

## CHAPTER 4

# A/P22P-14(V)1, A/P22P-14(V)2, A/P22P-14(V)3, AND A/P22P-14(V)4 RESPIRATOR ASSEMBLIES, ROTARY/FIXED WING AIRCREW, CBR PROTECTIVE

### Section 4-1. Description

#### 4-1. GENERAL.

4-2. A/P22P-14(V)1 thru (V)4 Chemical, Biological and Radiological (CBR) Respirator Assemblies are designed to protect rotary wing and fixed wing aircrewmembers from the toxic and lethal effects of chemical, biological and nuclear agents from ground level to a 43,000 foot cabin altitude (depending upon configuration).

4-3. The Respirator Assemblies consist of a Mask Assembly, Lower Assembly, Intercom Unit, CMU-29(V)1/P or 2/P Vest, transit case, and standard additional flight equipment (figures 4-1 thru 4-4).

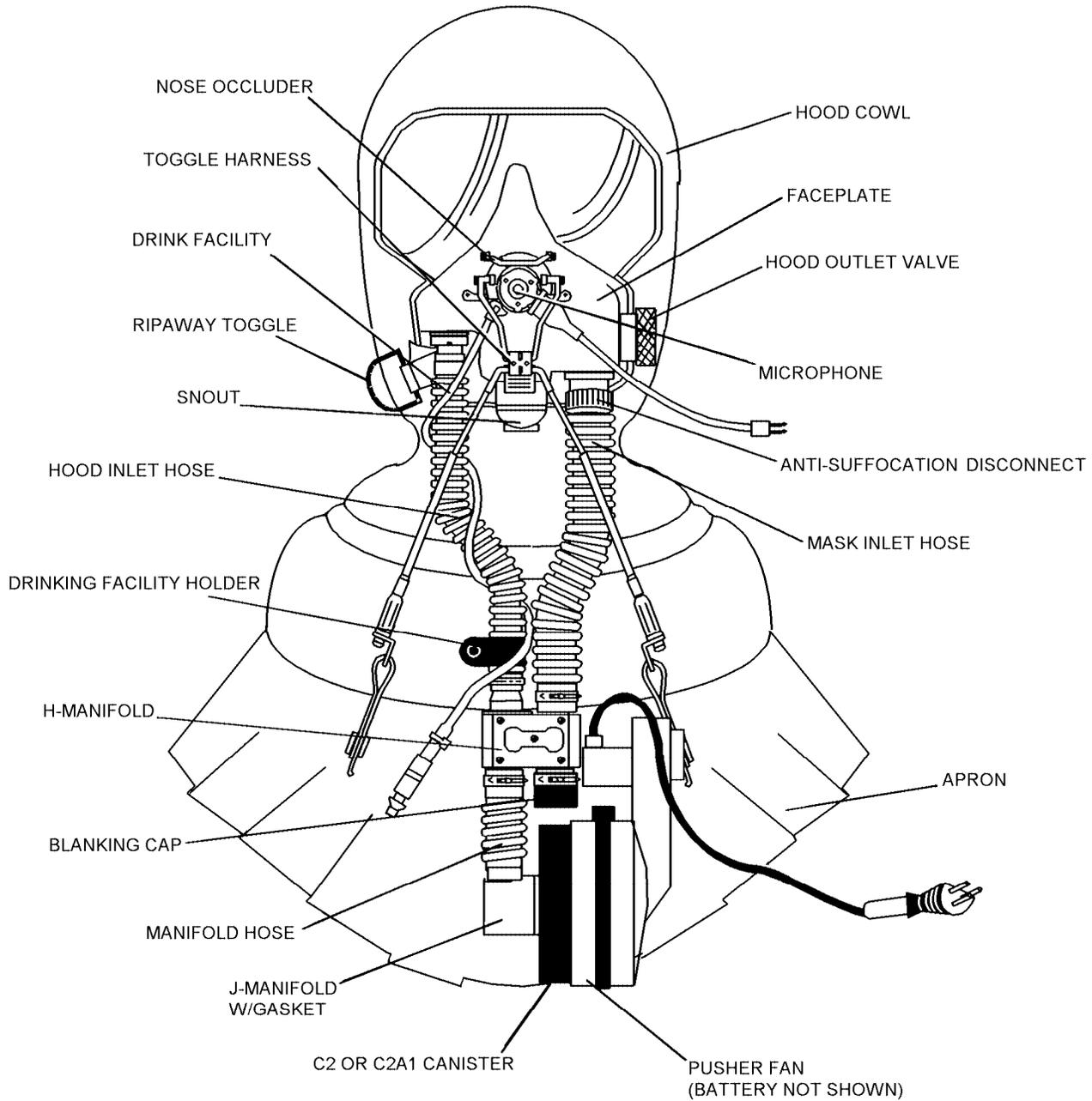
#### 4-4. CONFIGURATION.

4-5. Respirator assemblies are provided in four configurations: A/P22P-14(V)1 Non-oxygen (figure 4-1), A/P22P-14(V)2 LOX (figure 4-2), A/P22P-14(V)3 OBOGS (figure 4-3) and A/P22P-14(V)4 Panel Mounted Regulator (figure 4-4). Variant designation determines aircraft application as defined by the type of oxygen equipment employed or the absence of an oxygen facil-

ity (see paragraph 4-55). All variants may be equipped with a nose occluder kit for the mask. Lower Assembly components common to each respiratory assembly designation include the H-Manifold, Manifold Hose and Pusher Fan Subassembly. Oxygen-equipped variants include an additional H-Manifold Hose, 90° Rubber Molding and appropriate plumbing to connect to Non-oxygen, LOX, OBOGS or Panel Mounted oxygen delivery systems. The pusher fan subassembly and 90° rubber molding each employ a C2 or C2A1 filter canister to supply contaminant-free air and/or oxygen for the respirator assemblies.

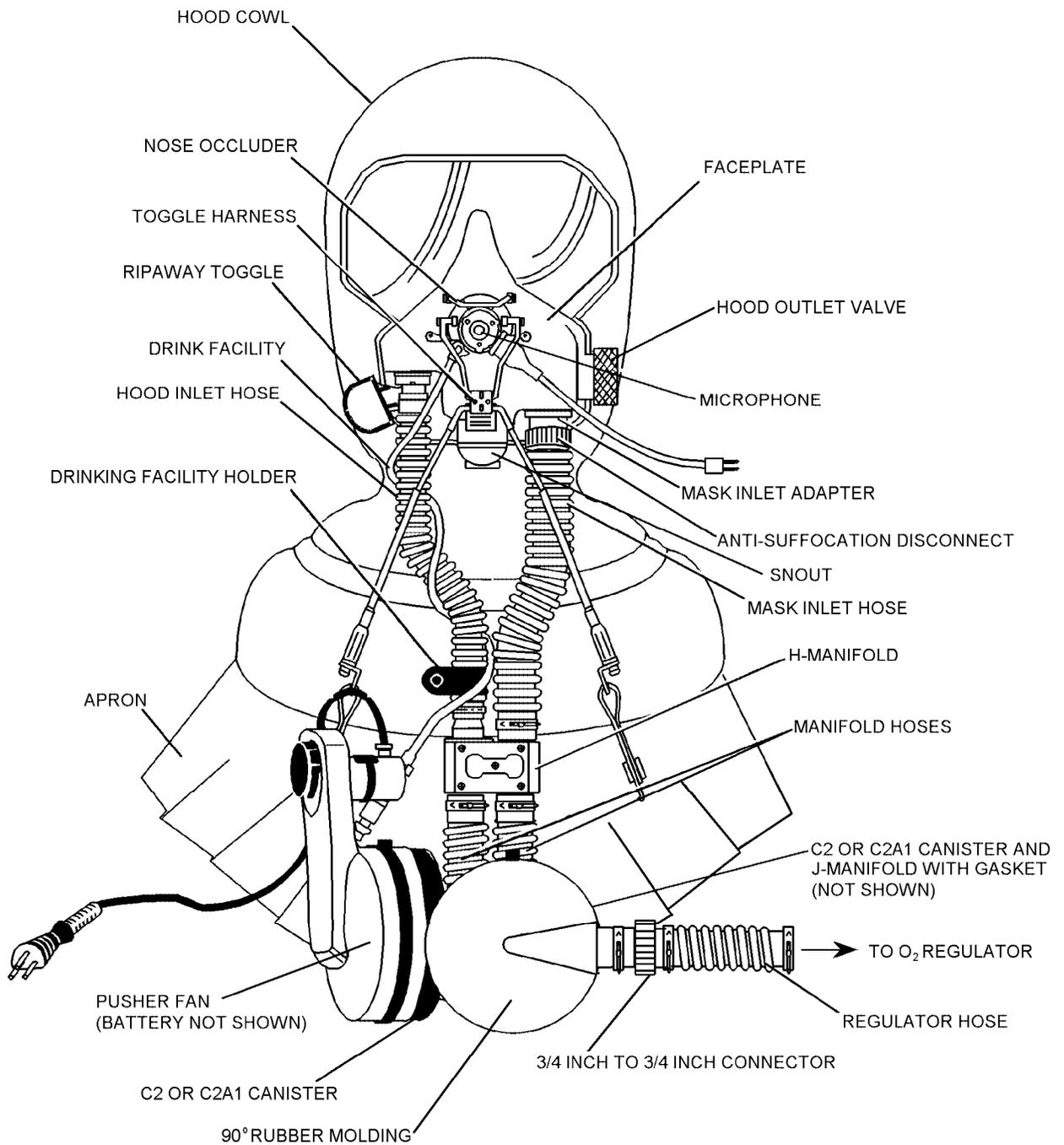
#### 4-6. COMPONENT DESCRIPTION.

4-7. MASK ASSEMBLY. The mask (figure 4-5) is common to all respirator assembly variants and is available in five sizes: XL, L, S, XS and XXS of which only the S and L sizes are readily available (refer to sizing matrix, table 4-1). Custom fit sizes XL, XS and XXS are only available by contacting the Naval Air Warfare Center, Aircraft Division, Code 4.6.3.1, Patuxent River, MD 20670-1906 DSN (301) 342-8850. The (V)2 through (V)4 variants incorporate a modified hood which allows increased head mobility.



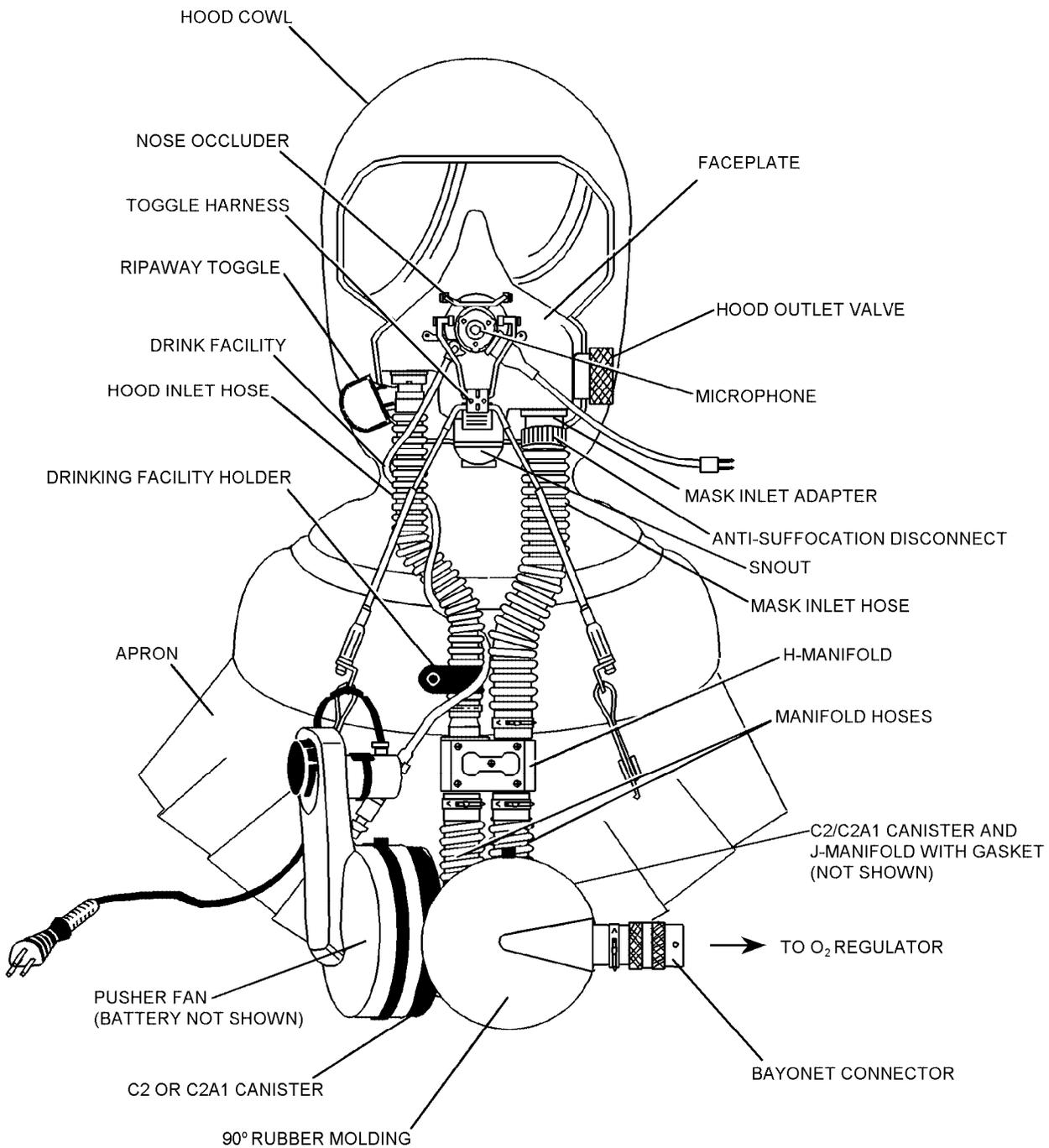
NOTE: INTERCOM UNIT, VEST AND TRANSIT CASE NOT SHOWN

Figure 4-1. A/P22P-14(V)1 Respirator Assembly - Non-Oxygen Variant



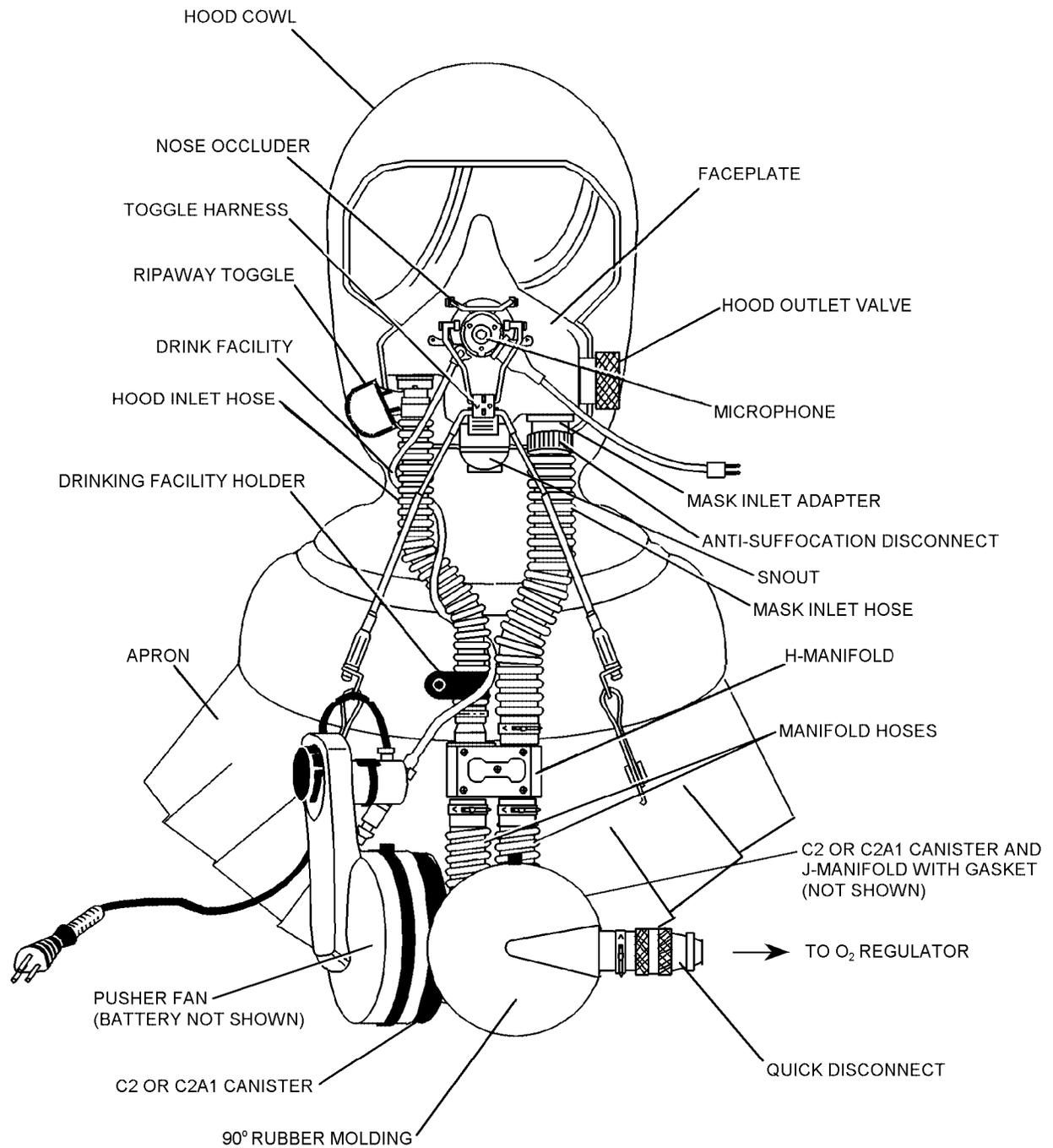
NOTE: INTERCOM UNIT, VEST AND TRANSIT CASE NOT SHOWN

Figure 4-2. A/P22P-14(V)2 Respirator Assembly - LOX Variant



NOTE: INTERCOM UNIT, VEST AND TRANSIT CASE NOT SHOWN

Figure 4-3. A/P22P-14(V)3 Respirator Assembly - OBOGS Variant



NOTE: INTERCOM UNIT, VEST AND TRANSIT CASE NOT SHOWN

Figure 4-4. A/P22P-14(V)4 Respirator Assembly - Panel Mount Variant

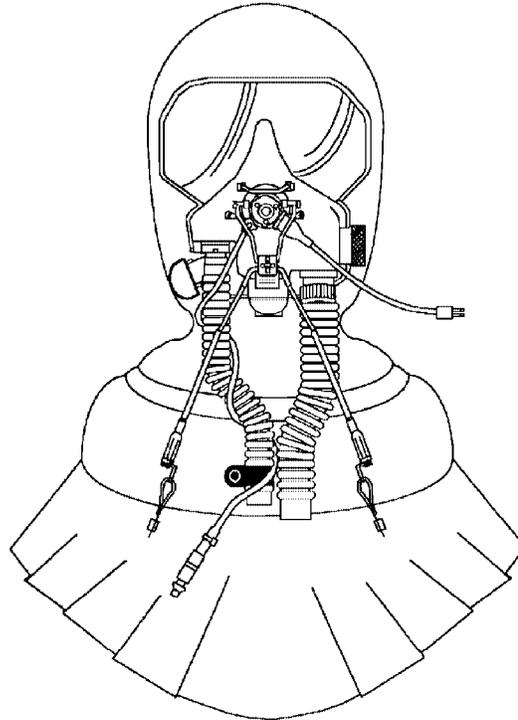


Figure 4-5. Mask Assembly

4-5

**4-8. Hood Assembly.** The hood assembly, shown in figure 4-6, is made of bromo-butyl rubber, covers the entire head and is bonded to the faceplate, neck seal and bellows. The neck seal, available in two sizes: standard and small, is made of natural rubber and, together with the hood and faceplate, isolates the head and neck. The (V)2 through (V)4 variants include a modified hood which allows for increased head mobility. The hood cowl is available in three sizes: extra-small, standard and extra-large.

**4-9. Faceplate.** A molded, one-piece, polycarbonate faceplate (figure 4-7) is sealed into the front of the hood. The upper part, or optical area, is transparent. The lower part (painted black) is shaped to fit the wearer's lower face. Attached to or mounted on the faceplate is a nose occluder, orinasal mask, toggle harness, mask inlet adapter, drink facility, and a microphone assembly. A strip of foam rubber is bonded over the sealing strip (on the inside) for comfort when the hood is worn.

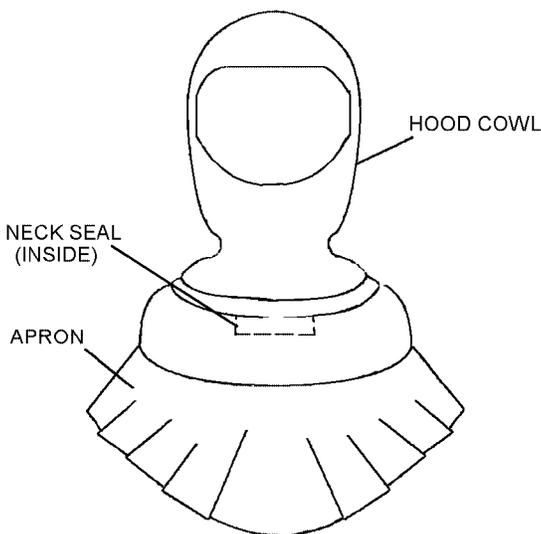


Figure 4-6. Hood Assembly

4-6

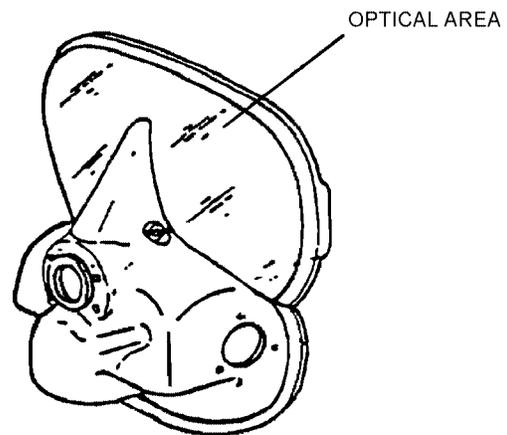


Figure 4-7. Faceplate

4-7

Table 4-1. Sizing Matrix

Variant	Mfg. Part No.	Sizes			
		Mask Assembly	Hood	Neck Seal	Orinasal Mask
(V)1	CL 6360	XL	XL	STD	L
	CL 6361	L	STD	STD	L
	CL 6362	S	STD	STD	S
	CL 6363	XS	XS	STD	S
	CL 6364	XXS	XS	S	S
(V)2	CL 6365	XL	XL	STD	L
	CL 6366	L	STD	STD	L
	CL 6367	S	STD	STD	S
	CL 6368	XS	XS	STD	S
	CL 6369	XXS	XS	S	S
(V)3	CL 6370	XL	XL	STD	L
	CL 6371	L	STD	STD	L
	CL 6372	S	STD	STD	S
	CL 6373	XS	XS	STD	S
	CL 6374	XXS	XS	S	S
(V)4	CL 6375	XL	XL	STD	L
	CL 6376	L	STD	STD	L
	CL 6377	S	STD	STD	S
	CL 6378	XS	XS	STD	S
	CL 6379	XXS	XS	S	S

**NOTE**

The left or right side refers to the aircrew-member's left or right side when wearing the mask.

**4-10. Orinasal Mask.** The orinasal mask (figure 4-8), is molded of soft silicone rubber and fits over the wearer's nose and mouth. The green colored orinasal mask incorporates a turned-under edge, increasing the seal around the wearer's face. The orinasal mask is mounted within the shaped faceplate. Located on the right side of the orinasal mask is an externally-mounted deflector plate constructed of Noryl plastic. This plate deflects the air across the faceplate, keeping the optical area mist-free. Other components located within the orinasal mask are the inhalation valve, compensated exhalation valve, microphone, and drink facility port. The orinasal mask is available in two sizes: Large (P - designation on inside of mask) and Small (Q - designation on inside of mask).

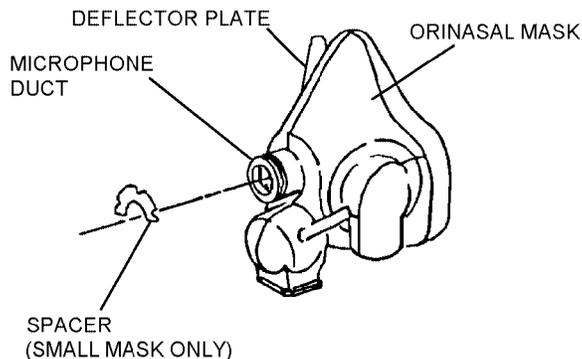


Figure 4-8. Orinasal Mask

4-8

**4-11. Faceplate Ripaway Toggle.** The faceplate ripaway toggle (figure 4-9) consists of a rubber coated nylon strip and attached D-ring on the lower right portion of the faceplate. The nylon strip bonds the faceplate to the butyl cowl. Pulling the ripaway toggle creates a slit between the faceplate and cowl. The faceplate can then be removed from the cowl by placing fingers into the slit and pulling the faceplate from the cowl. Once the faceplate is removed, the mask shall be taken out of service.

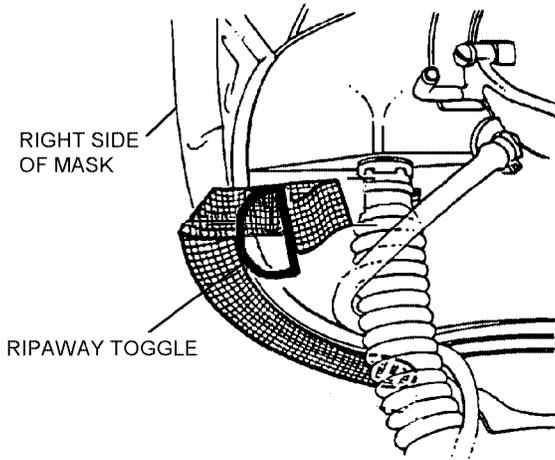
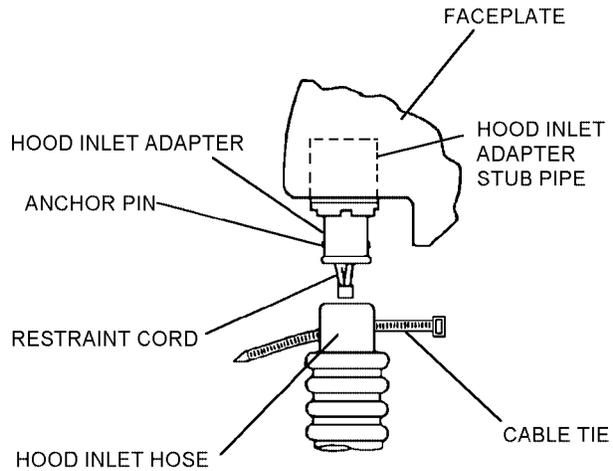


Figure 4-9. Faceplate Ripaway Toggle

**4-12. Hood Inlet Adapter.** The hood inlet adapter (figure 4-10) is positioned within a port to the right side of the faceplate and connects the hood inlet hose from the H-manifold assembly to the hood compartment of the mask.



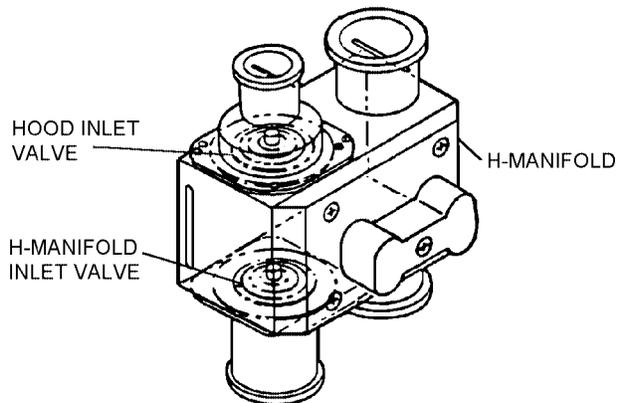
4-10

Figure 4-10. Hood Inlet Adapter

**4-13. Hood Inlet Valve.** The hood inlet valve is located within the H-manifold (figure 4-11). The valve consists of a stepped rubber valve and valve seat. The valve prevents air from being drawn from the hood compartment into the orinasal mask via the H-manifold.

**4-14. H-Manifold Inlet Valve.** The H-Manifold inlet valve is located within the H-manifold (figure 4-11). The valve consists of a stepped rubber valve and valve seat. The valve prevents (V)2 through (V)4 variant oxygen from leaking through the pusher fan in the event of pusher fan failure (figure 4-38).

4-9



4-11

Figure 4-11. H-Manifold and Valves

**4-15. Hood Outlet Valve.** The hood outlet valve (figure 4-12) is mounted on the left side of the faceplate, below the optical area and above the mask inlet adapter on the orinasal mask. The valve consists of a stepped rubber valve, valve seat, an external slotted cover, and a manually operated shut-off disc. The hood outlet valve permits demisting air to exit the hood. The valve is normally in the open position. The valve is closed if the demisting air is lost, i.e. pusher pan failure, in order to prevent entry of contaminants.

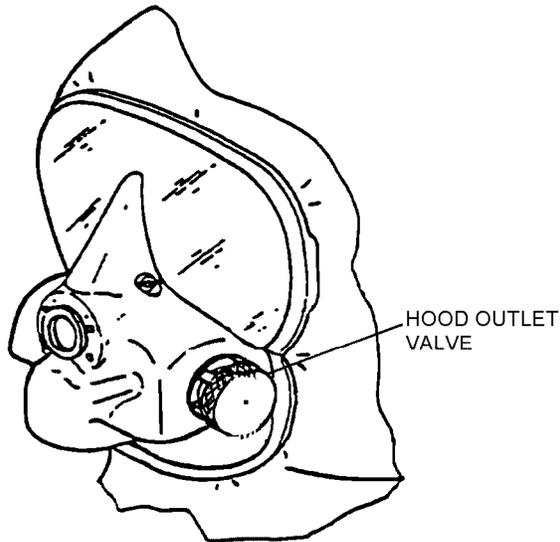


Figure 4-12. Hood Outlet Valve

4-12

**4-16. Inhalation Valve and Iceguard.** The inhalation valve (figure 4-13), mounted on the left side of the orinasal mask, consists of a molded plastic valve seat, with a stepped rubber valve inserted into the molding by its shaft. An iceguard, in the form of a fine mesh, covers the outlet port of the valve. The iceguard is retained in position by lugs engaging slots in the valve seat. The inhalation valve reseats during exhalation, making it easier to exhale while preventing excessive loss of oxygen or air through the compensated exhalation valve.

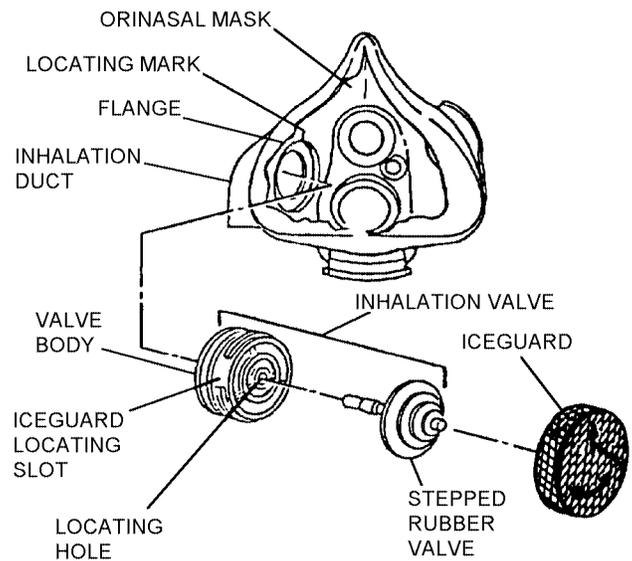


Figure 4-13. Inhalation Valve

4-13

**4-17. Compensated Exhalation Valve.** The compensated exhalation valve (figure 4-14) is a molded plastic outlet valve mounted within the exhalation duct of the orinasal mask, with its compensated chamber connected to the orinasal mask inlet. The purpose of the compensated exhalation valve is to allow exhaled gases to be expelled into the environment when the pressure inside the orinasal mask is greater than the pressure in the outlet housing chamber.

**4-18. Exhalation Outlet Valve.** The exhalation outlet valve (figure 4-14) is a secondary valve fitted in the exhalation duct below the compensated exhalation valve. The exhalation outlet valve consists of a stepped rubber valve positioned on a valve holder which is secured by an externally-mounted spacer washer and ring nut. This secondary valve will prevent the inward leakage of contaminated air in the event of the compensated exhalation valve sticking in the open position. The small volume of air trapped between the compensated exhalation valve and the exhalation outlet valve will greatly reduce inward leakage in the event of pusher fan failure.

**4-19. Snout.** The snout (figure 4-14) is secured to the ring nut securing the exhalation outlet valve to the faceplate. The snout, made from material of low thermal conductivity, acts as a chamber to trap the warm exhaled air and prevents freezing of the exhalation valves. The snout opens to the environment by a downward facing slot.

