Required

Quantity	Description	Reference Number
As Required	T-wrench	Fabricate IAW paragraph 5-69

NOTE

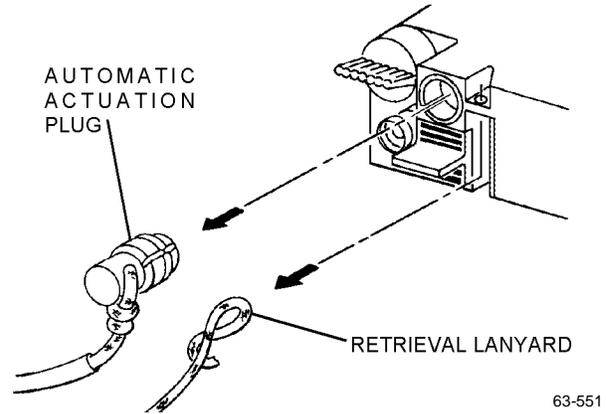
Ensure slider switch on radio beacon is OFF. Slider switch is in OFF position when word ON is not visible on radio beacon housing.

Determine if beacon has been modified in accordance with [steps 1 through 8](#) before proceeding to [step 9](#).

Retain automatic actuation plug, lanyard, and metal insert in shop area for possible future use.

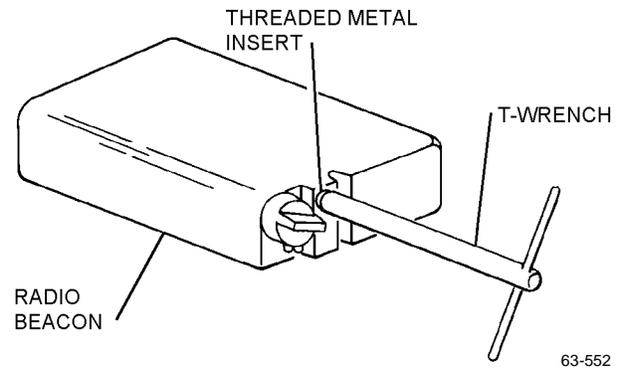
1. Open seat pan slide fastener and pull back cover from cushion.

2. Remove automatic actuation plug and lanyard from radio beacon and retain. Remove and discard retrieval lanyard.



Step 2 - Para 5-22

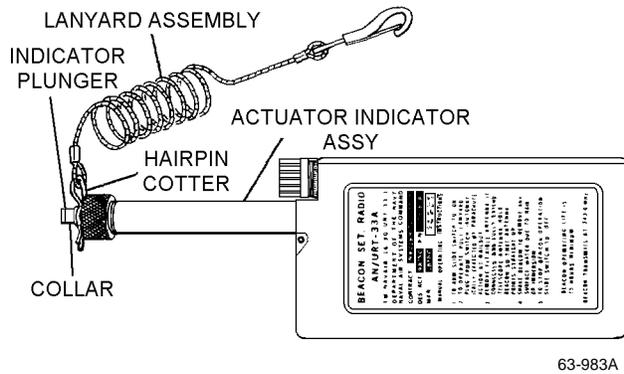
3. Remove threaded metal insert from beacon using T-wrench. (Fabricate T-wrench in accordance with [paragraph 5-69](#).)



Step 3 - Para 5-22

4. Install actuator indicator assembly into position in beacon from which threaded metal insert was removed.

5. Depress indicator plunger, align holes in collar and plunger, and insert hairpin cotter attached to actuation lanyard. Ensure hairpin cotter loop is facing down to aid in guiding pin through hole in bottom of cushion support.



Step 5 - Para 5-22

6. Ensure hairpin cotter and collar are free to rotate 360° without binding. If hairpin cotter and collar are free proceed to step 7. If hairpin cotter and collar do not rotate, refer to NAVAIR 16-30URT33-1.

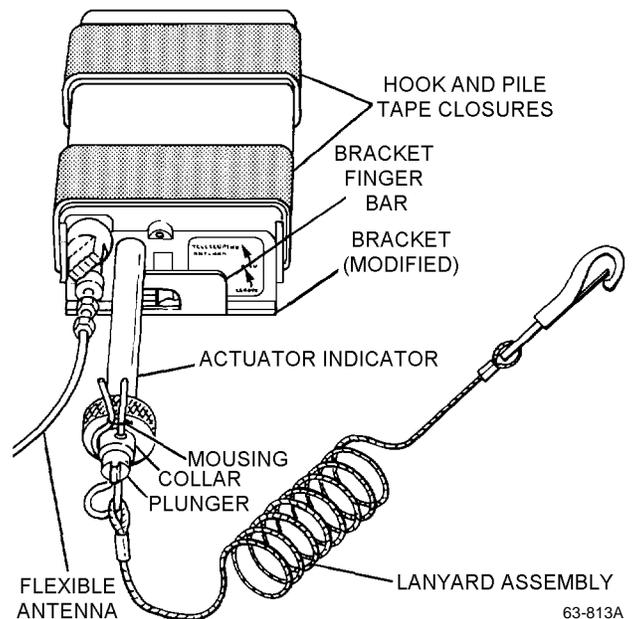
7. Safety-tie open end of actuation lanyard hairpin cotter by applying single-loop mousing. Use size E nylon thread and secure mousing loop with square knot. Cut off excess length approximately 1/8 inch from knot.

8. Connect flexible antenna to radio beacon. Push bayonet-type fitting in and turn to right.

NOTE

To prevent accidental transmission of inaudible emergency distress signal, ensure indicator plunger is secure in depressed position before beacon ON/OFF slider switch is placed in ON (armed) position.

9. Place slider switch in the ON (armed) position and install beacon in bracket. Ensure slider switch is secure in the ON position under bracket finger bar then secure beacon in bracket with hook and pile tape fasteners.

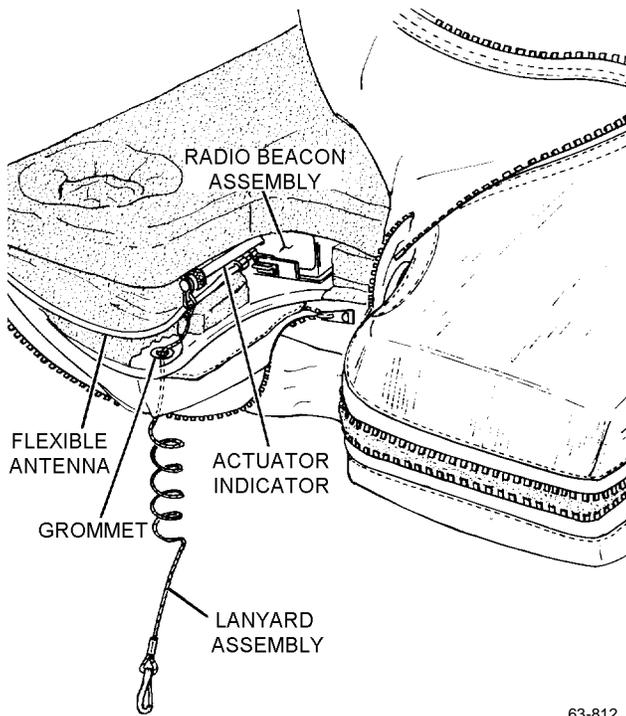


Step 9 - Para 5-22

10. Insert beacon into cut-out portion of seat pan. Pass actuation lanyard through hole in seat pan and grommet.

NAVAIR 13-1-6.3-1

11. Route antenna around outer edge of seat pan.



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Step 11 - Para 5-22

12. Reinstall cover on cushion and close slide fastener.

5-23. RADIO BEACON RIGGING AND INSTALLATION (SPECIAL SOFT PACK). To rig and install the AN/URT-33 Emergency Radio Beacon in the Special Soft Pack, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Beacon Set, Radio AN/URT-33A	MIL-B-38401A
1	Snaphook	NIIN 01-034-6798

Support Equipment Required

Quantity	Description	Reference Number
1	T-wrench	Fabricate IAW paragraph 5-69

NOTE

Ensure slider switch on radio beacon is OFF. Slider switch is in OFF position when word ON is not visible on radio beacon housing.

Determine if beacon has been modified in accordance with [steps 1 through 4](#) before proceeding to [step 5](#).

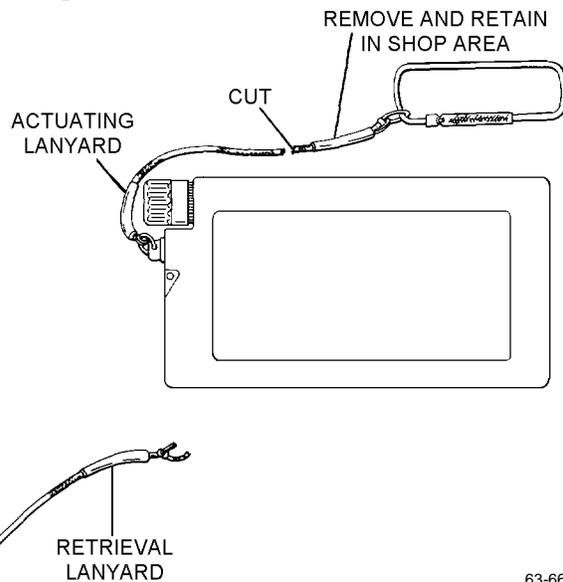
1. Remove Combination Carrying Case and Equipment Container from Special Outer Container.
2. Remove raft and survival items from Combination Carrying Case and Equipment Container.

NOTE

Care must be taken to avoid unnecessary emergency signal transmission when handling and working with radio beacon. Do not remove actuating plug at any time except for test of transmission.

Verify identity of lanyard before removal. Do not mistake actuating lanyard for retrieval lanyard.

3. Remove retrieval lanyard from radio beacon and discard lanyard.
4. Replace outer end-fitting of actuating lanyard with snaphook.



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Step 4 - Para 5-23

- a. Cut and sear actuating lanyard at a point near fitting at outer end.

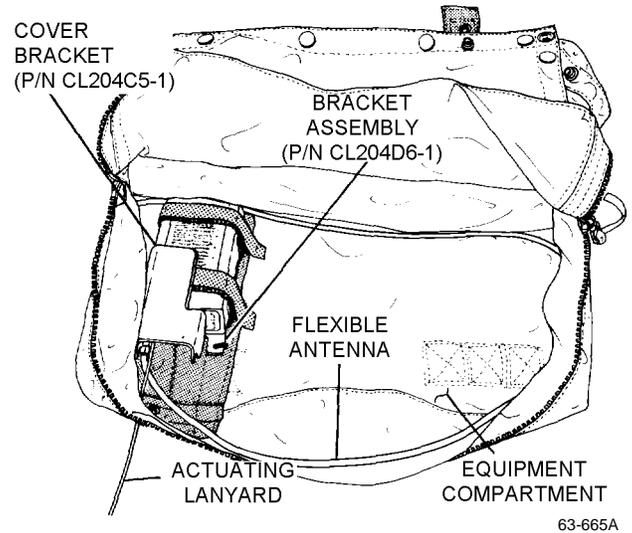
b. Tie overhand knot at seared end of actuating lanyard.

c. Tie snaphook to seared end of actuating lanyard using bowline knot. Position cord-end overhand knot snugly against bowline knot.

d. Retain end-fitting removed from actuating lanyard for possible future use.

5. Connect flexible antenna to beacon. Pass snaphook on end of actuating lanyard through grommet in Combination Carrying Case and Equipment Container. Push slider switch on beacon to ON, and fit beacon into bracket. When correctly installed, arm on bracket will prevent movement of beacon slider switch and keep it in ON position.

6. Position cover bracket over beacon as shown, and secure hook and pile tape closure straps. Route antenna through clearance at corner of cover bracket around edge of equipment compartment.

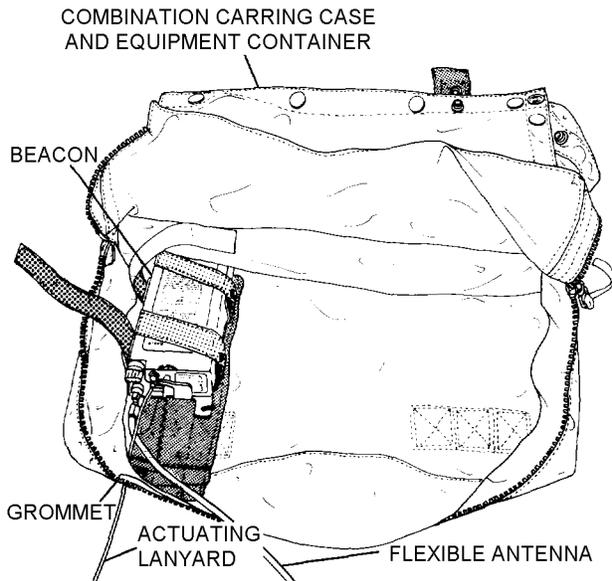


63-665A

Step 6 - Para 5-23

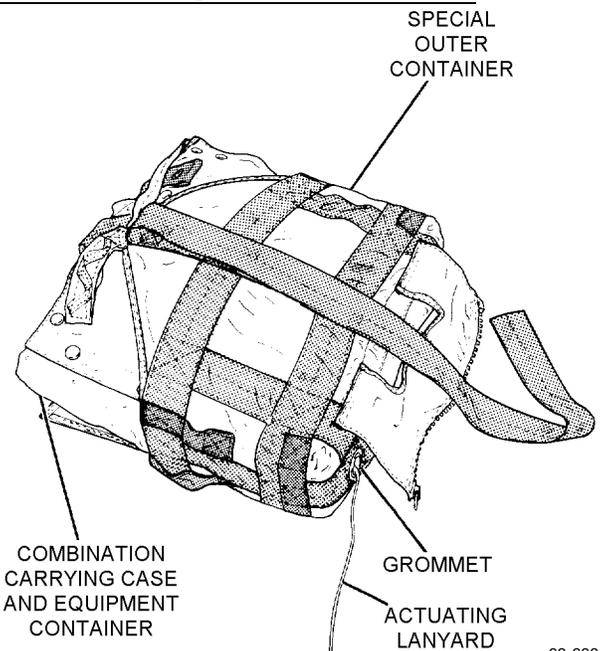
7. Repack Combination Carrying Case and Equipment Container in accordance with [paragraphs 5-27](#) and [5-28](#).

8. Route actuating lanyard through grommet in Special Outer Container and install Combination Carrying Case and Equipment Container in Special Outer Container. Leave no slack in actuating lanyard, either inside Combination Carrying Case and Equipment Container or in Special Outer Container.



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Step 5 - Para 5-23



63-666

Step 8 - Para 5-23

NAVAIR 13-1-6.3-1

5-24. RADIO BEACON RIGGING AND INSTALLATION (STANDARD SOFT PACK ONLY). To rig and install the AN/URT-33 Emergency Radio Beacon in the Standard Soft Pack, proceed as follows:

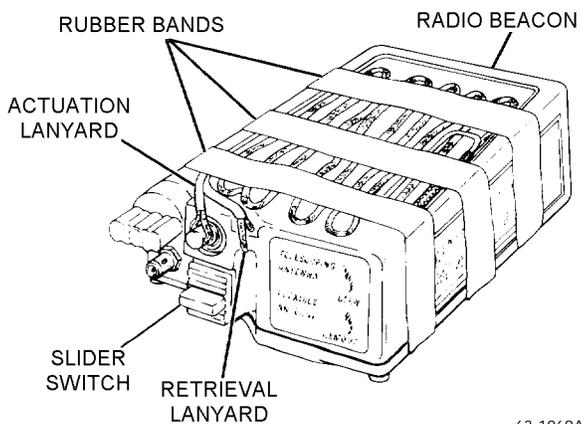
Materials Required

Quantity	Description	Reference Number
1	Beacon Set, Radio AN/URT-33A	MIL-B-38401A
3	Rubber bands, Type 1	MIL-R-1832 NIN 00-568-0323

NOTE

Ensure slider switch on radio beacon is OFF. Slider switch is in OFF position when word ON is not visible on radio beacon housing. Do not pull actuation plug with beacon slider switch in ON position. Beacon will transmit inaudible emergency distress signal.

1. Ensure the retrieval lanyard is attached at both ends with a bowline knot with an overhand knot tied at the tag end. Accordion-fold retrieval and actuation lanyards on top of the beacon and attach with three rubber bands.



Step 2 - Para 5-24

5-25. SURVIVAL EQUIPMENT BINDING. Ensure all survival items have been inspected in accordance with NAVAIR 13-1-6.5 Technical Manual before binding. To bind survival items, proceed as follows (table 5-2).

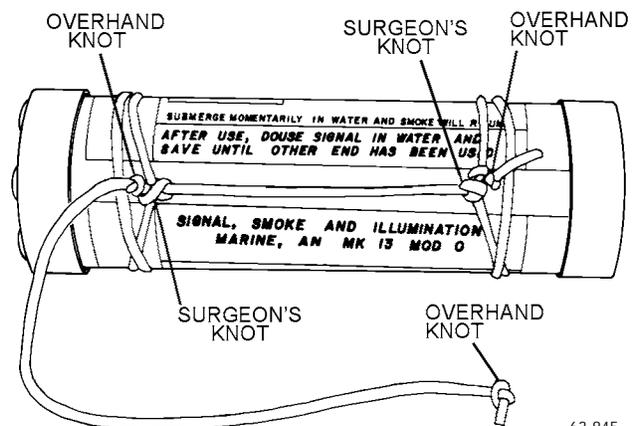
NOTE

To prevent loss of survival items, tie items individually and then tie to 140-inch length of nylon cord. Nylon cord of prescribed lengths required for this procedure shall be seared at both ends to prevent fraying (table 5-3).

All cord used shall be Type I nylon (MIL-C-5040).

1. Using a 36-inch piece of nylon cord, tie an overhand knot in each end. Wrap one end of cord two overlapping turns around one end of signal flare (MK-13 MOD 0 or MK-124) and tie with surgeon's knot. Position cord-end overhand knot snugly against surgeon's knot.

2. Route cord to opposite end of signal flare. Wrap cord two overlapping turns around end of flare and tie with surgeon's knot followed by an overhand knot positioned snugly against surgeon's knot. Cord between end-ties shall be drawn tight.



Step 2 - Para 5-25

Table 5-2. Survival Kit Items (Note 1)

Item Name	Quantity	Reference Number
Cord, (Nylon), Fibrous Type I	50 ft	NAVAIR 13-1-6.5
Signal, (Flare), Smoke and Illumination, MK-13 MOD 0 or MK-124 MOD 0 (Note 2)	2	NAVAIR 13-1-6.5
Sea (Dye) Marker, Fluorescein	2	NAVAIR 13-1-6.5
Sponge, (Bailing), Cellulose Type II, Class 2	1	NAVAIR 13-1-6.5
SRU-31/P Survival Kit, Packet #1 (Medical) (Note 3)	1	NAVAIR 13-1-6.5
SRU-31/P Survival Kit, Packet #2 (General) (Note 3)	1	NAVAIR 13-1-6.5
SRU-31A/P (Note 7)	Optional	NAVAIR 13-1-6.5
Water, Drinking, Canned (Note 4)	1	NAVAIR 13-1-6.5
Water, Drinking, Emergency (Note 6)	3	NAVAIR 13-1-6.5
Opener, Can, Hand	1	NAVAIR 13-1-6.5
Ground/Air Emergency Code Card	1	NAVAIR 13-1-6.5
Blanket, (Combat) Casualty, (3 oz) (Note 5)	1	NAVAIR 13-1-6.5
Envelope, Packing List	2	NAVAIR 13-1-6.5
Beacon Set, Radio	1	NAVAIR 13-1-6.5
Liferaft, Inflatable	1	NAVAIR 13-1-6.1-1

- Notes:
1. The items listed are typical and are considered mandatory for inclusion in the survival kit container. Deviation from the listed items may be required by certain Functional Air Wings (FUNCWINGS), Carrier Air Wings (CVW), COMFAIRS, or Marine Air Wings (MAW). Requests for deviations must be forwarded to and authorized by TYCOMS and with information to Fleet Support Team (FST) at NAVAIR-WARCENACDIV Patuxent River MD via Naval Message. When optional items are substituted, particular attention must be paid to the binding sequence so that physical sizes and binding order of substituted items remain approximately the same. That portion of an item name in parentheses is a common-use name or container size and is not intended for supply requisition purposes.
 2. MK-13 MOD 0 shall be used until stocks are depleted. MK-124 MOD 0 will replace MK-13 MOD 0 as stocks become available.
 3. SRU-31/P complete kits including Medical Packet (#1) and General Packet (#2) may be ordered; instructions for packing and ordering these kits are found in NAVAIR 13-1-6.5.
 4. One additional canned water may be added as optional equipment.
 5. Optional equipment.
 6. When the supply for emergency canned water has been exhausted, order emergency bagged water in accordance with NAVAIR 13-1-6.5.
 7. The selection of SRU-31/P or SRU-31A/P Individual Aircrewmember's Survival Kit will be at the discretion of the TYPE COMMANDER depending on mission requirements, reference NAVAIR 13-1-6.5, Chapter 9, for detailed information.