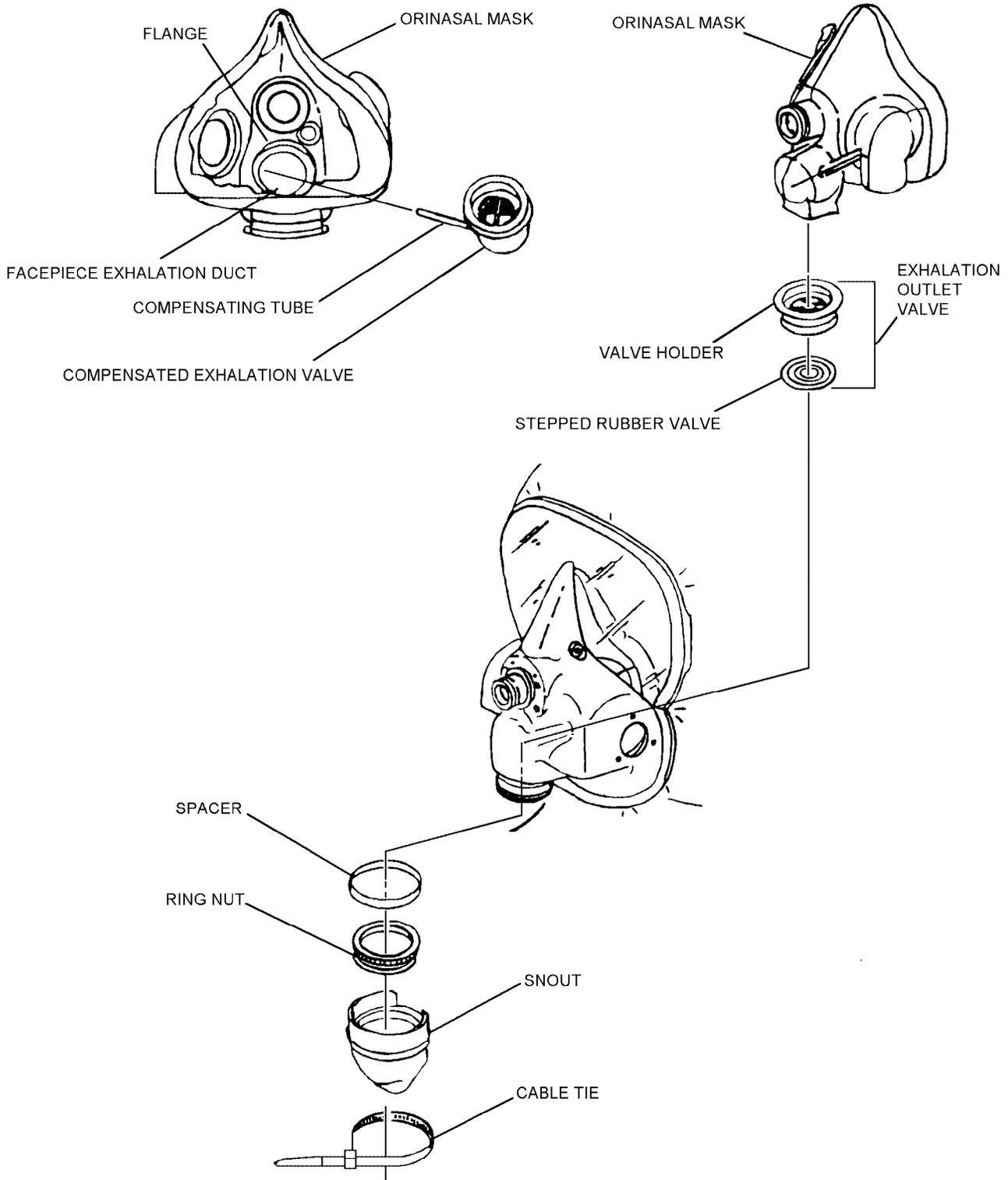


Figure 4-14. Compensated Exhalation Valve, Exhalation Outlet Valve and Snout

**WARNING**

If the canteen is disconnected in a CBR contaminated environment, do not reconnect until all matching connectors are free of contamination.

**4-20. Drink Facility.** The drink facility (figure 4-15) consists of an internal drink tube (mouthpiece) located within the orinasal mask, a butyl external drink tube that is wrapped around the hood inlet hose, and a self-sealing quick disconnect at the canteen end. The quick disconnect is stored in the drink facility quick disconnect holder on the hood inlet hose when not in use. To drink, attach to the M-1 canteen cap on a two quart collapsible canteen, fitted with a shoulder strap. The facility is CBR resistant and may be used in a contaminated environment, if connected to the canteen in an uncontaminated environment. For additional information, see the applicable aircraft NATOPS manual.

**4-21. Toggle Harness Assembly.** The toggle harness assembly (figure 4-16) is mounted on the front of the faceplate around the microphone. The assembly is held in place by four (4) countersunk screws which pass through the mask harness assembly and into the faceplate. The screws are drawn tight by four self-locking nuts. A V-shaped hinged bow (V-bow), which freely pivots upward or downward, is suspended from two rectangular studs protruding from the mask harness assembly. Attached to the end of the bow is a toggle plate which pivots upward and downward, and provides the tension for tightening the mask to the aircrewmember's face. Two toggle harness cables are connected to

the toggleplate, and each is fitted with an adjustable swivel link which allows the insert assemblies to be adjusted approximately 1 inch in length for proper mask tension. The swivel link is connected to the CBR adapter strap and is the connector used to couple a helmet to the mask. When coupling, the toggle harness cables should lie over the hooks on the V-bow before the CBR adapter strap is connected to the helmet.

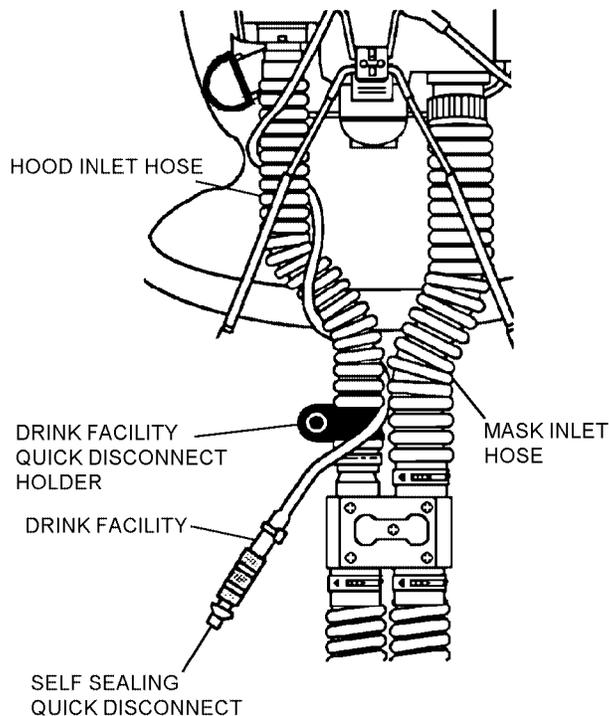


Figure 4-15. Drink Facility

4-15

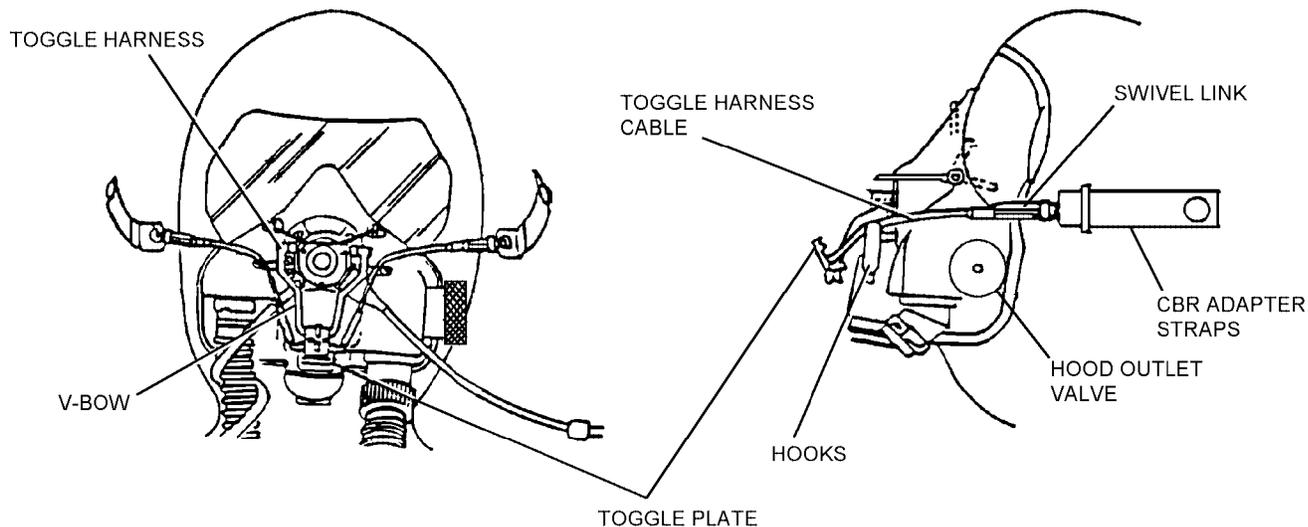


Figure 4-16. Toggle Harness Assembly

4-16

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**4-22. Microphone Assembly.** The microphone assembly (figure 4-17) consists of a microphone, microphone cable and terminal plug that is connected to a communication cable for either aircraft or ground use. The microphone is installed in the microphone duct which extends through the opening in the center of the faceplate. The microphone is retained in place by a plastic cable tie, cinched around the rubber portion of the orinasal mask that protrudes outward through the faceplate.

**4-23. Mask Inlet Hose.** The mask inlet hose connects the H-manifold to the mask inlet adapter and includes a restraint cord which prevents excessive stretching.

**4-24. Hood Inlet Hose.** The hood inlet hose connects the H-manifold to the hood inlet adapter and includes a restraint cord which prevents excessive stretching.

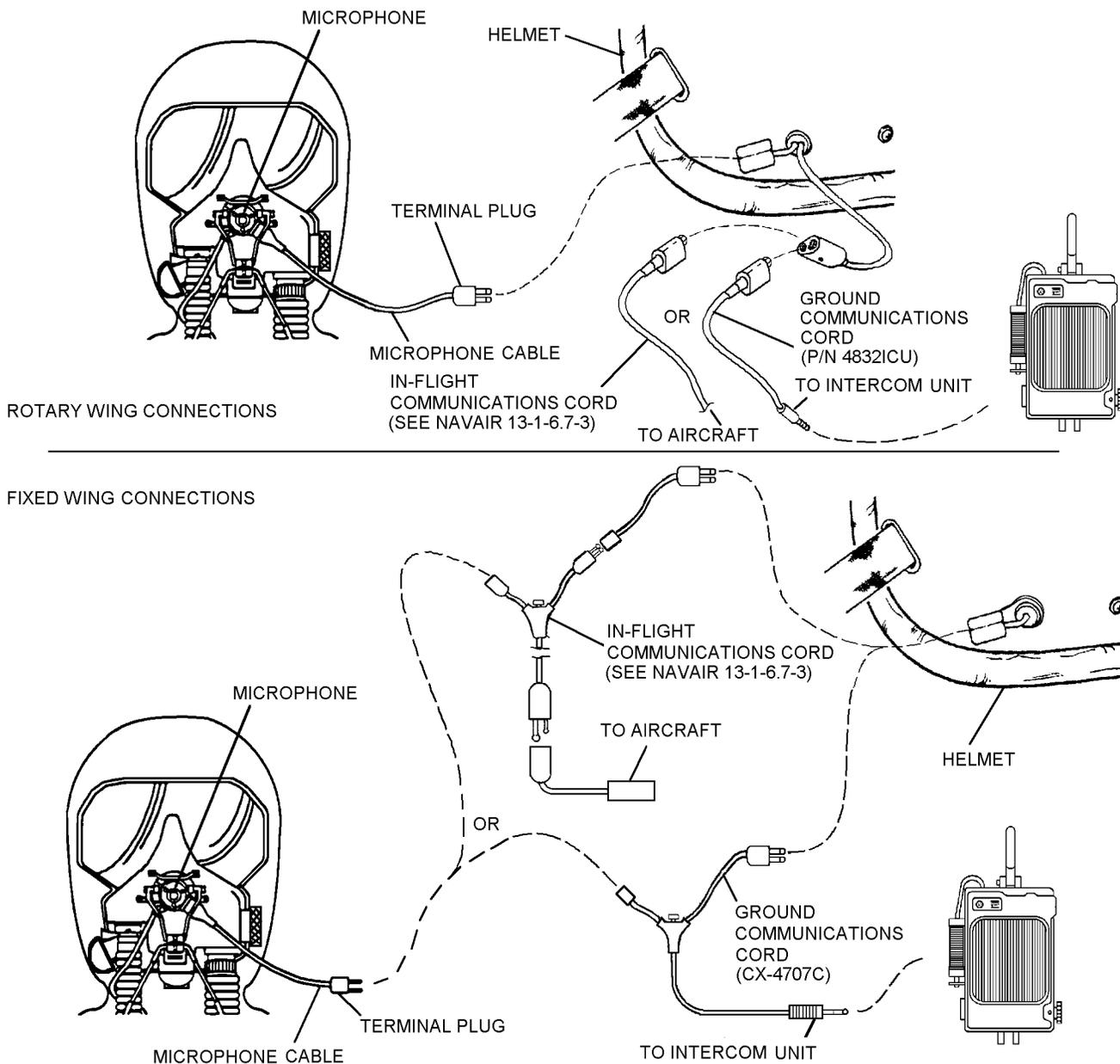
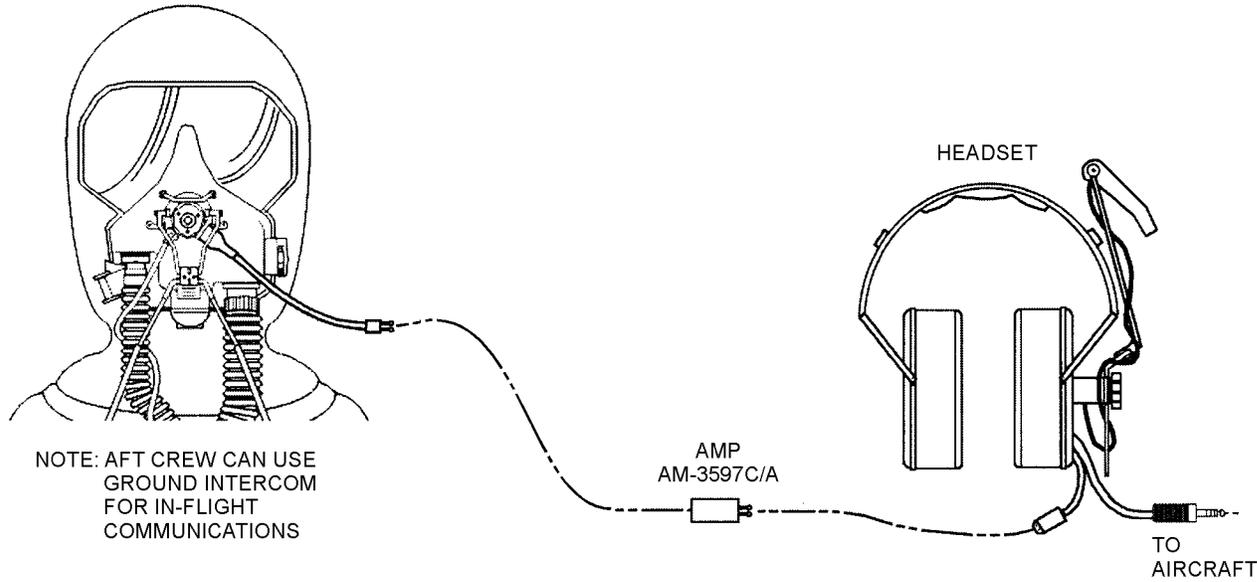


Figure 4-17. Microphone Assembly (Sheet 1 of 3)

00401701



C-9 FLIGHT MODE

C-9 GROUND MODE

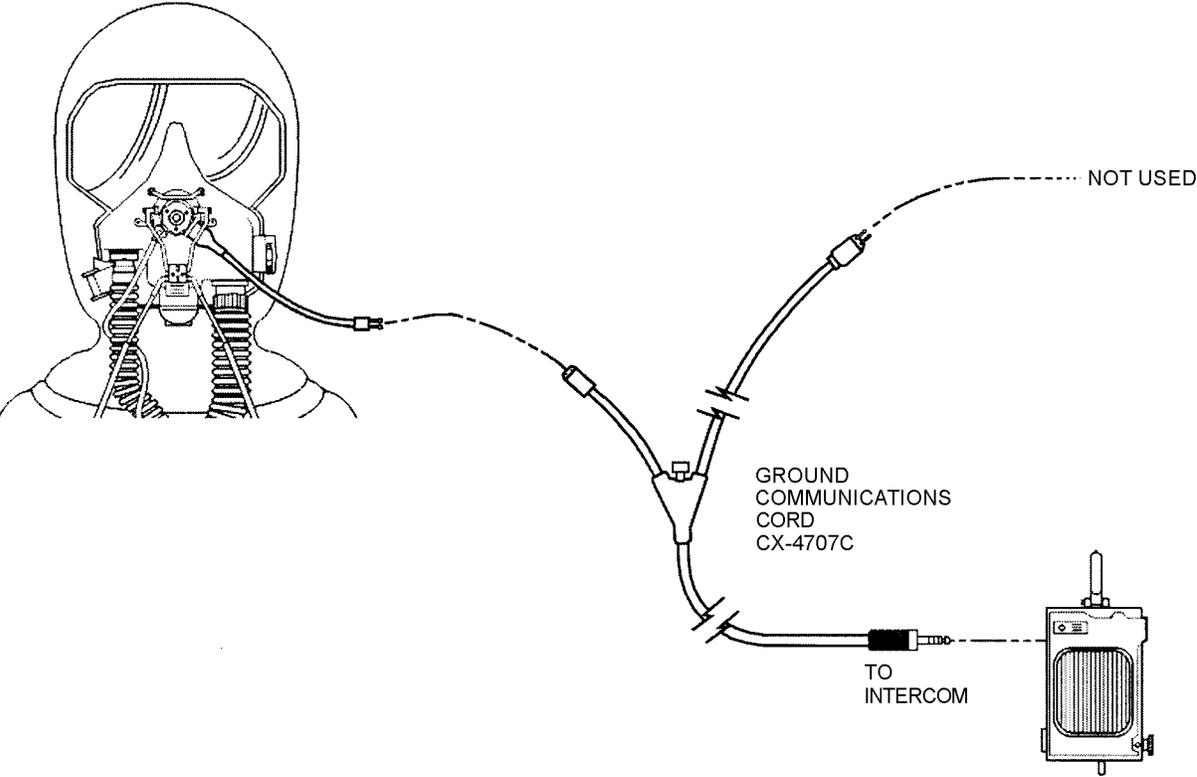
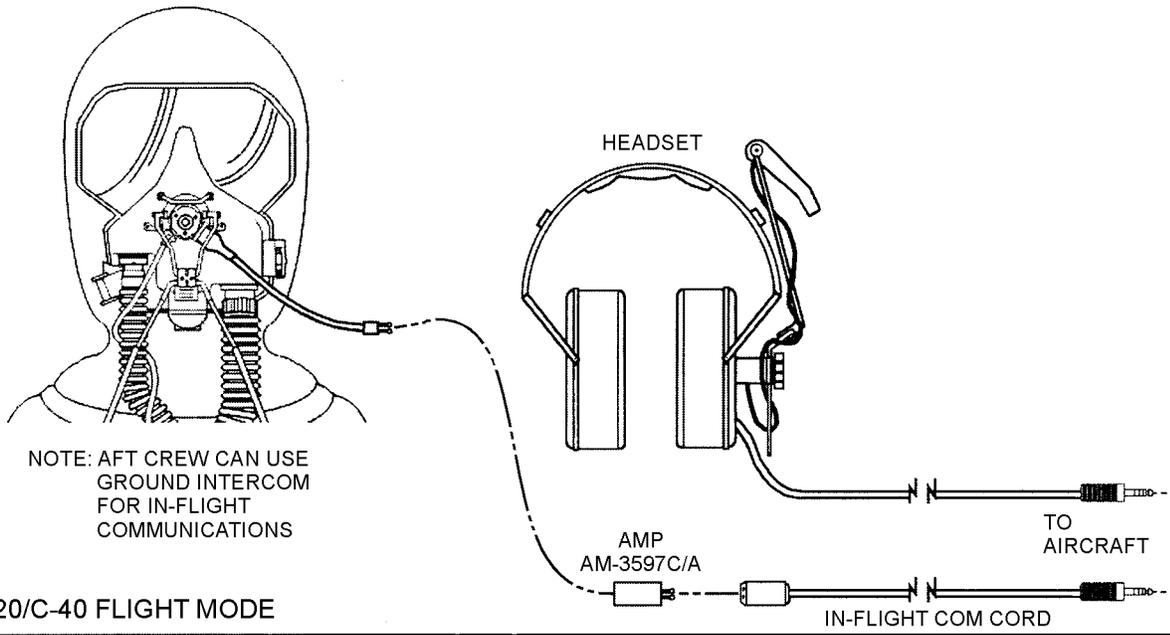


Figure 4-17. Microphone Assembly (Sheet 2)

00401702



C-20/C-40 GROUND MODE

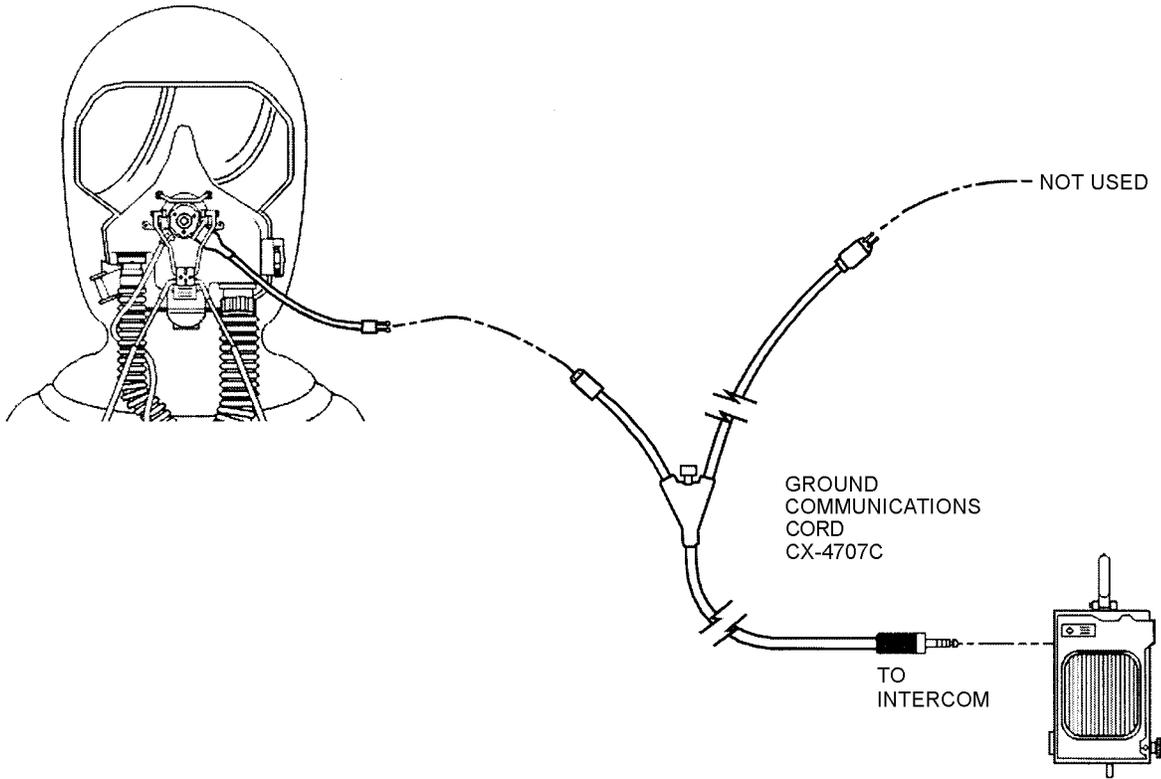
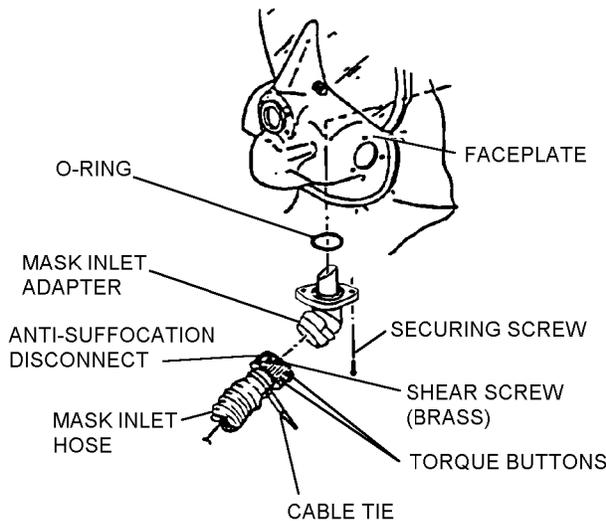


Figure 4-17. Microphone Assembly (Sheet 3)

00401703

**4-25. Anti-Suffocation Disconnect.** The anti-suffocation disconnect, located at the upper end of the mask inlet hose, is manually unlocked from the mask inlet adapter on the faceplate by an inward clockwise rotation of a knurled locking ring (toward the mask) which breaks a shear screw (figure 4-18). Two (2) torque buttons aid in application of pressure to break the shear screw for quick disconnect in emergency situations. The mask inlet hose may then be separated from the mask inlet adapter by pulling firmly down on the hose.



4-18

**Figure 4-18. Anti-Suffocation Disconnect**

**4-26. Mask Inlet Adapter.** The mask inlet adapter (figure 4-19) is mounted at the left bottom edge of the faceplate. The mask inlet adapter facilitates the locking of the anti-suffocation disconnect to the faceplate.

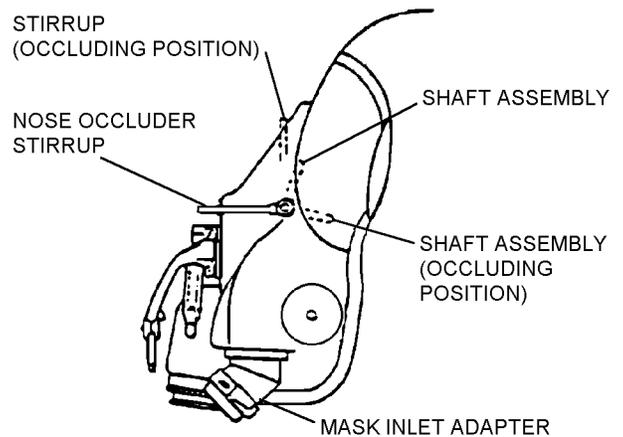
**WARNING**

Either a nose occluder or butyl blanking plugs must be installed to ensure CBR protection.

**NOTE**

The (V)1 helicopter variant is authorized to use either a nose occluder assembly or a butyl blanking plug. The (V)2, (V)3, or (V)4 fixed wing variant is only authorized to use a nose occluder assembly.

**4-27. Nose Occluder.** The nose occluder assembly (figure 4-19) is mounted through the nose bridge of the faceplate. The assembly is available in sizes ranging from 4 mm to 7 mm, in increments of 1 mm in both short and long size ranges. The occluder consists of a pair of shaft subassemblies with nylon rollers that can be swept down over the nose area of the orinasal mask.



4-19

**Figure 4-19. Mask Inlet Adapter and Nose Occluder**

**4-28. LOWER ASSEMBLY.** The lower assembly (figure 4-20) consists of the H-manifold, manifold hoses, J-manifold, pusher fan subassembly, and oxygen delivery subassembly, as applicable

**4-29. H-Manifold.** The H-manifold (figure 4-21) is a four port crossover valve. Receiving connecting hoses from the mask and hoses from the pusher fan subassembly and oxygen delivery subassembly (variants (V)2 - (V)4).

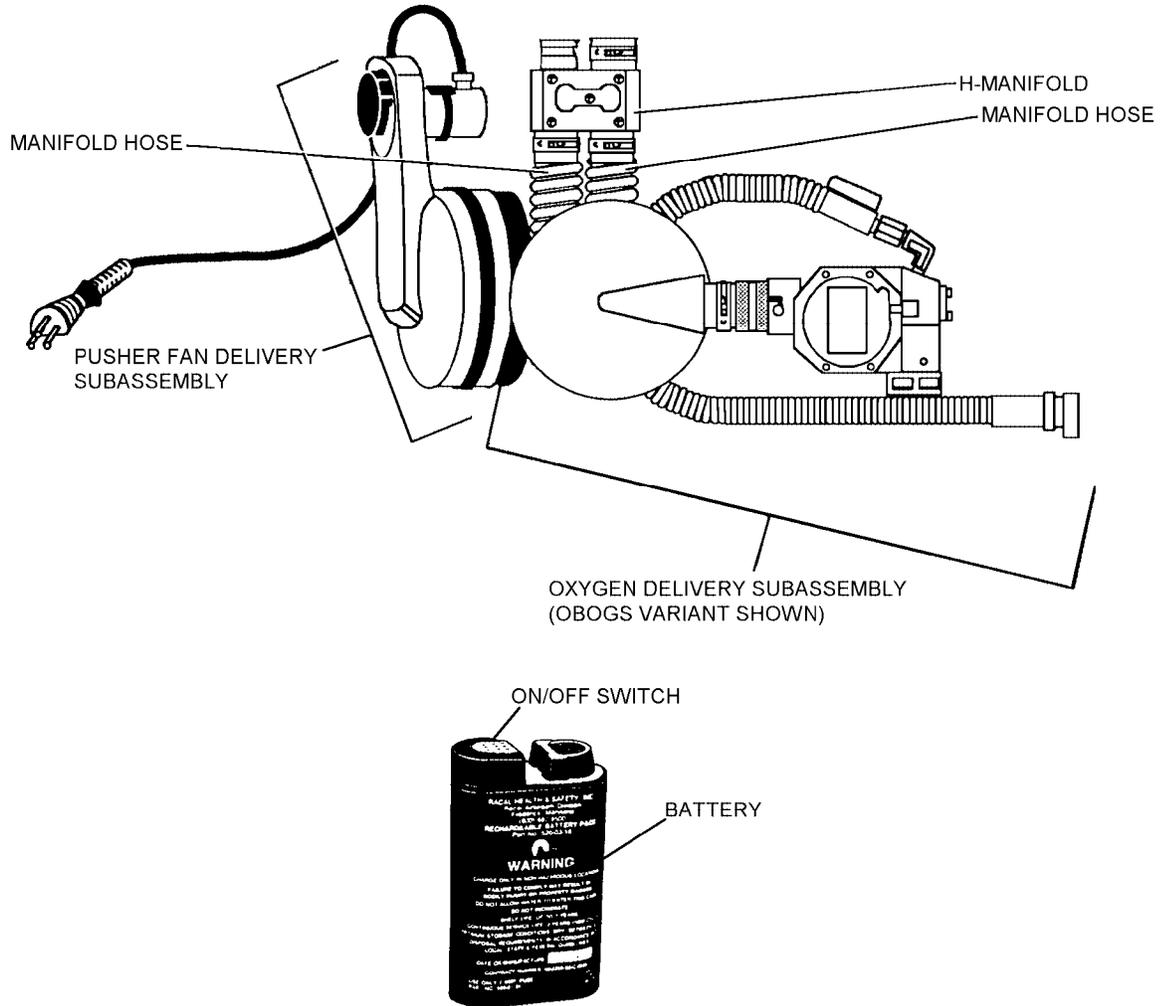


Figure 4-20. Lower Assembly ((V)3 Variant Shown)

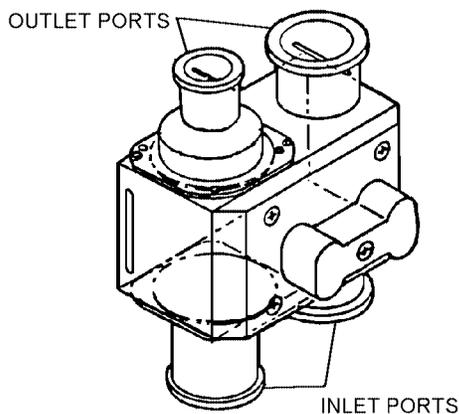


Figure 4-21. H-Manifold

4-21

**4-30. Manifold Hoses (figure 4-23).** The manifold hoses are constructed of ethylene propylene rubber, corrugated for flexibility, and are 3 inches in length. The right-side H-manifold hose connects the H-manifold to the pusher fan and canister assembly via the J-manifold. The 3/4 inch end of the hose is secured to the

right inlet port of the H-manifold and the 7/8 inch end is secured to the J-manifold using low profile clamps. The left-side H-manifold hose connects the H-manifold to the oxygen delivery subassembly via a J-manifold. The 3/4 inch end of the hose is secured to the left inlet port of the H-manifold and the 7/8 inch end is secured to the J-manifold, using low profile clamps.

**4-31. J-Manifold.** The J-manifold (figures 4-22 and 4-24) is manufactured from aluminum stock. The large circular end of the manifold is threaded to accept a C2 or C2A1 canister and contains a rubber gasket that provides the canister with an airtight seal. The other end is connected to the manifold hose and is secured with stepless low profile clamps.

**4-32. Pusher Fan Subassembly.** The pusher fan subassembly (figure 4-22) is common to all the respirator assembly variants and consists of the J-manifold with gasket, C2 or C2A1 canister and pusher fan with battery.

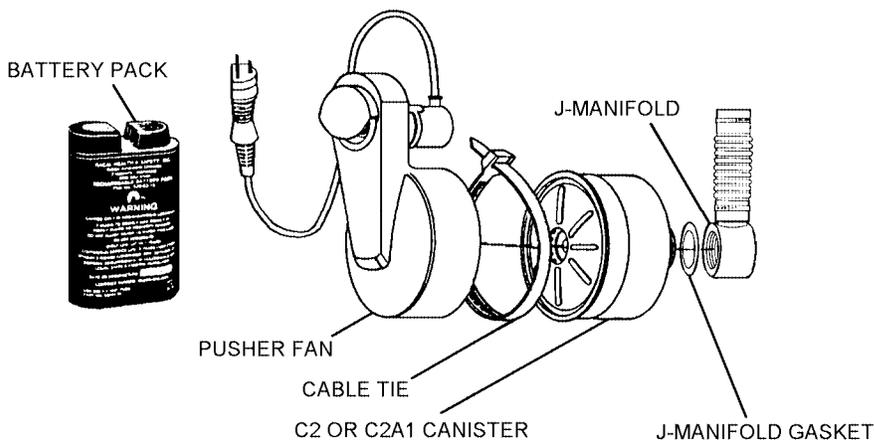


Figure 4-22. Pusher Fan Subassembly

4-22

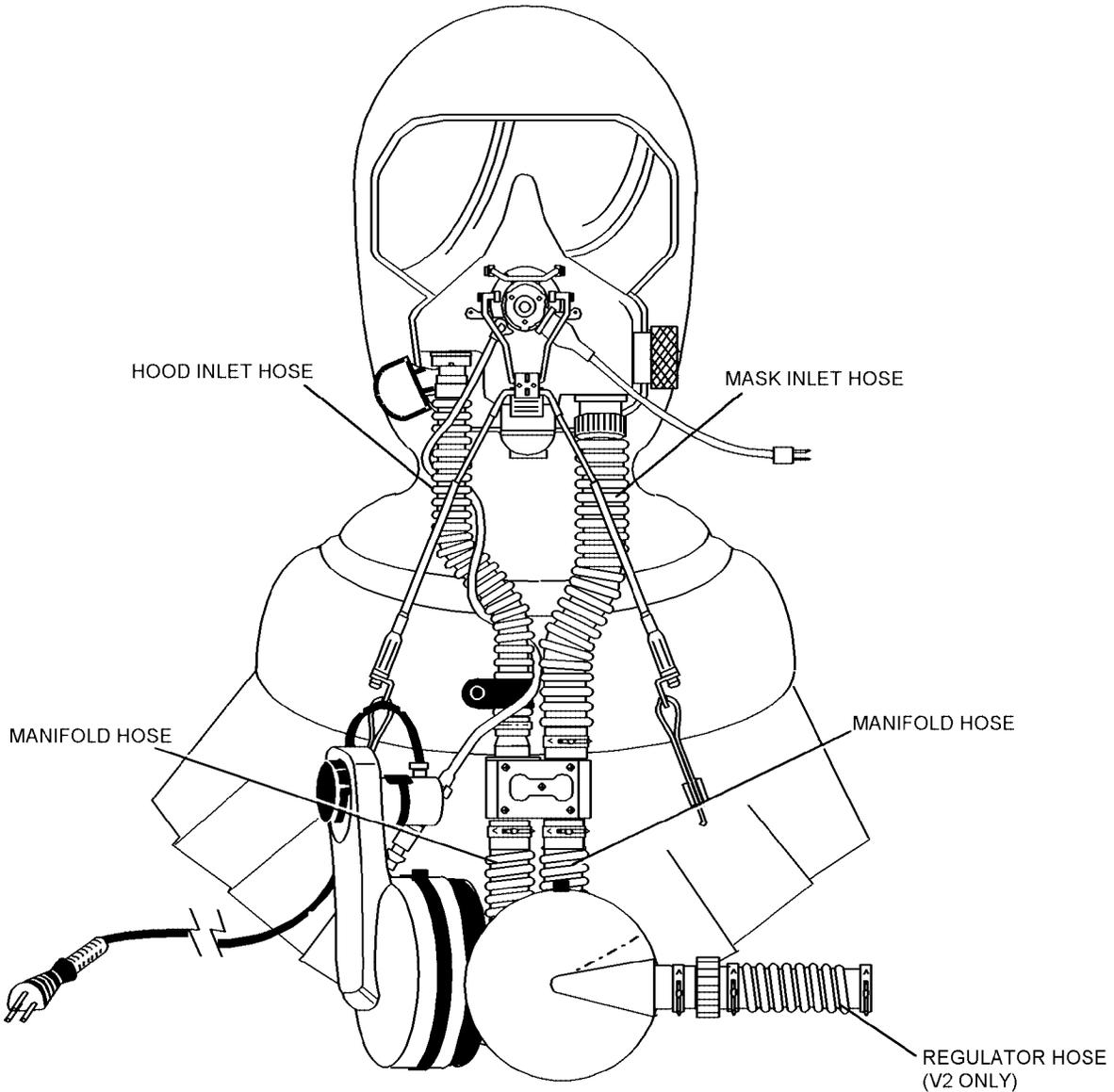


Figure 4-23. Respirator Assembly ((V)2 Variant Shown)

**4-33. Canister.** The C2 canister is a standard, NATO approved, charcoal filter canister. It is currently being replaced by the C2A1 canister. Either the C2 or C2A1 canister may be used with the A/P22P-14(V)1 thru (V)4 respirator assemblies.

**4-34. Pusher Fan with Battery.** The pusher fan consists of a molded rubber boot housing with an internal centrifugal fan. An electric cord connects the fan to a rechargeable NiCad battery or a disposable Lithium battery (see [Chapter 6](#)). The NiCad battery is a self-contained unit capable of providing 3 1/2 - 4 hours of continuous power at moderate temperatures. The Lithium battery will provide 10+ hrs. of continuous power in colder climates. An ON/OFF push switch is located on top of the battery. The large, open end of the rubber boot fits over the C2 or C2A1 canister and is secured with a cable tie.

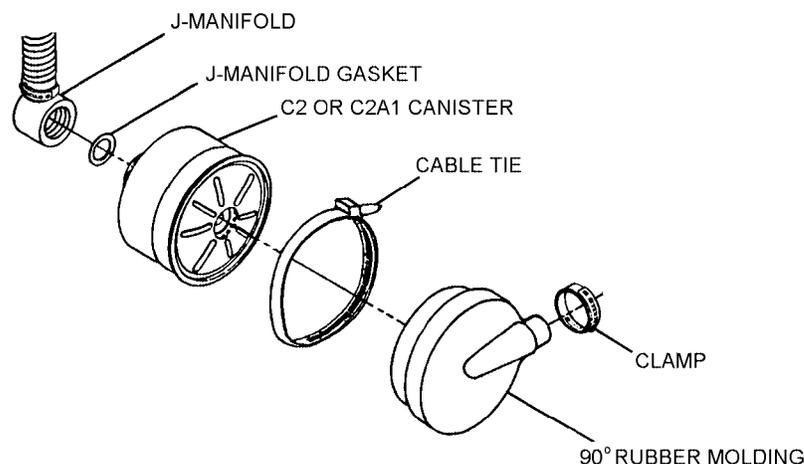
**4-35. Oxygen Delivery Subassembly.** The oxygen delivery subassembly ([figures 4-24 and 4-26 thru 4-28](#)) is applicable to the A/P22P-14(V)2 thru A/P22P-14(V)4 respirator assemblies. The subassembly components consist of manifold hoses and clamps, J-manifolds with

gaskets, C2 or C2A1 canisters, 90° rubber moldings, clamps, cable ties, and applicable interface fittings. The following components are common to all oxygen delivery subassemblies:

**4-36. Canister.** The C2 canister is a standard, NATO approved, charcoal filter canister. It is currently being replaced by the C2A1 canister. Either the C2 or C2A1 canister may be used with the A/P22P-14(V)1 through (V)4 respirator assemblies.

**4-37. 90° Rubber Molding.** The 90° rubber molding is a rubber boot with a large opening at one end that fits over the C2 or C2A1 canister and is secured with a cable tie. The other end is secured to a 3/4 inch to 3/4 inch connector (with hose), bayonet connector, or quick disconnect fitting with a stepless low profile clamp.

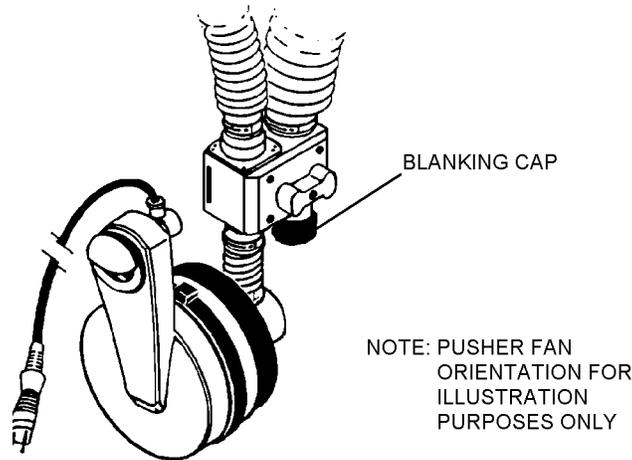
**4-38. UNIQUE COMPONENTS.** Identified by designation, the following is a list of components unique to individual variants of the A/P22P-14(V)1 through (V)4 Respirator Assemblies.



**Figure 4-24. Oxygen Delivery Subassembly - Components Common to all (V)2 thru (V)4 Respirator Assemblies**

4-24

4-39. A/P22P-14(V)1. The following component is unique to the A/P22P-14(V)1 respirator assembly (figure 4-25) (Non-oxygen aircraft)

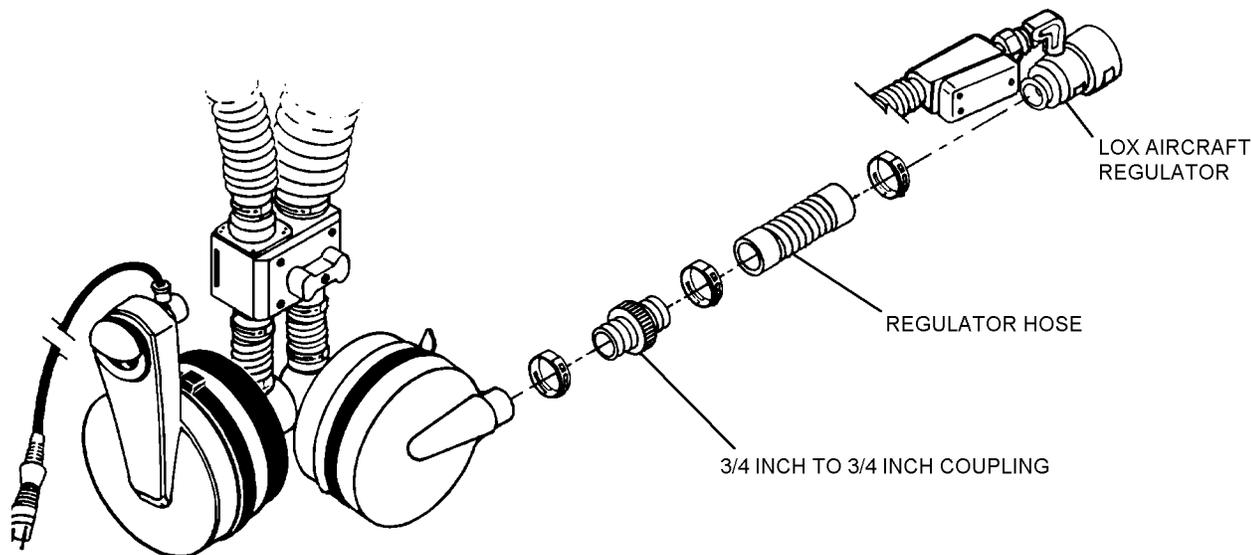


004025

Figure 4-25. Unique (V)1 Components

4-40. H-Manifold Blanking Cap. A blanking cap is installed over the left-side H-manifold inlet port. This port is blanked because the (V)1 Variant does not utilize oxygen. Variants (V)2 thru (V)4 utilize this port for connecting the H-Manifold to the oxygen delivery sub-assembly.

4-41. A/P22P-14(V)2. The following components are unique to the A/P22P-14(V)2 respirator assembly (figure 4-26) (LOX aircraft)



004026

Figure 4-26. Unique (V)2 Components

4-42. Coupling. The 3/4 inch - 3/4 inch coupling is a short, cylindrical fitting, manufactured from aluminum. One end of the coupling is connected to the 90° rubber molding and the other end is connected to the regulator hose, with stepless low profile clamps.

4-43. Regulator Hose. The regulator hose is manufactured from ethylene propylene rubber and is corrugated for flexibility. One end of the hose is connected to the 3/4 inch coupling and the other end is connected to a LOX regulator, using stepless low profile clamps.

4-44. A/P22P-14(V)3. The following components are unique to the A/P22P-14(V)3 respirator assembly (figure 4-27) (OBOGS aircraft)

4-45. Bayonet Connector. The bayonet connector is a short cylindrical fitting manufactured from aluminum. One end is secured to the 90° rubber molding by a stepless low profile clamp. The other end of the connector has three male pins allowing the connector to be mated to the three J-grooves of an OBOGS oxygen regulator.

4-45A. CBR Elbow. The CBR Elbow is an oxygen rated, 90° elbow. It is connected between the OBOGS oxygen regulator and the aircraft oxygen seat kit hose. The CBR elbow helps route the seat kit hose in an optimum position.

4-45B. Aircraft Oxygen Hose Assembly. The aircraft oxygen hose assembly is used by C-20 and C-40 cockpit crew only to connect the man-mounted regulator to the aircraft's oxygen supply system.

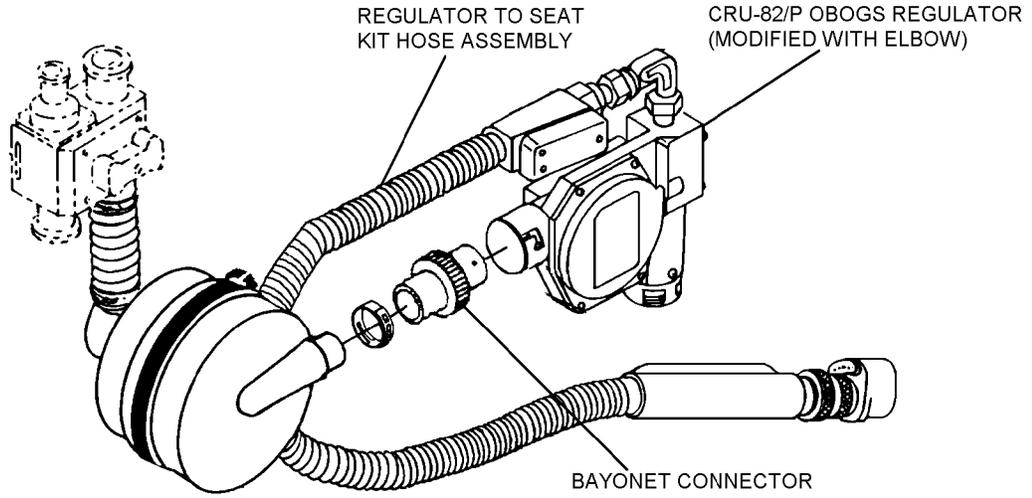


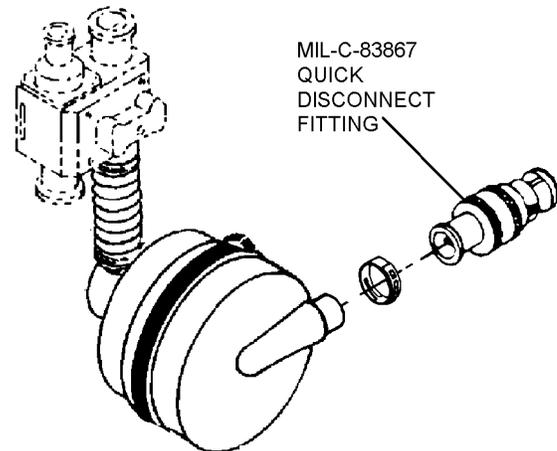
Figure 4-27. Unique (V)3 Components

004027

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**4-46. A/P22P-14(V)4.** The following component is unique to the A/P22P-14(V)4 Respirator Assembly (figure 4-28) (Panel Mount Regulator Attachment).

**4-47. Quick Disconnect Fitting.** The quick disconnect fitting is used to connect the oxygen delivery subassembly to the panel mounted oxygen regulator's regulator hose. The smooth, tubular end of the fitting is secured to the 90° rubber molding using a stepless low profile clamp. The other end of the fitting is a spring-loaded two-pin connector with a rubber seal that attaches to the panel mounted regulator hose (Panel Mounted) oxygen delivery subassembly.



004028

Figure 4-28. Unique (V)4 Components

**4-47A. Unique Components for Special Applications.** The following components are not unique for specific variants, but are unique for special applications.

**4-47B. Oxygen Extension Hose Assembly.** The 48-inch long oxygen extension hose assembly (figure 4-123) may be used to provide greater mobility and range and to make the connection and use of the emergency walk-around oxygen bottle more convenient. The extension hose connects to the quick disconnect fitting on the panel mounted regulator hose or the fitting on the walk-around bottle.

**4-47C. Branched Tubing Connector.** A branched tubing connector CRK-90 (figure 4-123A) can be used in lieu of the bayonet connector for special applications. It is not packaged in any of the respirator assemblies. E-2C aircrew will utilize CRK-90 from their existing oxygen mask assembly while C-20 and C-40 crew chiefs are required to obtain by separate means.

**4-47D. CB Head Harness.** The CB Head Harness (Chapter 8) can be used in lieu of an aircrew helmet as an alternative for mask retention. When there are no other requirements for the aircrew helmet, the CB Head Harness may be used.

**4-47E. Cartridge Actuated Cutter.** The Cartridge Actuated Cutter (Chapter 7) is intended for use with the A/P22P-14(V)2 or 3 (ejection seat aircrew) during operational contingency missions. It is a battery operated, cartridge actuated device used to provide a breathing air passage for an unconscious aircrewmember forced down over water while wearing an A/P22P-14(V) Chemical Protective Respirator Assembly.

**4-48. ADDITIONAL EQUIPMENT.** The following components are common to all A/P22P-14(V) Respirator Assemblies.

**4-49. CMU-29(V)1/P and (V)2/P Vest.** The CMU-29 (V)1/P and (V)2/P vest Configurations, provide a common mounting platform for the lower assembly components for all respirator assembly variants. Current vest configurations can be found in the NAVAIR 13-1-6.7 Series manuals.

**4-50. Intercommunications Unit.** The intercommunications unit (ICU) (figure 4-30) provides bidirectional communications and is common to all the respirator assemblies presented in this chapter.

#### NOTE

ARS fitting frames are not supplied with the respirator assembly.

**4-51. ARS Fitting Frames.** The Aircrew Respirator Spectacle (ARS) fitting frames (figure 4-31) provide a means for fitting aircrew personnel with corrective lenses, and are compatible with the mask. The ARS fitting frames are available in five sizes. Fitting frames with prescription lenses shall be ordered through the Naval Ophthalmic Support and Training Activity (NOSTRA), Yorktown, Virginia. Prescriptions shall be mailed or faxed, utilizing form DD771 (figure 4-29) to NOSTRA, requesting ARS fitting frames. Specify temple length. Contact:

NOSTRA MATERIAL MANAGER  
160 Main Rd., Suite 350  
Yorktown, VA 23691  
Fax DSN: 953-4511  
COM: 757-887-4511  
Phone DSN: 953-4261  
COM: 757-887-4261

<b>EYEWEAR PRESCRIPTION</b>		DATE	ORDER NUMBER
TO: (Optical Laboratory, including ZIP Code) NOSTRA PO BOX 350 YORKTOWN, VA 23691-0350		FROM: (Station & Location, including ZIP Code)	
NAME (Last, first, middle initial) GRADE AND SERVICE NUMBER/SOCIAL SECURITY ACCOUNT NO.			AGE
UNIT AND ADDRESS			
<input type="checkbox"/> ACTIVE DUTY <input type="checkbox"/> RETIRED <input type="checkbox"/> OTHER (Specify)		<input type="checkbox"/> USA <input type="checkbox"/> USN <input type="checkbox"/> USAF <input type="checkbox"/> USPHS <input type="checkbox"/> USCG <input type="checkbox"/> OTHER (Specify)	
<b>PRESCRIPTION</b>			
SPECTACLES: <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE		AVIATION SPECTACLES <input type="checkbox"/> N-15 <input type="checkbox"/> COATED <input type="checkbox"/> CLEAR	
OTHER: <input type="checkbox"/> REPAIR <input type="checkbox"/> PROTECTIVE MASK INSERT (Specify type and position)			
INTERPUPILLARY DIS DISTANCE	NEAR	EYE SIZE	BRIDGE SIZE
		TEMPLE LENGTH AND STYLE	
		NUMBER PAIR(S)	CASE
<b>SINGLE VISION</b>			
	SPHERE	CYLINDER	AXIS
			DECEN- TRATION IN OUT
			PRISM
			BASE
R			
L			
<b>MULTIVISION</b>			
ADD FOR NEAR	MULTIFOCAL INSTRUCTIONS		TOTAL DECENTRATION
	SEGMENT HT	DECENTRATION NEAR	
R			
L			
SPECIAL LENSES OR FRAME (Details and/or circumstances necessitating prior approval under current instructions and/or regulations. Only identical duplicate prescriptions and components should be ordered on the same DD Form 771.)			
TYPED OR PRINTED NAME, GRADE, TITLE AND SIGNATURE OF APPROVING AUTHORITY			
TYPED OR PRINTED NAME, GRADE, TITLE AND SIGNATURE OF PRESCRIBING OFFICER			
DISTRIBU- TION OF COPIES	CLINIC Originating Prescription - Removes Copy 3 for insertion in patient's Health Record (DD Form 722). Sends Copies 1 and 2 to designated optical laboratory. LABORATORY - Retains Copy 1 for file. Returns Copy 2 with completed spectacles.		

DD FORM 771  
1 SEP 66

EDITION OF 1 DEC 66. MAY BE USED.

S/N 0102-LF-007-6202

1

Figure 4-29. ARS Fitting Frames Ordering Form

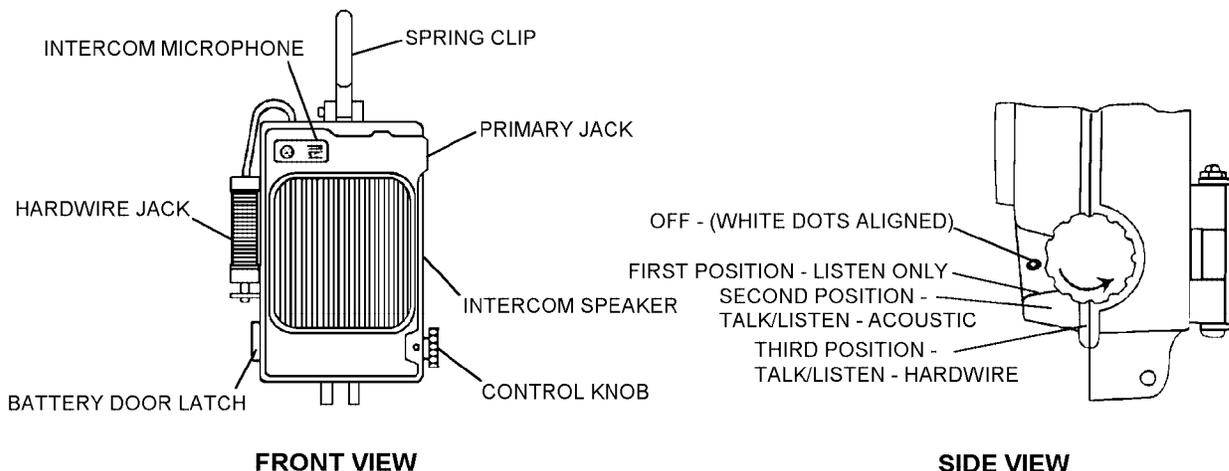


Figure 4-30. Intercommunications Unit

4-30

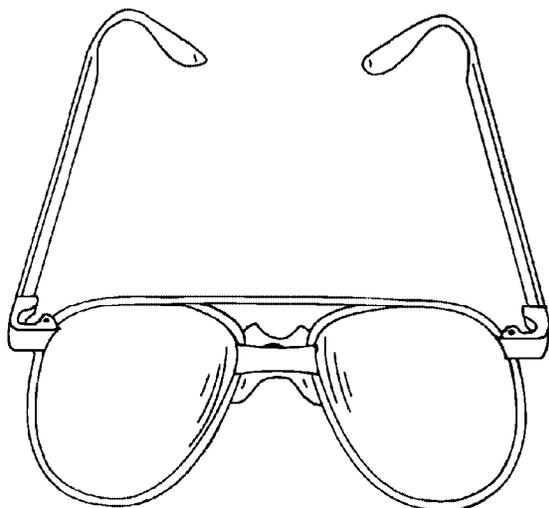


Figure 4-31. ARS Fitting Frames

4-31

**NOTE**

The canteen cover and M1 cap are not supplied with the respirator assembly.

**4-52. Canteen and Cover.** A two quart collapsible canteen (NIIN 01-118-8173) and cover (NIIN 01-118-8175), fitted with a shoulder strap (figure 4-32) is connected to the drink facility and provides drinking water to the aircrewmember to prevent dehydration. An M-1 canteen cap (NIIN 00-930-2077) shall be fitted to the canteen.

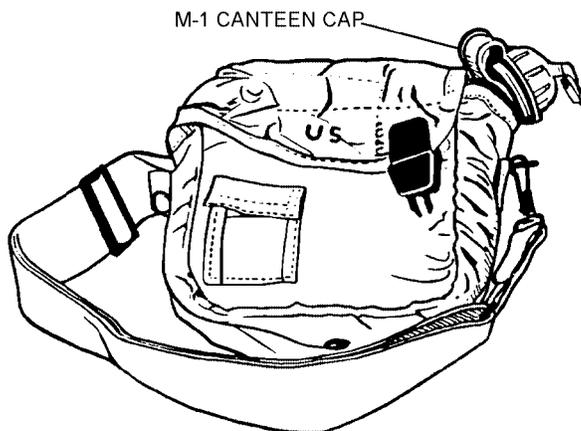


Figure 4-32. Canteen and Cover

4-32

**4-53. Transit Case.** The transit case, (figure 4-33), which is provided as a means of protection for the mask, seat kit hose and regulator, pusher fan with canister, 90° rubber molding with canister, intercommunication unit, fitting frames, intercom cord, drink facility, optional skullcap, sweatband, or talc powder, during transit or storage is common to all respirator assemblies presented in the chapter.

**4-54. Helmet Attachment Kits.** The helmet attachment kits (see IPB), include the parts necessary to integrate the respiratory assembly with the aircrew helmet. Procedures for installing these kits are detailed in NAVAIR 13-1-6.7-3.

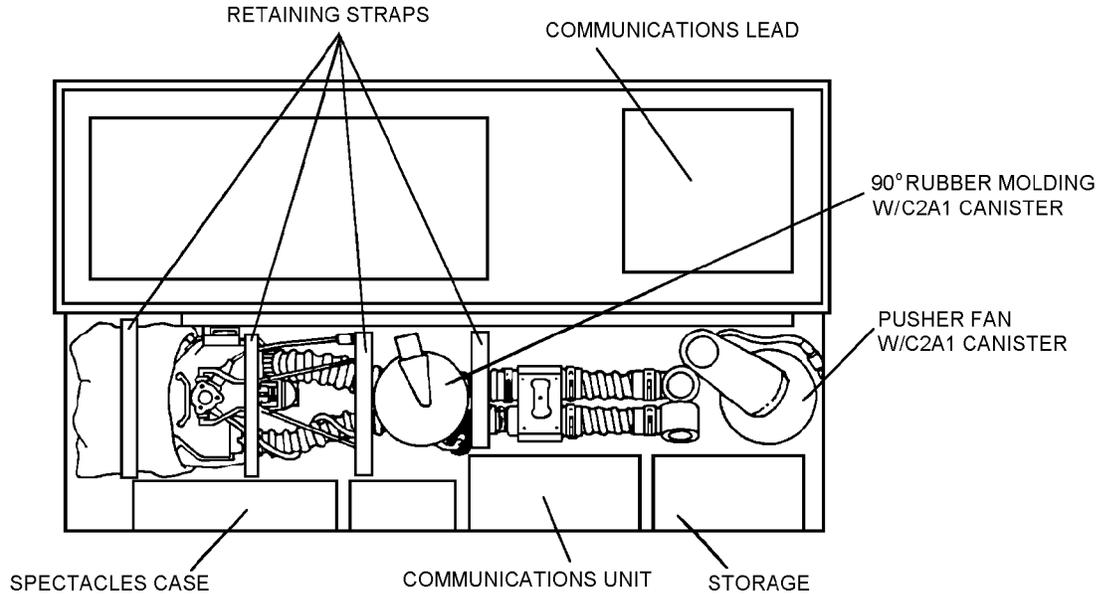


Figure 4-33. Transit Case

004033

**4-55. APPLICATION.**

4-56. The A/P22P-14(V)1 thru (V)4 Respirator Assembly variants are intended for use by all USN/USMC rotary and fixed wing aircrew personnel for both ground and in-flight operations. A modified HGU series helmet will be worn over the mask to provide head protection in-flight. Refer to NAVAIR 13-1-6.7-3 for applicable helmets.

4-57. A/P22P-14(V)1. The (V)1 variant is intended for use by all rotary wing aircrew. This variant is similar to the MCK-3A/P Mask (Rotary Upgrade Mask) that is utilized by USMC helicopter aircrews. The (V)1 variant is a non-oxygen system and is suitable in the following aircraft: AH-1W, UH-1N, HH-1N, SH-3H, UH-3A, CH-46D/E, HH-46D, UH-46D, CH-53D/E, MH-53, RH-53D, SH-60B/F, and HH-60H.

4-58. A/P22P-14(V)2. The (V)2 variant is intended for use by all fixed wing aircrew utilizing Liquid Oxygen (LOX) Systems. The (V)2 variant is suitable for the following aircraft: F-14A/B, F/A-18A/B, S-3B, ES-3A, US-3A, A-4M, and EA-6B.

4-59. A/P22P-14(V)3. The (V)3 variant is intended for use by all fixed wing aircrew utilizing Molecular Sieve Oxygen Generating Systems (MSOGS) or On-Board Oxygen Generating Systems (OBOGS). The (V)3 variant is suitable for the following aircraft: AV-8B, TAV-8B, F-14D, and F/A-18C/D/E/F, C-20 pilot and co-pilot, and C-40 pilot and co-pilot. C-20 and C-40 crew chiefs will use a build-to (V)3 configuration (figure 4-123A). See Chapter 2 for Long Term Storage of CRU-103 for C-20/C-40 Aircrew.

4-60. A/P22P-14(V)4. The (V)4 variant is intended for use by all fixed wing aircrew utilizing Panel Mounted Oxygen Systems. The (V)4 variant is suitable for the following aircraft: C-2A, E-2C, P-3C, EP-3E/J, UP-3A/B, KC-130F/R/T, C-130F/T, E-6A, C-9, C-20 aft crew, and C-40 aft crew.

**4-61. FUNCTION AND OPERATION.**

**4-62. NORMAL OPERATION.**

4-63. Mask. The inside of the mask is divided into two compartments (figure 4-34 and figure 4-35). The mask compartment is made up of the orinasal area within the orinasal mask and the hood compartment comprises remaining area. This configuration provides for separate breathing and ventilation areas and allows pressurized oxygen supply ((V)2 through (V)4 only) to the orinasal mask reducing the breathing effort required. The air supply to the hood maintains a positive pressure which prevents contaminants from entering and reduces wearer heat stress even in hot and humid conditions, while providing faceplate defogging.