Table 5-3. Nylon Cord Lengths Required for Binding

Length (Inches)	No. Required
140	1
12 (Note 1)	4
30	2
36	3
40	2
50 (Note 1)	2

Notes: 1. When using bagged water in place of canned emergency water, the number of required 12 inch lengths will be a total of 5 and the required 50 inch lengths will be a total of 1.

3. Tie the other signal flare in the same manner as [steps 1 and 2](#).

4. Using a 12-inch piece of nylon cord, tie an overhand knot near each end. Pass overhand knot through center grommet in dye marker and tie a bowline knot, allowing approximately a 1-inch loop. Bowline knot shall lie snugly against overhand knot.

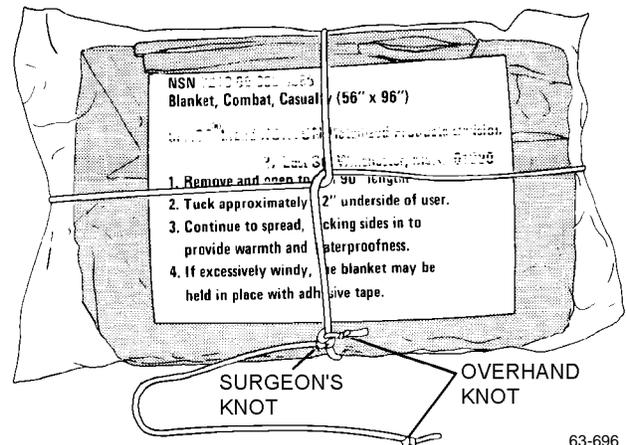


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Step 4 - Para 5-25

5. Tie the second dye marker in the same manner as [step 4](#).

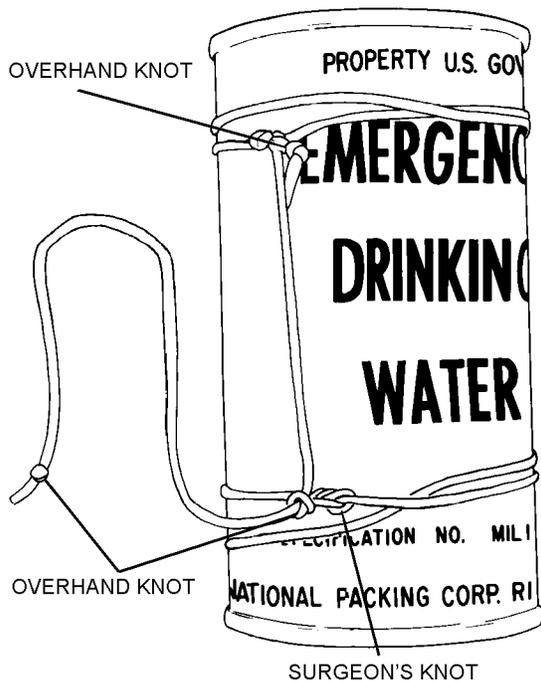
6. If casualty blanket is used, tie an overhand knot near each end of a 30-inch piece of nylon cord. Wrap cord around blanket until cord ends meet, then rotate cords 1/4 turn and wrap cords around opposite sides of blanket. Tie with a surgeon's knot. The cord-end overhand knot shall be positioned snugly against surgeon's knot.



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Step 6 - Para 5-25

7. Using a 50-inch piece of nylon cord, tie an overhand knot near both ends. Wrap one end of cord two overlapping turns around end of canned water and tie with surgeon's knot. Position cord-end overhand knot snugly against surgeon's knot. Route cord to opposite end of can. Wrap cord two overlapping turns around can and tie with surgeon's knot followed with an overhand knot positioned snugly against surgeon's knot. Cord between end-ties shall be drawn tight.



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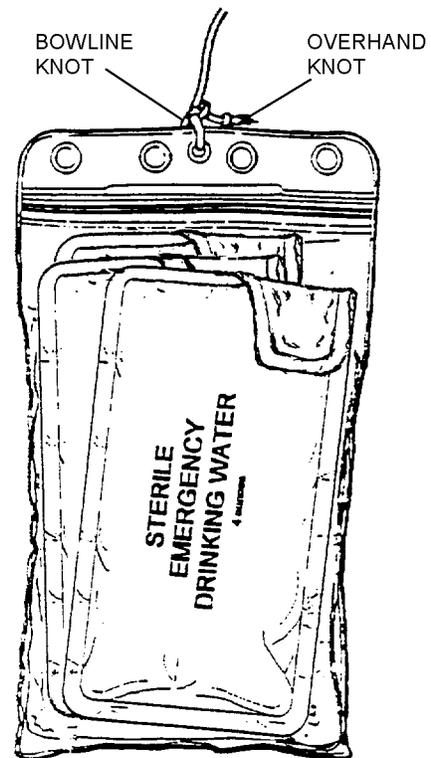
Step 7 - Para 5-25

8. If a second canned water will be used, secure in the same manner as [step 7](#).

NOTE

Replacement rate of exhausted canned water shall be in accordance with the NAV-AIR 13-1-6.5 manual. Bagged emergency drinking water shall be stowed in the same order and location as canned emergency water. The bags of water shall be stowed in a flat configuration.

9. Bagged water. Place a maximum of three 4-ounce bagged emergency drinking water flat inside a clear vinyl envelope (MIL-B-117) with pour spout folded down. Bagged water must be able to fit into envelope without disrupting the closure of the sealing slide fastener. Close the sealing slide fastener. Using a 12-inch length of nylon cord, tie an overhand knot in each end and pass knot through center hole in envelope. Secure with bowline knot, allowing an approximate 1-inch loop. Position an overhand knot snugly against the bowline knot. Ensure overhand knot is snug against surgeon's knot.



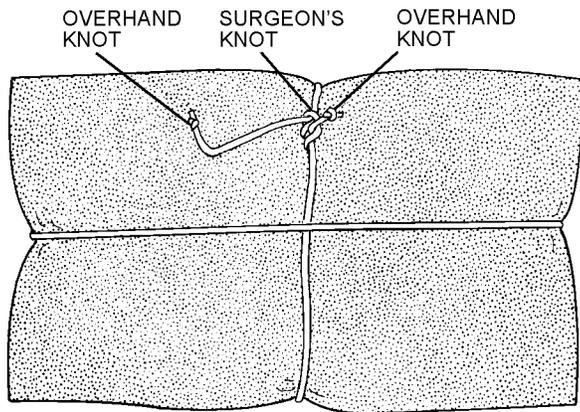
63-22

Step 9 - Para 5-25

NOTE

The bailing sponge should be compressed to a minimum thickness by compressing while damp and then allowing to dry in the compressed state before tying.

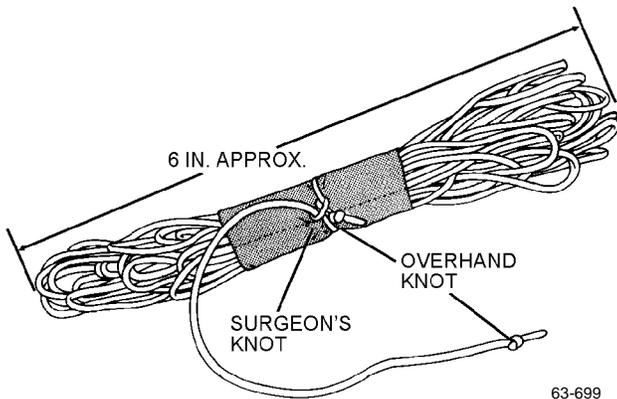
10. Using a 30-inch length of nylon cord, tie an overhand knot near the ends. Wrap cord around sponge until cord ends meet, then rotate cords 1/4 turn and wrap cords around opposite sides of sponge. Tie with a surgeon's knot with cord-end overhand knot positioned snugly against surgeon's knot.



63-698

Step 10 - Para 5-25

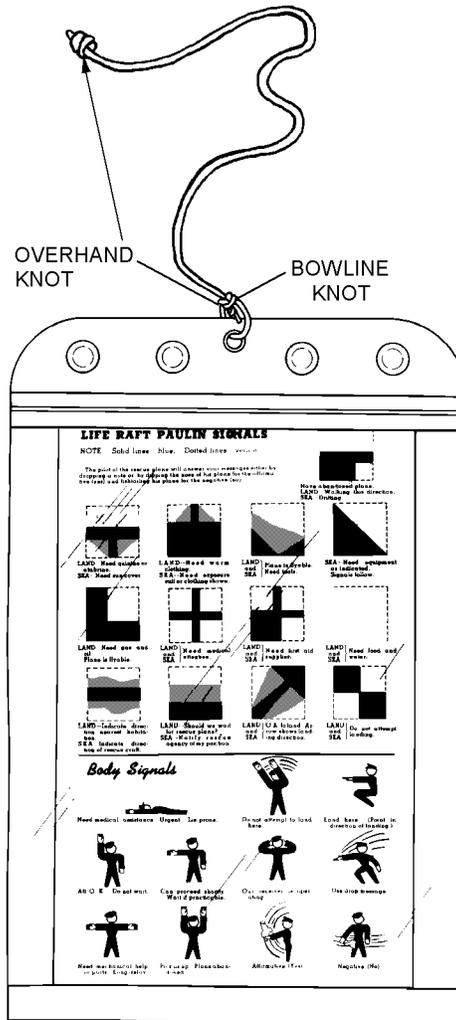
11. Cut one 2 x 3-inch piece of nylon duck material. Accordion fold the 50-foot length of nylon cord in 6-inch bights, and wrap material around center of folded cord. Using a 12-inch piece of nylon cord, tie an overhand knot near each end and secure one end of cord to center of material with a surgeon's knot. Cord-end overhand knot shall be positioned snugly against surgeon's knot.



63-699

Step 11 - Para 5-25

12. Place Ground/Air Emergency Code Card into clear vinyl plastic envelope (MIL-B-117) and close the sealing zipper. Using a 12-inch piece of cord, tie an overhand knot in each end and pass knot through center hole in envelope. Secure with a bowline knot, allowing 1-inch loop. Position bowline knot and cord-end overhand knot snugly together.



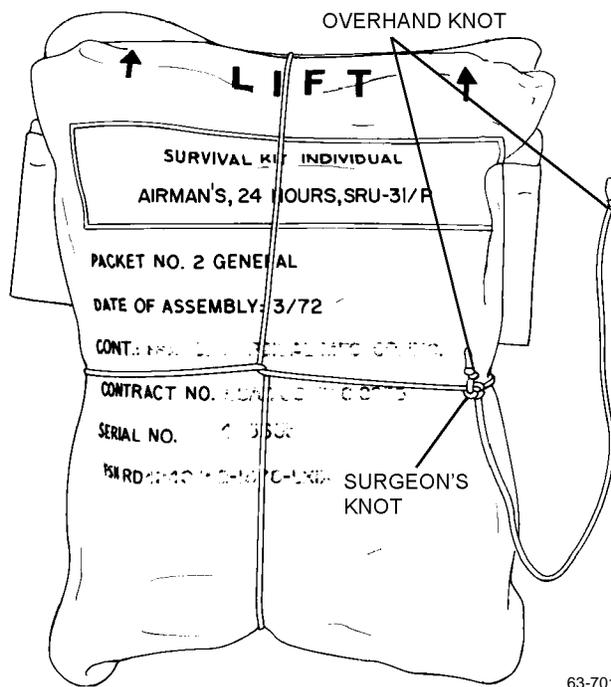
63-700

Step 12 - Para 5-25

NOTE

SRU-31/P Packet #1 (Medical) shall be folded approximately in half prior to tying.

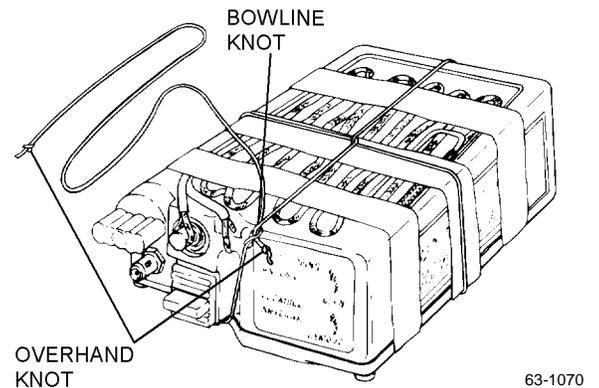
13. Using a 40-inch length of nylon cord, tie an overhand knot in both ends. Wrap cord around one packet of SRU-31/P Survival Kit until cord ends meet, then rotate cords 1/4 turn and wrap cords around opposite sides of packet. Tie with a surgeon's knot. Position cord-end overhand knot snugly against surgeon's knot.



Step 13 - Para 5-25

14. Secure the second SRU-31/P packet in the same manner as [step 13](#).

15. (Standard Soft Pack Only) Using a 36-inch length of nylon cord, tie an overhand knot at both ends. Wrap cord around side of AN/URT-33 radio beacon until cord ends meet, then rotate cords 1/4 turn and wrap cords around opposite sides of radio beacon. Tie with a surgeon's knot positioned snugly against cord-end overhand knot.



Step 15 - Para 5-25

16. Ensure survival items are properly tied.

17. Using the 140-inch length of Type I nylon cord, form a 3/4 to 1-inch overhand loop approximately 12 inches from one end. Continue forming these loops every five inches until enough loops are formed to accommodate all survival items. Ensure a minimum of 25 ± 1 inches of cord remains after last overhand loop is formed.

18. Tie each item to a loop on the 140-inch nylon cord using a surgeon's knot. Ensure each item's cord-end overhand knot is snugly against surgeon's knot.



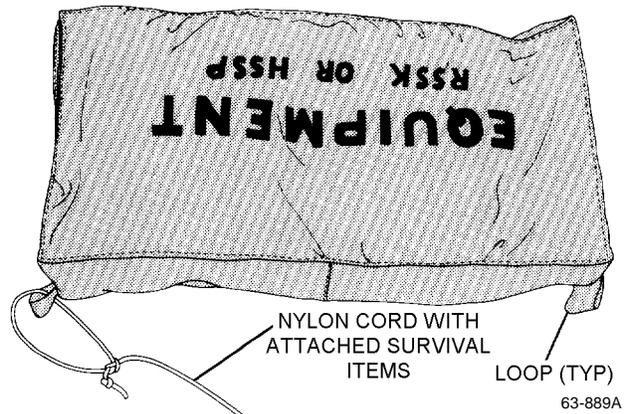
Ensure pointed end of can opener has adequate chafing cloth to prevent damage to other survival items.

19. Route one end of the 140-inch cord through the hole in the can opener and secure with a 1-inch loop bowline knot, followed by an overhand knot positioned snugly against bowline knot. Wrap can opener with chafing cloth secured by a rubber band (figure 5-9).

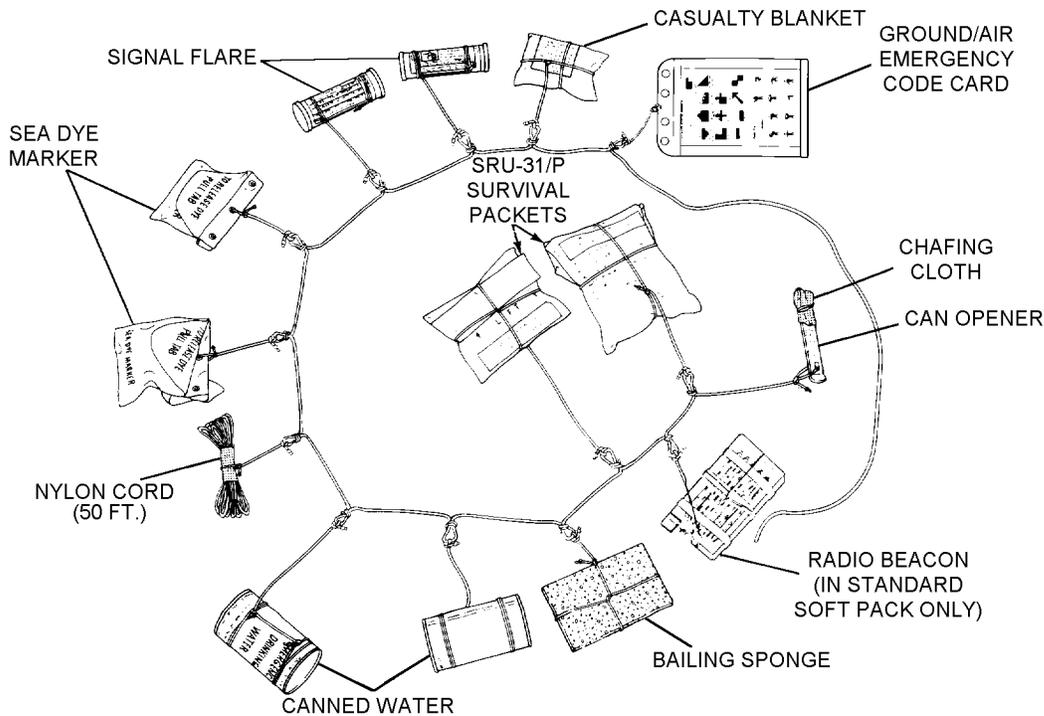
5-26. SURVIVAL EQUIPMENT PACKING (HIGH SPEED SOFT PACK). To pack survival equipment in the High Speed Soft Pack, proceed as follows:

1. Place equipment container on table with attaching loops facing packer and the word EQUIPMENT facing up.

2. Attach bitter end of 140-inch nylon cord (with attached survival items) to the left loop on equipment container with a bowline knot (approximately 2-inch loop) and an overhand knot. Knots shall be positioned snugly against each other.



Step 2 - Para 5-26



63-1155A

Figure 5-9. Binding Survival Items

3. Open equipment container by pulling left slide fastener to the right.

NOTE

Survival items shall be stowed in a neat and orderly fashion and the items shall be arranged to obtain the flattest possible pack. The can opener shall be positioned in such a way as to ensure that it cannot damage other survival items.

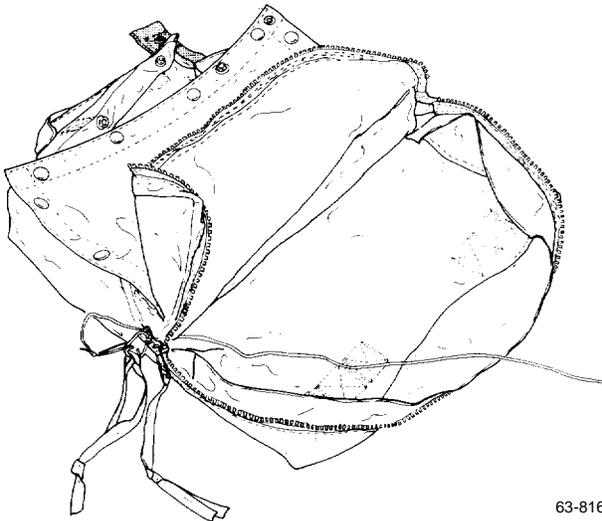
4. Stow survival items within the height, length and width of the equipment container.

5. Close equipment container.

5-27. SURVIVAL EQUIPMENT PACKING (STANDARD AND SPECIAL SOFT PACKS). To pack survival equipment in the Standard or Special Soft Pack, proceed as follows:

1. Place Combination Carrying Case and Equipment Container on table with slide fastener facing packer and the word EQUIPMENT facing up.

2. Open equipment section of container by opening right slide fastener to the left. Route bitter end of 140-inch nylon cord (with attached survival items) through opening at end of slide fastener chain, and secure to left slide fastener tab with a bowline knot (approximately 2-inch loop) and an overhand knot. Knots shall be positioned snugly against each other.



Step 2 - Para 5-27

NOTE

Survival items shall be stowed in a neat and orderly fashion and the items shall be arranged to obtain the flattest possible pack. The can opener shall be positioned in such a way as to ensure that it cannot damage other survival items.

3. Stow survival items within the height, length and width of the equipment section of the Combination Carrying Case and Equipment Container.