4-64. Mask Compartment. Filtered air or oxygen enters the mask compartment via the mask inlet hose, mask inlet adapter and the inhalation valve. Upon exhalation, the orinasal mask inhalation valve closes, forcing the exhaled gases from the orinasal mask and into the outlet housing chamber via the compensated exhalation valve. While the pressure in the outlet housing chamber is greater than the air pressure outside the mask, the gases are expelled through the exhalation valve and into the environment. The exhalation valve closes when pressure in the exhalation duct is equal to,

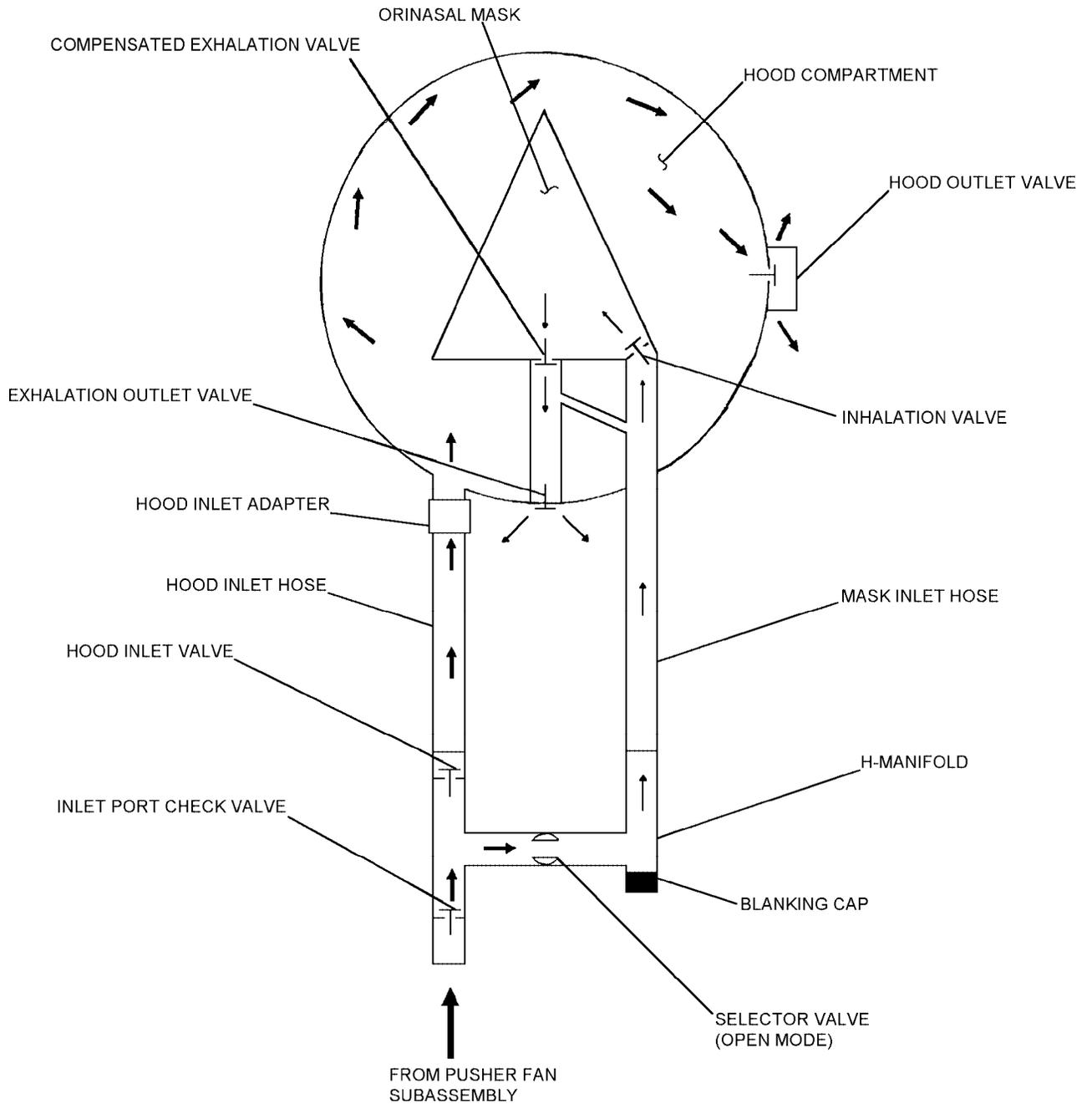


Figure 4-34. Filtered Air Flow to Orinasal Mask and Hood Compartment - (V)1 Only

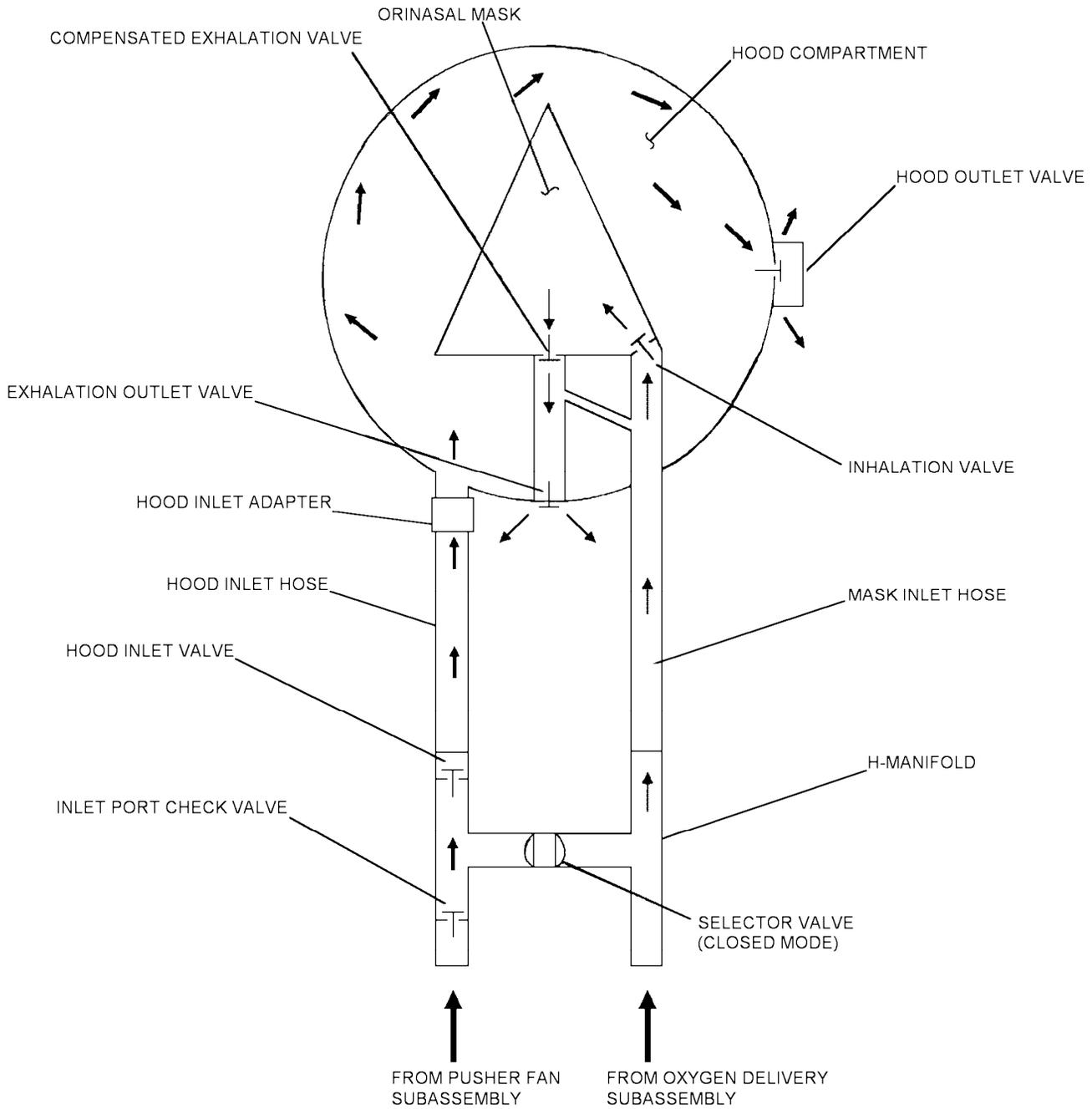
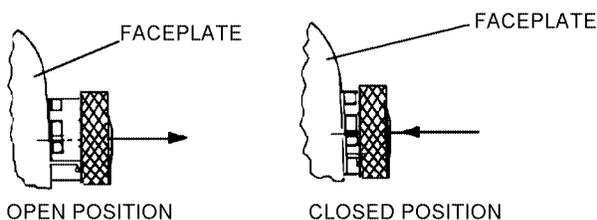


Figure 4-35. Filtered Air Flow to Hood Compartment and Filtered Oxygen to Orinasal Mask - (V)2 thru (V)4 Only

or less than, the pressure in the outlet housing chamber. As the wearer breathes, this inhalation and exhalation sequence becomes cyclical.

**4-65. Nose Occluder.** The nose occluder, incorporated into the faceplate, permits the aircrewmember to equalize pressure during flight. When properly fitted, raising the occluder stirrup on the outside of the faceplate rotates the rollers, located between the faceplate and the orinasal mask, down over the orinasal mask. This should pinch the nose closed, facilitating the valsalva maneuver, enabling the aircrewmember to clear their ears. Butyl rubber blanking plugs installed in the faceplate nose occluder bushings shall not be removed unless a nose occluder is being installed. Protection against chemical agents will not be degraded if the plugs are properly installed and remain fully seated.

**4-66. Hood Compartment.** Filtered air enters the hood compartment via the hood inlet hose, through the hood inlet adapter and is directed across the wearer's face and the visual portion of the faceplate to prevent fogging or frosting of the visual area. Air exits the hood compartment through the hood outlet valve. The hood outlet valve can be closed in the event the pusher fan fails (figure 4-36). To close, pull and twist clockwise. Allow the disc to close on the stepped rubber valve. To open, pull and twist counterclockwise. This feature prevents any toxic agent or contaminant from entering the hood compartment of the respirator. When closed, the hood outlet valve prevents water from entering the hood compartment, while the aircrewmember is seated in the upright position, on emergency immersion into water.



**Figure 4-36. Hood Outlet Valve Operation**

4-36

**4-67. Drink Facility.** The drink facility assembly allows the ingestion of liquids from a two quart collapsible canteen while wearing the CBR protective assembly. The drink facility may be used on the ground or in flight in both liquid and vapor CB contaminated environments.

1. Connection and use of the drink facility (figure 4-37).

a. In a CB contaminant free ready room remove drink facility quick disconnect from drink facility holder.

b. Open canteen connector flap.

c. Connect drink facility quick disconnect to canteen cap.

d. To drink, squeeze canteen hard with both hands, against chest or under arm, or hold canteen upside down over head.

e. Pause and blow into canteen periodically to avoid canteen collapsing.

2. Disconnecting drink facility. It is mandatory that drink facility not be disconnected until doffing the entire ensemble in a clean or decontaminated area. However, if the drink facility needs to be removed, proceed as follows:

**WARNING**

If canteen is disconnected in a CB contaminated environment, do not reconnect until all matching connectors are free of CB contamination.

a. Disconnect drink facility from canteen by pulling and twisting connector valve. Close canteen cap flap.

b. Secure free end of drink facility by inserting it into drink facility holder mounted on hood inlet hose.

c. Unhook canteen from straps. Connect straps together to facilitate finding them later.

d. Properly stow canteen.

**4-68. Microphone Assembly.** The microphone assembly allows the aircrewmember to communicate while wearing the mask during flight and on-ground (see figure 4-17 for ground and in-flight connections).

**4-69. Toggle Harness Assembly.** The toggle harness assembly provides the proper retention necessary for securing the mask to a protective helmet. Tension adjustments are made by rotating the swivel links. Additional tension can be provided by flipping the toggle plate in the most downward position (see figure 4-16).

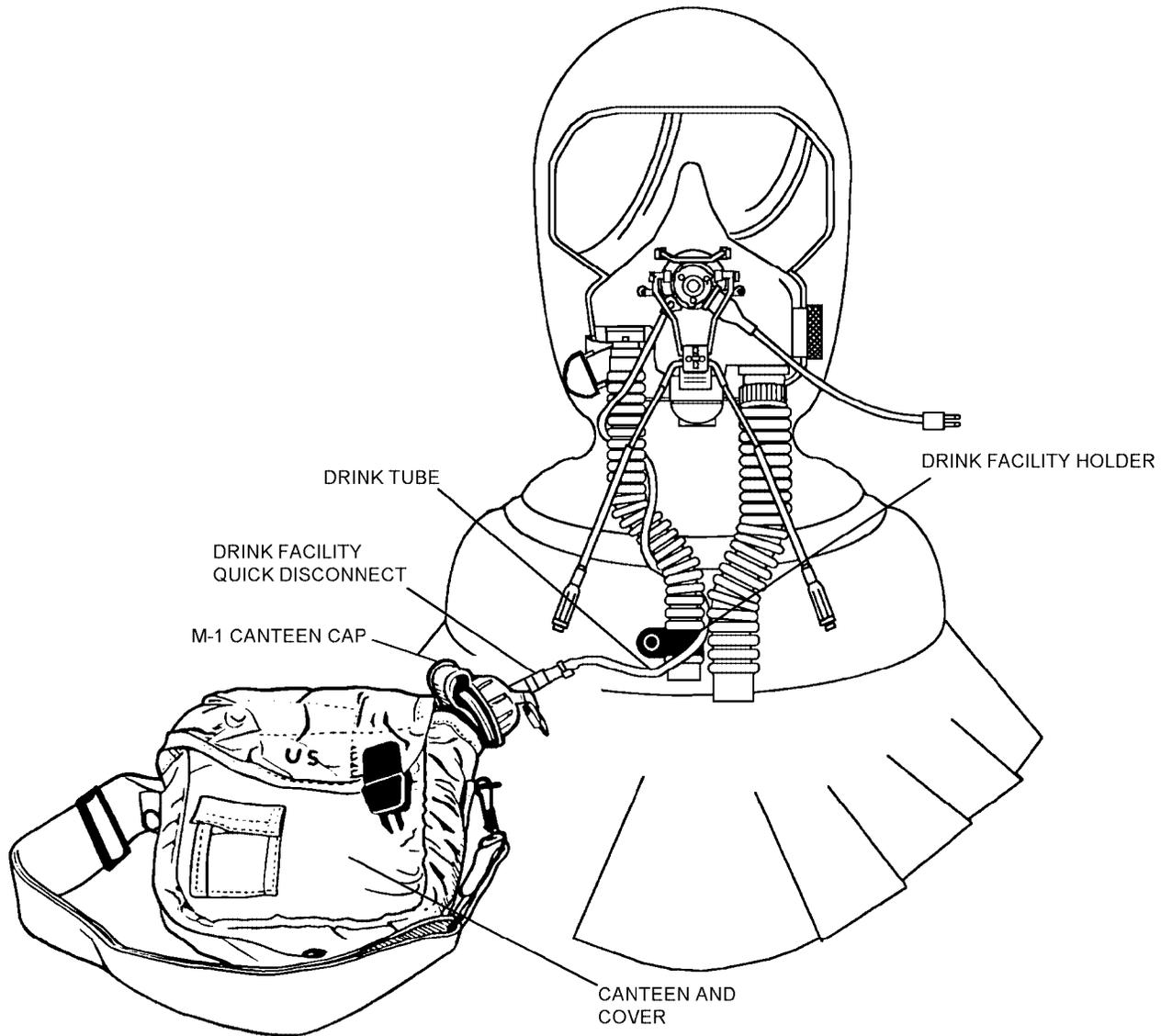


Figure 4-37. Drink Facility Connection to Canteen

4-37

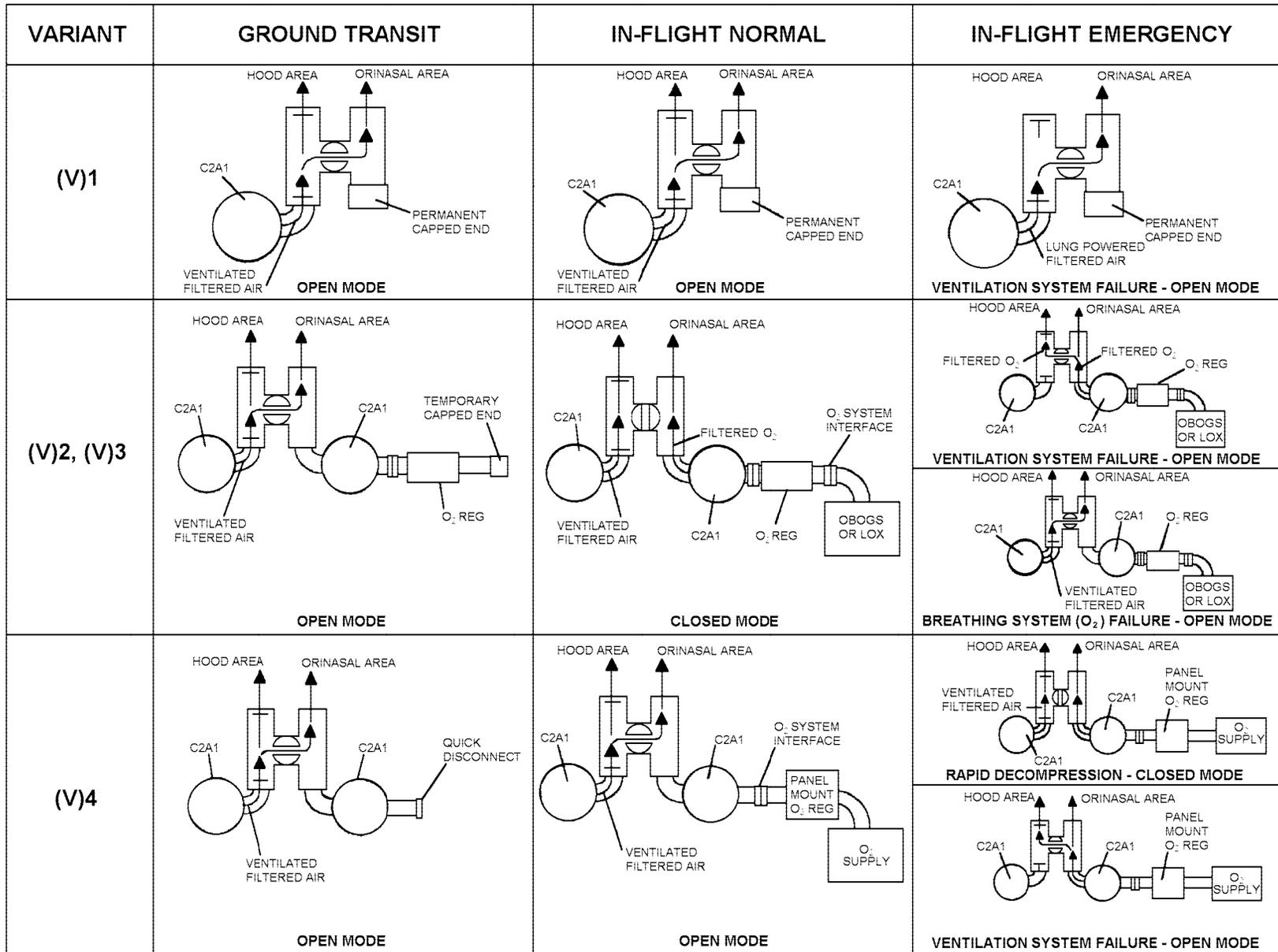
**4-70. Lower Assembly.** The (V)1 variant lower assembly provides the aircrewmember with filtered air for both the hood compartment and orinasal mask (figure 4-34). The (V)2 through (V)4 variant lower assembly provides the aircrewmember with filtered air to the hood compartment and filtered, pressurized oxygen to the orinasal mask (figure 4-35).

**4-71. H-Manifold.** H-Manifold settings for various modes are shown in figure 4-38.

**4-72. Pusher Fan Subassembly.** The pusher fan subassembly (figure 4-22) is common to all respirator assembly variants and provides filtered air for the hood compartment. The battery operated pusher fan forces ambient air through a C2 or C2A1 canister and into the

right inlet port hose, leading to the H-manifold. This low pressure air then flows through the hood inlet hose and into the hood compartment, providing positive pressure to prevent CB contaminants from entering. The C2 or C2A1 canisters are standard issue NATO charcoal filters that act as a protective barrier against CB agents. The pusher fan battery is a dc voltage NiCad rechargeable battery (which allows the pusher fan to operate for 3 1/2 to 4 hours of continuous use) or a non-rechargeable Lithium Battery (capable of providing 10 hours of continuous use). The battery power is turned ON by pressing the rubber boot covered ON/OFF switch on top of the battery opposite the pusher fan battery terminal cable (see Chapter 6 for battery operation).

Figure 4-38. H-Manifold Flow Selection



## NAVAIR 13-1-6.10

4-73. Oxygen Delivery Subassembly. The oxygen delivery subassembly (figures 4-26 through 4-28) is applicable to the (V)2 through (V)4 variants only and provides, on demand, pressurized oxygen supply to the orinasa mask. Supplied from an oxygen regulator, oxygen travels through the C2 or C2A1 canister to the J-manifold, which is connected to the H-manifold by the left side H-manifold hose. Oxygen is passed from the H-manifold to the orinasa mask via the mask inlet hose, providing a breathable oxygen supply, free of contaminants.

**4-74. Intercommunication Unit (ICU).** The ICU (figure 4-30) allows communications with another person via the second jack socket, directly connected to that person's own intercom set. Also, by means of the transducer, communication can be established with any person not equipped with an intercom. Operation of the ICU is as follows:

1. When the white dots are aligned - Off - the intercom is off.
2. In the first position - Listen Only - communications are received via the intercom microphone.
3. In the second position - Talk/Listen - Acoustic - communications are transmitted and received via the intercom speaker and microphone.
4. In the third position - Talk/Listen - Hardwire - communications are received and transmitted via hardwire (when another crewmember electrical branch cord is plugged into hardwire jack) between crewmembers. This function bypasses the intercom microphone and speaker.

### 4-75. EMERGENCY OPERATION.

**4-76. Respirator Assembly.** The A/P22P-14(V)1 through (V)4 Respirator Assemblies provide two methods to prevent suffocation, and for obtaining access to unfiltered ambient air. Either the anti-suffocation disconnect can be disconnected or the faceplate ripaway feature utilized (see procedures below). Detailed information concerning these procedures, as well as for emergency egress over water are contained in the aircraft NATOPS Emergency Procedures section.

4-77. Anti-Suffocation Disconnect.

1. Grasp connector with left hand (if possible)
2. Twist inward toward faceplate one-quarter turn, shearing the brass shear screw, and unlocking the connector.
3. Pull away to uncouple the connector.
4. The anti-suffocation disconnect may then be reattached later allowing the user to again breathe filtered air.

4-78. Faceplate Ripaway Toggle (figure 4-39).

#### NOTE

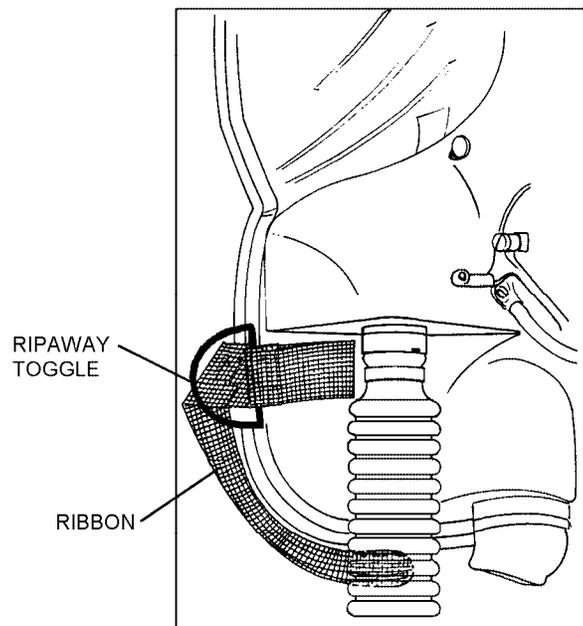
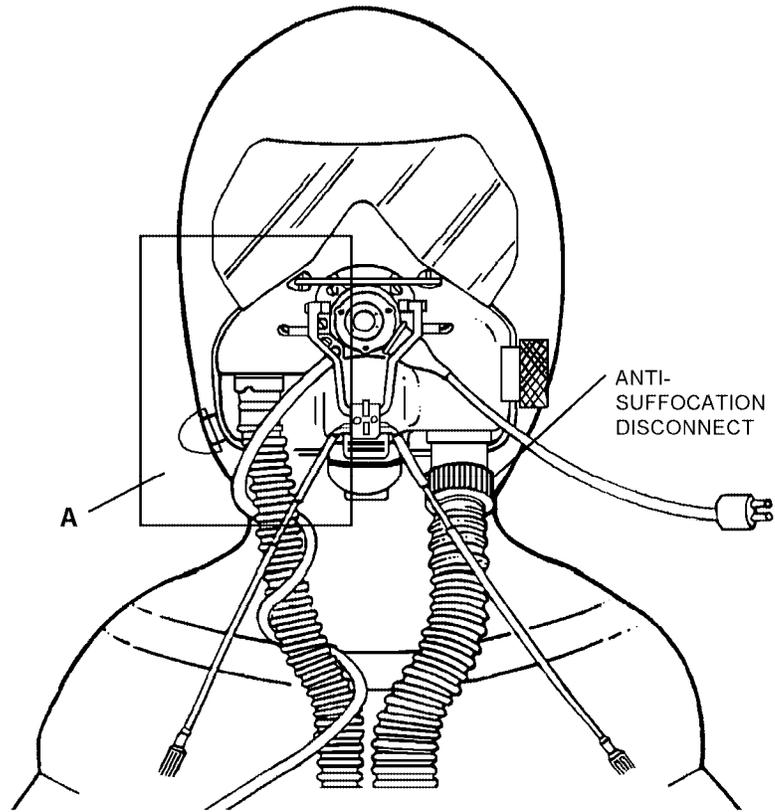
Once removed, the faceplate may not be reattached, but the microphone inside the faceplate may still be used.

Prior to using ripaway procedure, visor and any other helmet mounted equipment must be raised or removed.

1. Locate ripaway toggle and grasp D-ring with right hand.
2. Pull D-ring until hood rips and D-ring ribbon separates from hood.
3. Unsnap CBR adapter straps.
4. Place fingers in slit and rip faceplate away from face with left hand.

### 4-79. REFERENCE NUMBERS, ITEMS, AND SUPPLY DATA.

**4-80. ILLUSTRATED PARTS BREAKDOWN.** Section 4-5 lists and illustrates only components of the respirator assembly that are replaceable. Figure and index numbers and reference or part numbers are provided for identification and procurement of replacement components. Source, Maintenance, and Recoverability codes are provided for procurable items.

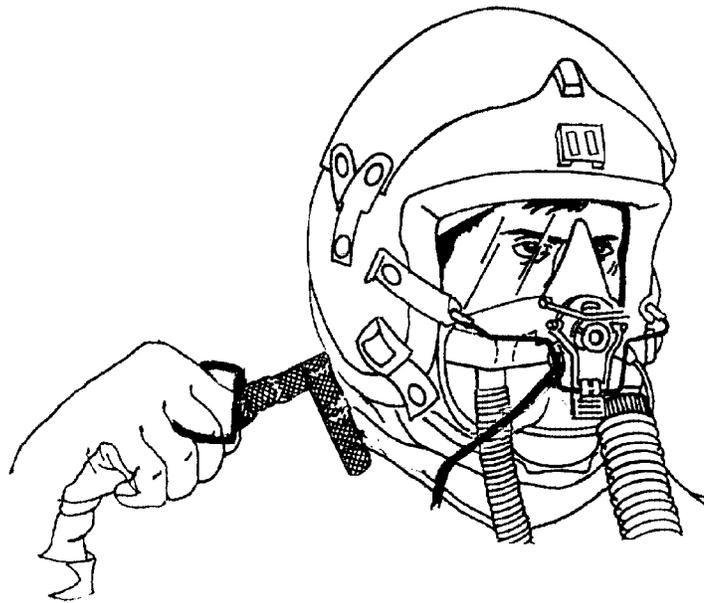


DETAIL A

Figure 4-39. Emergency Ripaway Toggle



STEP 1. LOCATE RIPAWAY TOGGLE AND GRASP D-RING WITH RIGHT HAND.



STEP 2. PULL TOGGLE UNTIL HOOD RIPS AND D-RING RIBBON SEPARATES FROM HOOD.



STEP 3. UNSNAP CBR ADAPTER STRAPS.



STEP 4. PLACE FINGERS IN SLIT AND RIP FACEPLATE AWAY FROM FACE WITH LEFT HAND.

Figure 4-40. Anti-Suffocation Ripaway Procedures

## Section 4-2. Modifications

### 4-81. GENERAL.

4-82. Each Respirator Assembly variant may be modified/converted into any other variant. The efforts required to change from one variant to another are summarized in figure 4-41. No special tools are required for this operation, other than the low profile pincer tool which is necessary to release and refasten

the low profile clamps securing the manifold hoses. Detailed instructions for assembling or disassembling components can be found in the appropriate assembly/disassembly section of this manual.

4-82A. The A/P22P-14(V) Series Respirator Assembly shall be upgraded by comparing the configuration of the assembly with the modifications listed in table 4-1A.

**Table 4-1A. Respirator Assembly Directives**

Description of Modification	Application	Modification Code
Incorporation of Cartridge Actuated Cutter (PASD)	Respirator Assemblies A/P22P-14(V)2 and (V)3	66-678

To Convert	To Variant:			
From Variant:	(V)1 Non-oxygen	(V)2 LOX	(V)3 OBOGS	(V)4 Panel Mount
(V)1 Non-oxygen		<ul style="list-style-type: none"> <li>- Re-orient pusher fan as shown in <a href="#">figure 4-2</a>.</li> <li>- Remove blanking cap from H-manifold port.</li> <li>- Install oxygen delivery subassembly (<a href="#">figure 4-24</a>).</li> <li>- Install 3/4 to 3/4 inch connector, regulator hose and regulator (<a href="#">figure 4-26</a>).</li> </ul>	<ul style="list-style-type: none"> <li>- Re-orient pusher fan as shown in <a href="#">figure 4-2</a>.</li> <li>- Remove blanking cap from H-manifold port.</li> <li>- Install oxygen delivery subassembly (<a href="#">figure 4-24</a>).</li> <li>- Install bayonet connector and regulator (<a href="#">figure 4-27</a>)</li> </ul>	<ul style="list-style-type: none"> <li>- Re-orient pusher fan as shown in <a href="#">figure 4-2</a></li> <li>- Remove blanking cap from H-manifold port</li> <li>- Install oxygen delivery subassembly (<a href="#">figure 4-24</a>)</li> <li>- Install quick disconnect (<a href="#">figure 4-28</a>)</li> </ul>
(V2) LOX	<ul style="list-style-type: none"> <li>- Remove oxygen delivery subassembly (<a href="#">figure 4-24</a>).</li> <li>- Cap H-manifold port (<a href="#">figure 4-1</a>)</li> <li>- Re-orient pusher fan as shown in <a href="#">figure 4-1</a></li> </ul>		<ul style="list-style-type: none"> <li>- Remove regulator hose and 3/4 to 3/4 inch connector</li> <li>- Install bayonet connector and regulator (<a href="#">figure 4-27</a>)</li> </ul>	<ul style="list-style-type: none"> <li>- Remove regulator hose and 3/4 to 3/4 inch connector</li> <li>- Install quick disconnect (<a href="#">figure 4-28</a>)</li> </ul>
(V)3 OBOGS	<ul style="list-style-type: none"> <li>- Remove oxygen delivery subassembly (<a href="#">figure 4-24</a>)</li> <li>- Cap H-manifold port (<a href="#">figure 4-25</a>)</li> <li>- Re-orient pusher fan as shown in <a href="#">figure 4-1</a></li> </ul>	<ul style="list-style-type: none"> <li>- Remove bayonet connector and regulator</li> <li>- Install 3/4 to 3/4 inch connector, regulator hose, and regulator (<a href="#">figure 4-26</a>)</li> </ul>		<ul style="list-style-type: none"> <li>- Remove bayonet connector and regulator</li> <li>- Install quick disconnect (<a href="#">figure 4-28</a>)</li> </ul>
(V)4 Panel Mount	<ul style="list-style-type: none"> <li>- Remove oxygen delivery subassembly (<a href="#">figure 4-24</a>)</li> <li>- Cap H-manifold port (<a href="#">figure 4-25</a>)</li> <li>- Re-orient pusher fan as shown in <a href="#">figure 4-1</a></li> </ul>	<ul style="list-style-type: none"> <li>- Remove quick disconnect</li> <li>- Install 3/4 to 3/4 inch connector, regulator hose, and regulator (<a href="#">figure 4-26</a>)</li> </ul>	<ul style="list-style-type: none"> <li>- Remove quick disconnect</li> <li>- Install bayonet connector and regulator (<a href="#">figure 4-27</a>)</li> </ul>	

Figure 4-41. Variant Conversion Matrix

### Section 4-3. Fitting

#### 4-83. GENERAL.

4-84. The concept of fitting refers to and encompasses sizing, initial preparation of components, fitting and adjustment. The procedures contained in this section shall be performed at the designated organizational maintenance level by a qualified Aircrew Survival Equipmentman (PR).

#### 4-85. SIZING.

4-86. Procedures are provided in this section to fit the wearer with the proper orinasal mask, hood and nose occluder.

#### 4-87. PREPARATION OF COMPONENTS AND PROCEDURAL STEPS.

**NOTE**

To make up a complete assembly, the appropriate mask assembly and appropriate nose occluder kit must be individually requisitioned (see materials required).

Materials Required		
Quantity	Description	Reference Number
As Required	Lubricant, KRYTOX, Type II, 240AC	NIIN 00-961-8995
1	Respirator Assembly (Large Orinasal Mask)-any Applicable Variant	CL 6361, CL 6366, CL 6371, or CL 6376
1	Respirator Assembly (Small Orinasal Mask)-any Applicable Variant	CL 6362, CL 6367, CL 6372, or CL 6377

Materials Required (Cont)

Quantity	Description	Reference Number
1	Kit, Nose Occluder, 4 mm long	CL 6564
1	Kit, Nose Occluder, 5 mm long	CL 6565
1	Kit, Nose Occluder, 6 mm long	CL 6566
1	Kit, Nose Occluder, 7 mm long	CL 6567
1	Kit, Nose Occluder, 4 mm short	CL 6568
1	Kit, Nose Occluder, 5 mm short	CL 6569
1	Kit, Nose Occluder, 6 mm short	CL 6570
1	Kit, Nose Occluder, 7 mm short	CL 6571

Support Equipment Required

Quantity	Description	Reference Number
1	Screwdriver, Jeweler's head	—
1	Nut Driver, 1/8 inch	—

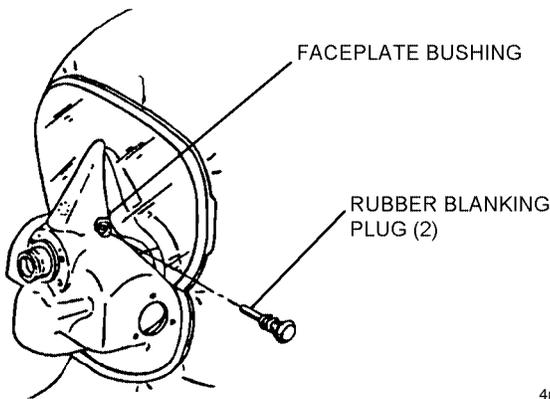
**4-88. INITIAL SIZING, FITTING AND ADJUSTMENT.**

**4-89. Mask Preparation.** Preparation for fitting and use of the mask shall proceed as follows:

1. Selection of proper mask size will be a subjective procedure to determine the proper fit to the wearer.
2. Initially choose a large mask for larger aircrew or small mask for smaller aircrew. Use marking numbers located on packaging container and on inside of mask apron to identify proper size.
3. Remove selected mask from the transit case.
4. Remove all packaging materials and coverings from mask. Ensure hoses, exhalation outlet valve, and hood outlet valve are free from obstruction. Ensure rubber blanking plugs are properly installed in masks not incorporating the nose occluder kit.
5. If nose occluder is to be installed, remove rubber blanking plugs from nose occluder faceplate bushing in mask faceplate.

**NOTE**

Retain blanking plugs for future use in masks in which previously installed nose occluder is not required and is removed.



Step 5 - Para 4-89

4p89s5

**4-90. Orinasal Mask Sizing.**

1. Invert hood to expose the orinasal mask (see figure 4-81).
2. Instruct subject to hold orinasal mask to the face in its normal position with firm pressure. If

installed, remove pusher fan filter and/or the 90° rubber molding. Cover J-manifold ends with the palm of the hand to prevent the intake of air, and have subject attempt to inhale deeply to test seal of orinasal mask to the face. If leakage is evident around orinasal mask edge, switch to a larger or smaller size orinasal mask and retest.

3. Once subject is satisfied with orinasal mask-to-face sealing, proceed with hood sizing.

**4-91. Hood Sizing.** Once the subject is satisfied with the orinasal mask fitting, perform the following:

1. Re-invert hood.
2. Have subject don skull cap and/or headband if so desired. These items are recommended to improve comfort and to keep perspiration out of the eyes.
3. Turn pusher fan on. Ensure H-manifold selector knob is in the open position (horizontal) and the Hood Outlet Valve is open.



Subject shall be careful not to tear neck seal when donning mask.

4. Holding skull cap in place, instruct subject to place hands inside the neck seal with palms together and pull open. Slide down over head. Adjust mask for orinasal mask comfort and good visibility.
5. Assist the subject in seating the mask neck seal, ensuring neck seal is not rolled up and lies flat.
6. The Hood should fit snugly around the head without causing any discomfort. The orinasal mask may hang slightly away from the face, but should not press unduly into the face.

**NOTE**

Although the mask is available in five sizes, (see table 4-1) only the S and L overall size is readily available. Custom fit sizes: XL, XS, and XXS are only available by contacting:

Naval Air Warfare Center, Aircraft Division  
Code 4.6.3.1  
Patuxent River, MD 20670-1906  
DSN (301) 342-8850

7. Have the subject check **step 6** and move head up and down. Check to see that the neck seal seats snugly, does not slide, or have any gaps around the neck when checking **step 6**. Turn pusher fan off and repeat **step 7**.

8. If the mask fits too tightly, around the head and causes discomfort around the orinasal mask to face seal, request an XL size. If the mask fits too loose and the hood has extra baggy material around the head, request an XS size. If a small aviator, with very narrow neck, has difficulty making a good neck seal or the neck seal slides when moving head up/down or checking **step 6**, request an **XXS** size.

9. Once the subject is satisfied with the orinasal mask face sealing and hood sizing, turn pusher fan off, doff mask and proceed with nose occluder fitting.

**492. Initial Fitting of Nose Occluder.** **Table 4-2** provides the most practical method of selecting the proper nose occluder kit to fit the individual wearer. The table lists available nose occluder kits, their dimensions, and the proportion of aircrew using the individual kits. (For example, 75% of aircrew personnel requiring installation of a nose occluder use P/N CL 6566). Begin initial fitting process by using kit P/N CL 6566, since that kit is most commonly used. Each kit should contain the following.

Item Part	Quantity
Shaft Assembly	2
O-ring	4
Stirrup Assembly	1
C-clip	2
Facing Washer	2



When assembling nose occluder into mask, care should be taken not to force any parts together. Nose occluder and faceplate bushings which are in good working order should fit together snugly but easily. The bushings are black coated brass inserts which are press fitted into the faceplate and sealed with a silicone rubber sealant. Using excessive pressure could dislodge nose occluder faceplate bushings.

**NOTE**

It is suggested that prior to assembling nose occluder in mask, shaft assemblies and stirrup be engaged several times to remove any excess coating on the splines. If splines do not engage smoothly after this, they may be out of specification and should be replaced. Use Krytox sparingly to ensure that the shaft assembly splines will properly fit into the stirrup splines without excessive force.

There are no published repair procedures for either spline interference or faceplate bushings at this time. During assembly, ventilate mask with a pusher fan whenever hand is inside mask to prevent hand sweating and visor fogging. Assembly will be easier if hands are dry.

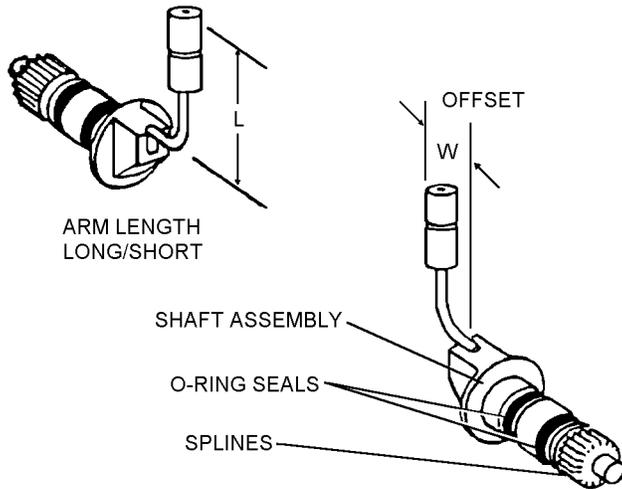
1. After selecting proper nose occluder kit, before assembling nose occluder to stirrup assembly, apply Krytox lubricant to splined ends of nose occluder shaft assemblies. Work splines of both shaft assemblies in and out of stirrup assembly splines several times until the male splines engage smoothly with the female splines.

**Table 4-2. Nose Occluder Assembly**

BOTTOM ROLLER COLOR A	NOSE OCCLUDER KIT	ARM LENGTH LONG OR SHORT	WIDTH	% USED
Brown	CL 6564	L	4 mm	1%
Red	CL 6565	L	5 mm	5%
Orange	CL 6566	L	6 mm	75%
Deep Cream	CL 6567	L	7 mm	5%
Green	CL 6568	S	4 mm	1%
Blue	CL 6569	S	5 mm	7%
Violet	CL 6570	S	6 mm	5%
Grey	CL 6571	S	7 mm	1%

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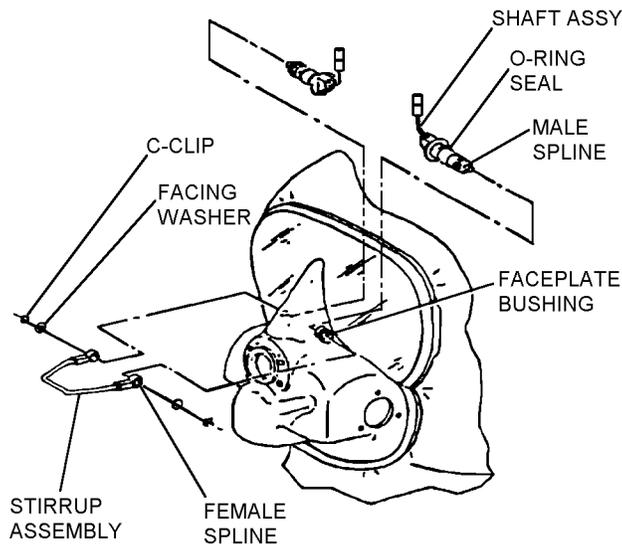
2. Inspect and lightly lubricate the two O-ring seals on shaft assemblies.



Steps 1 and 2 - Para 4-92

4p92s1

3. Insert one shaft assembly through inside of faceplate bushing. Position roller portion of shaft assembly flush against inner side of faceplate nose bridge and then engage the splines. Repeat for opposite shaft assembly.

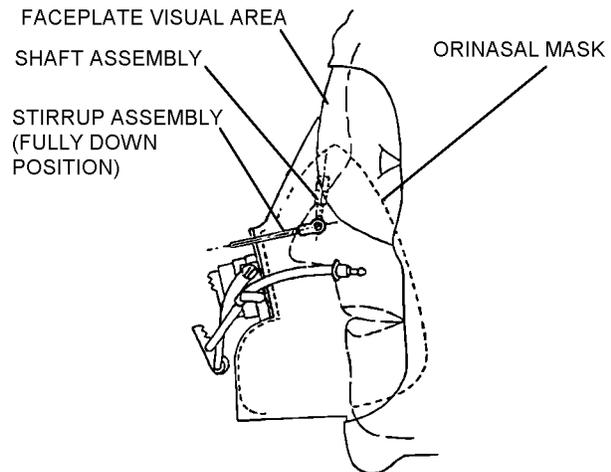


Step 3 - Para 4-92

4p92s3

4. Position stirrup assembly to be fully down onto outer portion of the faceplate.

5. Maintain relative positions of the shaft assemblies and stirrup, then ease shaft assemblies through faceplate bushing to engage splines of stirrup.



Steps 4 and 5 - Para 4-92

4p92s4

### NOTE

Do not install washers or C-clips to stirrup assembly until paragraph 4-100.

6. With hood still inverted, instruct subject to hold orinasal mask firmly to the face, simulating its normal position. Have subject raise stirrup assembly and valsalva by trying to expel air through the nose. Check for smoothness of operation, and ensure stirrup travel limits roller movement and not vice versa following the flow diagram shown in figure 4-42. If proper function is achieved, the subject suitably valsalvas with no air leakage through the nose, proceed with paragraph 4-93. If proper function is not achieved, proceed with the following step 7.

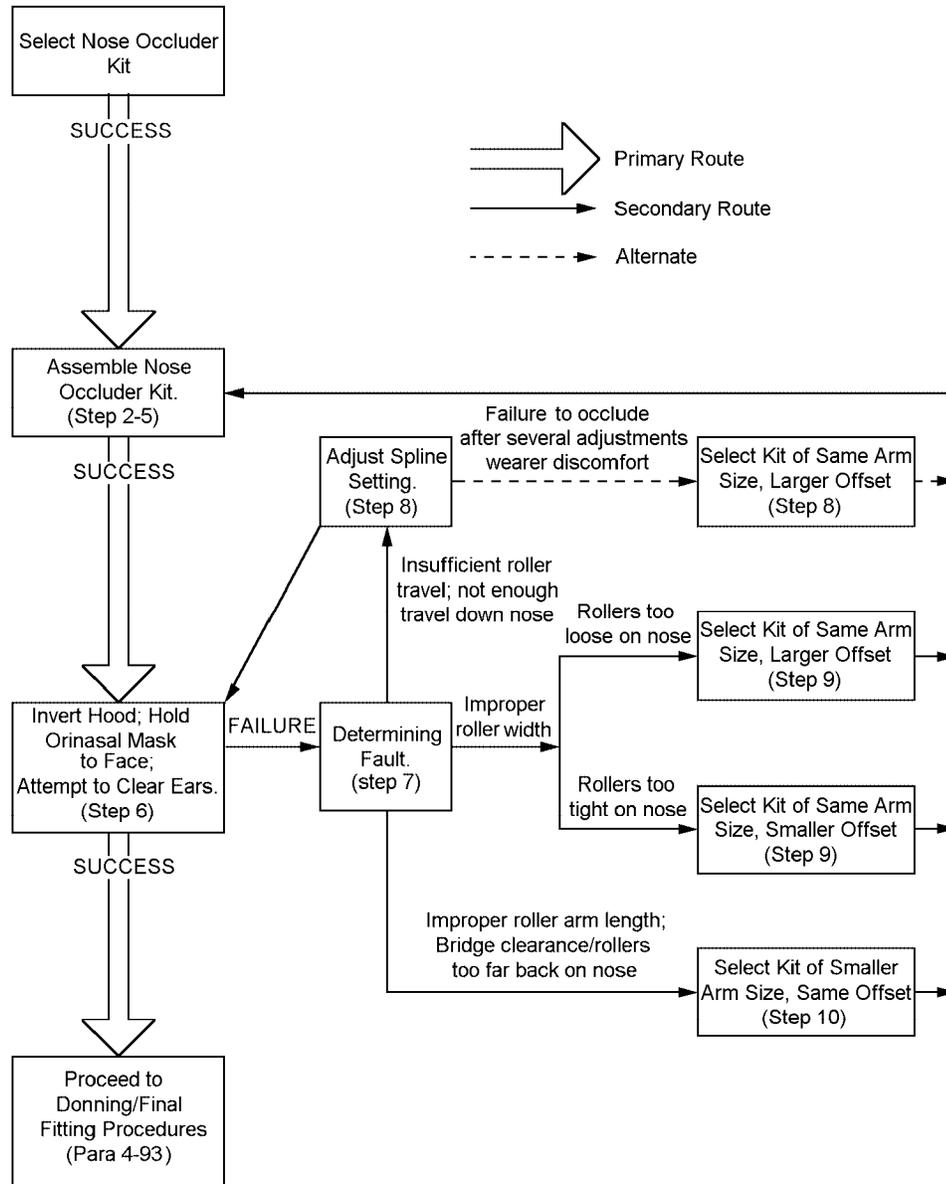
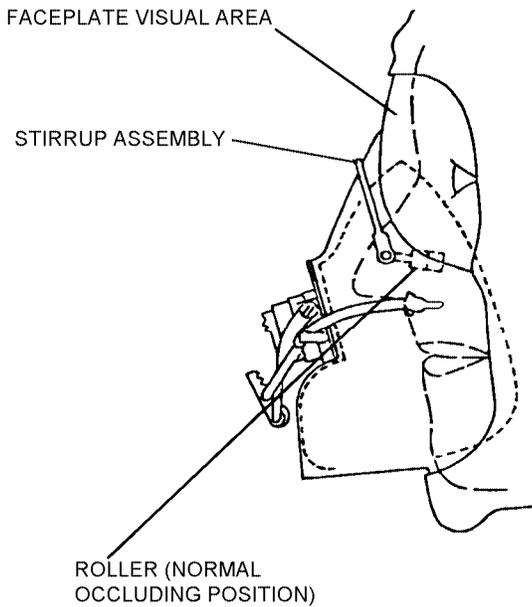


Figure 4-42. Nose Occluder Fitting Flow Diagram

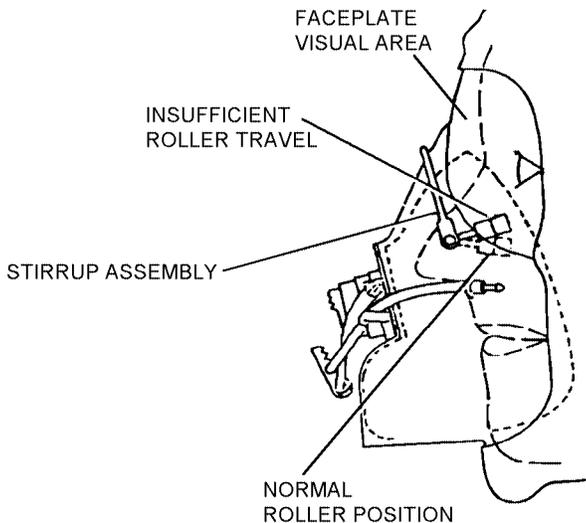


Step 6 - Para 4-92

4p92s6

7. If leakage of air through nose is evident, determine which of the following adjustments should be made and perform corrective action (figure 4-42).

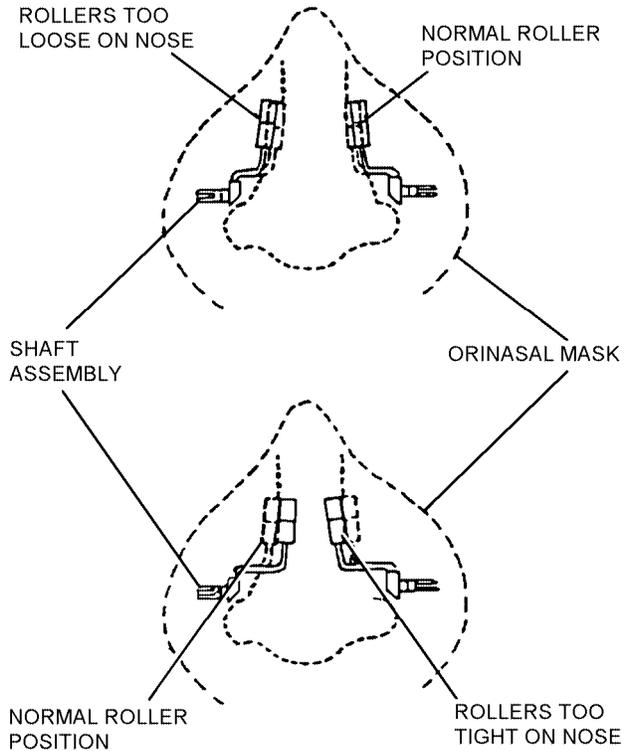
a. Insufficient roller travel down nose to occlude. Proceed to step 8, Insufficient Roller Travel.



Step 7a - Para 4-92

4p92s7a

b. Improper roller width, rollers pass in front of bridge of nose but are too tight or too loose for proper occlusion. Proceed to step 9, Improper Roller Width.



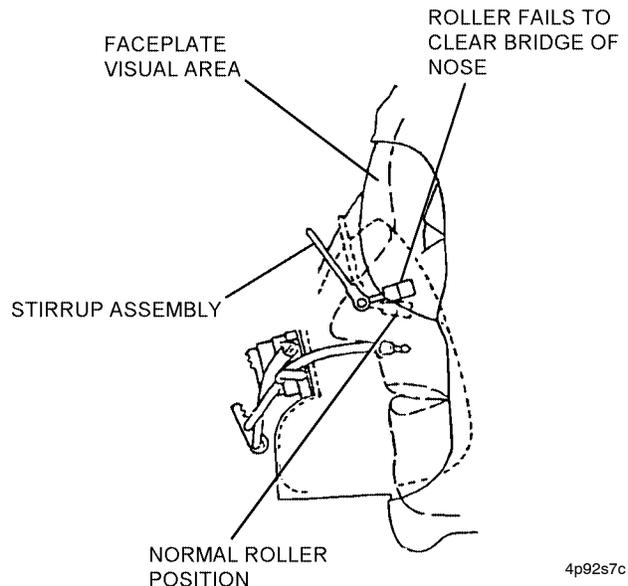
Step 7b - Para 4-92

4p92s7b

c. Improper roller arm length; rollers fail to clear bridge of nose, or are too far back on nose to properly occlude. Proceed to step 10, Improper Roller Arm Length.

**NOTE**

If excessive spline adjustments are made, discomfort to wearer may result due to pressure exerted on nose by occluder in its resting position.



Step 7c - Para 4-92

4p92s7c

8. Insufficient Roller Travel: If roller travel is at fault, more travel is necessary to achieve proper occluding position; a slight spline adjustment away from the orinasa mask nose bridge is necessary. Adjust and repeat [step 6](#). If after several spline adjustments more pressure on the nose is necessary and/or wearer experiences discomfort due to pressure exerted by the rollers in their resting position, select a nose occluder kit of same arm size, larger offset. Repeat [steps 2 through 6](#). Once subject becomes satisfied with performance and comfort of nose occluder, proceed with [paragraph 4-94](#).

9. Improper Roller Width: If distance between the rollers is at fault and rollers are too loose on nose (in the occluding position), select a kit of same arm size, with a larger offset. If partial occlusion was achieved but rollers are too tight on the nose, select a kit of same arm size with a smaller offset. Repeat [steps 2 through 6](#). Once subject becomes satisfied with performance and comfort of nose occluder, proceed with [paragraph 4-94](#).

10. Improper Roller Arm Length: If the rollers seat too far back on nose, or are blocked by bridge of nose upon occlusion, select a kit of smaller arm size, same offset. Repeat [steps 2 through 6](#). Once subject becomes satisfied with performance and comfort of nose occluder, proceed with [paragraph 4-94](#).

#### 4-93. FINAL FITTING AND ADJUSTMENT.

**4-94. Donning for Fitting.** Donning of respirator assembly shall be supervised by a qualified Aircrew Survival Equipmentman (PR), and shall proceed as follows:

##### NOTE

The appropriate respirator variant must integrate with the CMU-29(V)1/P or (V)2/P vest configured as detailed in NAVAIR 13-1-6.7-4 manual prior to donning the system for final fitting. Modification of aircrewmember's helmet to accept CBR adapter straps must also be done as part of the fitting procedures. Procedures for modifying the helmet with the applicable helmet attachment kit are detailed in NAVAIR 13-1-6.7-3.

1. Have subject don appropriate CMU-29(V)1/P or (V)2/P Vest.

2. Subject shall don skull cap, head band, etc., if so desired. These items are recommended to improve comfort and to keep perspiration out of the eyes.

3. Turn pusher fan ON. Selector knob on H-manifold shall be in the open position (horizontal).



Be careful not to rip neck seal when donning mask.

4. Holding skull cap in place, instruct subject to place hands inside neck seal with palms together and pull open. Slide down over head. Adjust mask for orinasa mask comfort and good visibility.

5. Assist the wearer in seating mask neck seal, ensuring neck seal is not rolled up and lies flat. Ensure hood outlet valve is open.

6. Turn pusher fan OFF.

7. Subject shall don an applicable aircrew helmet and secure and tighten chin strap.

8. Plug-in intercommunication unit and turn ON. (See [figure 4-17](#) for ground communication connection.)

9. Turn pusher fan ON.

10. Subject shall connect toggle harness assembly to helmet as shown in [figure 4-43](#).

##### NOTE

The toggle harness cables shall lie over hooks on faceplate front, with the V-bow in the up position.

11. Flip the V-bow down into flight position, and adjust toggle harness assembly ([figure 4-43](#)).

##### NOTE

Adjustment of toggle harness assembly is made by rotating adjustable swivel link.

12. With the filtered air supply flowing, clamp hood ventilation hose by application of slight finger and thumb pressure. Request wearer to hold breath, and test the adequacy of orinasa mask-to-face sealing. If air is felt leaking out from edge of orinasa mask, further adjustment of the toggle harness assembly should be made and orinasa mask-to-face seal retested. If leakage is still evident on retest, replace with a smaller or larger size orinasa mask.

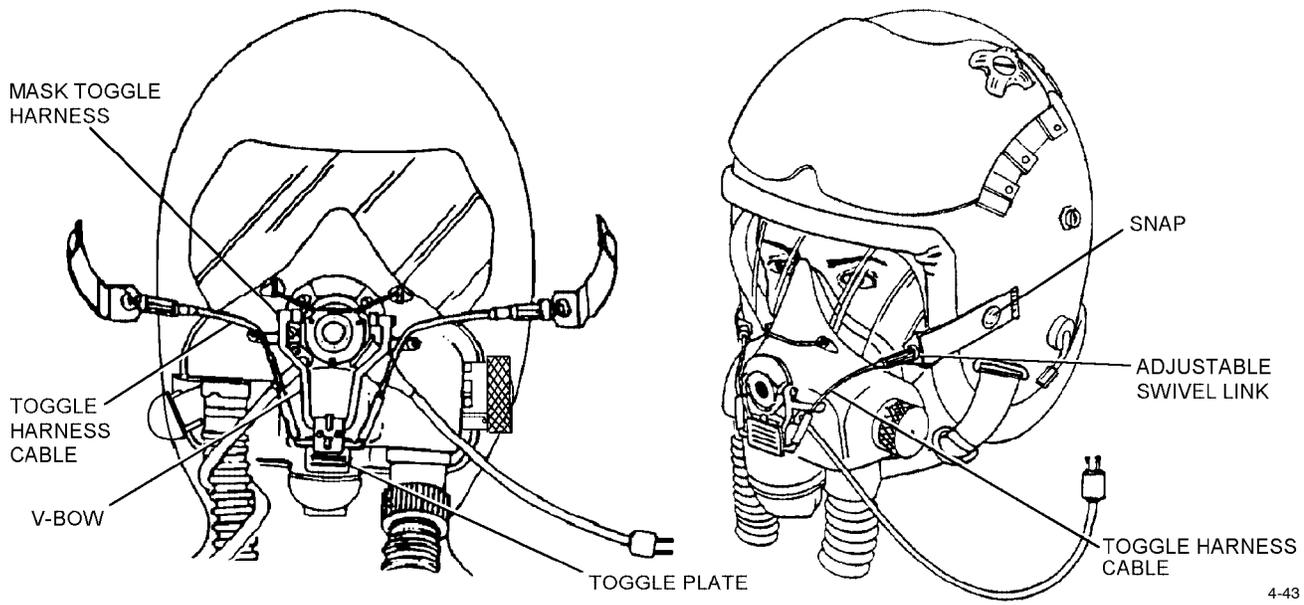


Figure 4-43. Toggle Harness Connection.

4-43

**4-95. Final Fitting of Nose Occluder.** Instruct subject to raise stirrup and attempt to valsalva. In some cases there will be a tendency for the faceplate to lift slightly as the user attempts to pass the rollers over the bridge of the nose. This may be accompanied by the failure of the rollers to pass over the bridge, and thus interfering with their effective downward travel; both conditions can prevent proper occlusion. However, these effects usually may be overcome by instructing the subject to hold and force the faceplate down with the thumb and three fingers, while using the index finger to raise the stirrup assembly. If unsuccessful, refer to paragraph 4-92, step 6.

**4-96. WEARER FAMILIARIZATION PROCEDURES.**

**4-97. Hood Outlet Valve Familiarization.**

**WARNING**

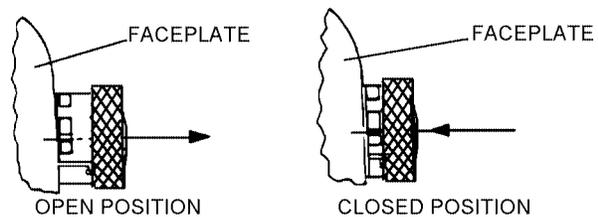
If the pusher fan fails to operate in a contaminated environment or if the aircrewmember is immersed in water, close the valve.

**NOTE**

The valve shall be in its open position for normal flight operation.

1. Request user to operate hood outlet valve from the open to closed position and back to the open position by pulling and rotating the hood outlet valve lever as illustrated.

2. Repeat the cycle from OPEN to CLOSED and return to OPEN until the aircrewmember is satisfied with operation of the valve.



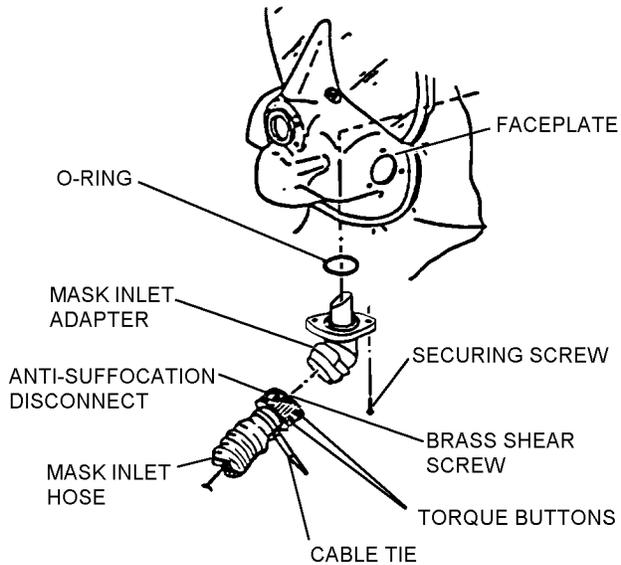
Step 2 - Para 4-97

4p97s2

**4-98. Anti-Suffocation Disconnect Familiarization.**

1. Remove and retain brass shear screw.

2. Request the aircrewmember to uncouple (clockwise rotation) and then pull anti-suffocation disconnect from the mask inlet adapter.



4p98s1

**Steps 1 and 2 - Para 4-98**

**NOTE**

The cycle of disconnecting and reconnecting the anti-suffocation disconnect is to be repeated until the aircrewmember is satisfied as to the orientation and operation of the anti-suffocation disconnect facility.

3. At the final reconnection of the anti-suffocation disconnect, ensure that the mask inlet hose is not twisted.

**WARNING**

Ensure shear screw is installed.

4. Fit shear screw (brass) to lock the connector.

5. Apply a slight twisting motion to the connector to assure the shear screw engages the edges of the locking slot machined in the mask inlet adapter.

6. Examine the mask inlet adapter, particularly for damage and security of attachment.

**4-99. DOFFING AFTER FITTING.** After fitting, have subject remove respirator assembly as follows:

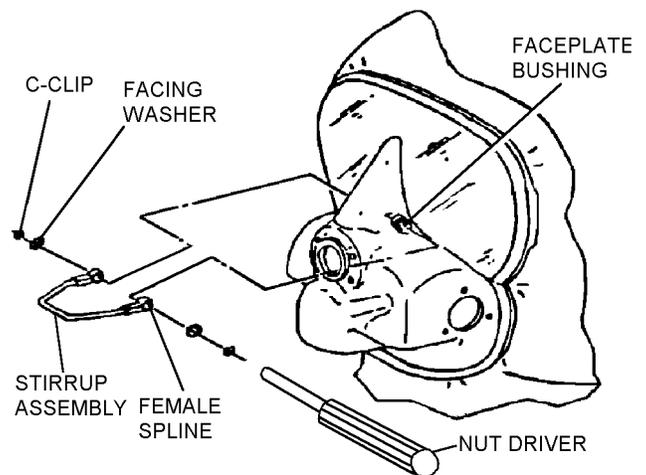
1. Disconnect toggle harness assembly from helmet snaps.

2. Unplug intercom.
3. Assist the wearer to doff his protective helmet.
4. Assist the wearer to doff mask, being careful not to disturb or dislodge the (as-yet unlocked) nose occluder components.
5. Switch the pusher fan OFF.
6. Remove CMU-29(V)1/P or (V)2/P vest.

**4-100. LOCKING STIRRUP ASSEMBLY.** Lock stirrup assembly in position by applying the appropriate washers and C-clips to the external end of each shaft assembly. For ease of C-clip installation proceed as follows:

1. Ensure stirrup assembly is in the down position. If right handed, use left hand inside of mask to support shaft assembly during C-clip installation; vice versa if left handed.

2. Ensure the shaft assembly is completely seated through stirrup end. Place washer on shaft end and ensure C-clip groove is visible with washer in place.



4p100s2

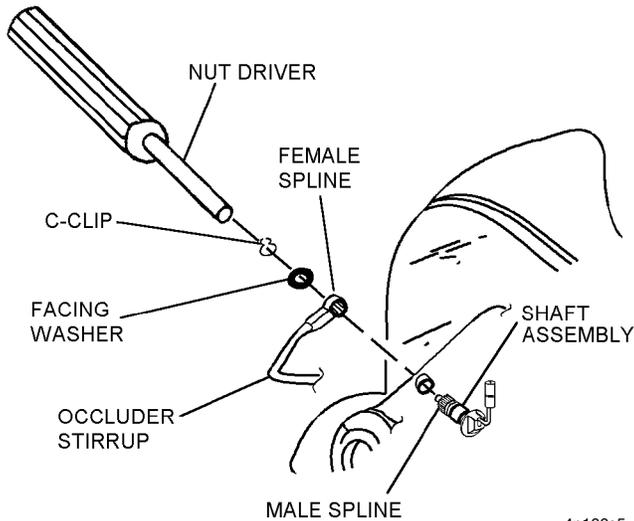
**Step 2 - Para 4-100**

3. Apply Krytox to the end of a 1/8-inch nut driver. Krytox will serve as lubrication during installation and will hold C-clip in place on the nut driver.

4. Place C-clip on end of nut driver and adjust C-clip to be perfectly centered over the nut driver opening.

## NAVAIR 13-1-6.10

5. Line up 1/8-inch nut driver directly over center of shaft end and press C-clip into groove. Verify that C-clip is properly seated.



**Step 5 - Para 4-100**

4p100s5

6. Repeat steps 1 through 5 for opposite side.

7. After fitting is complete, clean mask assembly.

### NOTE

Rubber products have a natural memory and may develop permanent wrinkles or folds over a period of time when stored wrinkled or folded.

8. Following cleaning, carefully place mask in its transit case with as few folds and wrinkles as possible. Secure with retaining straps as illustrated on the transit case lid.

**4-101. TRANSIT AND READY FOR USE STORAGE.** To prepare the mask for transit or ready-for-use storage (figure 4-62), proceed as follows:

1. Fit velveteen cover, ensuring correct position on the faceplate.

2. Ensure nose occluder is in its downmost position (when fitted).

3. Place mask face-up in transit case, ensuring toggle harness and microphone cord are lying away from optical areas.

4. Carefully fold hood in and around faceplate, ensuring all hoses and drink tube lie flat and are free from kinks.

5. Secure mask in transit case with retaining straps as illustrated inside case lid.

6. Store communications unit in appropriate compartment.

7. (LOX and OBOGS) - Store seat kit hose and regulator in long pocket at spine of case.

8. Place pusher fan at bottom of transit case.

9. Place canister and 90° rubber molding subassembly (if applicable) between delivery hoses below mask and above H-manifold.