4. Close equipment section slide fastener.

5-28. LIFERAFT PREPARATION, FOLDING, RIGGING, AND PACKING (STANDARD, SPECIAL AND HIGH SPEED SOFT PACKS). To prepare, fold, rig, and pack the LR-1 liferaft in the Standard, Special or High Speed Soft Pack, proceed as follows:

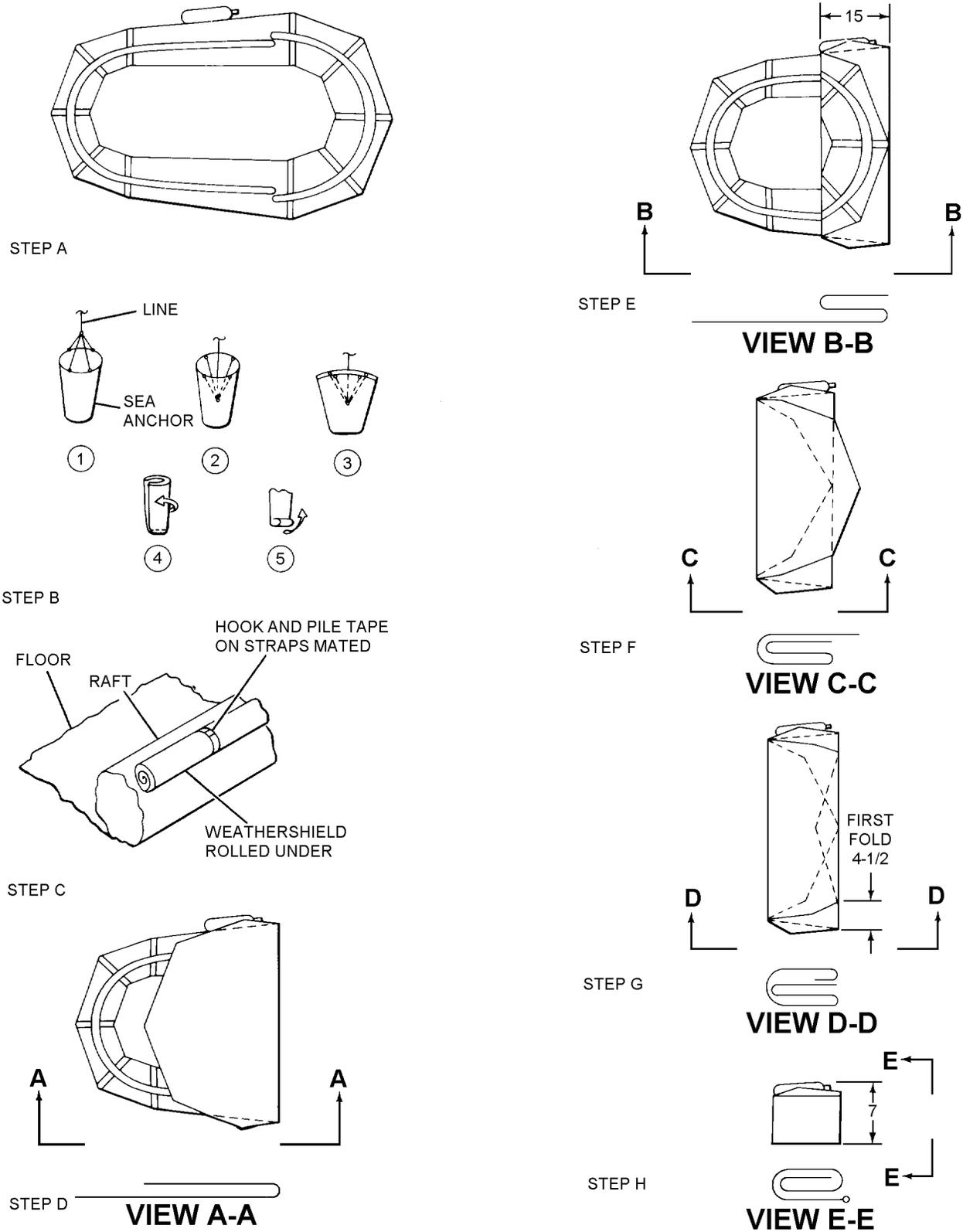
1. Lay liferaft assembly flat with inside facing upward (step A, figure 5-10).

2. Ensure all trapped air is expelled from liferaft, and oral inflation valve is locked and stowed in pocket prior to folding.

3. Lightly dust entire liferaft assembly with talc (MIL-T-50036A).

4. Secure sea anchor line in 3-inch bights, fold and stow in pocket (step B, figure 5-10).

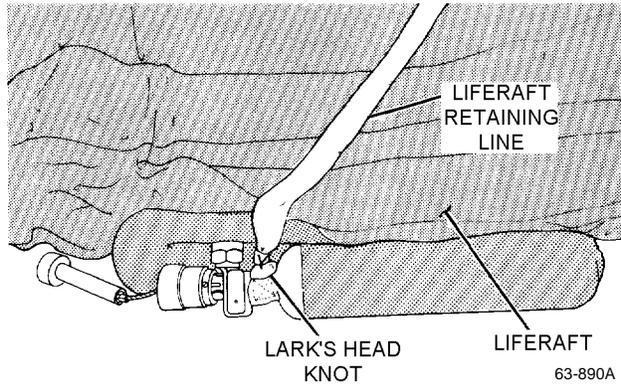
5. Roll and secure weathershield (step C, figure 5-10).



63-668

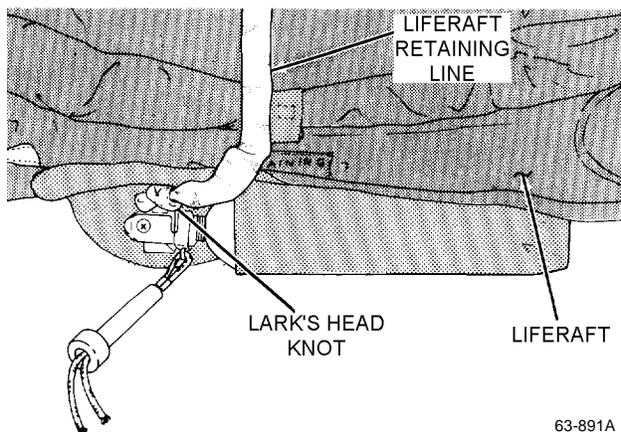
Figure 5-10. Folding Liferaft for Standard, Special and High Speed Soft Pack

6. (LR-1 with MIL-V-81722, FLU-6/P Inflation Valve) Pass loop end of liferaft retaining line around inflation valve at cylinder neck. Pass end of line with snaphook through loop and pull line tight, forming a lark's head knot. Tack lark's head knot with two turns of waxed nylon 6-cord, single. Tie ends with surgeon's knot followed by square knot.



Step 6 - Para 5-28

7. (LR-1 with MIL-V-25492, Type 2, Design II Inflation Valve) Pass loop end of liferaft retaining line around coupling nut between liferaft and inflation assembly. Pass end of line with snaphook through loop and pull line tight, forming a lark's head knot. Tack lark's head knot with two turns of waxed nylon 6-cord, single. Tie ends with surgeon's knot followed by square knot.



Step 7 - Para 5-28

8. Fold liferaft.

a. Fold bow of liferaft over at a point in line with inflation valve of CO₂ cylinder (step D, figure 5-10).

b. Fold bow portion of liferaft back, forming an accordion fold approximately 15 inches in width (step E, figure 5-10).

c. Fold stern of liferaft over on top of previous folds (step F, figure 5-10).

d. Tuck stern of liferaft under in line with first fold (step G, figure 5-10).

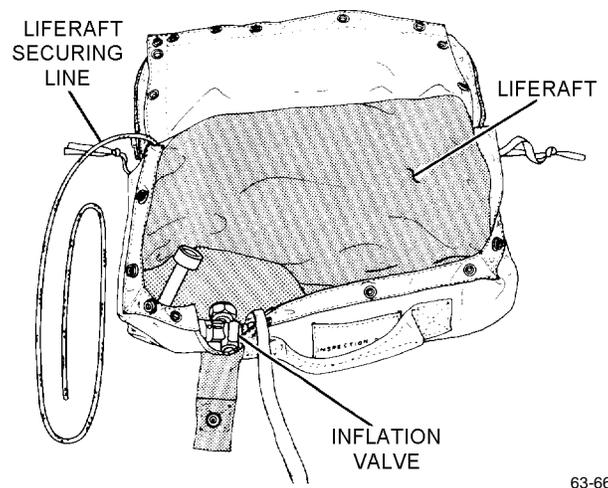
e. Starting at end opposite CO₂ cylinder, form a fold approximately 4 1/2 inches wide, and continue folding liferaft towards CO₂ cylinder (steps G and H, figure 5-10).

NOTE

Steps 9 through 16 apply to Standard Soft Pack and Special Soft Pack. Steps 17 through 29 apply to High Speed Soft Pack.

9. Place Combination Carrying Case and Equipment Container on table with liferaft compartment open and facing packer.

10. Place liferaft into raft compartment so that CO₂ cylinder is forward and inflation valve faces left side of container.

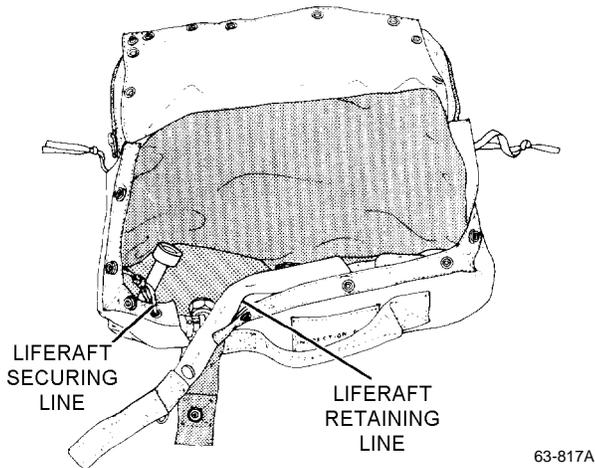


Step 10 - Para 5-28

11. Accordion fold liferaft retaining line across top of cylinder. Snaphook shall exit at inflation valve side of container.

NAVAIR 13-1-6.3-1

12. Tie liferaft securing line to eyelet on lower flap of Combination Carrying Case and Equipment Container. Secure with a bowline knot followed by an overhand knot.



Step 12 - Para 5-28

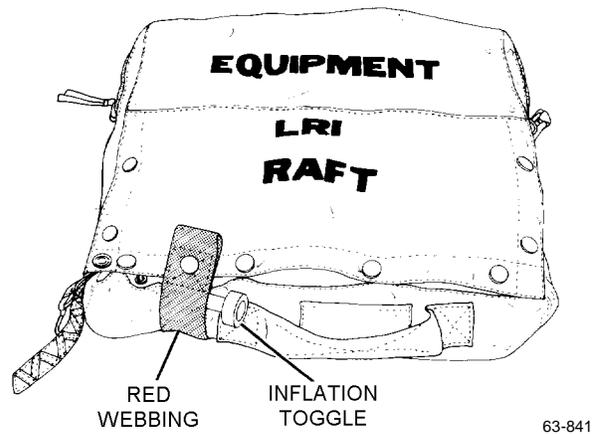
WARNING

Ensure that liferaft retaining line is not wrapped around or entangled with liferaft inflation pull toggle.

When routing the liferaft retaining line, ensure that it will not entangle with liferaft inflation pull toggle when being extracted from the soft pack.

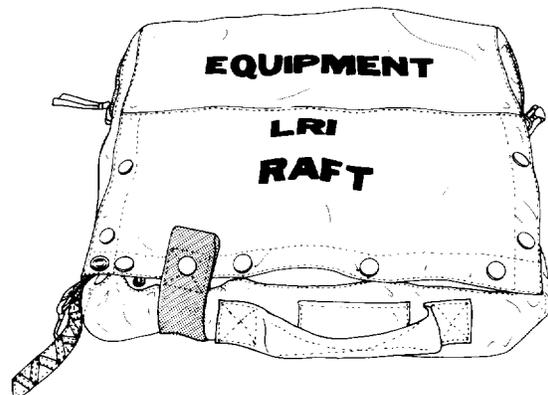
(LR-1 with MIL-V-81722, FLU-6/P Inflation Valve) Ensure liferaft inflation toggle is in container under CO₂ cylinder.

13. (LR-1 with MIL-V-25492, Type 2, Design II Inflation Valve) Snap liferaft compartment of Combination Carrying Case and Equipment Container closed. Inflation toggle shall protrude through opening in case at red webbing. Secure snap fastener on liferaft retaining line to mating fastener on container.



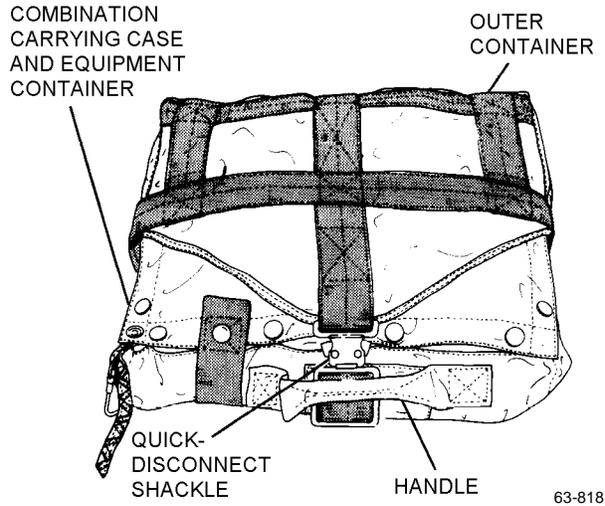
Step 13 - Para 5-28

14. (LR-1 with MIL-V-81722, FLU-6/P Inflation Valve) Stow liferaft inflation toggle in container under CO₂ cylinder. Snap liferaft compartment of Combination Carrying and Equipment Container closed. Secure snap fastener on liferaft retaining line to mating fastener on container.



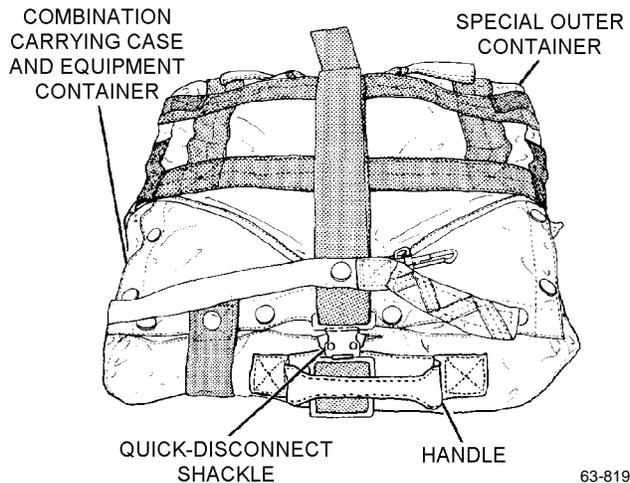
Step 14 - Para 5-28

15. (Standard Soft Pack) If Standard Soft Pack Outer Container is required, insert Combination Carrying Case and Equipment Container into outer container and secure quick-disconnect shackle. Shackle shall be under handle.



Step 15 - Para 5-28

16. (Special Soft Pack) Insert Combination Carrying Case and Equipment Container into Special Outer Container, routing beacon actuating lanyard through grommet in Special Outer Container. Leave no slack in actuating lanyard. Secure quick-disconnect shackle. Shackle shall be under handle.

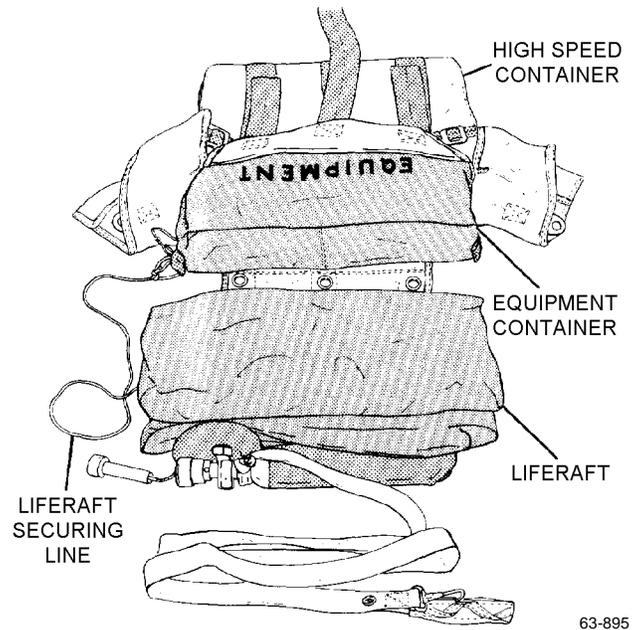


Step 16 - Para 5-28

NOTE

Refer to NAVAIR 13-1-6.2 for incorporation of Standard Soft Pack with specific parachute assemblies.

17. (High Speed Soft Pack) Tie 5-foot liferaft securing line to loop on equipment container using bowline knot.



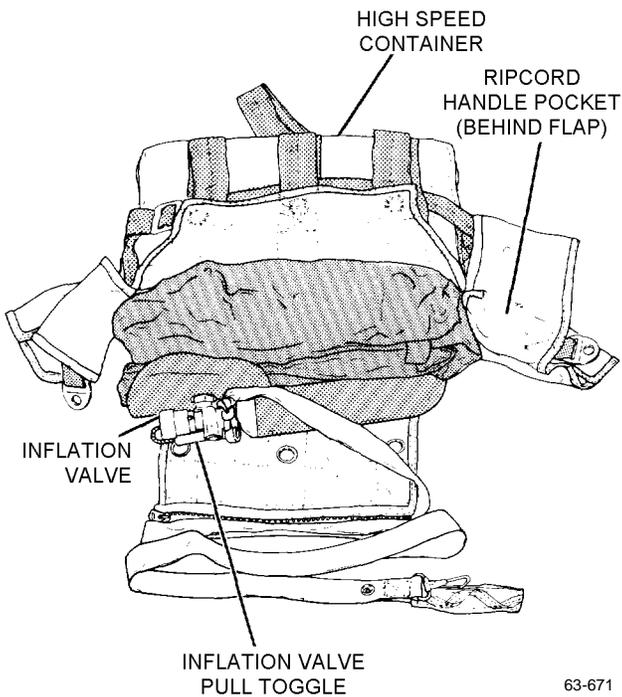
Step 17 - Para 5-28

18. Place equipment container into High Speed Container with slide fastener facing away from raft stowage area.

CAUTION

Correctly position inflation valve pull toggle under carbon dioxide cylinder to avoid inadvertent actuation during packing operation.

19. Position inflation valve pull toggle under carbon dioxide cylinder and place raft into High Speed Container so that carbon dioxide cylinder is toward opening and inflation valve is at end opposite ripcord handle pocket.



Step 19 - Para 5-28

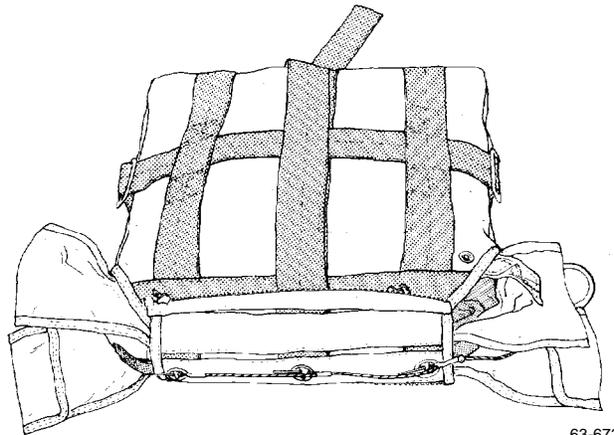
20. Accordion-fold liferaft retaining line across top of cylinder. Attach snap fastener to mating fastener on flap at ripcord end of outer container.

21. Pull locking cone side flap over raft. Pull grommet side flap over locking cone flap.

22. Place tab on end flap with ripcord handle pocket between two side flaps and over locking cone. Place grommet over cone and insert ripcord pin (P/N 60A116C6-1) nearest handle.

23. Insert center ripcord pin in center locking cone.

24. Secure last locking cone in same manner as step 22.



Step 24 - Para 5-28

CAUTION

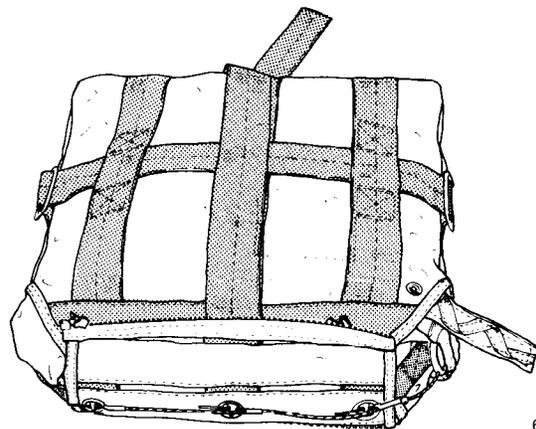
Ensure fid does not catch pull toggle or pull toggle cable when tucking end flaps into container. Inadvertent actuation may occur.

25. Using a fid, tuck end flaps into container.

CAUTION

Do not kink ripcord cable.