10. Stow CMU-29(V)1/P or CMU-29(V)2/P vest with survival vest.

**4-102. HOSE ADAPTATIONS.** Instructions for adapting existing hose assemblies to work with the A/P22P-14(V)2 and (V)3 Respirator Assemblies are contained in the following paragraphs. To modify an existing hose assembly, proceed as follows:

### Materials Required

Quantity	Description	Reference Number
As Required	Tape, Ethylene Propylene	Scotch, 3M, 130C
As Required	Tape, PVC	Scotch, 3M, Super 88

1. AV-8B Aircraft, SKU-6/A seat survival kit oxygen/communications hose assembly. Upper and lower P/N REDAR A11206-2 and REDAR A11226-1 taping procedure.

a. Trim silicone rubber wire keepers from existing hose assembly (figure 4-44) and discard.

b. Starting with seat kit to aircraft console hose (P/N REDAR A11228-1) assembly, start taping from flare nut end with Scotch 3M 130C Ethylene Propylene tape. Stretch tape to 3/4 of its original width and wrap tape to form a smooth void-free layup. When wrapping tape, ensure tape overlaps itself by at least 1/2 the tape width.

c. Work the tape up the hose to the console disconnect. End taping by wrapping up to console connector and back down over the applied tape 1-1/2 inches (figure 4-45 and 4-46).

d. Ensure all silicone rubber and cloth sections of the hose are completely covered.

e. Repeat above taping procedure with Super 88 Polyvinyl Chloride (PVC) plastic tape. Starting at console connector, apply while stretching tape to 5/8 of its original width and wrap tape to form a smooth void-free layup. When wrapping the tape, ensure the tape overlaps itself by at least 1/2 the tape width (figure 4-47). Work down the length of the hose from the console connector and back up the length of the hose to form a second layer of PVC tape. Ensure all silicone rubber surfaces of the hose are completely covered.

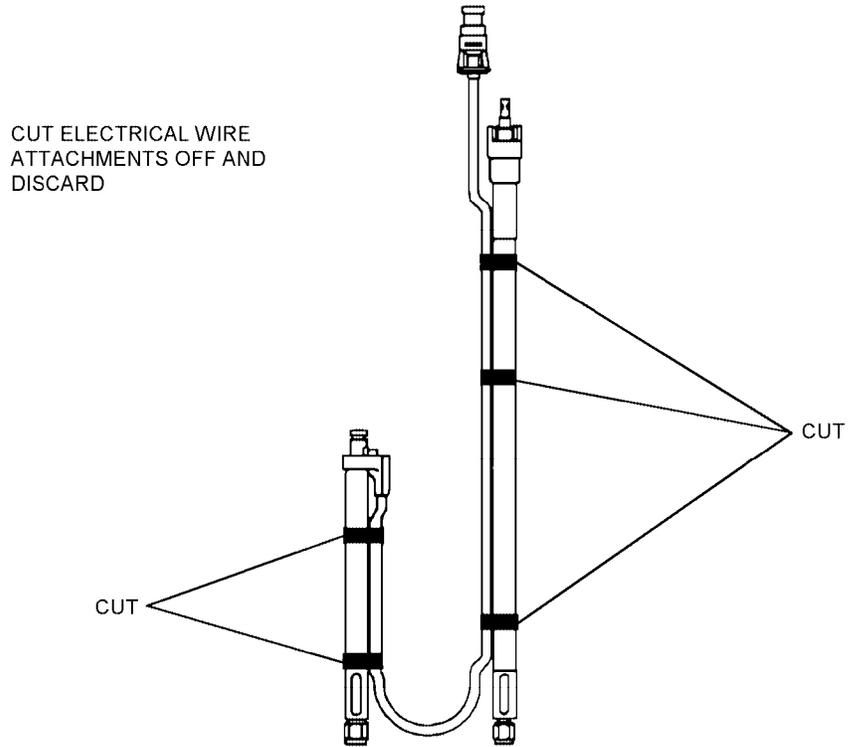


Figure 4-44. Trim Wire Keepers

4-44

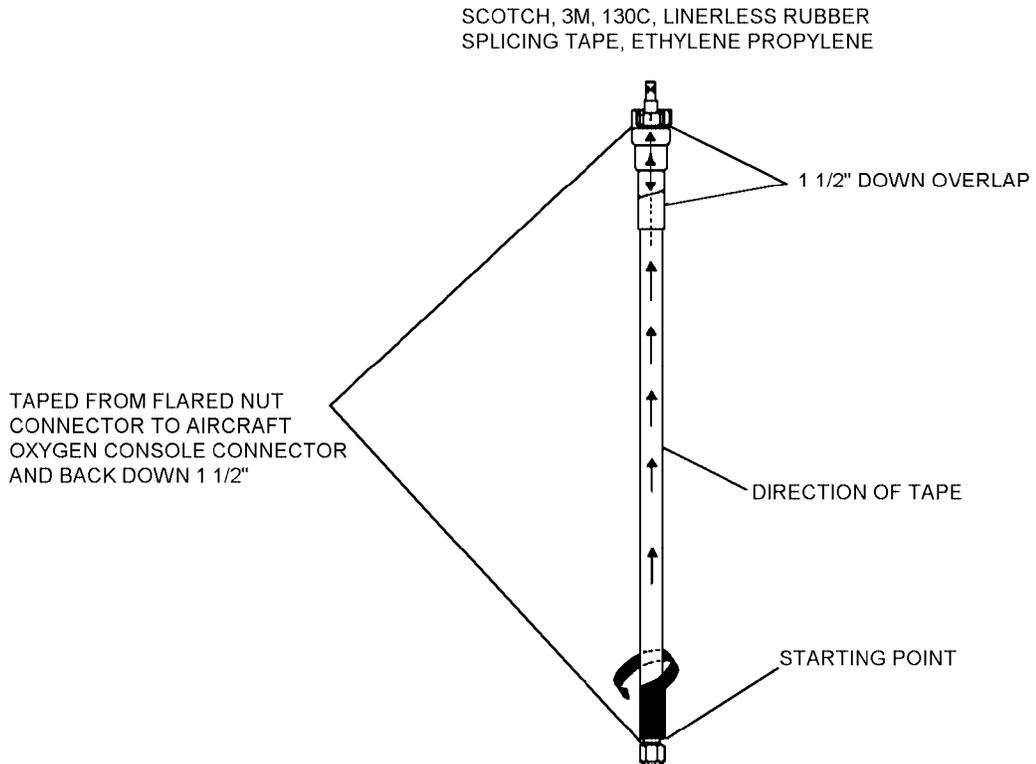


Figure 4-45. Seat Kit to Aircraft Console Hose Assembly Taping

4-45

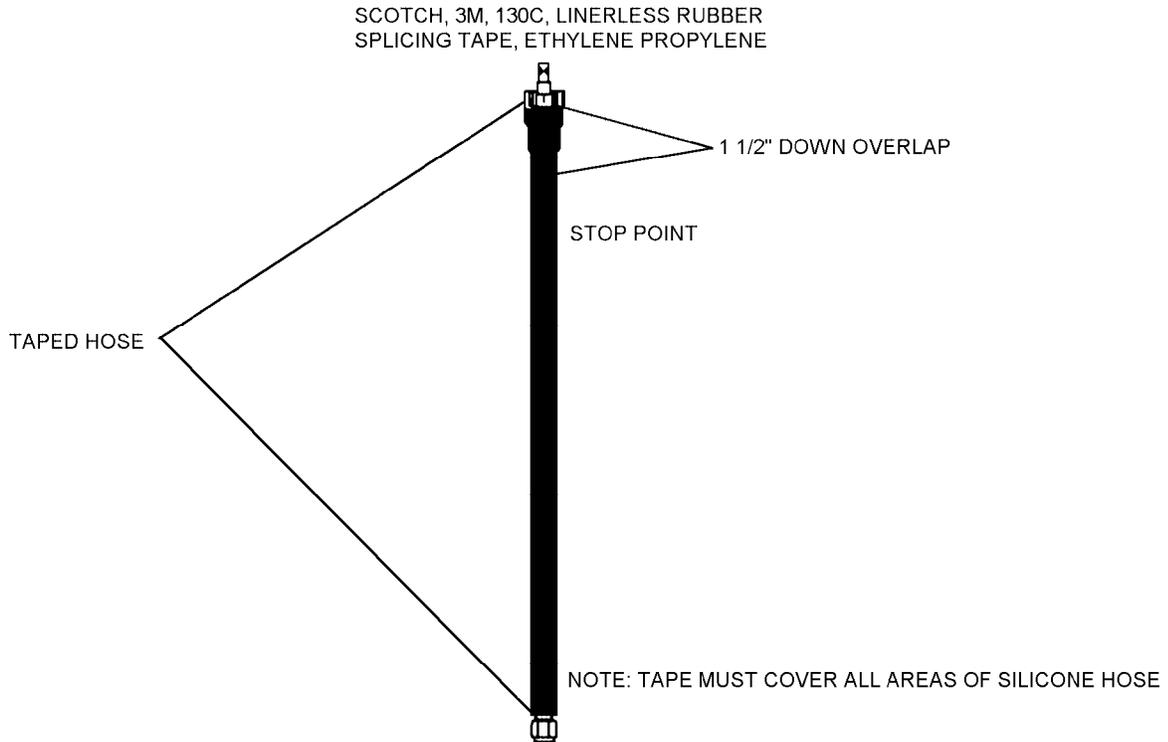


Figure 4-46. Seat Kit to Aircraft Console Hose Assembly Taping

4-46

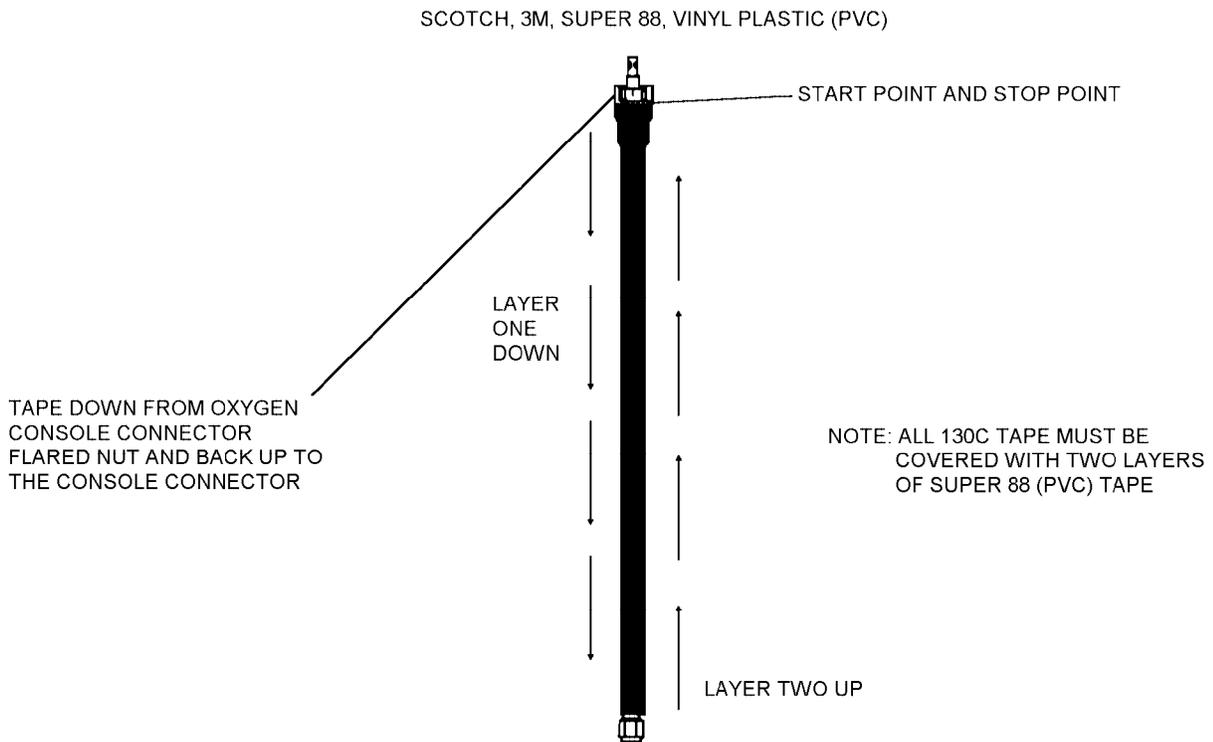
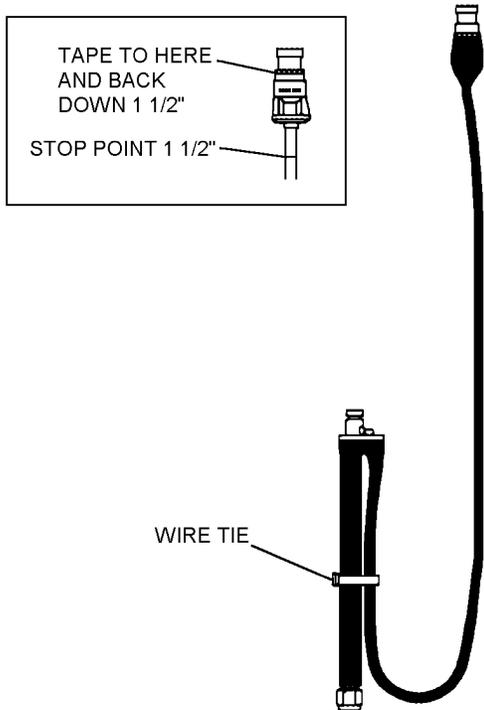


Figure 4-47. Seat Kit to Aircraft Console Hose Assembly Taping

4-47



1. LAYER ONE FROM THE FLARED NUT TO THE REGULATOR HOSE CONNECTOR TAPE WITH SCOTCH, 3M, 130C, ETHYLENE PROPYLENE TAPE
2. LAYER ONE OVER COMMUNICATION CORD FROM REGULATOR HOSE CONNECTOR TO GLENAIR GAC 132 ELECTRICAL CONNECTOR. ENSURE ELECTRICAL CONNECTOR IS COVERED ABOVE THE CORD ENTRY POINT (SEE DIAGRAM). OVERLAP TAPE BACK DOWN 1 1/2".
3. LAYER TWO AND THREE WILL BE SCOTCH 3M, SUPER 88 POLY VINYL CHLORIDE (PVC)
4. LAYER TWO WILL BE FROM REGULATOR HOSE CONNECTION TO FLARED NUT CONTINUING WITH LAYER THREE UP FROM FLARED NUT TO ELECTRICAL COMMUNICATIONS CORD TO GLENAIR 132 CONNECTOR (THIS IS LAYER TWO ON ELECTRICAL COMMUNICATIONS CORD). TAPE WILL CONTINUE FROM GLENAIR CONNECTOR BACK TO REGULATOR HOSE CONNECTOR (LAYER THREE).

NOTE: ENSURE PVC TAPE COVERS ALL 130C ETHYLENE PROPYLENE TAPE

Figure 4-48. Survival Kit to Regulator Hose Assembly Taping

4-48

f. Repeat steps b-e with the survival kit to regulator hose assembly (P/N REDAR A11227-1) (figure 4-48). Start taping at the flared nut end of the hose assembly connector. Ensure connector is wrapped completely, continue taping up the communication cord up to the Glenair GAC132 electrical connector.

g. Repeat steps b-e for the regulator to survival kit hose assembly (P/N REDAR A11206-2) (figures 4-49 to 4-53).

h. After taping is completed, communication cord can be attached to the regulator hose assembly with a cable tie approximately 2 inches from the flared nut. Cut excess wire tie end (figure 4-48).

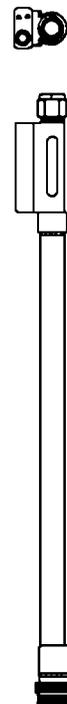


Figure 4-49. Regulator to Survival Kit Hose Assembly Taping

4-49

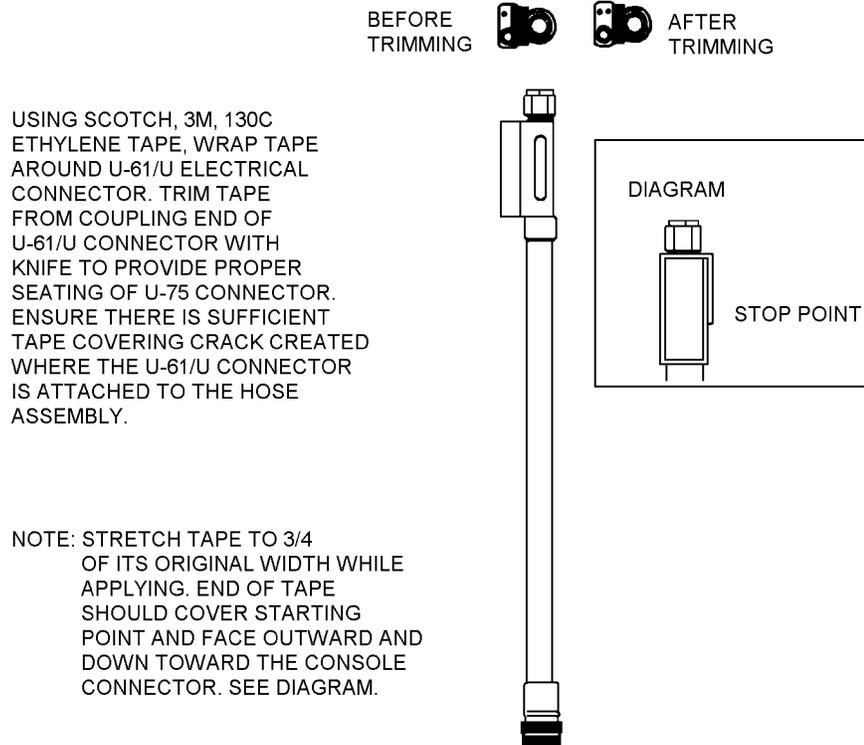


Figure 4-50. Regulator to Survival Kit Hose Assembly Taping

4-50

**NOTE**

It is most important that all areas of the silicone hose assemblies are covered by a layer of Scotch, 3M, 130C Ethylene Propylene tape and two (2) layers of Scotch, 3M, Super 88 Polyvinyl chloride tape. At the present time these are the only authorized tapes to use.

2. F/A-18 Oxygen/Communications hose assembly P/N253D900-1 taping procedure.

a. Trim silicone rubber wire keepers or cable tie (if ACB 622 is installed) from existing hose assembly (figure 4-44) and discard.

b. Starting with seat kit to aircraft console hose (P/N253D900-7) assembly, start taping from flare nut end with Scotch, 3M, 130C Ethylene Propylene tape. Stretch tape to 3/4 of its original width and wrap tape to form a smooth void-free layup. When wrapping

tape, ensure tape overlaps itself by at least 1/2 the tape width.

c. Work tape up hose to console disconnect. End taping by wrapping up to console connector and back down over the applied tape 1-1/2 inches (figures 4-45 and 4-46).

d. Ensure all silicone rubber, heat shrink insulation sleeving (if ACB 622 is installed), and cloth sections of hose are completely covered.

e. Repeat above taping procedure with Super 88 Polyvinyl Chloride (PVC) plastic tape. Starting at the console connector, apply while stretching tape to 5/8 of its original width and wrap tape to form a smooth void-free layup. When wrapping the tape, ensure the tape overlaps itself by at least 1/2 the tape width (figure 4-47). Work down the length of hose from console connector and back up the length of the hose to form a second layer of PVC tape. Ensure all silicone rubber surfaces of the hose are completely covered.

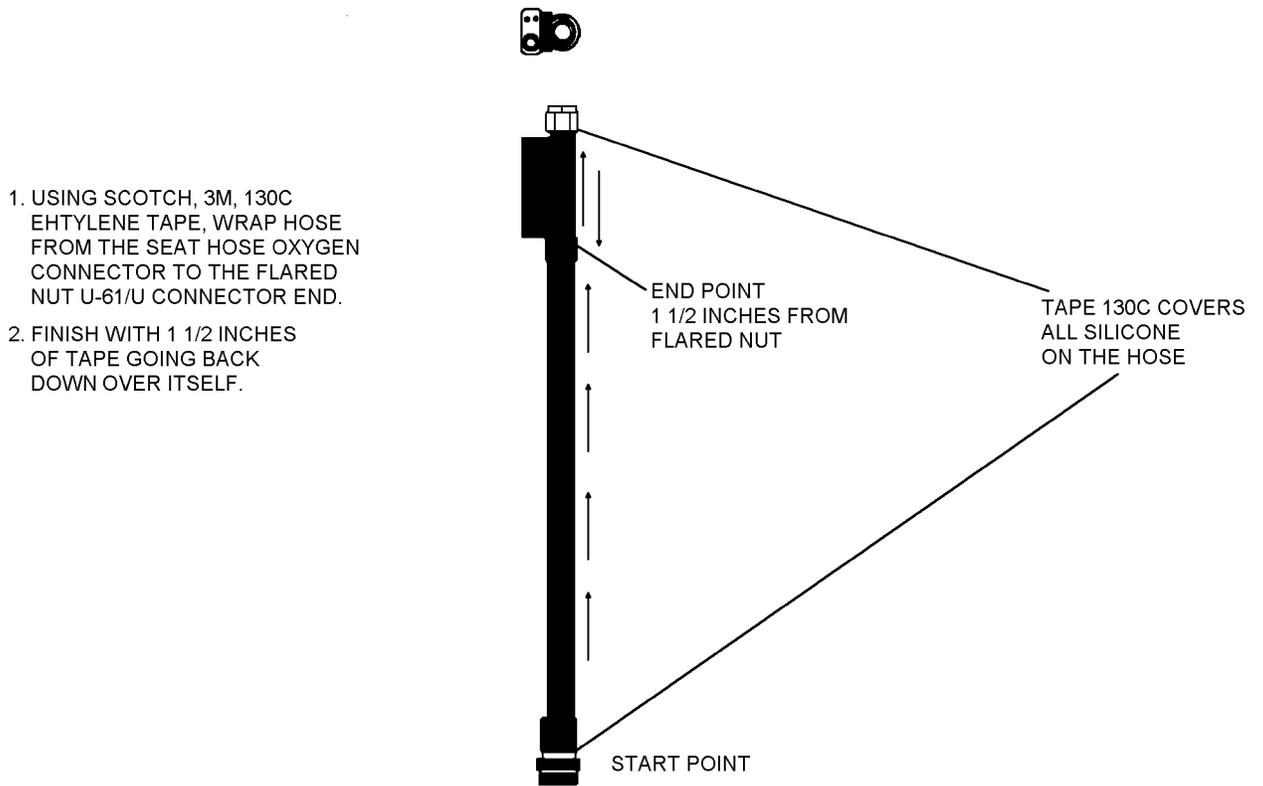


Figure 4-51. Regulator to Survival Kit Hose Assembly Taping

4-51

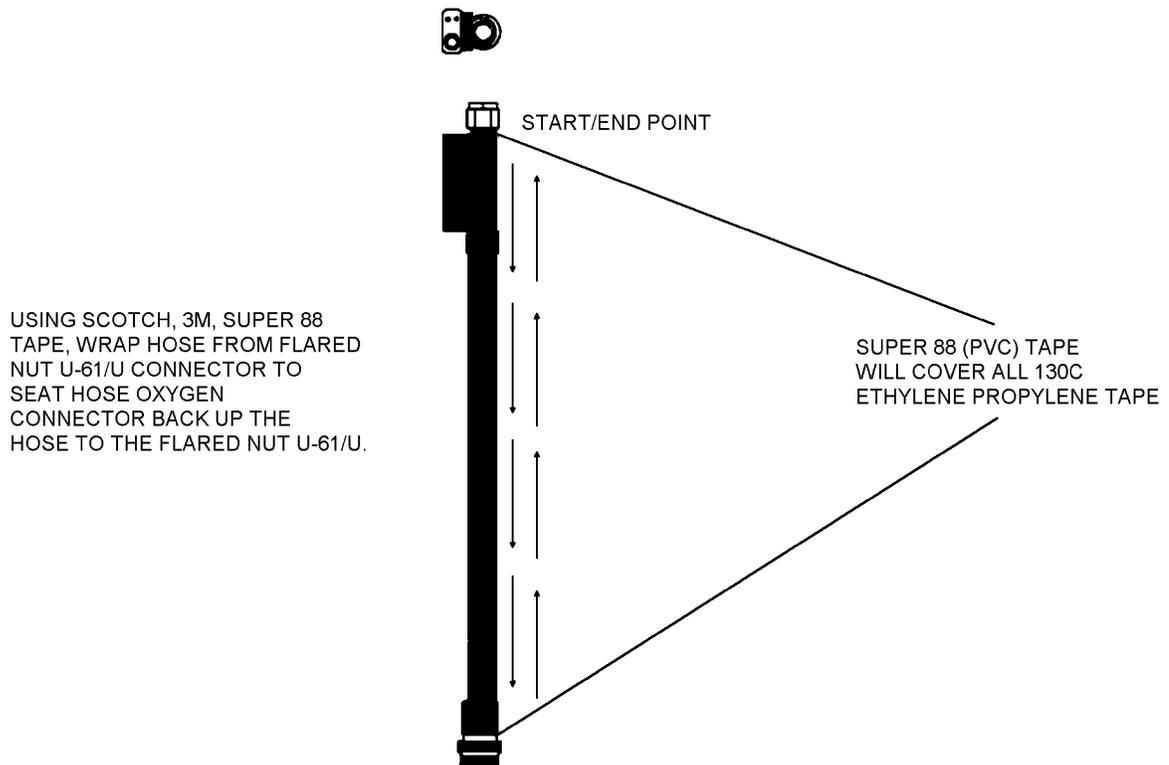


Figure 4-52. Regulator to Survival Kit Hose Assembly Taping

4-52

USING SCOTCH, 3M, SUPER 88 POLYVINYL CHLORIDE (PVC) TAPE, WRAP U-61/U ELECTRICAL CONNECTOR. TRIM EXCESS OVER U-61/U CONNECTOR AS IN FIGURE A7

WHITE AREA OF U-61/U SHOWN WILL BE THE TAPED AREA

NOTE: APPLY WHILE STRETCHING TAPE TO 5/8 OF ITS ORIGINAL WIDTH. END OF TAPE SHOULD COVER STARTING POINT AND FACE OUTWARD AND DOWN TOWARD CONSOLE CONNECTOR. SEE DIAGRAM

IF TAPE IS APPLIED PROPERLY TRIMMING MAY NOT BE REQUIRED. CHECK FIT BY INSERTING A U-78 CONNECTOR INTO THE U-61/U CONNECTOR.

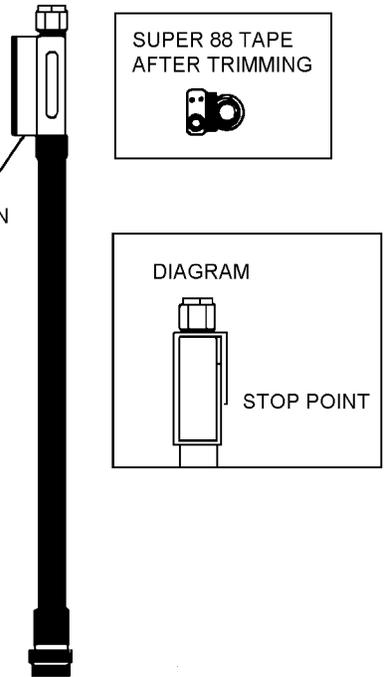


Figure 4-53. Regulator to Survival Kit Hose Assembly Taping

4-53

f. Repeat steps b-e with survival kit to regulator hose assembly (P/N253D900-3). Start taping at flared nut end of hose assembly connector. Ensure connector is wrapped completely and continue taping up communication cord to Glenair GAC132 electrical connector.

g. After taping is completed, communication cord can be attached to the regulator hose assembly with a wire tie approximately 2 inches from the flared nut. Cut excess wire tie end (figure 4-48).

**NOTE**

It is most important that all areas of the silicone hose assemblies are covered by a layer of Scotch, 3M, 130C Ethylene Propylene tape and two (2) layers of Scotch, 3M, Super 88 Polyvinyl chloride tape. At the present time these are the only authorized tapes to use.

3. Modified regulator to seat kit hose P/N33C1178-1 taping procedure.

**NOTE**

For this application P/N 33C1178-1 has been modified to fit AV-8B aircraft oxygen/communication seat kit hose assembly P/N 33C1178-1.

a. Figures 4-54 to 4-57 provide instructions (that shall be followed) for (CBR hardening) taping of modified regulator to seat kit hoses (P/N 33C1189-1).

4. Unmodified regulator to seat kit hose P/N 33C1178-1 taping procedure.

a. Figures 4-58 to 4-61 provide instructions (that shall be followed) for (CBR hardening) taping of unmodified regulator to seat kit hoses (P/N 33C1189-1).

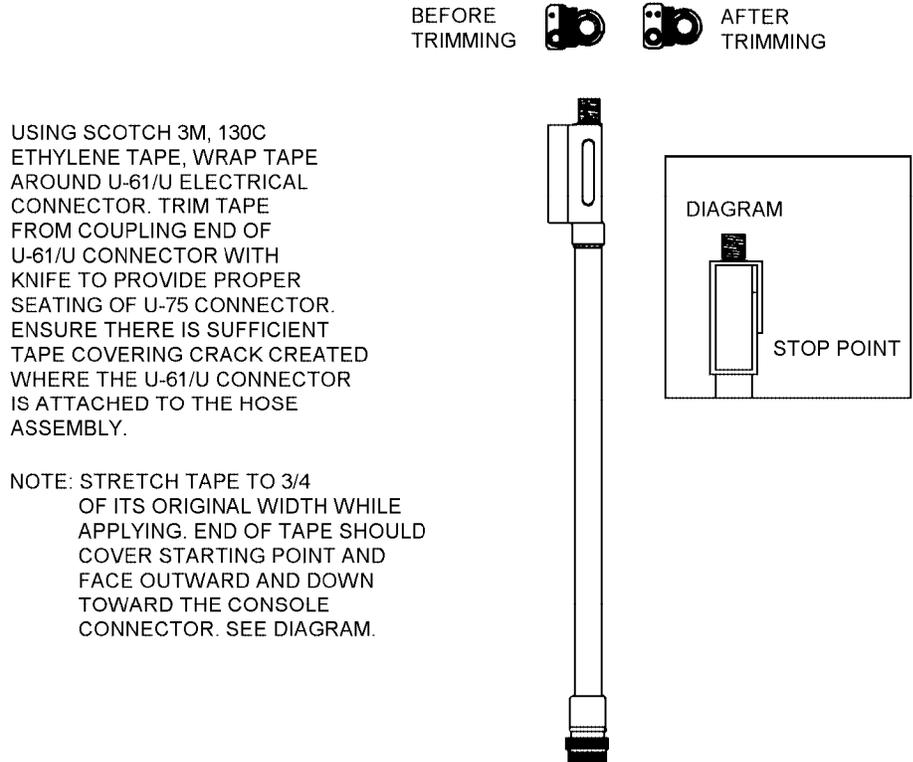


Figure 4-54. Modified Regulator to Seat Kit Hose Assembly Taping

4-54

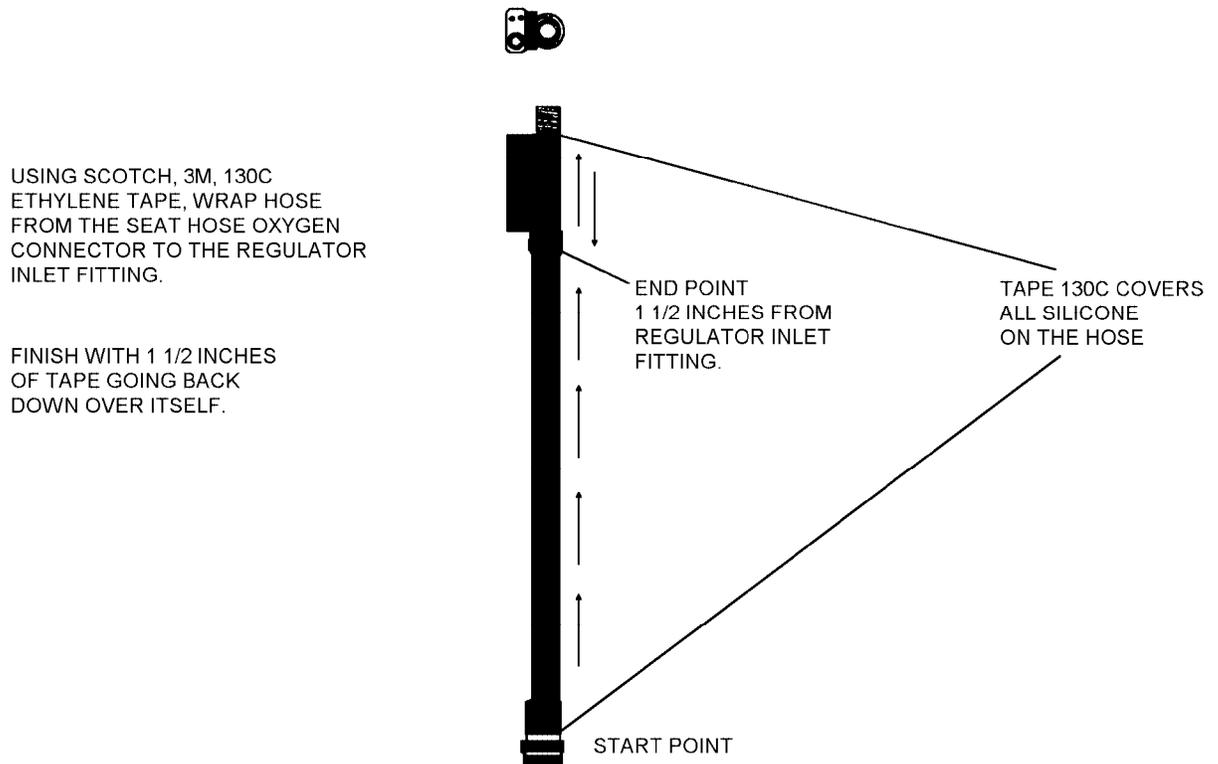


Figure 4-55. Modified Regulator to Seat Kit Hose Assembly Taping

4-55

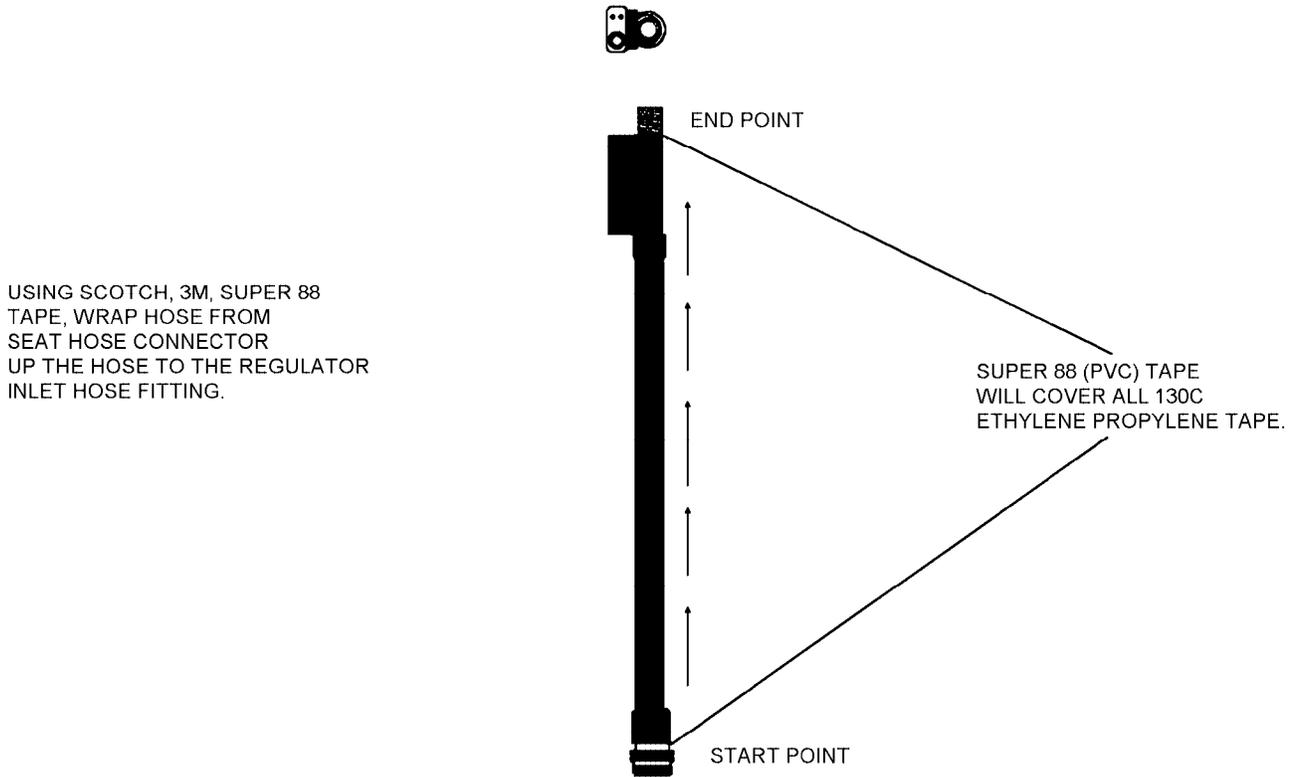


Figure 4-56. Modified Regulator to Seat Kit Hose Assembly Taping

4-56

USING SCOTCH, 3M, SUPER 88 POLYVINYL CHLORIDE (PVC) TAPE, WRAP U-61/U ELECTRICAL CONNECTOR. TRIM EXCESS OVER U-61/U CONNECTOR AS IN FIGURE A7.

WHITE AREA OF U-61/U SHOWN WILL BE TAPED AREA.

NOTE: APPLY WHILE STRETCHING TAPE TO 5/8 OF ITS ORIGINAL WIDTH. END OF TAPE SHOULD COVER STARTING POINT AND FACE OUTWARD AND DOWN TOWARD CONSOLE CONNECTOR. SEE DIAGRAM.

IF TAPE IS APPLIED PROPERLY, TRIMMING MAY NOT BE REQUIRED. CHECK FIT BY INSERTING U-78 CONNECTOR INTO U-61/U CONNECTOR.

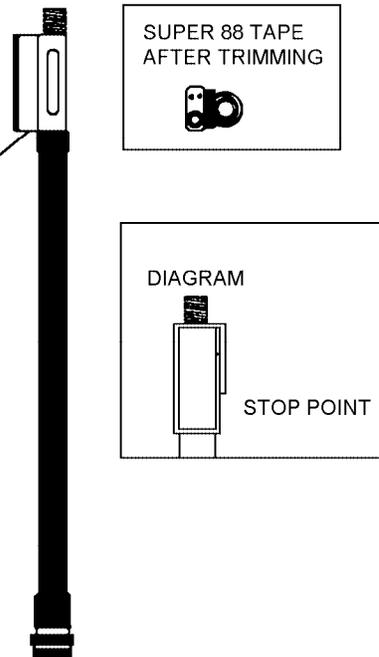


Figure 4-57. Modified Regulator to Seat Kit Hose Assembly Taping

4-57

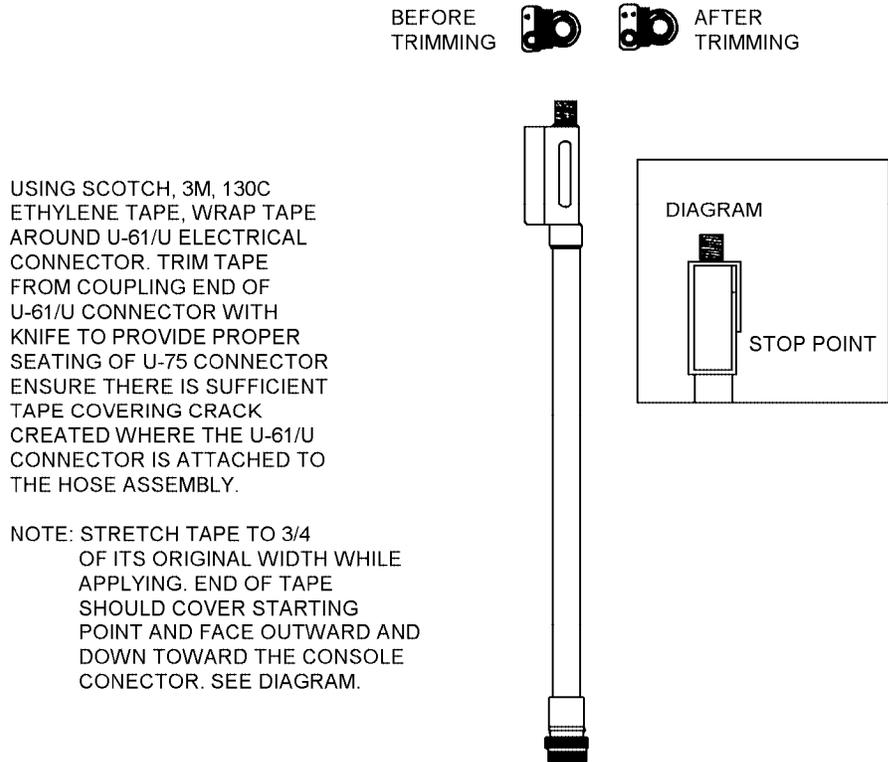


Figure 4-58. Unmodified Regulator to Seat Kit Hose Assembly Taping

4-58

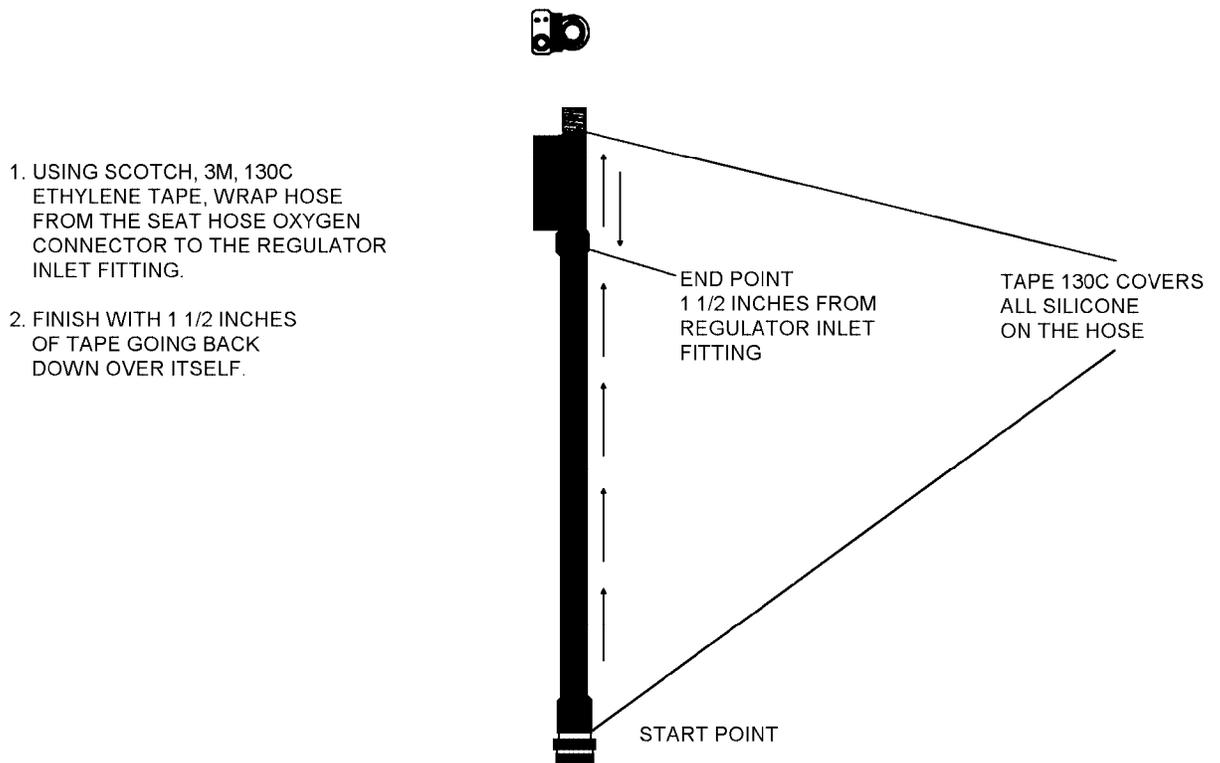


Figure 4-59. Unmodified Regulator to Seat Kit Hose Assembly Taping

4-59

USING SCOTCH, 3M, SUPER 88 TAPE, WRAP HOSE FROM FLARED NUT U-61/U CONNECTOR TO SEAT HOSE OXYGEN CONECTOR BACK UP THE HOSE TO THE FLARED NUT U-61/U.

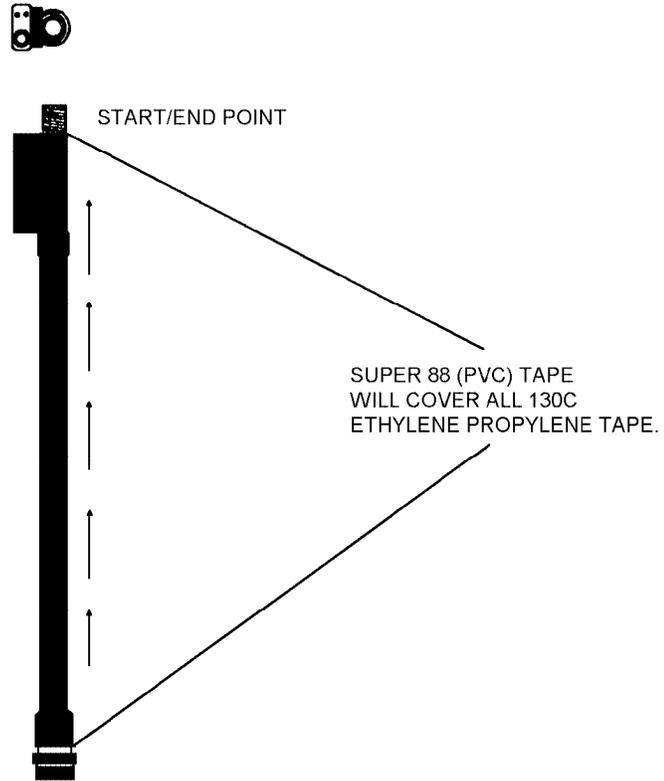


Figure 4-60. Unmodified Regulator to Seat Kit Hose Assembly Taping

4-60

USING SCOTCH, 3M, SUPER 88 POLYVINYL CHLORIDE (PVC) TAPE, WRAP U-61/U ELECTRICAL CONNECTOR. TRIM EXCESS OVER U-61/U CONNECTOR AS IN FIGURE A7.

WHITE AREA OF U-61/U SHOWN WILL BE TAPED AREA.

NOTE: APPLY WHILE STRETCHING TAPE TO 5/8 OF ITS ORIGINAL WIDTH. END OF TAPE SHOULD COVER OUTWARD AND DOWN TOWARD CONSOLE CONNECTOR. SEE DIAGRAM.

IF TAPE IS APPLIED PROPERLY, TRIMMING MAY NOT BE REQUIRED. CHECK FIT BY INSERTING A U-78 CONNECTOR INTO THE U-61/U CONNECTOR.

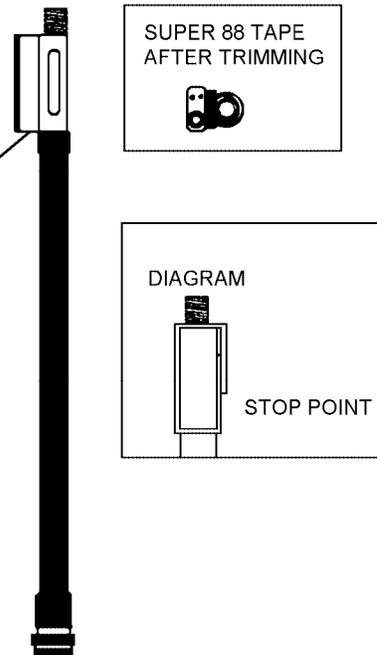


Figure 4-61. Unmodified Regulator to Seat Kit Hose Assembly Taping

4-61

## Section 4-4. Maintenance

### 4-103. GENERAL.

4-104. This section contains the procedural steps for unpacking and inspecting, testing, troubleshooting, disassembling, cleaning, repairing and assembling the A/P22P-14(V)1 thru (V)4 Respirator Assemblies.

### 4-105. INSPECTIONS.

#### NOTE

Only a small quantity of respirator assemblies shall be opened or removed for in-flight proficiency training and for fitting aircrew. Training masks may be rotated among aircrewmembers when properly cleaned in accordance with this manual to maintain proper hygiene. The remaining quantities will be permanently stored in their transit cases inside the sealed foil bag. If the foil bags can no longer be partially vacuum packed and heat sealed in their original condition, refer to Storage in [Chapter 2](#). Inspections do not need to be performed unless the masks are removed from storage and placed in service for contingency in-flight or training missions. Respirators that have been removed from their sealed foil bag and are in the Calendar Inspection cycle may be vacuum packed and resealed in a foil bag and removed from all inspection cycles during long term storage.

**4-106. PLACE-IN-SERVICE INSPECTION.** The Place-In-Service Inspection shall be performed by a qualified Aircrew Survival Equipmentman (PR). The inspection shall include unpacking, Visual Inspection, fitting, cleaning of the internal surfaces, functional checks and bench testing of all assemblies and their component parts where specified. Unpacking, Visual Inspection, battery charging and cleaning of the internal surfaces shall be performed at Organizational Maintenance Level (O-Level). Bench testing shall be performed at the Intermediate Maintenance Level (I-Level).

Materials Required		
Quantity	Description	Reference Number
As Required	Pad, Gauze	—
As Required	Water	—
As Required	Cloth, Cotton	—
As Required	Cloth, Abrasive	—

#### Materials Required (Cont)

Quantity	Description	Reference Number
As Required	Cleaning Compound Type I	MIL-C-43616
As Required	Towelettes, SANI-COM	No. 3205 (CAGE 18195)
1	Brush, Sable	—
1	Brush, Acid	NIIN 00-514-2417
As Required	Swab, Cotton	—
As Required	Alcohol, Isopropyl Rubbing	TT-I-735 NIIN 00-655-8366
As Required	Cloth, Chamois	—
As Required	Cleaner, Tobacco Pipe	NIIN 00-292-9946
1	Cable Tie, 3.6 mm	CL 6226

#### Support Equipment Required

Quantity	Description	Reference Number
1	Cable Tie Tool	NIIN 00-937-5438
1	Pincer Tool, Low Profile	Oetiker 14100055
	or	
1	Pliers, Hose Clamp	NIIN 01-073-4187



When performing inspections on respirator assemblies, avoid pulling on ripaway toggle assembly.

### 4-107. Unpacking Transit Case.



When first opening foil storage bag, make certain to cut only at the heat sealed end. Carefully cut as close to the heat seal line as possible. This will allow the bag to be partially vacuum packed and re-sealed in the future.

1. Cut open foil storage bag.
2. Remove and retain silica gel desiccant.

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3. Remove transit case from silver foil storage bag. Retain bag for future use.

4. Remove the mask from the transit case ([figure 4-62](#)).

5. Check the transit case packing list to confirm all items are included.

6. Document in accordance with OPNAVINST 4790.2 Series.

### NOTE

If any variant is received fully assembled, i.e. the Pusher Fan and Oxygen Delivery Subassemblies are assembled, then skip the following initial assembly procedures and proceed to Visual Inspection.

#### 4-108. Initial Assembly.

##### 4-109. A/P22P-14(V)1

1. Ensure (V)1 variant is configured and J-manifold is oriented as shown in [figure 4-1](#).

2. Ensure J-manifold gasket is installed in J-manifold. If not, install so that gasket seats flush.

3. Acquire a new C2A1 filter canister from its container and screw (clockwise) into J-manifold until securely tight. Do not overtighten.

4. Remove pusher fan from transit case and install over filter canister and align as shown in [figure 4-63](#) with the air inlet in-line with H-manifold and mask inlet hose.

5. Remove the 18 inch cable tie, from the transit case, and position around the pusher fan as shown in [figure 4-67](#). Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.

6. Perform Visual Inspection on mask.

##### 4-110. A/P22P-14(V)2.

1. Ensure (V)2 variant is configured and J-manifolds are oriented as shown in [figure 4-2](#).

2. Ensure J-manifold gaskets are installed in both J-manifolds. If not, install so that each gasket seats flush.

3. Acquire a new C2A1 filter canister from its container and screw (clockwise) into the right-side J-manifold until securely tight. Do not overtighten.

4. Remove pusher fan from transit case and install over filter canister and align as shown in [figure 4-64](#).

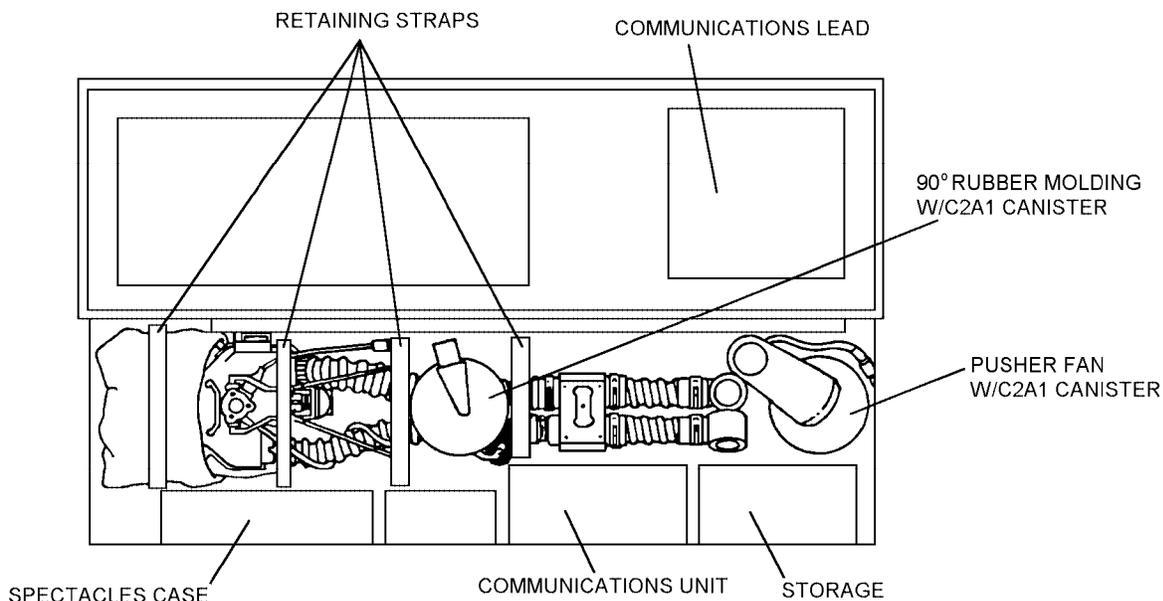
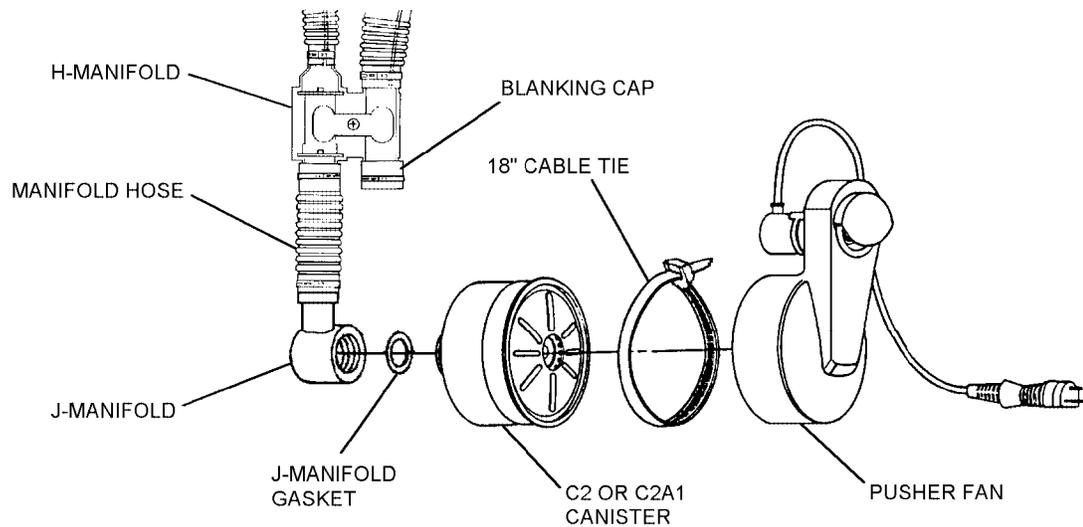


Figure 4-62. Stowage Position of Respirator Assembly in Transit Case

4-62



**Figure 4-63. Assembling Pusher Fan Subassembly to J-Manifold - (V1) Only**

4-63

5. Remove 18 inch cable tie, from the transit case, and position around the pusher fan as shown in [figure 4-67](#). Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.

6. Acquire another C2A1 filter canister from its container and screw (clockwise) into the left-side J-manifold until securely tight. Do not overtighten.

7. Install 90° rubber molding over the C2A1 filter canister and align as shown in [figure 4-64](#).

8. Install the other 18 inch cable tie and position around 90° rubber molding as shown in [figure 4-67](#). Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.

9. Install 3/4 inch to 3/4 inch connector to 90° rubber molding and secure with a 24.5 mm stepless low profile clamp.

10. Install regulator hose to the 3/4 inch to 3/4 inch connector. Secure with a 24.5 mm stepless low profile clamp.

#### NOTE

The free end of the hose is connected directly to the LOX regulator and secured

with a 24.5 mm clamp. This procedure will be performed during the Pre-flight inspection.

11. Perform Visual Inspection on mask.

4-111. A/P22P-14(V)3.

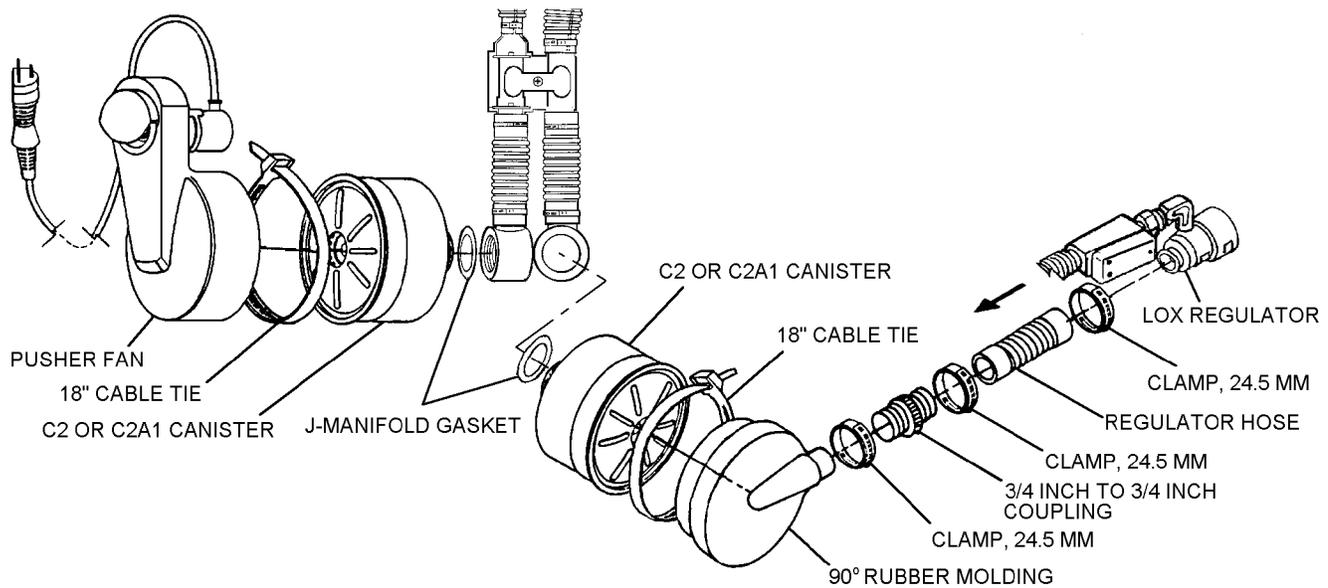
1. Ensure (V)3 variant is configured and J-manifolds are oriented as shown in [figure 4-3](#).

2. Ensure J-manifold gaskets are installed in both J-manifolds. If not, install so that each gasket seats flush.

3. Acquire a new C2A1 filter canister from its container and screw (clockwise) into right-side J-manifold until securely tight. Do not overtighten.

4. Remove pusher fan from transit case and install over filter canister and align as shown in [figure 4-65](#).

5. Remove the 18 inch cable tie, from transit case, and position around pusher fan as shown in [figure 4-67](#). Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.



004064

**Figure 4-64. Assembling Pusher Fan and Oxygen Delivery Subassemblies to J-Manifolds - (V)2 Only**

6. Acquire another C2A1 filter canister from its container and screw (clockwise) into left-side J-manifold until securely tight. Do not overtighten.

7. Install 90° rubber molding over C2A1 filter canister and align as shown in figure 4-65.

8. Install the other 18 inch cable tie and position around 90° rubber molding as shown in figure 4-67. Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.

9. Install bayonet connector to 90° rubber molding and secure with a 24.5 mm stepless low profile clamp.

**NOTE**

For C-20/C-40 Cockpit Aircrew application, the CRU-103 must be placed in service in accordance with the 13-1-6.4 Series Manual.

The OBOGS regulator is connected directly to the bayonet connector. This procedure will be performed during Pre-flight inspection.

10. Perform Visual Inspection on mask.

**4-112. A/P22P-14(V)4.**

1. Ensure (V)4 variant is configured and J-manifolds are oriented as shown in figure 4-4.

2. Ensure J-manifold gaskets are installed in both J-manifolds. If not, install so that each gasket seats flush.

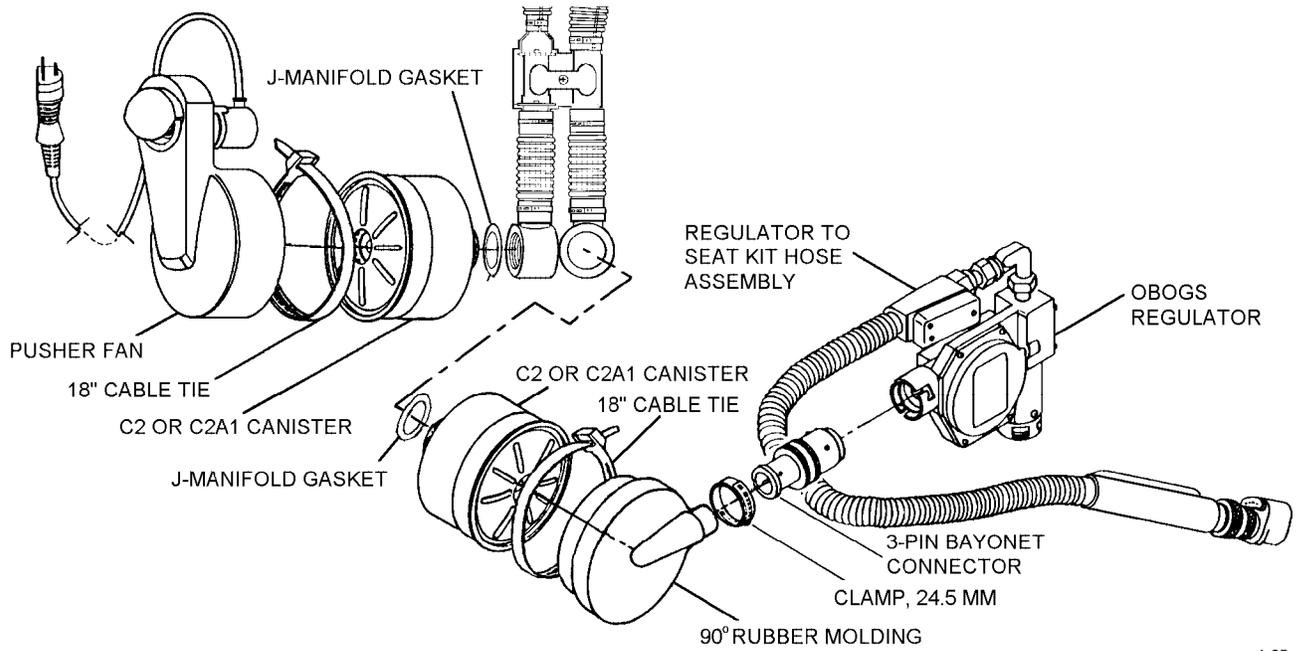
3. Acquire a new C2A1 filter canister from its container and screw (clockwise) into the right-side J-manifold until securely tight. Do not overtighten.

4. Remove pusher fan from transit case and install over filter canister and align as shown in figure 4-66.

5. Remove 18 inch cable tie, from transit case, and position around the pusher fan as shown in figure 4-67. Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.

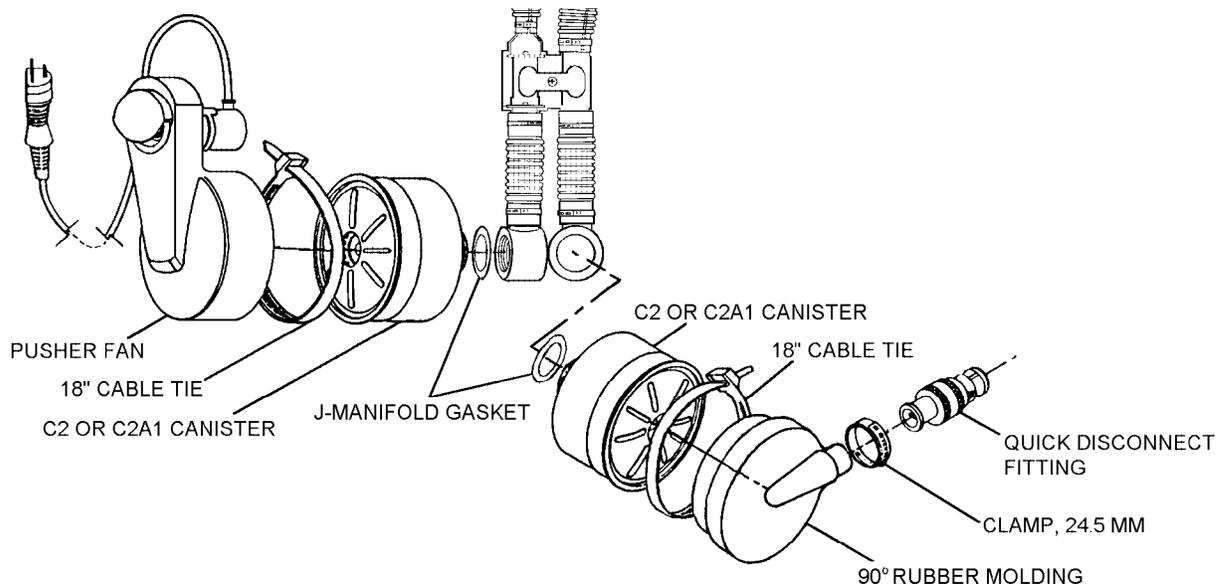
6. Acquire another C2A1 filter canister from its container and screw (clockwise) into left-side J-manifold until securely tight. Do not overtighten.