26. Insert ripcord handle into pocket and press any excess cable into pocket.

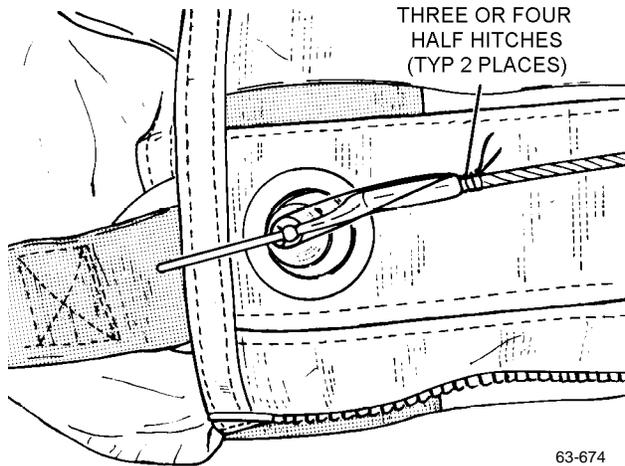


Step 26 - Para 5-28

NOTE

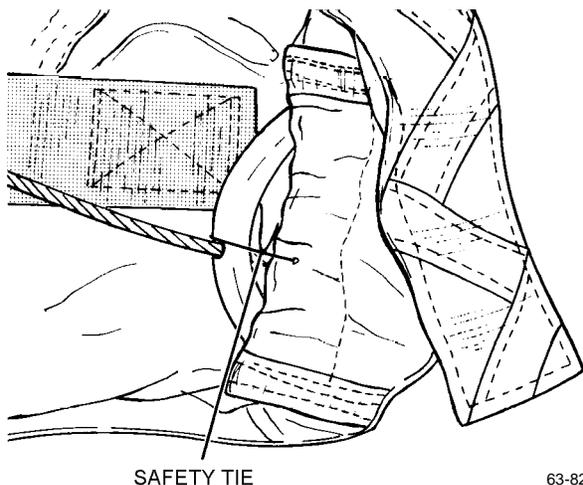
Tab on liferaft retaining line shall be only portion of line visible.

27. Safety-tie first and third ripcord pins using one turn of unwaxed size E nylon thread (V-T-295), single. Tie with three or four half hitches.



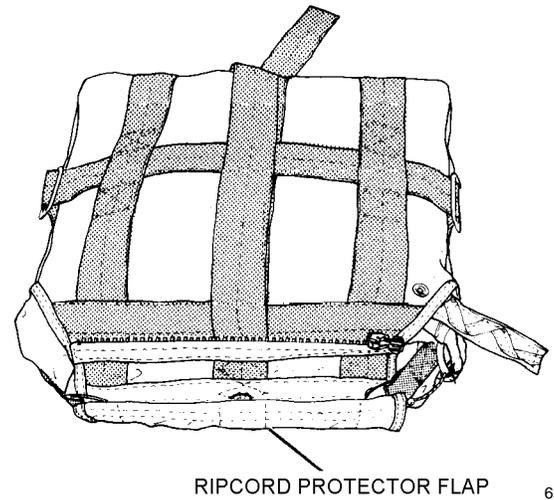
Step 27 - Para 5-28

28. Safety-tie ripcord handle in pocket using one turn of unwaxed size E nylon thread (V-T-295), single. Apply tacking around ripcord handle at cable and secure at top of ripcord pocket with surgeon's knot followed by square knot.



Step 28 - Para 5-28

29. Close ripcord protector flap.



Step 29 - Para 5-28

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

5-29. LIFERAFT PREPARATION, FOLDING, RIGGING AND PACKING (MODIFIED HIGH SPEED SOFT PACK). To prepare, fold, rig, and pack the LR-1 liferaft in the Modified High Speed Soft Pack, proceed as follows:

1. Lay liferaft assembly flat with inside facing upward (step A, figure 5-11).
2. Ensure all trapped air is expelled from liferaft and oral inflation valve is locked and stowed in pocket prior to folding.
3. Lightly dust entire liferaft assembly with talc (MIL-T-50036A).
4. Secure sea anchor line in 3-inch bights, fold and stow in pocket (step B figure 5-11).
5. Roll and secure weathershield (step C, figure 5-11).

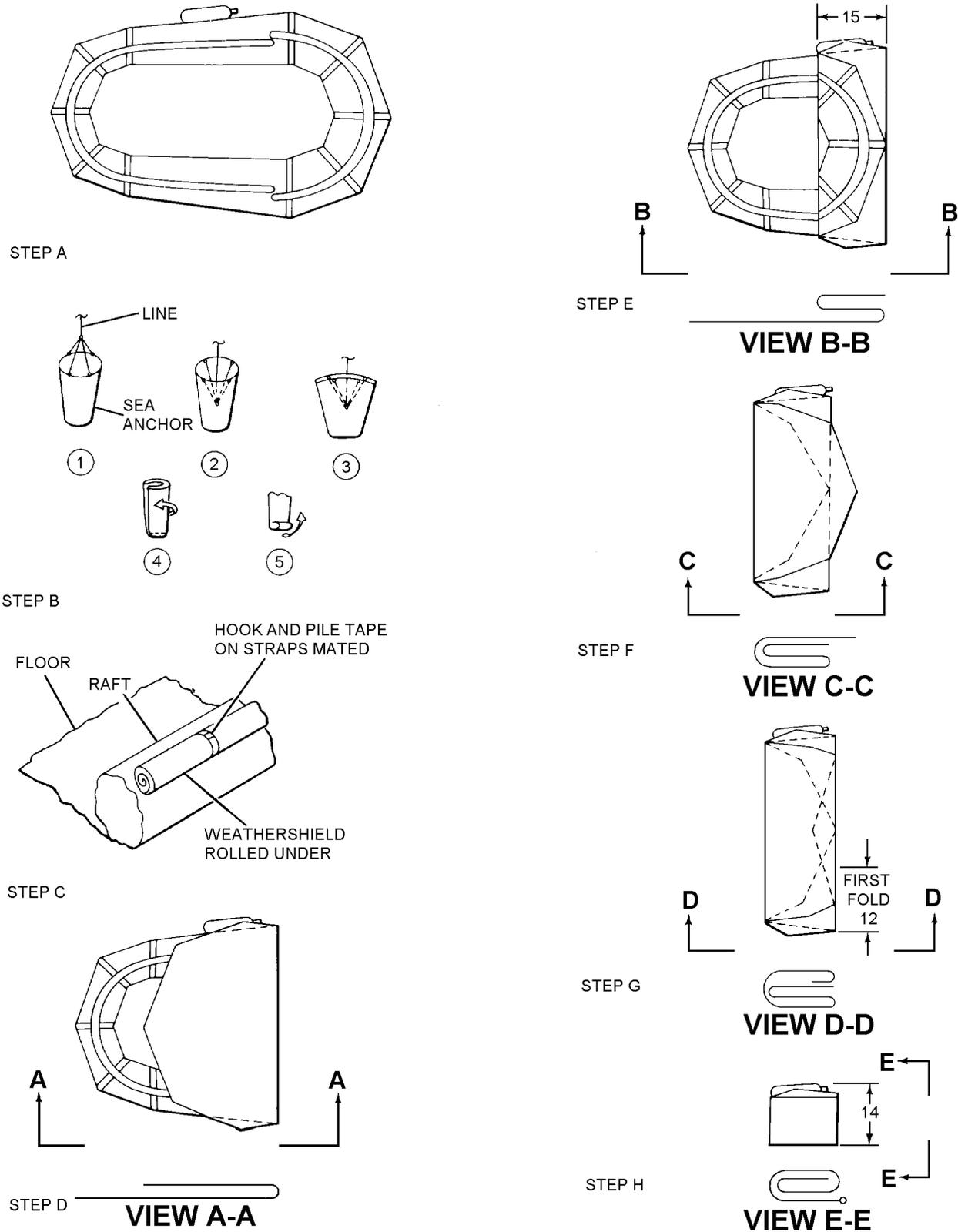
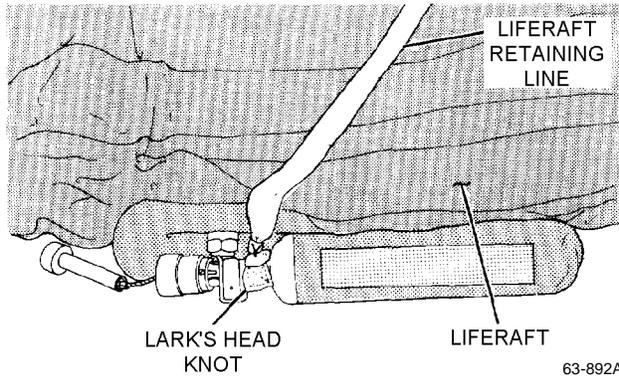


Figure 5-11. Folding Liferaft for Modified High Speed Soft Pack

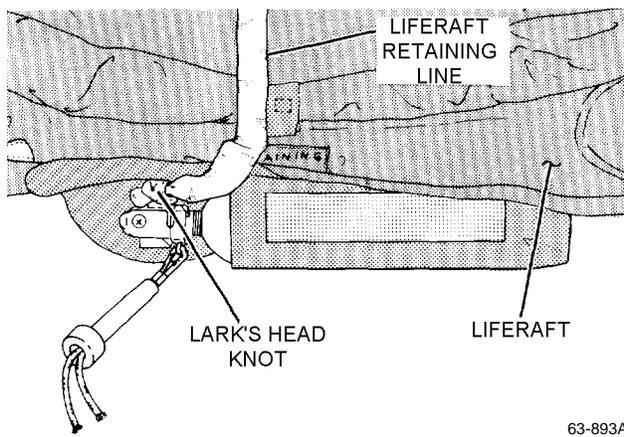
63-675

6. (LR-1 with MIL-V-81722, FLU-6/P Inflation Valve) Pass loop end of liferaft retaining line around inflation valve at cylinder neck. Pass end of line with snaphook through loop and pull line tight, forming a lark's head knot. Tack lark's head knot with two turns of waxed nylon 6-cord, single. Tie ends with a surgeon's knot followed by a square knot.



Step 6 - Para 5-29

7. (LR-1 with MIL-V-25492, Type II, Design II Inflation Valve) Pass loop end of liferaft retaining line around coupling nut between raft and inflation assembly. Pass end of line with snaphook through loop and pull line tight, forming lark's head knot. Tack lark's head knot with two turns of waxed nylon 6- cord single. Tie ends with surgeon's knot followed by square knot.



Step 7 - Para 5-29

8. Fold liferaft.

a. Fold bow of raft over at point in line with inflation valve of carbon dioxide cylinder (step D, figure 5-11).

b. Fold bow portion of raft back, forming accordion fold approximately 15 inches in width (step E, figure 5-11).

c. Fold stern of raft over on top of previous folds (step F, figure 5-11).

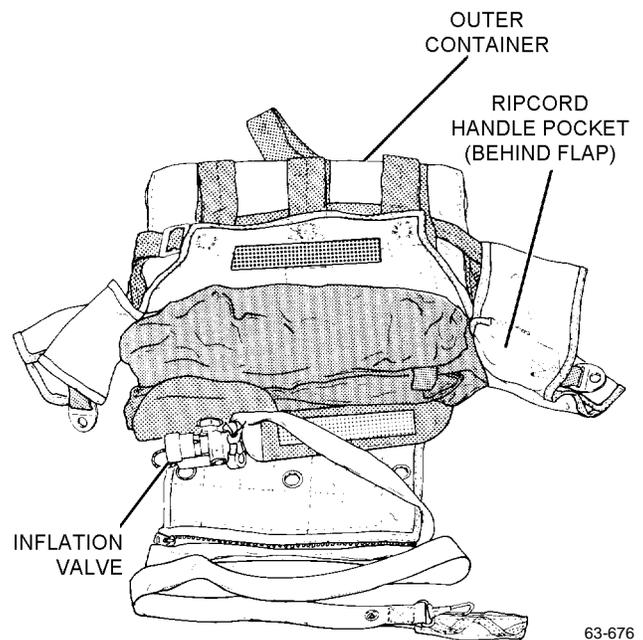
d. Tuck stern of raft under in line with first fold (step G, figure 5-11).

e. Starting at end opposite carbon dioxide cylinder, form fold approximately 12 inches wide, and continue folding raft towards carbon dioxide cylinder (steps G and H, figure 5-11).



Correctly position inflation valve pull toggle under carbon dioxide cylinder to avoid inadvertent actuation during packing operation.

9. Position inflation valve pull toggle under carbon dioxide cylinder and place raft into outer container so that carbon dioxide cylinder is toward opening and inflation valve is at end opposite ripcord handle pocket.



Step 9 - Para 5-29

NAVAIR 13-1-6.3-1

10. Accordion-fold liferaft retaining line across top of cylinder. Attach snap fastener to mating fastener on flap at ripcord end of outer container.

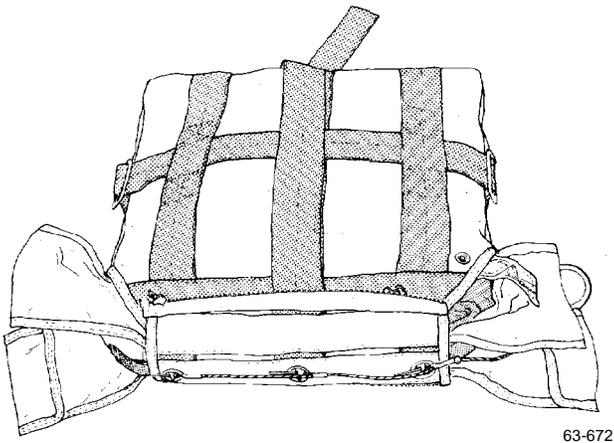
11. Mate hook tape on cylinder sling with pile tape on locking cone flap.

12. Pull grommet side flap over locking cone flap.

13. Place tab on end flap with ripcord handle pocket between two side flaps and over locking cone. Place grommet over cone and insert ripcord pin (P/N 60A116C6-1) nearest handle.

14. Insert center ripcord pin in center locking cone.

15. Secure last locking cone in same manner as [step 13](#).



Step 15 - Para 5-29

CAUTION

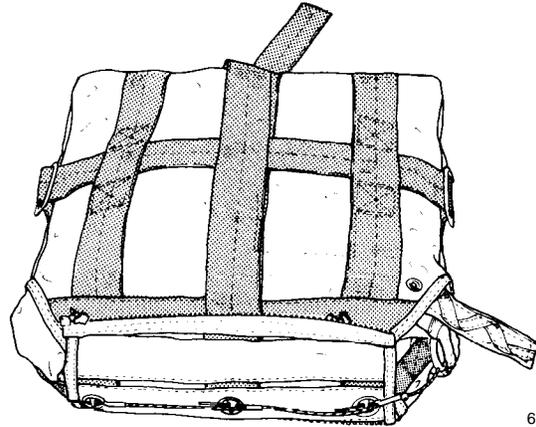
Ensure fid does not catch pull toggle or pull toggle cable when tucking end flaps into container. Inadvertent actuation may occur.

16. Using fid, tuck end flaps into container.

CAUTION

Do not kink ripcord cable.

17. Insert ripcord handle into pocket and press any excess cable into pocket.

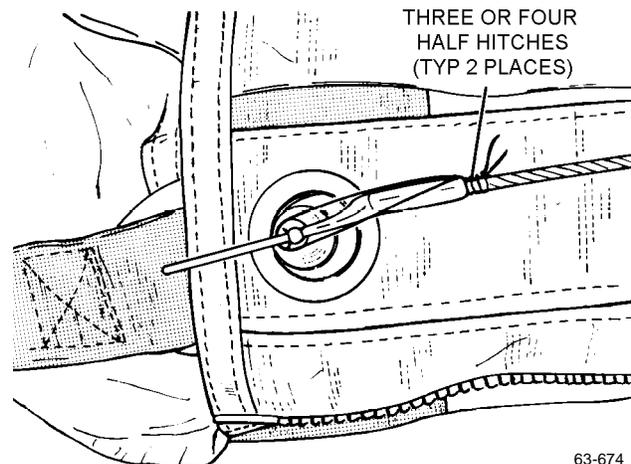


Step 17 - Para 5-29

NOTE

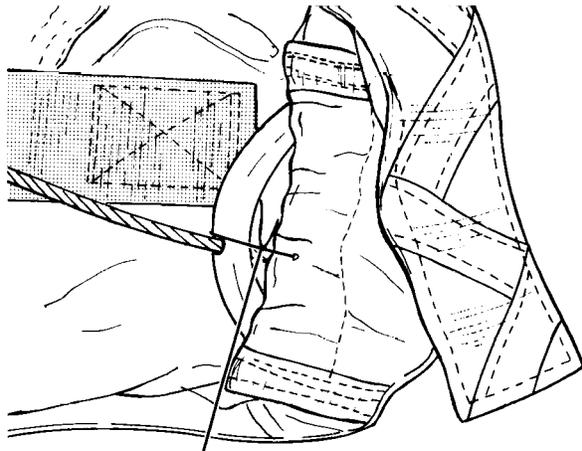
Tab on liferaft retaining line shall be only portion of line visible.

18. Safety-tie first and third ripcord pins using one turn of unwaxed size E nylon thread (V-T-295), single. Tie with three or four half hitches.



Step 18 - Para 5-29

19. Safety-tie ripcord handle in pocket using one turn of unwaxed size E nylon thread (V-T-295), single. Apply tacking around ripcord handle at cable and secure at top of ripcord pocket with surgeon's knot followed by square knot.

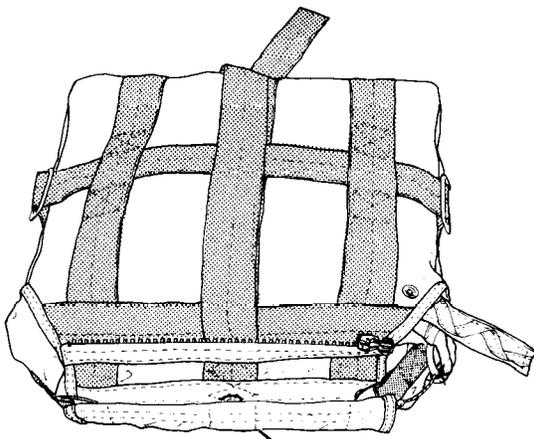


SAFETY TIE

63-820

Step 19 - Para 5-29

20. Close ripcord protector flap.



RIPCORD PROTECTOR FLAP

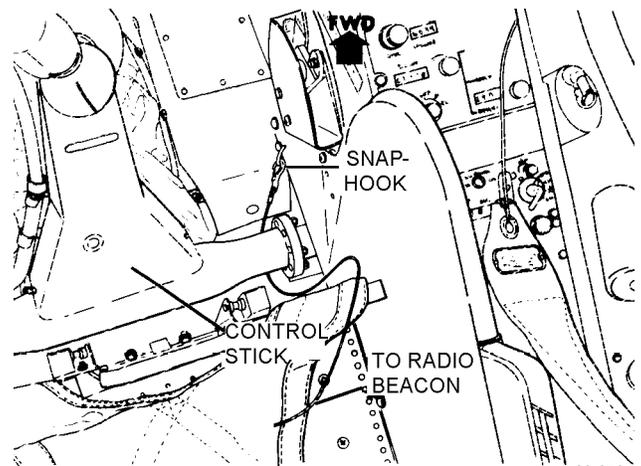
63-842

Step 20 - Para 5-29

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

5-30. COCKPIT ROUTING AND INSTALLATION OF THE EMERGENCY RADIO BEACON LANYARD (DOUGLAS SEAT PAN). To rig emergency radio beacon for automatic actuation, proceed as follows:

1. Remove existing screw in aircraft cockpit located on starboard side of control stick.
2. Remove D-ring plate from kit V66-5ACC-161 (ACC 161, Part 4).
3. Insert screw through hole in D-ring plate and secure to aircraft cockpit deck on starboard side of control stick.
4. Install seat pan in ejection seat.
5. Pass snaphook on actuating lanyard under aircraft control stick and snap to D-ring on cockpit deck.



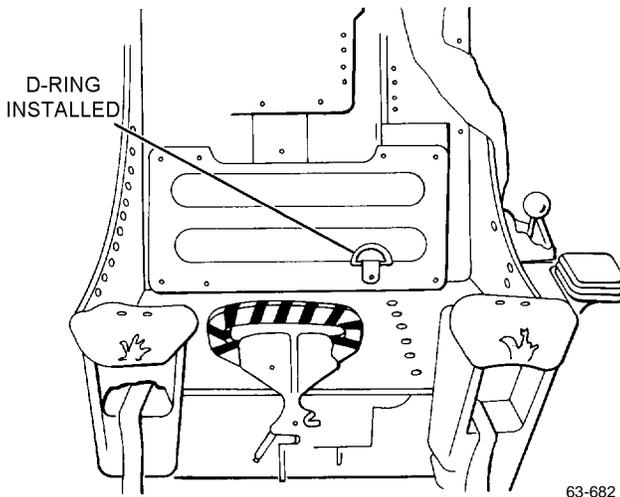
63-379

Step 5 - Para 5-30

NAVAIR 13-1-6.3-1

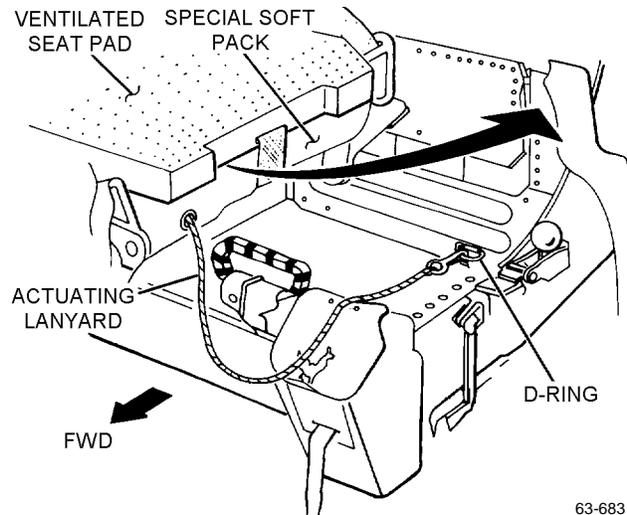
5-31. COCKPIT ROUTING AND INSTALLATION OF EMERGENCY RADIO BEACON LANYARD (SPECIAL SOFT PACK). To rig emergency radio beacon for automatic actuation, proceed as follows:

1. Remove inboard screw on port side from back of seat bucket near bottom. Enlarge hole in plate of D-ring to accommodate screw, and replace screw with D-ring attached.



Step 1 - Para 5-31

2. Attach snaphook to D-ring.



Step 2 - Para 5-31

Section 5-4. Turnaround/Daily/Preflight/Postflight/Transfer/ Special/Conditional Inspection

5-32. GENERAL.

5-33. The Turnaround/Daily/Preflight/Postflight or Transfer Inspections consist of visual inspection performed in conjunction with the aircraft inspection requirements for the aircraft in which the seat pan/soft pack is installed. These inspections shall be performed by line personnel (plane captain) or delegated aircrewmembers who have been instructed and found qualified by the Aviator's Equipment Branch.

5-34. Conditional Inspection is an unscheduled inspection required as the result of a specific situation or set of conditions, e.g., hard-landing inspections or

any inspection directed by higher authority that is not ordered in a technical directive.

5-35. The Special (7/14 day, etc.) Inspection shall be performed on inservice survival kits installed in aircraft and in ready room issue. This inspection shall be performed at the Organizational Level of maintenance by personnel assigned to the Aviator's Equipment Branch. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

5-36. TURNAROUND/DAILY/PREFLIGHT/POSTFLIGHT/TRANSFER AND SPECIAL INSPECTION PROCEDURES. To perform subject inspections, visually inspect the following:

1. Cushion for secure attachment, rips, tears, and loose or frayed stitching.
2. Oxygen gage for FULL indication.
3. Manual oxygen release for secure attachment.
4. Quick-disconnect for secure attachment.
5. Tag assembly, installed by manufacturer for shipping purposes, has been removed and discarded prior to placing emergency oxygen cylinder assembly in service.
6. Condition of oxygen hose. If repair procedure has been performed on oxygen hose assembly, check external wiring for secure attachment.
7. Beacon actuator indicator for bent shaft, hairpin cotter for elongation, corrosion, and proper mousing.
8. Secure attachment of beacon automatic actuation lanyard.
9. Soft pack for attachment to seat pan.

10. Harness assemblies for loose or frayed stitching, webbing, and cracked or broken hardware.
11. Soft pack fabric for cuts, tears, deterioration, and, abrasion.
12. Soft pack seams for proper adhesion or stitching.
13. Soft pack straps and handles for security and wear.
14. Any other parts for wear, damage, and security.
15. Container and/or case for stains, dirt, and general condition.

5-37. If discrepancies are found or suspected, Maintenance Control shall be notified.

5-38. Seat pans/soft pack assemblies which do not pass inspection and cannot be repaired in the aircraft shall be removed in accordance with applicable aircraft manual and replaced with Ready For Issue (RFI) seat pan/soft pack assemblies. Non-RFI seat pan/soft pack assemblies shall be forwarded to the nearest maintenance activity having repair capability.

Section 5-5. Acceptance/Phased/SDLM/PDM Inspection

5-39. GENERAL.

5-40. An acceptance inspection shall be performed on a survival kit when it is placed into service or at the time a reporting custodian accepts a newly assigned aircraft from any source and on return of an aircraft from SDLM/PDM or other major D-level rework. The Phased/SDLM/PDM inspection cycle of the survival kit shall be 448 days. In no case, however, shall the phased interval exceed 448 days. The battery test inspection cycle for the AN/URT-33A radio beacon is dependent on the type of battery installed. Refer to NAVAIR 16-30URT33-1 for battery test inspection cycles and requirements. For acceptance inspection purposes, verification of pyrotechnics and configuration is accomplished by visual record examination only. Disassembly beyond the daily inspection requirements of applicable publications is not required. Activities may elect to increase the depth of the inspection if equipment condition, visual external inspection, or record examination indicates such action is warranted.

5-41. VISUAL INSPECTION. This inspection shall be performed prior to the leak check of the seat pan/soft pack.

1. Visually check seat pan for the following:

- a. Cushion for rips and tears.
- b. Slide fastener for ease of operation and corrosion.
- c. Manual oxygen release for operation and corrosion.
- d. Tag assembly, installed by manufacturer for shipping purposes, has been removed and discarded prior to placing emergency oxygen cylinder assembly in service.
- e. Quick-disconnect for security of attachment to cable, and cable for frayed or broken strands.
- f. Snap fasteners for security and corrosion.
- g. Swaged balls on cable assemblies for security of attachment.

NAVAIR 13-1-6.3-1

2. Visually check soft pack survival kit for the following:

- a. Fabric for cuts, tears, deterioration, and abrasion.
- b. Seams for proper adhesion or stitching.
- c. Straps and handles for security and wear.
- d. Any other parts for wear, damage, and security.
- e. All hardware for security of attachment, corrosion, damage, wear and, if applicable, ease of operation.
- f. Container/Case for stains, dirt, proper markings, and general condition.
- g. Inspect oxygen hose for cracks or deterioration per Chapter 4 of this manual and replace as required.
- h. Inspect oxygen gage for full indication.

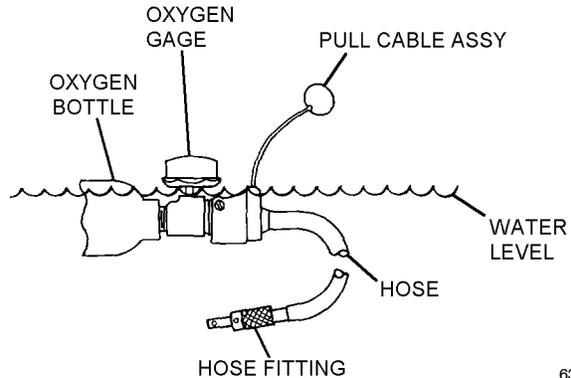
5-42. (SP-1A) LEAK CHECK. This check shall be performed anytime a kit is placed in service, after any adjustment procedures, or when equipment condition, visual external inspection, or record examination indicates such action is warranted to determine the condition of the kit. To perform a leak check proceed as follows:



Do not submerge oxygen gage or pull cable assembly.

Discontinue leak test if seat pan fails to pass any steps of test procedures. Repair malfunction before continuing procedures or damage to seat pan may result. After repair, the entire test procedure shall be performed.

1. Charge oxygen cylinder to 1800 to 2000 psi and submerge in water for at least 5 minutes to ensure no leakage. Any release of bubbles from hose or valve after 1 minute is cause for corrective maintenance.



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Step 1 - Para 5-42

2. Dry assembly with dry, clean compressed air.

5-43. (DOUGLAS SEAT PAN) FUNCTIONAL CHECK. The functional check shall be performed anytime a kit is placed in service, after any adjustment procedures, or when equipment condition, visual external inspection, or record examination indicates such action is warranted to determine the condition of the kit. To perform a functional check, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Leak Detection Compound, Type I	MIL-L-25567
As Required	Wire, Safety or Lock, Type S	QQ-W-343
As Required	Wire, Safety or Lock	MS20995N32

Support Equipment Required

Quantity	Description	Reference Number
1	Test Stand	59A120 (CAGE 02551)
	-or-	31TB1995-1 (CAGE 99251)
1	Dial Push/Pull Gage, 0 to 50 Pounds	DPP-50 (CAGE 11710)

WARNING

Before use, inspect leak detection compound. Compound which is not clear and free from suspended material/sediment is considered contaminated and shall be disposed of. Compound exhibiting peculiar odors, such as acetone or alcohol, is considered contaminated and shall be disposed of.

CAUTION

Discontinue functional test if seat pan fails to pass any steps of test procedures. Repair malfunction before continuing procedures or damage to seat pan may result. After repair, the entire test procedure shall be performed.

NOTE

Performance of test stand is dependent upon skill of operator. It is imperative that operator be thoroughly familiar with instruments, controls, and connections that comprise systems incorporated in test stand. See NAVAIR 17-15BC-20 and NAVAIR 13-1-6.4-4 to familiarize yourself with 59A120 or 31TB1995 series liquid oxygen converter test stands.

Original equipment relief valves used on earlier models of Douglas Seat Pan Assembly were designed to operate in 100 to 130 psi range and reseal with no leakage at 95 psi minimum. Operation of relief valves in this pressure range is not considered unsafe for flight and is acceptable. Future procurement of relief valves for Seat Pan Assemblies will be in accordance with MIL-V-9050, Type V with operating range of 120 to 140 psi and will replace 100 to 130 psi relief valves on attrition basis.

Emergency oxygen cylinder pressures used in this functional check are derived under ideal shop conditions of 70°F (21°C). Variances in ambient air temperatures directly affect charging pressures. Refer to [table 5-5](#) for details.

Ensure that emergency oxygen cylinder is filled to 1800 to 2000 psi with oxygen.

1. Remove bell jar and connect oxygen outlet hose of seat pan to fitting (C-1) and ensure that valve

(V-2) is open and all other test stand valves are closed ([figure 5-12](#)).

2. Attach push/pull gage to automatic emergency oxygen release lanyard.

3. Measure force required to disengage automatic oxygen release. Force required shall be 10 to 30 pounds, and emergency oxygen system shall actuate and indicate 45 to 80 psi on gage (PG-1) on test stand.

WARNING

Ensure yoke bottoms against spacer and not plunger stem.

4. Reinstall yoke between screw assembly collar and spacer. Safety-wire in accordance with [paragraph 5-63](#).

5. Bleed system by opening valve (V-5). All pressure is bled when gages (PG-1) and (PG-4) indicate zero pressure.

6. Close valve (V-5).

7. Attach push/pull gage to manual oxygen release handle.

8. Measure force required to disengage manual oxygen release. Force required shall be 10 to 30 pounds, and emergency oxygen system shall actuate and indicate 45 to 80 psi on gage (PG-1) on test stand.

WARNING

Ensure yoke bottoms against spacer and not plunger stem.

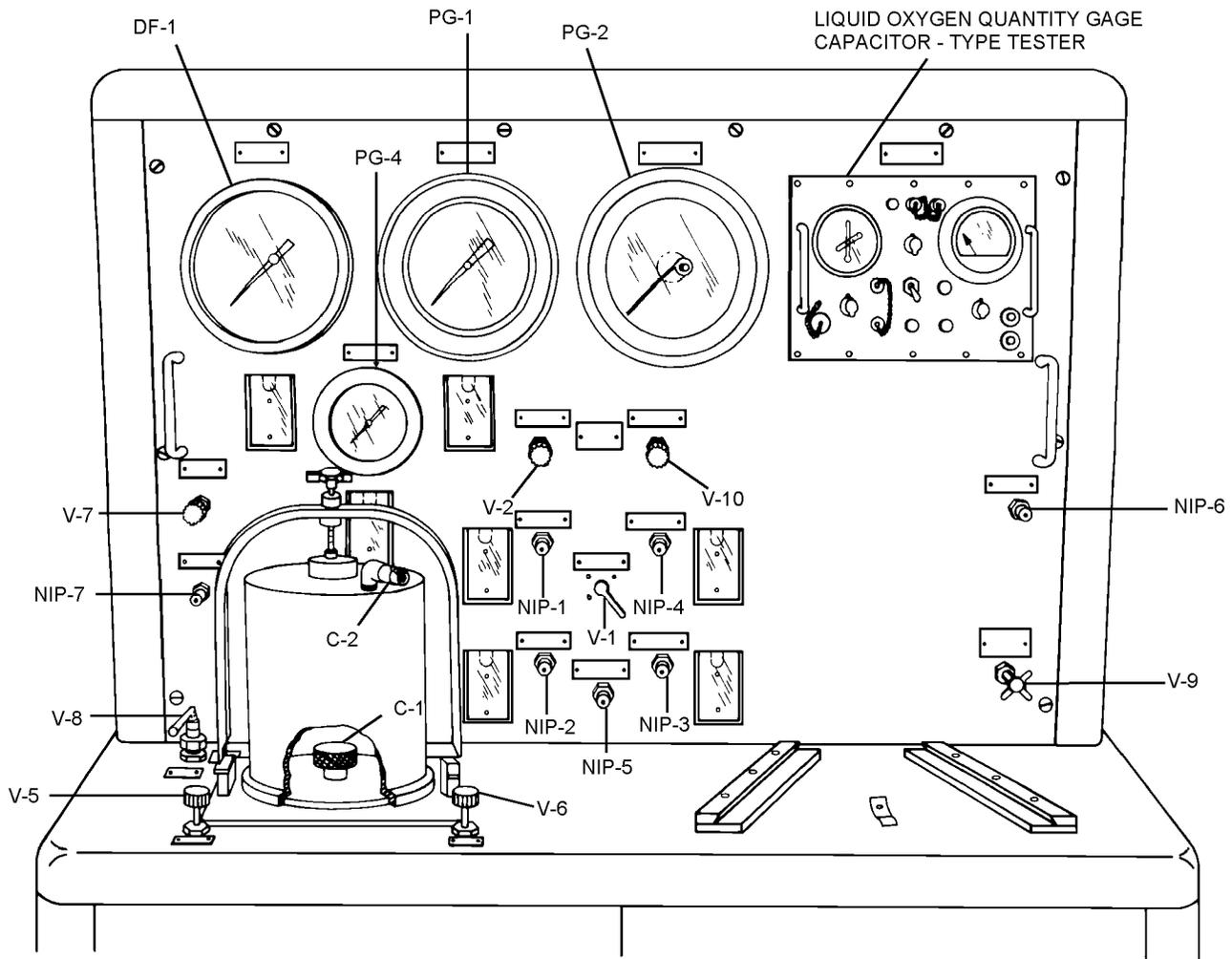
9. Reinstall yoke between screw assembly collar and spacer. Safety-wire in accordance with [paragraph 5-63](#).

10. Bleed system by opening valve (V-5). All pressure is bled when gages (PG-1) and (PG-4) indicate zero pressure.

11. Close valve (V-5).

12. Turn on oxygen supply cylinder to test stand.

13. Slowly open valve (V-6) on test stand and adjust pressure on gage (PG-1) to 90 psi.



- | | | | |
|-------|--|------|--|
| C-1 | BELL JAR BOTTOM COUPLING | PG-2 | FLOWMETER INDICATOR GAGE |
| C-2 | BELL JAR TOP COUPLING | PG-4 | 0 - 15 PSIG LOW PRESSURE TEST GAGE |
| DF-1 | 0 - 100" H ₂ O DIFFERENTIAL PRESSURE GAGE | V-1 | FLOWMETER SELECTOR GAGE |
| NIP-1 | 0 - 0.25 LPM FLOWMETER CONNECTION | V-2 | TEST PRESSURE GAGE TO BELL JAR VALVE |
| NIP-2 | 0 - 1 LPM FLOWMETER CONNECTION | V-5 | SYSTEM BLEED VALVE |
| NIP-3 | 0 - 50 LPM FLOWMETER CONNECTION | V-6 | OXYGEN SUPPLY VALVE |
| NIP-4 | 0 - 150 LPM FLOWMETER CONNECTION | V-7 | DIFFERENTIAL PRESSURE BLEED VALVE |
| NIP-5 | CONVERTER SUPPLY OUTLET CONNECTION | V-8 | DIFFERENTIAL PRESSURE SHUT-OFF VALVE |
| NIP-6 | SUPPLY TO CONVERTER CONNECTION | V-9 | CONVERTER SUPPLY FLOW CONTROL VALVE |
| NIP-7 | DIFFERENTIAL PRESSURE GAGE CONNECTION | V-10 | TEST PRESSURE GAGE BUILD-UP AND FLOW VALVE |
| PG-1 | 0 - 160 PSIG TEST PRESSURE GAGE | | |

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Figure 5-12. Test Stand Model 59A120

14. Attach pull scale to oxygen system automatic release fitting.

15. Measure force required to extract the release fitting. Force required shall be 10 to 30 pounds.

NOTE

Any degree of leakage in the oxygen system is not acceptable.

16. Using leak detection compound, check all pressure lines and fittings on seat pan to ensure no leakage.



Ensure yoke bottoms against spacer and not plunger stem.

17. Reinstall yoke between screw assembly collar and spacer. Safety-wire in accordance with [paragraph 5-63](#).



Do not increase pressure above 150 psi.

18. Using valve (V-6), increase pressure until relief valve unseats.

NOTE

Unseating can be determined by listening and observing gage (PG-1) on test stand.

19. Repeat [step 18](#) several times to establish a correct pressure. Relief valve shall unseat at 120 to 140 psi when pressure is increased, and reseal at 110 psi minimum when pressure is decreased. Once reset, relief valve shall be leak tight.

20. Check relief valve with leak detection compound to ensure no leakage.

NOTE

Pressure may be reduced below opening pressure of the relief valve by closing valve (V-6) and opening valve (V-5).

21. Close valve (V-6) and bleed oxygen pressure from system by opening valve (V-5). All pressure is bled when gages (PG-1) and (PG-4) indicate zero pressure.

22. Open valve (V-8).

23. Slowly close valve (V-5), while observing gage (DF-1).

NOTE

Observe gage (DF-1) for two minutes to ensure no leakage. Any pressure rise indicates leakage in the regulator valve seat and requires corrective maintenance.

24. Close valve (V-8), open valve (V-5), and disconnect seat pan from fitting (C-1).

25. Ensure all valves on the test stand are secured.

26. Connect oxygen outlet hose to fitting (NIP-6). Ensure that valve (V-10) is open and all other test stand valves are closed.

27. Connect test stand hose to fitting (NIP-5) and (NIP-4).

28. Move valve (V-1) to the (NIP-4) position.

29. Ensure that 1800 to 2000 psi is in the oxygen cylinder of the seat pan.

30. Pull manual oxygen release. Slowly open valve (V-9) to indicate 90 LPM on gage (PG-2). Oxygen pressure shall indicate 45 to 80 psi on gage (PG-1).

NOTE

When needle of cylinder pressure gage is between the E and F of REFILL, pressure is approximately 250 psi.

31. Observe emergency oxygen cylinder pressure gage and allow the system to decrease to 250 psi while maintaining 90 LPM and 45 to 80 psi pressure.

32. Close valve (V-9).

33. With zero flow indicated on gage (PG-2), pressure indicated on gage (PG-1) shall be 45 to 80 psi.



Ensure yoke bottoms against spacer and not plunger stem.

34. Reinstall yoke between screw assembly collar and spacer. Safety-wire in accordance with [paragraph 5-63](#).

35. Bleed oxygen pressure from system by opening valves (V-5) and (V-2). All pressure is bled when gages (PG-1) and (PG-4) indicate zero pressure.

36. Disconnect seat pan from test stand.

37. Secure test stand.

38. All areas, where leak detection compound was applied, shall be thoroughly cleaned using clean water. Dry with lint-free cloth, filtered low pressure compressed air or low pressure nitrogen.

39. Recharge emergency oxygen cylinder to 1800 to 2000 psi. Refer to [paragraph 5-45](#) for charging procedures.

5-44. (SP-1A SEAT PAN) PURGING AND CHARGING EMERGENCY OXYGEN SYSTEM. To purge and charge the emergency oxygen cylinder proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Aviator's Breathing Oxygen, Type I	MIL-O-27210
1	Break-off Nipple	MS21965-1
1	O-ring	186A102 (CAGE 20846)



Servicing the emergency oxygen system is accomplished only after removal of the personnel parachute and seat pan from the aircraft.

NOTE

Index numbers in the following steps will pertain to [figure 5-20](#) unless otherwise noted.

1. If the seat pan assembly has not been removed from the aircraft, remove the personnel parachute and seat pan in accordance with the applicable maintenance manual.

2. Remove the four screws (4) holding the pull cable assembly housing (2 or 3) in place. Slide the pull cable assembly along the hose so that it is well out of the way.

3. Unscrew the bushing (6) from the valve assembly (9) and withdraw hose, break-off nipple (7) and bushing from the valve body.

4. Remove the fractured break-off nipple from the hose, ensuring that both pieces are removed if the nipple has been separated at the fracture.

5. Push a new break-off nipple into the end of the hose until the hose end contacts the flanged face of the break-off nipple.

6. Grasp the hose just above the bushing and work the bushing down around the hose until the end of the bushing contacts the flanged face of the break-off nipple.

7. Invert the assembly and remove the oxygen flow controller (8).

8. Examine the interior of the valve assembly (9). If cleaning is necessary, blow out with aviator's breathing oxygen from supply cylinder.

9. Reinstall oxygen flow controller in valve assembly.

10. Reinstall the assembly of bushing, hose, and break-off nipple in valve assembly. Screw down until all parts are snugged together. Do not overtighten.

11. Connect emergency oxygen cylinder bushing assembly (12) to a supply cylinder of aviator's breathing oxygen by using a suitable charging adapter. Turn bushing (6) one-quarter turn counterclockwise.

12. Open oxygen supply cylinder valve slightly, allowing oxygen to flow into emergency oxygen cylinder until pressure gage (index 10) shows low pressure as indicated by pointer movement of not more than 1/8 inch. Close supply cylinder valve.

13. Loosen nut at inlet end of charging adapter, permitting oxygen to escape. Tighten nut.

14. Repeat steps 12 and 13 twice.

WARNING

Observe filling stages as rapid application of oxygen pressure creates heat which may result in fire or explosion.

Allow no less than 3 minutes for each filling stage, and 2-minute intervals for cooling between stages.

NOTE

If kit is to be stored, the emergency oxygen bottle shall be depleted or filled to 200 PSI (when needle on gage bisects E on refill). For shipping, fill or deplete to 25 PSI using the gage on the oxygen refill cylinder.

15. Charge emergency oxygen system in stages in accordance with table 5-4 until pressure gage indicates correct pressure for existing ambient temperature (table 5-5).

16. When charging is completed, tighten bushing (6) to 15 pound-feet.

17. Remove charging adapter from bushing assembly (12) and replace cap and seal assembly (11).

18. Perform leak check in accordance with paragraph 5-42.

19. If personnel parachute and seat pan assembly were removed in step 1, reinstall using applicable maintenance manual.

5-45. (DOUGLAS SEAT PAN) PURGING AND CHARGING EMERGENCY OXYGEN SYSTEM. To purge and charge the emergency oxygen system, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Leak Detection Compound, Type I	MIL-L-25567
As Required	Nitrogen, Type I, Class 1, Grade B	BB-N-411
As Required	Aviator's Breathing Oxygen, Type I	MIL-O-27210

Support Equipment Required

Quantity	Description	Reference Number
1	Oxygen Purging Electric Heater	C5378 (CAGE 96787) or equivalent
1	Shut-off Valve	—
1	Pressure Regulator	—
1	Adapter, Filling	21000T130-1 (CAGE 53655)

WARNING

Servicing of emergency oxygen system is accomplished only after removal of personnel parachute and survival kit from aircraft.

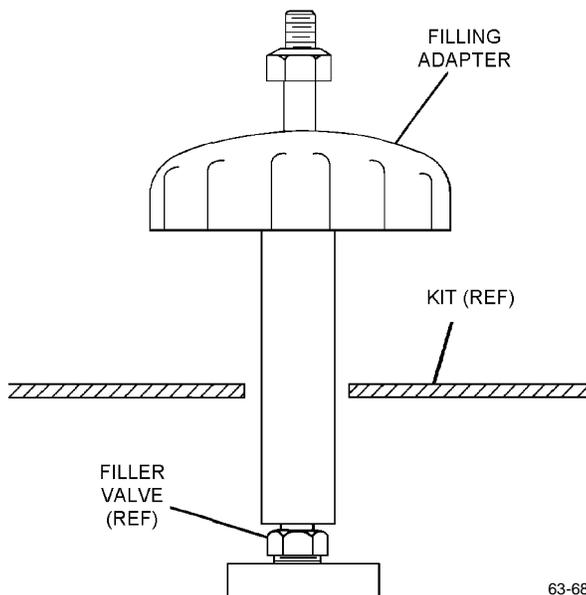
Before use, inspect leak detection compound. Compound which is not clear and free from suspended material/sediment is considered contaminated and shall be disposed of. Compound exhibiting peculiar odors, such as acetone or alcohol, is considered contaminated and shall be disposed of.

1. If seat pan assembly has not been removed from aircraft, remove personnel parachute and seat pan in accordance with applicable maintenance manual.

WARNING

If necessary to release pressure in oxygen bottle before purging/filling, pull emergency oxygen lanyard. This releases pressure through pressure regulator. DO NOT release pressure through filler valve or adapter. Releasing high-pressure oxygen through restriction of filler valve causes heat. Fire or explosion may result.

2. Remove oxygen filler valve cap and connect filling adapter to filler valve.



Step 2 - Para 5-45

NOTE

If the emergency oxygen system is contaminated or the cylinder has remained empty for more than 2 hours, purging is required. If an emergency oxygen cylinder does not warrant the purging process, proceed to step 10 for charging sequence.

3. Deplete emergency oxygen cylinder if necessary.
4. Connect nitrogen source to filling adapter, and close pressure regulator.

NOTE

If relief valve on Oxygen Purging Electric Heater will not allow 100 psi, raise pressure only to allowable limit.

5. Slowly pressurize to 100 psi with nitrogen at temperature of 110 to 130 degrees C (230 to 266 degrees F) using electric heater.
6. Turn off nitrogen source and deplete oxygen cylinder.
7. Repeat steps 5 and 6, two times.
8. With pressure regulator open, turn on nitrogen source and purge for 10 minutes at temperature of 110 to 130 degrees C (230 to 266 degrees F).
9. Turn off nitrogen source and disconnect.
10. Connect oxygen source to filling adapter with suitable pressure regulator and shut-off valve. Reset pressure regulator.
11. Slowly pressurize to 100 psi.
12. Deplete cylinder to 50 psi.
13. Ensure that minimum slack exists in actuating cables of pressure regulator, yet enough to ensure yokes do not become unseated from spacer.

WARNING

Observe filling stages as rapid application of oxygen pressure creates heat which may result in fire or explosion.

Allow no less than 3 minutes for each filling stage and 2 minute intervals for cooling between stages.

NOTE

If kit is to be stored, the emergency oxygen bottle shall be depleted or filled to 200 PSI (when needle on gage bisects E on refill). For shipping, fill or deplete to 25 PSI using the gage on the oxygen refill cylinder.

14. Charge emergency oxygen system in stages in accordance with [table 5-4](#) until pressure gage indicates correct pressure for existing ambient temperature ([table 5-5](#)).

WARNING

Visually ensure that filler valve does not turn as filling adapter is removed. Serious injury could result.

15. Loosen filling adapter until all pressure is bled from high-pressure line. Remove filling adapter.

NOTE

Alternate Fill Valve P/N 9120097-27 is coreless and has a maximum leakage rate of 1 cc/hr. This will be evident by very tiny bubbles passing though the top of the valve when leak detection compound is applied level to the top rim. No leaks around the threads are acceptable. If large bubbles are evident, contact survival kit FST for disposition.

16. Apply leak detection compound around filler valve, gage and pressure regulator and check for leaks. Then thoroughly clean all connections using clean water and dry with lint-free cloth, filtered low pressure compressed air, or low pressure nitrogen.

17. Reinstall oxygen filler valve cap on filler valve.

18. If the personnel parachute and seat pan assembly were removed in [step 1](#), reinstall using the applicable maintenance manual.

Table 5-4. Charging Stages

Stage	PSI
1	500
2	1000
3	1500
4	1800
5	2000

Table 5-5. Ambient Air Temperature Vs Charging Pressures

Ambient Air Temperature		Charging Pressure
°F	°C	PSI
0	-18	1550-1750
10	-12	1600-1775
20	-7	1625-1800
30	-1	1675-1850
40	5	1700-1875
50	10	1725-1925
60	16	1775-1975
70	21	1800-2000
80	27	1825-2050
90	32	1875-2075
100	38	1900-2125
110	43	1925-2150
120	49	1975-2200
130	54	2000-2225

Section 5-6. Maintenance

5-46. GENERAL.

WARNING

Keep working area clean and free of oil, grease and dirt. Do not attempt to perform any component removal with the oxygen system pressurized.

5-47. This section contains procedures for troubleshooting, disassembly, cleaning, inspection of disassembled parts, repair or replacement of parts, assembly and adjustment. Disassemble only to extent required to perform task. Work shall be performed in a clean, dust and grease-free area.

5-48. TROUBLESHOOTING.

5-49. Where troubles or operating malfunctions are encountered, locate probable cause and remedy using [table 5-6](#).

5-50. DISASSEMBLY.

5-51. Disassemble the seat pans using the key index numbers assigned to [figures 5-17 through 5-20](#) as a reference.

NOTE

Discard all O-rings, seals, cotter pins, and Teflon sealing tape removed from oxygen connections during disassembly. Discard any threaded inserts, rivets, rubber pads, seals, molding, or hook and pile fastener tape removed during disassembly of the seat pans.

5-52. CLEANING.

5-53. To clean the disassembled oxygen and non-oxygen components of the kit (except for cushions and fabric components) refer to NAVAIR 13-1-6.4-1.

5-54. CLEANING CUSHIONS AND FABRIC COMPONENTS. Clean cushions and all fabric components as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Cleaning Compound	MIL-C-25769
As Required	Detergent, General Purpose	MIL-D-16791
As Required	Lint-free Cloth	MIL-C-85043 NIIN 00-044-9281
As Required	Talc, Technical	MIL-T-50036A

NOTE

If using cleaning compound (MIL-C-25769), combine one part compound to three parts water. If using general purpose detergent, follow directions on container.

1. Prepare detergent or cleaning compound (MIL-C-25769) solution.

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

3. Allow solution to remain on surface for few minutes, then scrub with soft brush or cloth.

4. Rinse surface thoroughly with water; wipe with cloth or sponge.

NOTE

Repeat [steps 1 through 4](#) until material is clean.

5. Repeat [step 4](#) until material is free from all solution.

Table 5-6. Troubleshooting

Trouble	Probable Cause	Remedy
Pressure regulator leaking during test.	Faulty pressure regulator.	Replace or adjust pressure regulator in accordance with paragraph 5-63 or 5-66 .
Emergency oxygen does not actuate when manual oxygen release or emergency release is pulled.	Cable broken.	Replace cable.
	Cable not connected to yoke.	Connect cable to yoke.
	Cable improperly routed.	Reroute cable in accordance with paragraph 5-63 .
	Pressure regulator not properly adjusted.	Adjust pressure regulator in accordance with paragraph 5-66 .
Low or zero indicator on pressure gage.	Oxygen bottle empty.	Charge bottle.
	Defective gage.	Replace gage.
	Leaking components.	Tighten connections or replace.
Emergency oxygen pressure not within 45 to 80 psi.	Pressure regulator not properly adjusted.	Adjust in accordance with paragraph 5-66 .
	Defective pressure regulator.	Replace pressure regulator.
Emergency oxygen relief valve does not operate within 120 to 140 psi.	Defective relief valve.	Replace relief valve.
Loss of aircraft communications.	Broken or misaligned pins and sockets in hose connectors. Open or short circuit in oxygen hose wiring.	Perform electrical check in accordance with chapter 4 .

6. Allow material to dry thoroughly.

Materials Required

7. (Soft Pack Survival Kits) Dust interior surfaces with light coating of talc.

Quantity	Description	Reference Number
As Required	Ink, Waterproof, Black	TT-I-542

5-55. INSPECTION OF DISASSEMBLED PARTS.

5-56. Inspect the disassembled parts of the seat pan for damage, distortion, corrosion, and other damage in accordance with [table 5-7](#). Inspect soft pack container markings as follows:

1. Compare markings on container with markings listed in [table 5-8](#).
2. Paint over incorrect markings using waterproof black ink.
3. Add correct marking as close as possible to specified location using black, waterproof ink.

Table 5-7. Inspection

Component	Task
Fabric Cover	Check for rips, tears, and loose or frayed stitching.
	Check slide fastener for security of attachment and trouble-free operation.
	Check for security of snap fasteners.
Oxygen Bottle	Inspect end fitting for thread damage.
	Check bottle for bulges, cracks, dents, nicks, gouges, and scratches which penetrate metal. Carefully inspect areas adjacent to welds.
Manual Oxygen Release	Check ball for security of attachment.
	Check cable for broken or frayed strands.
	Check for proper routing of cable.
Oxygen Gage	Check for cracked or missing glass, bent or broken needle and stop, or jammed needle.
Pressure Regulator	Check yokes for distortion, hole wear, and screw damage.
	Check adjusting nut threads and holes for damage and wear.
	Check housing assembly for breaks, gouges, and other obvious damage.
	Check parts, threads, and diaphragm seating area for damage.
Survival Equipment	Inspect in accordance with NAVAIR 13-1-6.5.

Table 5-8. Soft Pack Case/Container Markings

Case/Container	Marking (Note 1)	Location	Letter Height
Standard Soft Pack Outer Container	STANDARD SOFT PACK OUTER CONTAINER	Main panel on either side of adjustable strap.	7/8 inch
High Speed Soft Pack Outer Container	[NONE]		
Special Outer Container	[NONE]		
Combination Carrying Case and Equipment Container	EQUIPMENT	Upper side of equipment compartment	1 inch
	LIFERAFT	Cover flap of raft compartment	1 inch
Equipment Container	EQUIPMENT	Main panel	1 inch
	RSSK OR HSSP	Main panel	1/2 inch

Notes: 1. All markings shall be stamped or stenciled with waterproof black ink. All words enclosed by brackets, in the column headed Marking, shall not be stenciled on the equipment; they are to be regarded as instructions only.

5-57. REPAIR AND REPLACEMENT.

5-58. Repair of individual components within any assembly is authorized only in accordance with procedures outlined in this manual. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series. All individual components that fail to pass inspection shall be replaced except where a repair procedure is indicated. Refer to source code listing (SM&R Code) in the **Numerical Index** of the Illustrated Parts Breakdown to aid in determining replaceable components. All adjustable components or assemblies that have failed to pass respective tests shall be readjusted to meet required specification.

5-59. REPAIR OF SEAT PAN TABS. To repair broken tabs on the seat pan assembly (index 24, **fig-**

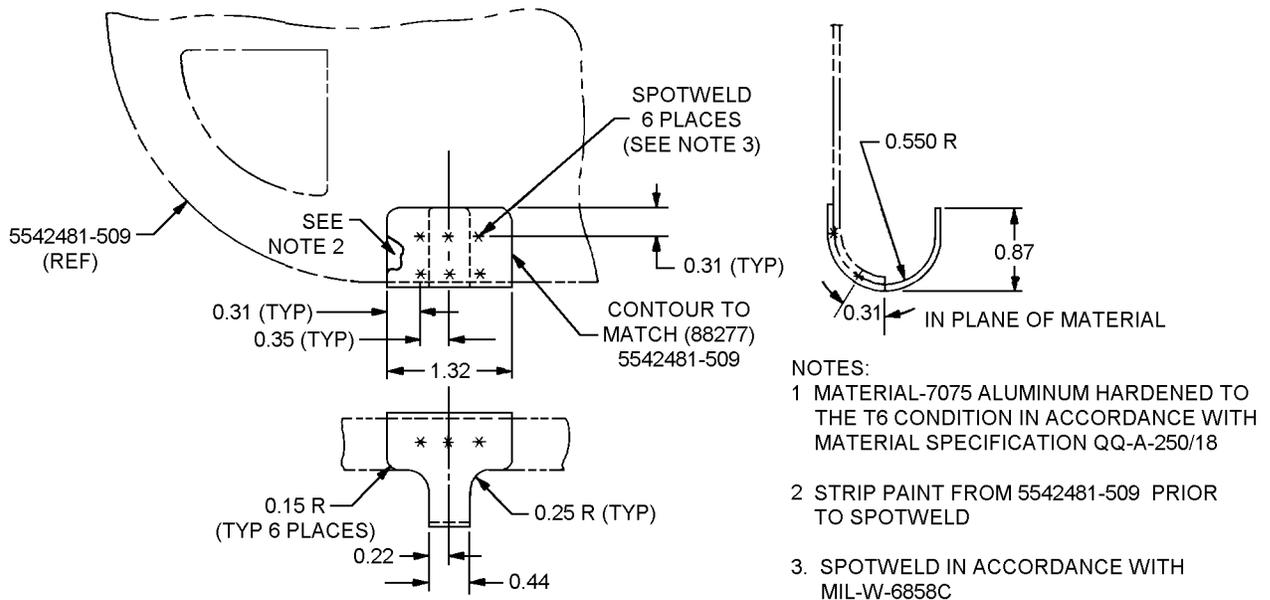
ure 5-17 of the Douglas Seat Pan, manufacture and install new tabs in accordance with **figure 5-13**.

5-60. REPAIR OF CUSHION ASSEMBLY. Repair of the cushion assembly, cover assembly, and seat comfort pad is limited to sewing of loose or open seams, broken stitches, and small rips and tears.

5-61. ASSEMBLY.

NOTE

The tamper dot on the Oxygen Hose Assembly shall be applied to the fitting in a manner which provides easy identification for inspection purposes when the seat kit is installed in the seat.



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Figure 5-13. Seat Pan Assembly Hook Repair

NAVAIR 13-1-6.3-1

5-62. After nuts and fittings are properly torqued (refer to [Appendix B](#)), apply tamper dots to all oxygen fittings shown in [figures 5-17](#) and [5-18](#). Use lacquer, specification MIL-L-7178, Fed. Std. 595. Use any contrasting color when applying tamper dots to oxygen fittings. Assemble remainder of seat pan using the index numbers of [figures 5-17](#) and [5-18](#) as a reference and noting the following instructions:

Materials Required

Quantity	Description	Reference Number
As Required	Wire, Safety or Lock, Copper, Type S, 26 AWG (0.0159 Dia.)	QQ-W-343
As Required	Wire, Safety or Lock	MS20995N32

Materials Required (Cont)

Quantity	Description	Reference Number
As Required	Krytox, 240 AC, Type III	MIL-G-27617 NIIN 00-961-8995
As Required	Lacquer	MIL-L-7178

5-63. (DOUGLAS SEAT PAN) PRESSURE REGULATOR. Special instructions are as follows ([figure 5-14](#)):

1. Place plunger locking washer on plunger stem with washer tabs positioned in indents.
2. Place spacer on plunger stem.

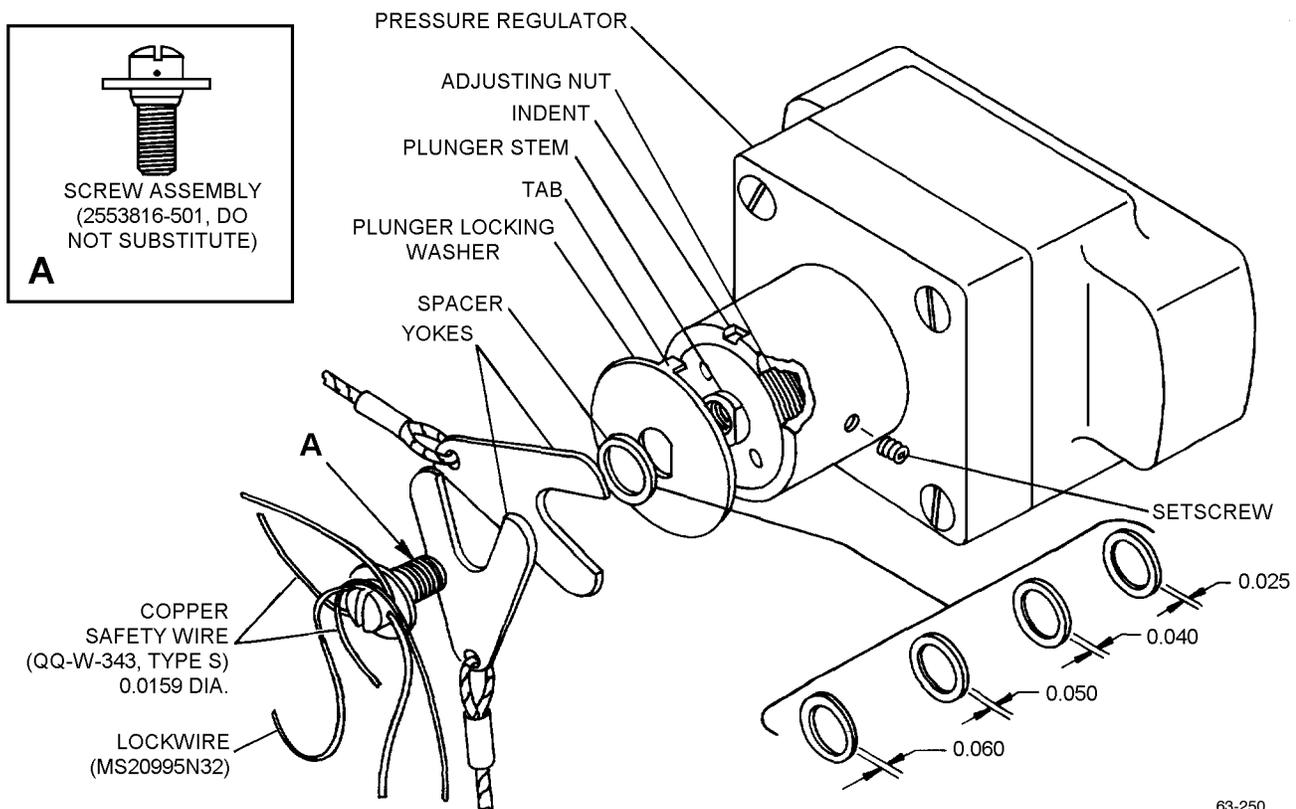
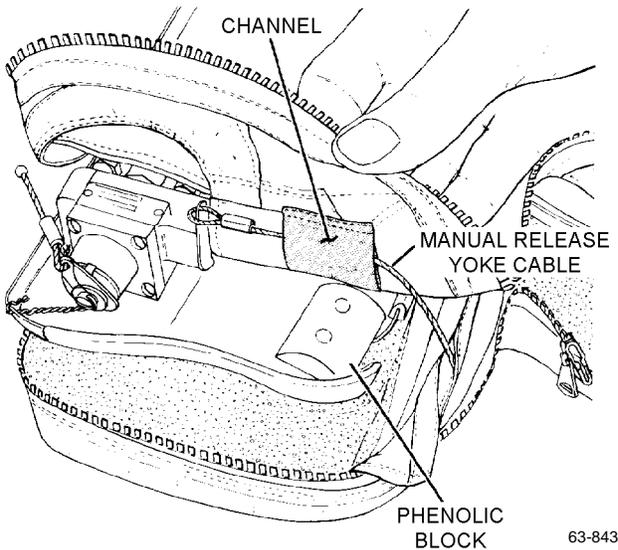


Figure 5-14. Pressure Regulator

3. Thread screw assembly into plunger stem a sufficient distance to allow both yokes to fit between screw and spacer.

4. Route manual oxygen release yoke cable through channel in underside of seat pan cover and over phenolic block.



Step 4 - Para 5-63

5. Install both yokes between screw assembly collar and spacer and snugly tighten screw assembly.

WARNING

Ensure yoke bottoms against spacer and not plunger stem.

6. Rotate yokes to ensure they are not bottomed against plunger stem. If bottoming occurs, install larger size spacer as required.

WARNING

No substitute shall be used for QQ-W-343, Type S, 0.0159 Dia. wire.

7. Secure each yoke to head of screw assembly using QQ-W-343, Type S, 0.0159 Dia. safety wire. Pass safety wire through cable eye of yokes and

around screw assembly head. Pull safety wire tight and secure by twisting at eye. Separate safety wire shall be used for each yoke (figure 5-15).

8. Secure screw assembly to seat pan using MS20995N32 lockwire. Pass lockwire through hole in screw, above yoke safety wire, and through hole in seat pan. Pull lockwire tight and secure by twisting at seat pan hole (figure 5-15).

5-64. (DOUGLAS SEAT PAN) CHECK VALVE ASSEMBLY. Special instructions are as follows (figure 5-16):

WARNING

Ensure all parts are free of foreign material.

1. Lubricate threads of check valve, emergency oxygen check valve coupling, and oxygen hose coupling nuts with MIL-T-5542 antiseize compound.

2. (P/N 3275 Check Valve) Assemble new gasket (MS28778-4) on to check valve outlet. Insert check valve (P/N 3275) into oxygen coupling assembly with O-ring facing oxygen hose connection. Loosely thread check valve outlet into coupling assembly and hose assembly onto check valve outlet.

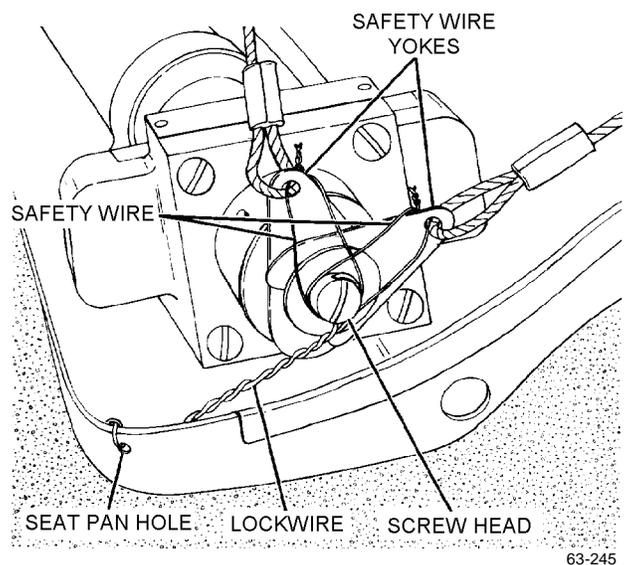
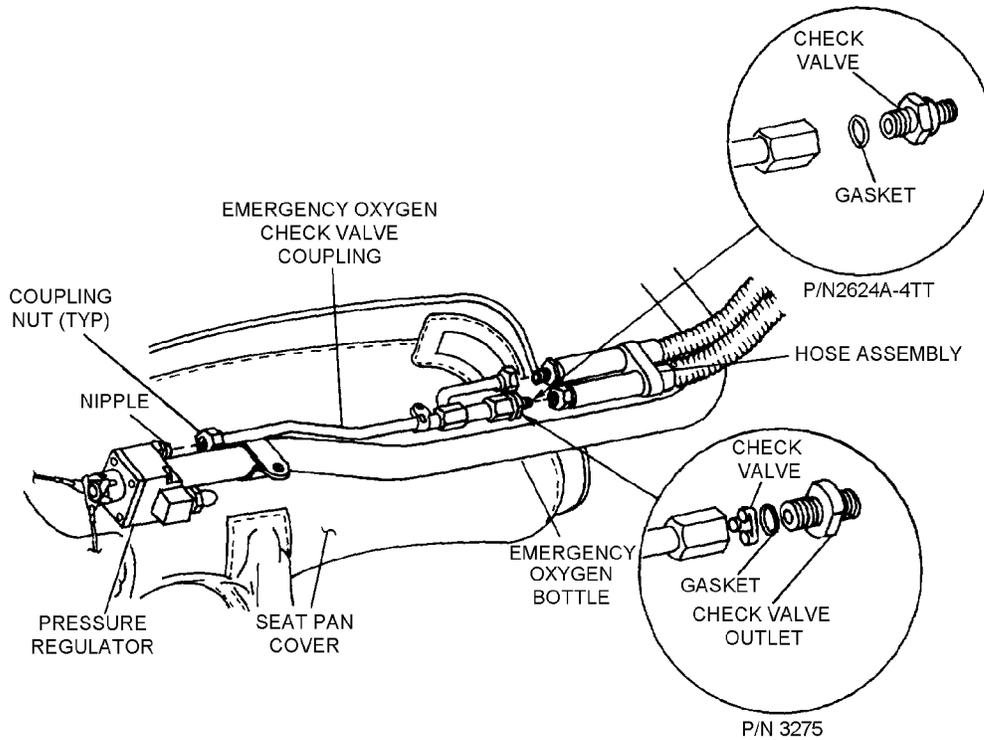


Figure 5-15. Pressure Regulator Yokes



63-417

Figure 5-16. Oxygen Check Valve Assembly

3. (P/N 2624A-4TT Check Valve) Assemble new gasket (MS28778-4) on to check valve outlet. Place check valve in position between oxygen coupling assembly and hose assembly. Loosely thread coupling nuts hand tight.

4. Tighten all coupling nuts to correct torque value. Refer to Appendix B.

5. Leak test check valve assembly in accordance with paragraph 5-43.

5-65. ADJUSTMENT.

5-66. (DOUGLAS SEAT PAN) ADJUSTMENT OF PRESSURE REGULATOR. If delivery pressure is not within tolerance, adjust pressure regulator as follows (figure 5-14):

Materials Required

Quantity	Description	Reference Number
As Required	Wire, Safety or Lock, Copper, Type S, 26 AWG (0.0159 Dia.)	QQ-W-343

Support Equipment Required

Quantity	Description	Reference Number
1	Wrench, Adjusting	F2164

1. Remove yokes and screw assembly from pressure regulator.

2. Remove spacer and plunger locking washer, and loosen setscrew.

3. While holding plunger stem stationary, rotate adjusting nut clockwise to increase pressure or counterclockwise to decrease pressure.

4. Tighten setscrew and install plunger locking washer, spacer and screw assembly. Secure with copper safety wire in accordance with paragraph 5-63.

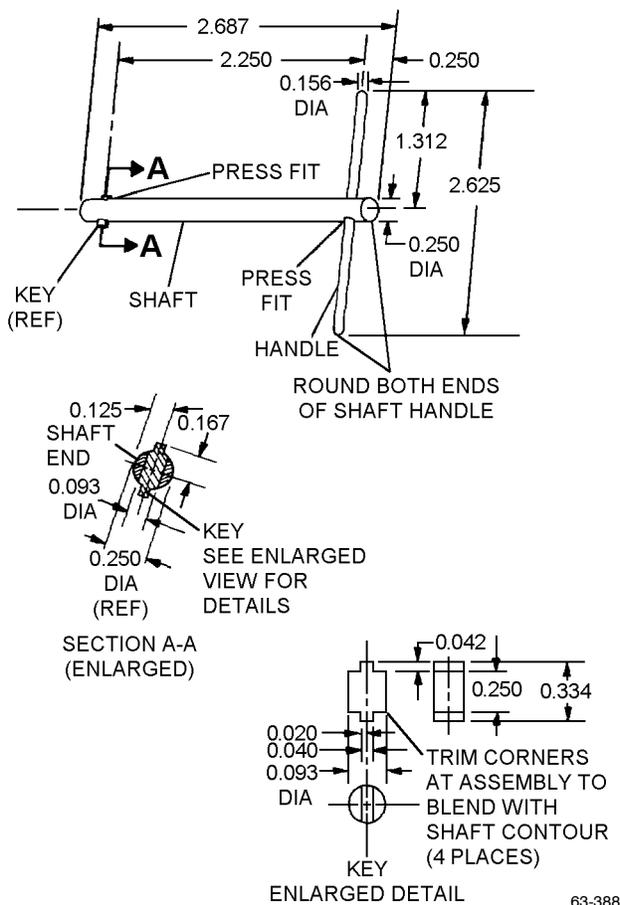
Section 5-7. Fabrication

5-67. GENERAL.

5-68. This section contains instructions for fabrication of tools and components that can be manufactured by local activities.

5-69. T-WRENCH. To fabricate a T-wrench, proceed as follows:

1. Fabricate wrench from steel as shown.



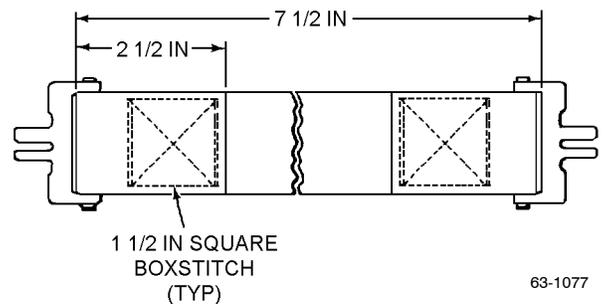
Step 1 - Para 5-69

5-70. BRAKE RIDER'S STRAP. To fabricate a brake rider's strap, proceed as follows:

Materials Required

Quantity	Description	Reference Number
2	Release Assembly Lapbelt Fitting	015-11366-1 (CAGE 99449)
24 Inches	Webbing, Nylon, Type XXVII, 1 23/32 in. wide	MIL-W-4088 NIIN 00-530-1489
As Required	Thread, Nylon, Type II, Class A, Size 6	V-T-295 NIIN 00-559-5211

1. Cut a piece of nylon webbing 24 inches in length.
2. Sear exposed ends of webbing.
3. Secure fittings with 1 1/2 inch square boxstitch. All stitching shall be ASTM-D-6193, Type 301, 4 to 6 stitches per inch, and backstitch 1/2 inch minimum.



Step 3 - Para 5-70

Section 5-8. Illustrated Parts Breakdown

5-71. GENERAL.

5-72. This section lists and illustrates the assemblies and detail parts of the Seat Pan Assemblies as manufactured by Douglas Aircraft Co. (Douglas Seat

Pan) and Erie Manufacturing Co. (SP-1A Emergency Oxygen Bottle).

5-73. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.

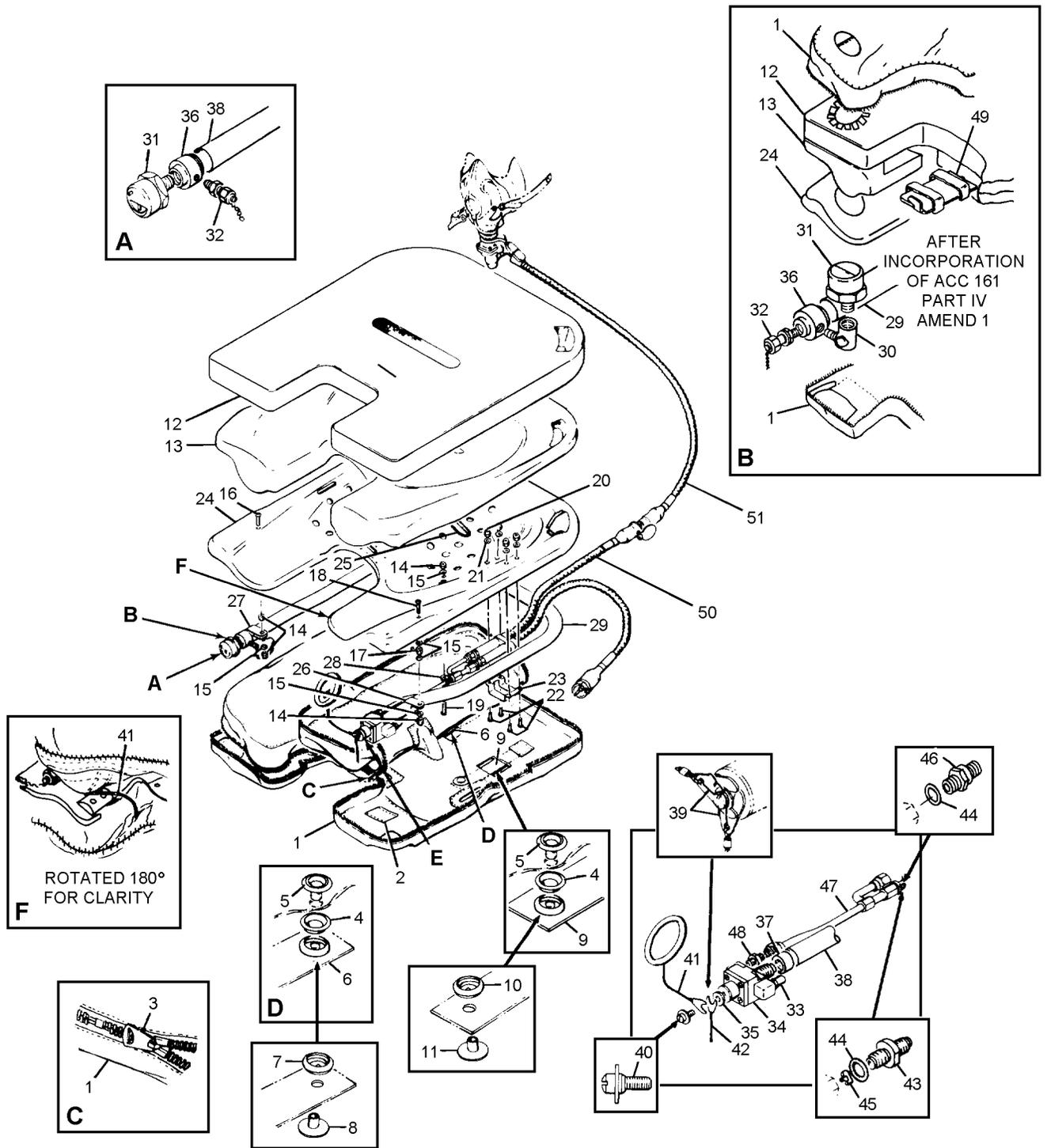


Figure 5-17. Douglas Seat Pan

005017

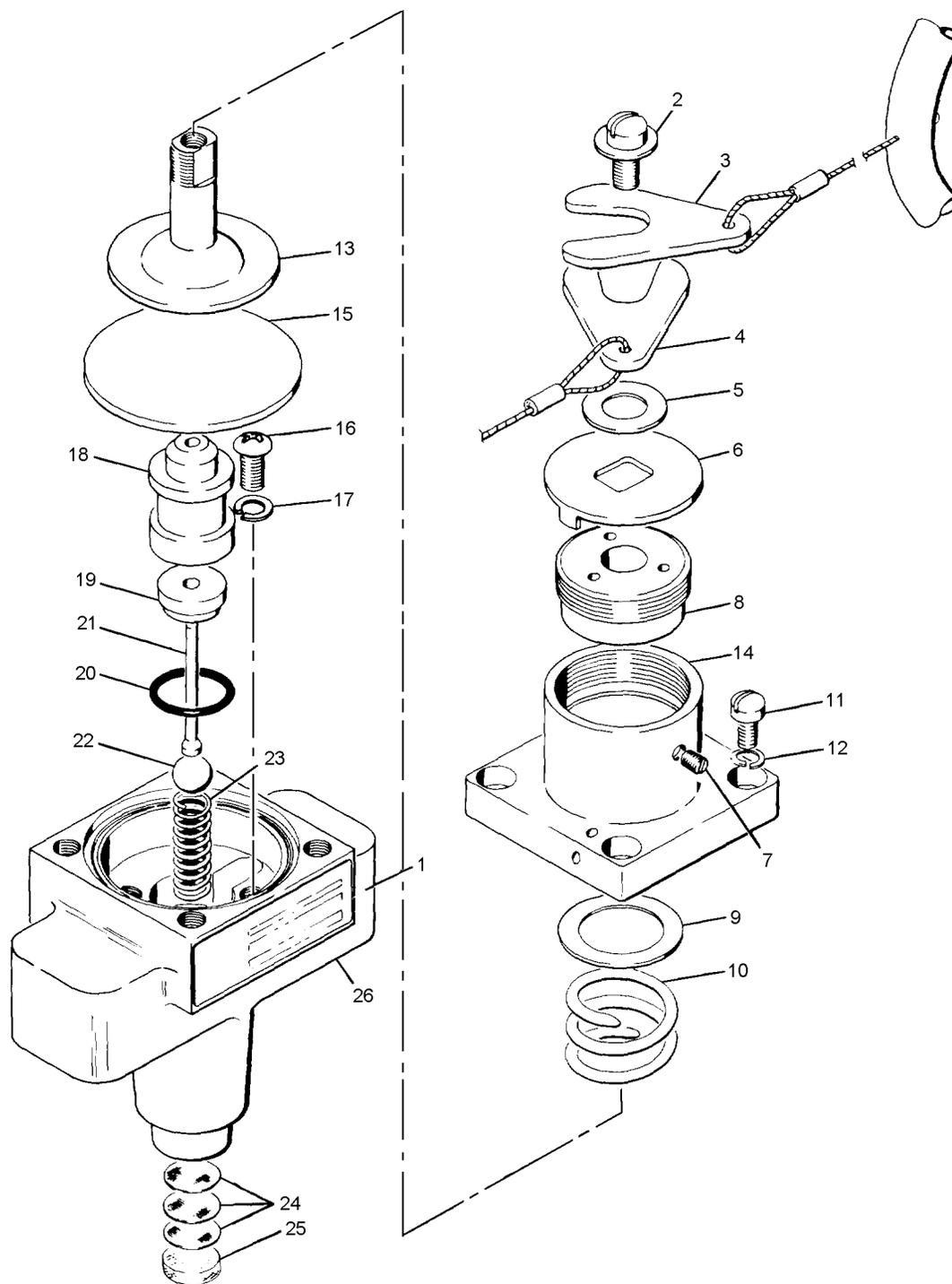
NAVAIR 13-1-6.3-1

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
5-17	5811863	PAN ASSEMBLY, Emergency oxygen and comfort (See Dwg 7442584 for NHA)	1	
	5811863-503	PAN ASSEMBLY, Emergency oxygen and comfort (See Dwg 7442584 for NHA) (Note 1)	1	
	5811863-47	. PAN ASSEMBLY, Emergency oxygen and comfort	1	
-1	5811863-37	. . COVER ASSEMBLY, Emergency oxygen and seat pan	1	
-2	5811863-35	. . . GUIDE, Channel	1	
-3	AN229-2BL2841	. . . FASTENER, Slide	1	
-4	AN227-64B	. . . FASTENER	3	
-5	AN227-9B	. . . FASTENER	3	
-6	5811863-27	. . . KEEPER ASSEMBLY, Emergency oxygen and comfort pan	1	
-7	AN227-63B	. . . . FASTENER	1	
-8	AN227-62B	. . . . FASTENER	1	
-9	5811863-29	. . . KEEPER ASSEMBLY, Emergency oxygen and comfort pan	2	
-10	AN227-63B	. . . . FASTENER	1	
-11	AN227-62B	. . . . FASTENER	1	
-12	5543382-503	. . PAD, Ejection seat comfort	1	
-13	5542483-503	. . PAD, Ejection seat shock	1	
-14	MS21083D08	. . NUT, (Equivalent to NAS1022D08)	4	
-15	AN960D8L	. . WASHER	5	
-16	MS51957-47	. . SCREW, (Equivalent to AN515C8-12)	1	
-17	MS21044D08	. . NUT, (Equivalent to NAS1021D08)	1	
-18	MS51957-48	. . SCREW, (Equivalent to AN515C8-14)	1	
-19	MS51957-44	. . SCREW, (Equivalent to AN515C8-7)	1	
-20	MS21083D06	. . NUT, (Equivalent to NAS1022D06)	4	
-21	AN960D6	. . WASHER	4	
-22	MS35206-228	. . SCREW, (Equivalent to AN515-6R6)	4	
-23	5811863-31	. . BRACKET, Emergency oxygen and seat pan	1	
-24	5542481-509	. . PAN ASSEMBLY, Seat	1	
-25	S177469N7-1516	. . CHANNEL, Extruded elastic	1	
-26	AN742D16	. . CLAMP	1	
-27	AN742D19	. . CLAMP	1	
-28	MS21919DG4	. . CLAMP	1	
-29	5811270	. . BOTTLE ASSEMBLY, Emergency oxygen	1	
	5811270-3	. . . BOTTLE ASSEMBLY, Emergency oxygen	1	
-30	AN914-1D	. . . . ELBOW	1	
-31	AW1-14A	. . . . GAGE, Emergency oxygen (61349)	1	

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
5-17-32	F1263-1	.	.	.	.	VALVE ASSEMBLY, Emergency			1	
						oxygen bottle charging (97413)				
						(Per Douglas Spec. Cont.				
						Dwg. 7545553)				
	9120097-27	.	.	.	.	FILL VALVE (Note 4)			1	
-33	F46400-14	.	.	.	.	VALVE ASSEMBLY, Pressure relief			1	
						(97413) (Per Douglas Spec. Cont.				
						Dwg. 7544874-505)				
-34	F17302-5	.	.	.	.	REGULATOR ASSEMBLY, Oxygen			1	
						bottle pressure (97413)				
						(Per Douglas Spec. Cont.				
						Dwg. 7544874-503)				
						(See figure 5-19 for BKDN)				
	F17302-9	.	.	.	.	REGULATOR ASSEMBLY, Oxygen			1	
						bottle pressure (97413)				
						(Per Douglas Spec. Cont.				
						Dwg. 7544874-503)				
						(See figure 5-19 for BKDN)				
-35	F2511-1	.	.	.	.	WASHER, Pressure regulator			AR	
						(97413) (Note 2)				
	F2511-2	.	.	.	.	WASHER, Pressure regulator			AR	
						(97413) (Note 2)				
	F2511-3	.	.	.	.	WASHER, Pressure regulator			AR	
						(97413) (Note 2)				
	F2511-4	.	.	.	.	WASHER, Pressure regulator			AR	
						(97413) (Note 2)				
	5811270-7	.	.	.	.	BOTTLE ASSEMBLY, Emergency			1	
						oxygen				
-36	F17311	.	.	.	.	FITTING, Emergency oxygen			1	
						bottle (97413)				
-37	F1871-1	.	.	.	.	PLUG, Emergency oxygen			1	
						bottle (97413)				
-38	5811270-5	.	.	.	.	BOTTLE, Emergency oxygen			1	
-39	QQ-W-343	.	.	.	.	LOCKWIRE, Copper, type S			AR	
						(0.0159 Dia.) (Do not substitute)				
-40	2553816-501	.	.	.	.	SCREW ASSEMBLY, Emergency			1	
						oxygen bottle				
-41	2668896-501	.	.	.	.	CABLE ASSEMBLY, Emergency			1	
						oxygen bottle ring				
-42	2668895	.	.	.	.	CABLE ASSEMBLY, Emergency			1	
						oxygen bottle				
	3559557	.	.	.	.	COUPLING ASSEMBLY, Emergency			1	
						oxygen check valve				
-43	2556507	.	.	.	.	OUTLET, Four way oxygen check			1	
						valve (Use until exhausted then				
						use 2624A-4TT)				

NAVAIR 13-1-6.3-1

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
		1 2 3 4 5 6 7		
5-17-44	MS28778-4	. . . . PACKING, (Equivalent to AN6290-4)	1	
-45	3275	. . . . VALVE, High Pressure oxygen check (86831) (Use until exhausted then use 2624A-4TT)	1	
-46	3104AS100-1	. . . . VALVE, High Pressure oxygen check (Replaces 2556507 and 3275)	1	
-47	3559557-7	. . . . COUPLING ASSEMBLY, Emergency oxygen check valve (Welded)	1	
-48	AN816-4D	. . . NIPPLE	1	
-49	CL204D2-1	. BRACKET ASSEMBLY, Radio beacon (KF) (Note 3)	1	
	V66-1ACC-161	. PARTS KIT (F)	1	
-50	12081-2	. HOSE ASSEMBLY, Emergency oxygen (Alternate REDAR-A-10566-1) (Note 1)	1	
-51	REDAR-A-10067-2	. HOSE ASSEMBLY, Pilot oxygen supply	1	
		Notes: 1. Aircraft incorporating ACC 82. 2. Correct washer thickness to be selected at assembly. 3. After incorporation of ACC 161, Part IV, Amend. 1 4. Fill Valve can be used as an alternate to replace Emergency Valve Assembly P/N F1263-1.		



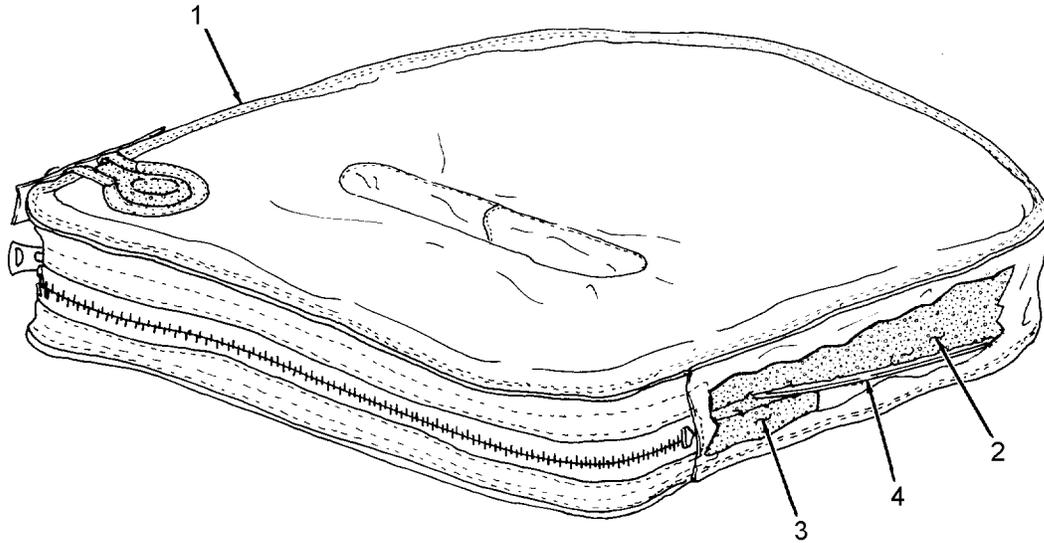
63-330A

Figure 5-18. Douglas Pressure Regulator

NAVAIR 13-1-6.3-1

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
5-18	F17302-5	REGULATOR ASSEMBLY, Oxygen bottle pressure (97413) (Per Douglas Spec Dwg 7544874-503) (See figure 5-18 for NHA)	REF	
	F17302-9	REGULATOR ASSEMBLY, Oxygen bottle pressure (97413) (Per Douglas Spec Dwg 7544874-503) (See figure 5-18 for NHA)	REF	
	F17303-5	. REGULATOR ASSEMBLY, Oxygen bottle pressure (97413) (Used on F17302-5 (97413))	1	
	F17303-9	. REGULATOR ASSEMBLY, Oxygen bottle pressure (97413) (Used on F17302-9 (97413))	1	
-1	F17306-1	. . NAMEPLATE, Identification (97413)	1	
-2	2553816-501	. . SCREW ASSEMBLY , Emergency oxygen bottle (See Dwg 5811270 for NHA)	1	
-3	2668896-501	. . YOKE ASSEMBLY , Emergency oxygen bottle ring (See Dwg 5811270 for NHA)	1	
-4	2668895	. . YOKE ASSEMBLY , Emergency oxygen bottle (See Dwg 5811270 for NHA)	1	
-5	F2511-1	. . SPACER, Oxygen bottle pressure regulator (97413) (Note 1)	AR	
	F2511-2	. . SPACER, Oxygen bottle pressure regulator (97413) (Note 1)	AR	
	F2511-3	. . SPACER, Oxygen bottle pressure regulator (97413) (Note 1)	AR	
	F2511-4	. . SPACER, Oxygen bottle pressure regulator (97413) (Note 1)	AR	
-6	F17313-1	. . WASHER, Stem (97413)	1	
-7	AN565D4H2	. . SCREW	1	
-8	F2169-3	. . NUT, Adjusting (97413)	1	
-9	F1542-1	. . WASHER, Regulator spring (97413)	1	
-10	F1569	. . SPRING, Adjusting (97413)	1	
-11	AN500-6-6	. . SCREW	4	
-12	AN935-6	. . WASHER	4	
-13	F17312-1	. . STEM, Spring (97413)	1	
-14	F2098-1	. . HOUSING, Regulator spring (97413)	1	
-15	F2602-3	. . DIAPHRAGM, Regulator (97413)	1	
-16	AN515C8-4	. . SCREW, (Used on F17303-5)	4	
	AN515C8-5	. . SCREW, (Used on F17303-9)	4	
-17	AN935-8	. . WASHER, (Used on F17303-9)	4	
-18	F1721-1	. . GUIDE, Regulator (97413)	1	
-19	F1517-3	. . SEAT, Regulator (97413)	1	
-20	FS5701-012	. . O-RING, Regulator (97413)	1	
-21	F1647-1	. . STEM, Regulator (97413)	1	
-22	216C1-16	. . BALL, Regulator (97413)	1	
-23	F1632	. . SPRING, Regulator (97413)	1	
-24	F1985	. . SCREEN, Filter (97413)	3	

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
5-18-25 -26	F2118-1	. . FILTER, Regulator (97413)	1	
	F2058-1	. . BODY, Regulator (97413)	1	
Notes: 1. Correct spacer thickness to be selected at assembly.				



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Figure 5-19. SP-1A Seat Pan Assembly

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
5-19	68A74E1-1	SEAT PAN ASSEMBLY , Pilot, SP-1A	1	
-1	68A74E2-1	. COVER ASSEMBLY	1	
	68A74E4	. CUSHION AND SLAB ASSEMBLY	1	
-2	68A74E4-1	. . CUSHION	1	
-3	68A74E4-2	. . SLAB	1	
-4	68A74E3-1	. PLATE ASSEMBLY	1	

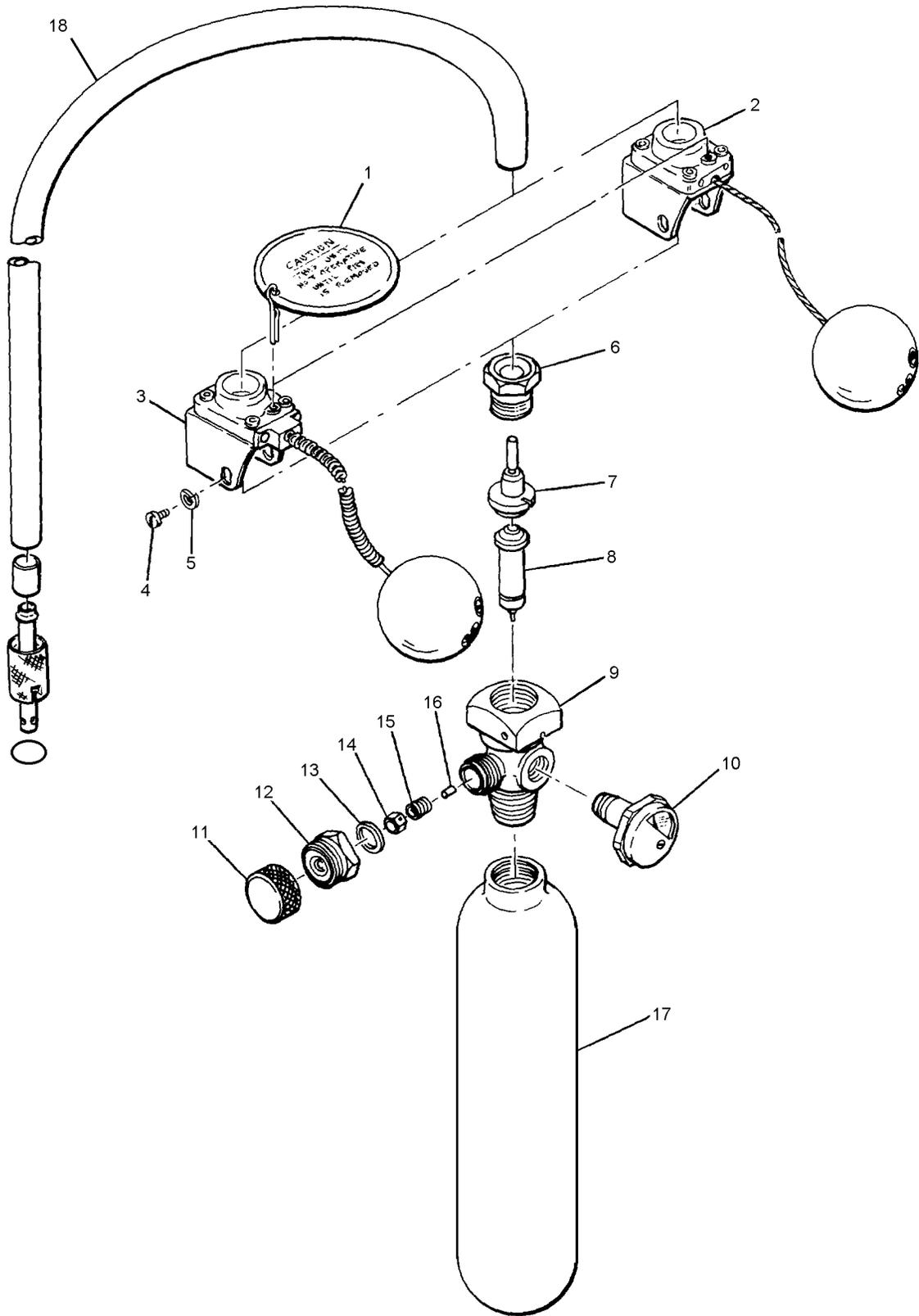


Figure 5-20. SP-1A Emergency Oxygen Bottle

005020

NAVAIR 13-1-6.3-1

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code										
5-20		CYLINDER ASSEMBLY, Emergency oxygen (Note 1)	REF											
-1	MS21964-17	. TAG ASSEMBLY (Note 2)	1											
-2	MS21964-13	. HOUSING, Pull cable assembly open type (6 inches)	1											
	MS21964-14	. HOUSING, Pull cable assembly open type (16.25 inches)	1											
-3	MS21964-15	. HOUSING, Pull cable assembly housed type (ATTACHING PARTS)	1											
-4	MS35214-38	. SCREW	4											
-5	AN936A8	. WASHER, Lock ---*---	4											
-6	MS21964-16	. BUSHING, Nipple	1											
-7	MS21965-1	. NIPPLE, Break off	1											
-8	MS29597-1	. CONTROLLER, Oxygen flow	1											
-9	MS21964	. VALVE ASSEMBLY	1											
-10	MIL-G-7601	. GAGE, Type L-2	1											
-11	MS21964-9	. CAP AND SEAL ASSEMBLY, Side check	1											
-12	MS21964-8	. BUSHING ASSEMBLY, Side check	1											
-13	MS21964-10	. BUSHING GASKET, Side check	1											
-14	MS21964-7	. RETAINER ASSEMBLY, Side check	1											
-15	MS21964-6	. SPRING, Side check	1											
-16	214A21	. FILTER ASSEMBLY (20846)	1											
-17	MS26545	. CYLINDER, Emergency oxygen (Note 3)	1											
-18	MS21964-18	. HOSE AND FITTING ASSEMBLY, 28 inch	1											
<p>Notes: 1. The top assembly cannot carry a P/N because the oxygen cylinder MS26545 may be followed by many different dash numbers depending on bottle capacity and application.</p> <p>2. Tag assembly is for shipping purposes only and should be removed and discarded when placing emergency oxygen cylinder assembly in service.</p> <p>3. When ordering, the P/N will BKDN as follows:</p> <div style="text-align: center; margin-top: 10px;"> <table style="margin: auto; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 0 10px;">MS26545</td> <td style="text-align: center; padding: 0 10px;">A</td> <td style="text-align: center; padding: 0 10px;">2</td> <td style="text-align: center; padding: 0 10px;">X</td> <td style="text-align: center; padding: 0 10px;">0025</td> </tr> <tr> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; width: 100px;">MS NUMBER</td> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; width: 100px;">Type thread</td> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; width: 100px;">Class</td> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; width: 100px;">Usage Code</td> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; width: 100px;">Nominal Capacity</td> </tr> </table> </div>					MS26545	A	2	X	0025	MS NUMBER	Type thread	Class	Usage Code	Nominal Capacity
MS26545	A	2	X	0025										
MS NUMBER	Type thread	Class	Usage Code	Nominal Capacity										

NUMERICAL INDEX (DOUGLAS SEAT PAN)

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AN227-62B	5-17-8 5-17-11		F2511-3	5-17-35 5-18-5	
AN227-63B	5-17-7 5-17-10		F2511-4	5-17-35 5-18-5	
AN227-64B	5-17-4		F2602-3	5-18-15	PAOZZ
AN227-9B	5-17-5		F46400-14	5-17-33	PAOZZ
AN229-2BL2841	5-17-3		MS21044D08	5-17-17	
AN500-6-6	5-18-11		MS21083D06	5-17-20	
AN515C8-4	5-18-16		MS21083D08	5-17-14	
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AN565D4H2	5-18-7		MS28778-4	5-17-44	
AN742D16	5-17-26		MS35206-228	5-17-22	
AN742D19	5-17-27		MS51957-44	5-17-19	
AN816-4D	5-17-48		MS51957-47	5-17-16	
AN914-1D	5-17-30		MS51957-48	5-17-18	
AN935-6	5-18-12		QQ-W-343	5-17-39	
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F1263-1	5-17-32	PAGZZ		5-18-2	
F1517-3	5-18-19		2556507	5-17-43	PAOZZ
F1542-1	5-18-9		2668895	5-17-42	PAOZZ
F1569	5-18-10	PAOZZ		5-18-4	
F1632	5-18-22		2668896-501	5-17-41	PAOZZ
F1647-1	5-18-21	PAOZZ		5-18-3	
F1721-1	5-18-18	PAOZZ	3104AS100-1	5-17-46	PAOZZ
F17302-5	5-17-34	PAOZZ	3275	5-17-45	
	5-18		33C1142	5-17-49	PAOZZ
F17302-9	5-17-34	PAOZZ	3559557	5-17	PAOZZ
	5-18		3559557-7	5-17-47	
F17303-5	5-18		5542481-509	5-17-24	
F17303-9	5-18		5542483-503	5-17-13	PAOZZ
F17306-1	5-18-1		5543382-503	5-17-12	PAOZZ
F17311	5-17-36		5811270	5-17-29	PAOZZ
F17312-1	5-18-13		5811270-3	5-17	
F17313-1	5-18-6		5811270-5	5-17-38	
F1871-1	5-17-37		5811270-7	5-17	PAOZZ
F1985	5-18-24		5811863	5-17	
F2058-1	5-18-26		5811863-27	5-17-6	
F2098-1	5-18-14		5811863-29	5-17-9	
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F2169-3	5-18-8		5811863-35	5-17-2	
F2511-1	5-17-35 5-18-5		5811863-37	5-17-1	PAOZZ
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NUMERICAL INDEX (SP-1A)

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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AN936A8 5-20-5
MIL-G-7601 5-20-10
MS21964 5-20-9
MS21964-10 5-20-13
MS21964-13 5-20-2
MS21964-14 5-20-2
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68A74E1-1 5-19 PAOZZ
68A74E2-1 5-19-1
68A74E3-1 5-19-4
68A74E4 5-19
68A74E4-1 5-19-2
68A74E4-2 5-19-3
9120097-27 5-17-32 PAGZZ