7. Install 90° rubber molding over the C2A1 filter canister and align as shown in figure 4-66.



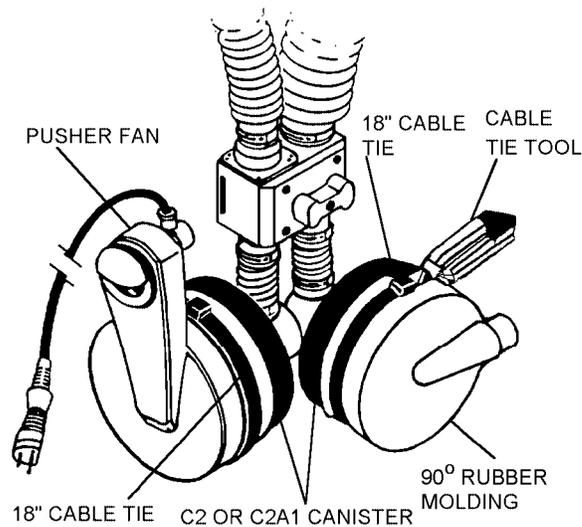
4-65

Figure 4-65. Assembling Pusher Fan and Oxygen Delivery Subassemblies to J-Manifolds - (V)3 Only



4-66

Figure 4-66. Assembling Pusher Fan and Oxygen Delivery Subassemblies to J-Manifolds - (V)4 Only



**Figure 4-67. Applying Cable Ties to Pusher Fan and 90° Rubber Molding**

4-67

8. Install the other 18 inch cable tie and position around 90° rubber molding as shown in [figure 4-67](#). Secure cable tie with a cable tie tool set to the HVY (No. 8) setting.

9. Install quick disconnect to 90° rubber molding and secure with a 24.5 mm stepless low profile clamp.

**NOTE**

The panel mount regulator hose is connected directly to the bayonet connector. This procedure will be performed in the cockpit during aircraft pre-flight.

10. Perform Visual Inspection on mask.

**4-113. Visual Inspection.**

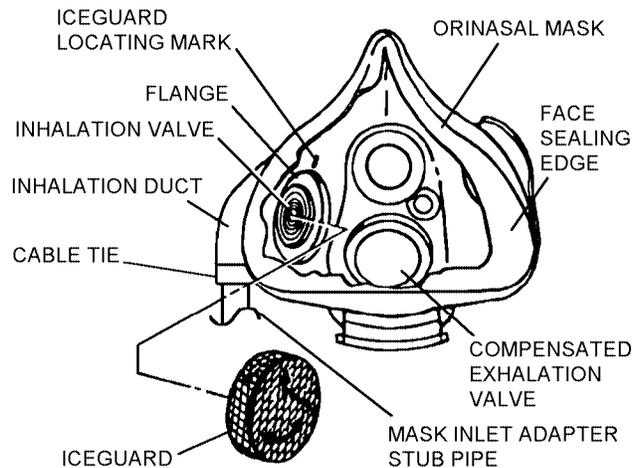
4-114. Respirator Assembly. Referring to [figure 4-69](#) and other figures as indicated, inspect the respirator assembly as follows:

1. Hood, apron and neck seal for damage, deterioration and security of bonded joints. Invert the hood to inspect internal seams.

2. Iceguard for damage and blockage. Refit. Ensure it is in locked position. (Arrow engraved on the iceguard body should point toward the compensated exhalation valve.) ([Figure 4-68](#).)

3. Inhalation valve for freedom from obstruction. Remove iceguard and inspect stepped rubber

valve for dirt or signs of obstruction. Ensure correct positioning. (Lug slots should be at right angles to mark in orinasal mask.) ([Figure 4-68](#).)



**Figure 4-68. Orinasal Mask, Iceguard, Inhalation Duct and Compensated Exhalation Valve**

4-68

4. If nose occluder is installed, check shaft assemblies on nose occluder for damage and security of attachment. If nose occluder is not installed, check that rubber blanking plugs in faceplate nose occluder bushings are fully seated.

5. Orinasal mask for damage and deterioration of face sealing edge, and the area contacted by shaft assemblies of nose occluder.

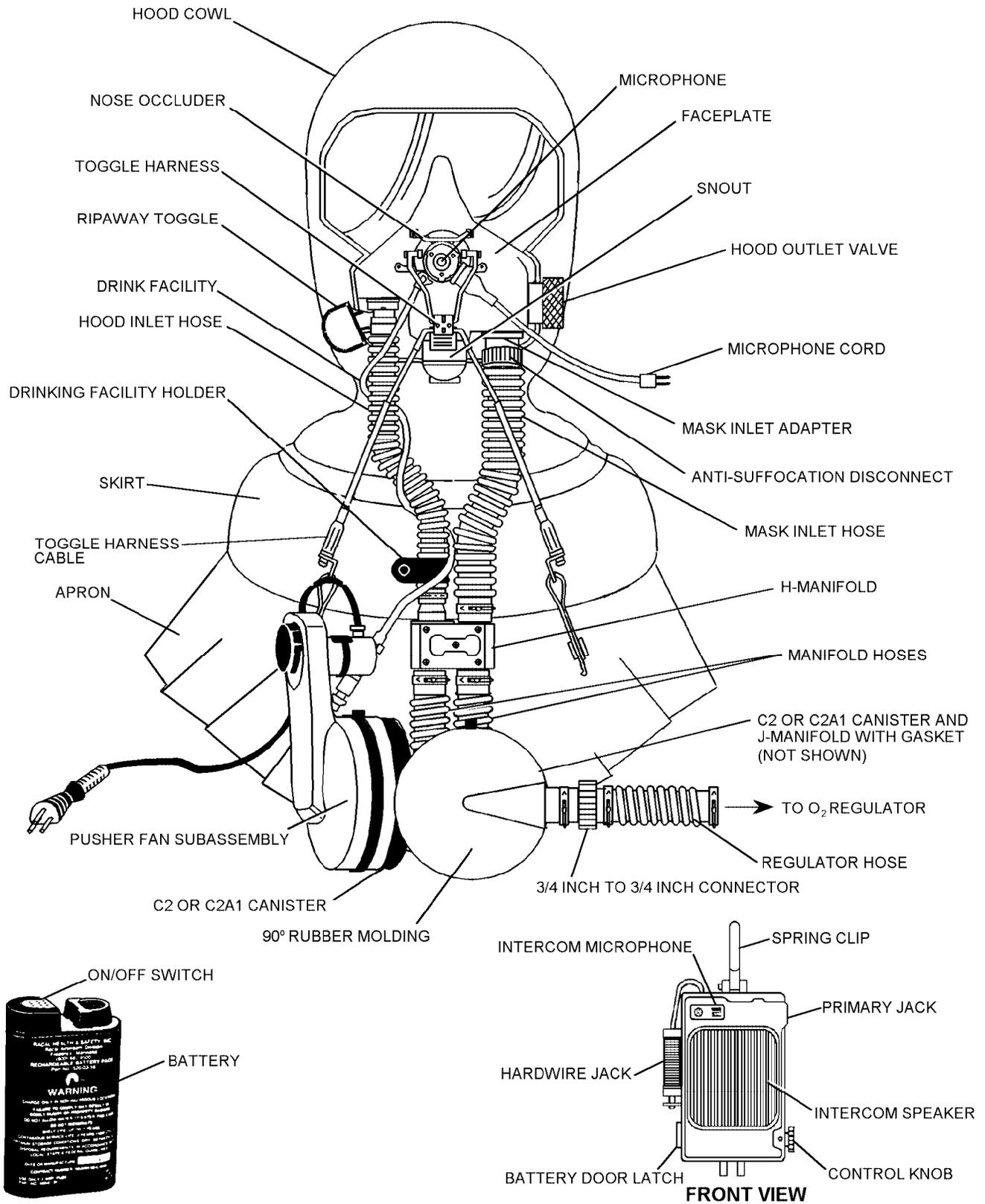


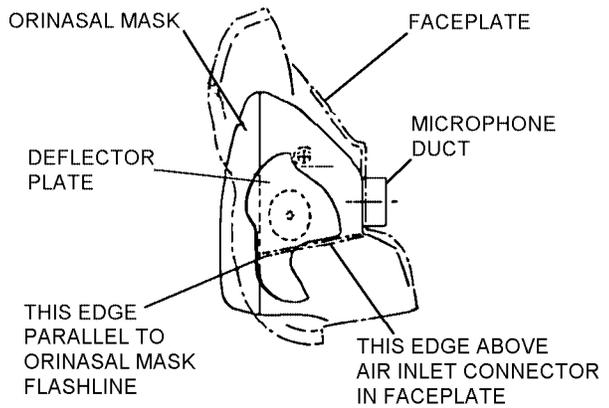
Figure 4-69. A/P22P-14(V)2 Respirator Assembly, Pusher Fan Battery and Intercommunications Unit

4-69

## NAVAIR 13-1-6.10

6. Orinasal mask inhalation duct connection to mask inlet adapter. Check cable tie for security of attachment.

7. Orinasal mask deflector plate for damage, security of attachment, and correct positioning on orinasal mask.

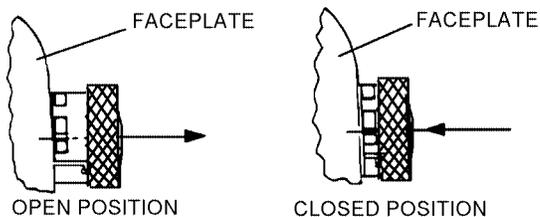


**Step 7 - Para 4-114**

4p114s7

8. Ensure compensated exhalation valve is free from obstruction by gently depressing metal valve plate using a non-metallic probe. Release valve plate. Inspect valve for security within orinasal mask housing.

9. Hood outlet valve for freedom from obstruction.



**Step 9 - Para 4-114**

4p114s9

10. Hood-to-faceplate sealing strip and padding strip for damage, deterioration and security of bonded joints.

11. Hood inlet adapter for damage, security of attachment and freedom from obstruction. Carefully restore hood to normal position.

12. Toggle harness assembly and faceplate for damage and security in vicinity of mask harness attachment screws. Check all harness assembly nuts, screws, cables, and connector links. Inspect for secu-

urity and attachment of cable assemblies, toggle plate and CBR adapter straps.

13. Microphone connecting lead for damage, deterioration, fraying and security of attachment.

14. Mask inlet adapter for damage and security of attachment.

15. Inspect anti-suffocation disconnect. Remove (brass) shear screw, disconnect and pull the mask inlet hose from mask inlet adapter and check for damage. Inspect hose for damage, deterioration and security of attachment. Examine restraint cord, particularly for damage and security of attachment. Inspect sealing O-ring within anti-suffocation disconnect for damage. Reconnect, ensuring that the lie of the mask inlet hose is satisfactory and free of kinks. Install shear screw to lock the connector.

16. Hood and mask inlet hoses for damage, deterioration and security of attachment.

17. H-manifold assembly for damage.

18. Manifold hose(s) for damage, deterioration and security of attachment.

4-115. Pusher Fan Subassembly. Inspect the pusher fan subassembly as follows:

1. Pusher fan body for signs of rips, tears, or damage.

2. Power cord for loose or corroded ends.

**WARNING**

Do not subject pusher fan power cord to excessive stress such as when disconnecting the battery by pulling on the cord rather than the plug. Failure to firmly grasp the plug itself when disconnecting the battery may compromise the integrity of the power cord and/or the electrical connection and result in an in-flight failure.

3. Obtain a RFI (Ready-for-Issue) battery (refer to Chapter 6).

a. If a new battery is required, conduct the Place-in-Service Inspection in accordance with Chapter 6.

b. If a RFI battery is going to be used, conduct a visual inspection and functional check.

4-116. Intercommunications Unit.

1. Ensure no mechanical damage, cracks or dents are found on intercom unit.
2. Comm cord and patch cord shall have no frayed wires, corroded pins or receptacles.
3. Ensure battery is not leaking fluid or any other substance.
4. Ensure mechanical integrity of intercom unit by checking for loose knobs, loose hardwire jack connection or a broken spring clip.

**WARNING**

When working with oxygen, make certain that clothing, tubing fittings, and equipment are free of oil, grease, fuel, hydraulic fluid, or any combustible material. Fire or explosion can result when even slight traces of combustible material come in contact with oxygen under pressure.

4-117. Oxygen Delivery Subassembly ((V)2 through (V)4 only).

1. Inlet and outlet connections for security of attachment.
2. Regulator (if applicable), regulator hose, 90° rubber molding, clamps, connector or quick disconnect, and J-manifold for security of attachment, bends, dents, cuts, scratches, corrosion, cracks, or any other damage.
3. If regulator is suspect, it shall be removed and a Ready-for-Issue (RFI) regulator installed. The defective regulator shall be taken to the Aviator's Equipment Branch for required corrective maintenance action, in accordance with NAVAIR 13-1-6.4 Series.

**4-118. Battery Charging (NiCad Only).** Refer to Chapter 6 for battery charging, discharging, storage and troubleshooting.

**4-119. Bench Testing.**

1. Perform bench test on the digital test set in accordance with NAVAIR 17-15HB-21.
2. Perform bench test on respirator assembly in accordance with paragraph 4-138.

**4-120. Cleaning.** The mask assembly shall be cleaned following fitting or operational use. Cleaning shall be accomplished by a qualified Aircrew Survival Equipmentman (PR) using the following procedures:

Materials Required		
Quantity	Description	Reference Number
As Required	Pad, Gauze	—
As Required	Water	—
As Required	Cloth, Cotton	—
As Required	Towelettes, SANI-COM	No. 3205 (CAGE 18195)
As Required	Bleach, Laundry	A-A-1427 NIIN 00-598-7316
1	Brush, Sable	—
As Required	Alcohol, Isopropyl Rubbing	TT-I-735 NIIN 00-655-8366
As Required	Swab, Cotton	—
As Required	Cloth, Chamois	—
1	Cable Tie, 3.6 mm	CL 6226

Support Equipment Required		
Quantity	Description	Reference Number
1	Cable Tie Tool, Standard	MS90387-1
1	Canteen	NIIN 01-118-8173
1	Canteen Cap, M-1	NIIN 00-930-2077
1	Pliers, Side Cutting, 4 inch	—

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1. Clean inner hood as follows:

- a. Carefully fold hood inside out to expose orinasal mask.
- b. Clean internal surfaces of hood using a clean gauze pad moistened with water.
- c. Wipe excess water from hood with a clean, dry cotton cloth and allow to air dry.

### WARNING

Excessive dirt, sand, dried liquid nourishment, or vomit in mask assembly can degrade protection against CB agents.

d. Inspect interior of mask assembly. If excessive dirt, or foreign material is observed in mask assembly, the mask shall be disassembled and all component parts cleaned in accordance with [paragraph 4-192](#). If internal compartments of valves or hoses cannot be thoroughly cleaned, they shall be replaced.

2. Clean orinasal mask as follows:

### CAUTION

Do not clean inhalation or exhalation valves with SANI-COM towelettes or laundry bleach solution.

### NOTE

If SANI-COM towelettes are not available, prepare a solution of laundry bleach and clean water by mixing 1 tablespoon of liquid laundry bleach with 2 quarts of water.

a. Clean internal surfaces of orinasal mask with cleansing towelettes (Celeste SANI-COM No. 3205) being sure to wipe under the rolled-over edges of orinasal mask. If using the laundry bleach solution, moisten a gauze pad with bleach solution and squeeze

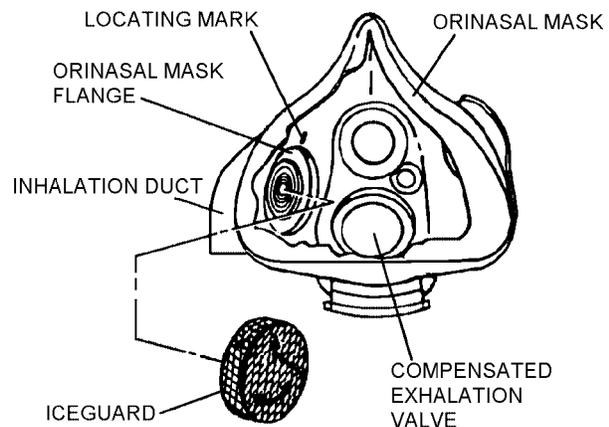
to remove excess to prevent dripping. Wipe interior of mask, exclusive of valves, being sure to wipe under the rolled-over edges of orinasal mask.

- b. Wipe the microphone with a towelette.
- c. Allow to air dry.

3. Clean inhalation valve as follows:

a. Turn iceguard 90° and lift it from inhalation valve assembly.

b. Gently lift valve with finger and clean underside of valve and valve seat with a sable brush moistened with water.



Step 3 - Para 4-120

4p120s3

c. Clean top of valve in the same manner.

d. Allow to air dry.

e. Clean ice guard with a sable brush and water to remove any foreign particles from mesh.

f. Allow to air dry.

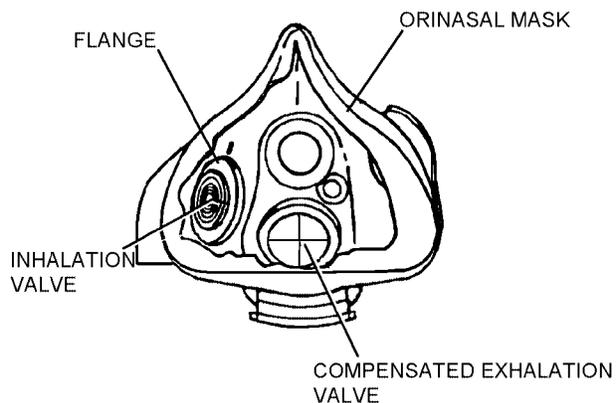
g. Reinstall iceguard by engaging the two tabs on iceguard and turning it 90° so that arrow points toward exhalation valve. Ensure the iceguard is fully seated.



Do not attempt to clean movable plate in center of the compensated exhalation valve with a cotton swab. Valve plate is delicate, and lint from cotton swab may become lodged in the valve itself.

4. Clean compensated exhalation valve as follows:

a. Clean exposed plastic area of compensated exhalation valve using a sable brush or cotton swab moistened with water. If valve is excessively dirty, isopropyl alcohol may be used. Ensure no lint or brush hairs remain in exhalation valve.



Step 4 - Para 4-120

4p120s4

b. Allow to air dry.



Damage or scratches to faceplate cannot be repaired. Use care when cleaning faceplate. Abrasive cleaners, adhesives and solvents must not be applied to visual areas of faceplate. Velveteen covers are not to be used for cleaning and polishing.

5. Clean inner surface of faceplate as follows:

a. Clean inner visual area of faceplate using water, with a soft cotton cloth or dampened chamois.

b. Wipe faceplate with clean, dry cotton cloth to remove excess water.

c. Allow to air dry.

6. Carefully restore hood to its normal position. Clean external surface of faceplate visual area in the same manner as [step 5](#) above.

7. Clean canteen and drink facility.



Do not allow laundry bleach solution to come into contact with the inside of faceplate.

a. Prepare sanitizing solution by mixing 1 table-spoon of liquid laundry bleach with 2 quarts of water. Pour half of sanitizing solution into the two quart canteen.

b. Attach canteen to drink facility quick disconnect. Invert hood and place mask over a sink.

c. Invert canteen and squeeze to force the sanitizing solution through the drink facility until the canteen is empty.

d. Disconnect canteen from drink facility quick disconnect.

e. Fill canteen half way with clean water and connect to drink facility quick disconnect. Invert canteen and squeeze to force clean water through drink facility until canteen is empty.

f. Disconnect canteen from drink facility quick disconnect.

g. Connect a dry canteen to drink facility quick disconnect. Squeeze canteen to force any remaining water out of drink facility.

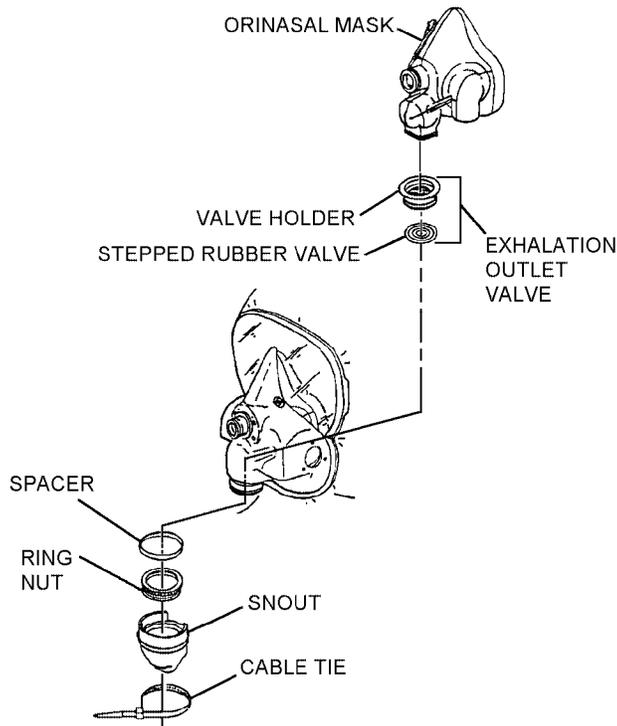
h. Disconnect canteen from drink facility quick disconnect.

8. Clean exhalation outlet valve as follows:

a. Remove snout to expose exhalation outlet valve. Cut cable tie and ease snout from ring nut of exhalation outlet valve holder.

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b. Grasp raised rubber knob at valve center and pull valve off its seating pin.



### Step 8 - Para 4-120 (Disassembled View for Clarification)

c. Clean both sides of valve and valve seat using a sable brush moistened with water.

d. Set valve aside to air dry with knob side of valve facing down on bench. Allow valve seat area to air dry.

e. Reinstall valve on seating pin, ensuring it is fully seated on pin.

f. Reinstall snout over ring nut of exhalation outlet valve holder.

(1) Position 3.6 mm black cable tie around snout with locking head to right of snout.

(2) Secure cable tie using cable tie tool set to INT (No. 4) position.

9. Clean outer hood as follows:

a. Wipe external surface of hood using a clean gauze pad moistened with water.

b. Wipe excess water from hood with a clean, dry cotton cloth and allow to air dry.

10. Reinstall velveteen cover as follows:

a. Inspect velveteen cover for dirt and abrasive particles.

b. Ensure velveteen side is folded inward and reinstall cover over visual area of faceplate.

### 4-121. Storage and Documentation.

#### NOTE

Place mask in transit case as flat as possible. Rubber products have a natural memory and may develop permanent wrinkles or folds over a period of time when stored wrinkled or folded.

1. Stow mask in accordance with [paragraph 4-101](#).

2. Document in accordance with [OPNAVINST 4790.2 Series](#).

**4-122. PREFLIGHT INSPECTION.** Preflight Inspection shall include a general spot check to ensure the A/P22P-14(V)1 thru A/P22P-14(V)4 respirator assemblies are clean and operating properly. Preflight Inspection shall be performed by a qualified Aircrew Survival Equipmentman (PR). To perform Preflight Inspection, proceed as follows:

#### Materials Required

Quantity	Description	Reference Number
As Required	Pad, Gauze	—
As Required	Towelettes, SANI-COM	No. 3205 (CAGE 18195)
As Required	Water	—
As Required	Cloth, Cotton	—
As Required	Cloth, Chamois	—
As Required	Cloth, Abrasive	—
As Required	Brush, Acid	NIIN 00-514-2417
As Required	Cleaning Compound, Type I	MIL-C-43616
As Required	Anti-Fogging Kit	NIIN 00-127-7193

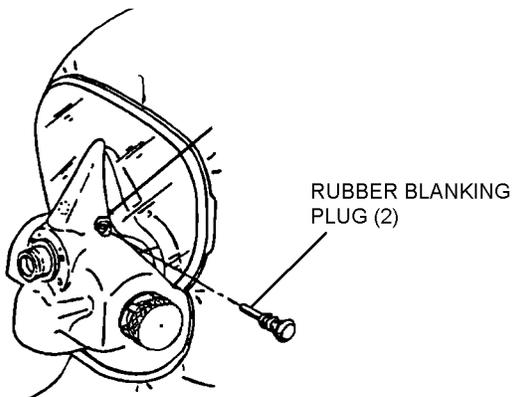
### 4-123. Visual Inspection.

4-124. Mask Assembly. Inspect mask assembly as follows:

**WARNING**

Either a nose occluder (authorized for (V)1, (V)2, (V)3 or (V)4) or butyl blanking plugs (authorized for (V)1 only) must be installed to ensure CBR protection.

1. If nose occluder is installed, inspect for damage and security of attachment. Operate nose occluder and check for full, free movement. Position stirrup in full-down position. If nose occluder is not installed, check to ensure blanking plugs are installed and fully seated in faceplate nose occluder bushings and are not damaged.



Step 1 - Para 4-124

**CAUTION**

Avoid excessive stretching of the neck seal when inverting hood to inspect internal components. Damaged neck seals may not be repaired or replaced.

2. Carefully fold hood inside out to expose orinal mask.

**WARNING**

The presence of foreign matter in mask may degrade its performance and subject wearer to contamination.

3. Inspect for the presence of foreign matter. If foreign matter is present, mask shall be thoroughly cleaned before use in accordance with [paragraph 4-206](#).

4. Clean inner lens area in accordance with [paragraph 4-207](#) and allow to dry completely. When dry,

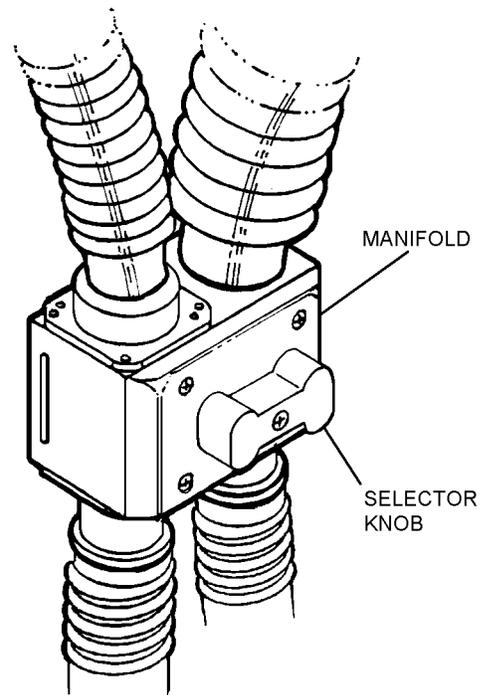
apply anti fogging compound to the lens and allow to completely dry. Return hood to its normal position.

5. Inspect toggle harness for security of attachment and proper operation.

6. Clean out lens area in accordance with [paragraph 4-207](#) and allow to dry thoroughly. Apply anti fogging compound to the outer lens and allow to dry.

4-125. Lower Assembly. Inspect the lower assembly as follows:

1. Inspect the H-manifold to ensure selector knob moves freely.



Step 1 - Para 4-125

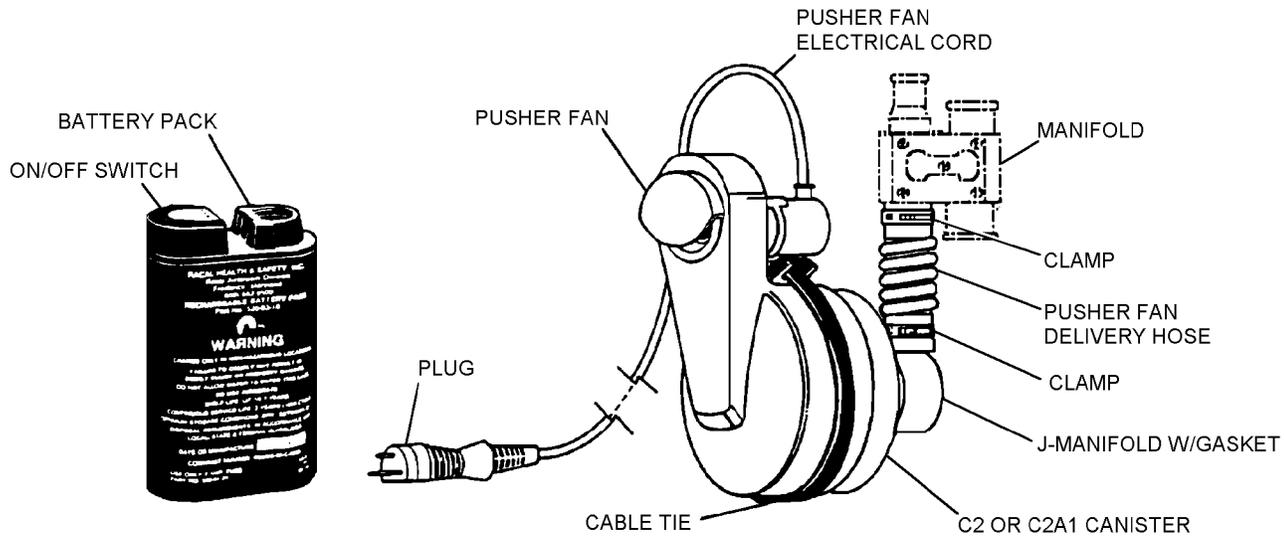
2. Inspect pusher fan subassembly as follows:

- a. Ensure both ends of pusher fan delivery hose are secured with stepless low profile clamps; one to H-manifold right-side inlet port and one to J-manifold. Carefully check hose for damage.

**CAUTION**

If hose is damaged, it must be removed and replaced.

- b. Inspect J-manifold gasket. If damage or deterioration is evident, replace with a new gasket. Install new gasket in accordance with [paragraph 4-221](#), [step 7](#).



**Step 2 - Para 4-125**

4p125s2

c. Inspect C2 or C2A1 canister for obvious damage. If damage is noticeable or rust is found on the canister surface, a more detailed inspection shall be done in accordance with paragraph 4-220. Ensure that the C2 or C2A1 canister is securely fastened to J-manifold (fully hand-tightened).



Do not subject pusher fan power cord to excessive stress such as when disconnecting battery by pulling on cord rather than plug. Failure to firmly grasp plug itself when disconnecting battery may compromise the integrity of power cord and/or electrical connection and result in an in-flight failure.

d. Inspect pusher fan for signs of rips, tears, or obvious damage. Check fan operation by switching battery ON and rotating electrical cord at both the battery terminal and pusher fan junction. If fan fails to operate or is intermittent in operation, a more detailed inspection shall be done in accordance with paragraph 4-115. Ensure that the pusher fan is properly secured to the C2 or C2A1 canister and is in its proper orientation.

e. Inspect battery as follows:

**NOTE**

A fully charged NiCad battery should be used for each training flight. Refer to Chapter 6 for charging instructions. Lithium batteries shall be used for war reserve.

Replace battery pack if any of the following problems are apparent.

- (1) Battery pack case appears swollen or cracked.
- (2) Battery pack leaks fluid or any substance of any kind.
- (3) Battery pack 3-pin receptacle has become corroded, cracked, or damaged.
- (4) Battery pack case is contaminated with oil, grease or other matter.
- (5) Rubber cover of ON/OFF push switch is damaged or missing.
- (6) Fuse extractor knob is missing (NiCad only).

3. Assemble oxygen regulators as follows ((V)2 and (V)3 only):

- a. (LOX) - Install LOX regulator to regulator hose. Position regulator as shown in figure 4-26. Secure with a 24.5 mm stepless low profile clamp.
- b. (OBOGS) - Install OBOGS regulator to bayonet connector as shown in figure 4-27.

**NOTE**

For C-20/C-40 Cockpit Aircrew application, the CRU-103 must be placed in service in accordance with the 13-1-6.4 Series manual.

4. Inspect the oxygen delivery subassembly as follows ((V)2 through (V)4 only):

**WARNING**

If the hose is damaged, it must be removed and replaced.

a. Ensure both ends of the manifold hose are secured with stepless low profile clamps; one to the H-manifold left-side inlet port and one to the J-manifold. Carefully check the hose for damage.

b. Inspect the J-manifold gasket. If damage or deterioration is evident, replace with a new gasket. Install new gasket in accordance with paragraph 4-221, step 7.

c. Carefully inspect 90° rubber molding for damage.

d. Ensure 90° rubber molding is securely attached to C2 or C2A1 canister with cable tie.

e. (LOX) - Ensure 90° rubber molding is securely fastened to one end of 3/4 inch - 3/4 inch coupling with a 24.5 mm stepless low profile clamp. Ensure regulator hose is securely attached to the other end of the coupling with stepless low profile clamp. Ensure the other end of regulator hose is securely attached to LOX regulator with a stepless low profile clamp.

f. (OBOGS) - Ensure 90° rubber molding is securely fastened to 3-pin (MS27796) bayonet connector with a 24.5 mm stepless low profile clamp. Ensure regulator is connected.

g. (Panel Mount) - Ensure 90° rubber molding is securely fastened to quick disconnect fitting with a 24.5 mm stepless low profile clamp.

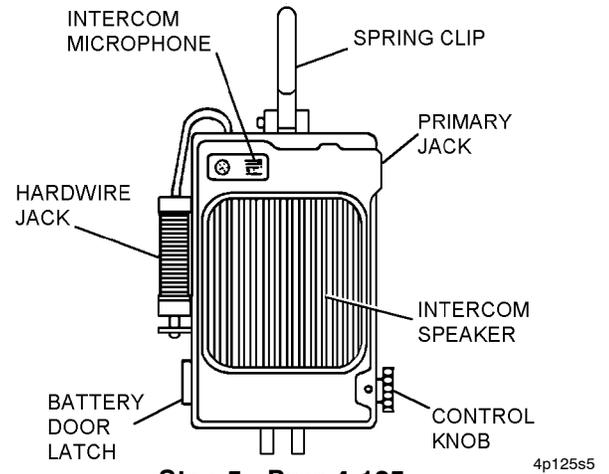
h. Inspect the LOX/OBOGS regulator assembly for dirt, corrosion, cracks, and other damage.

**WARNING**

If the LOX/OBOGS regulator assembly is damaged, it must be removed and replaced in accordance with NAVAIR 13-1-6.4-2.

i. Ensure seat kit hose is firmly threaded into LOX/OBOGS regulator assembly.

5. Inspect intercommunications unit as follows:



a. Ensure no mechanical damage, cracks or dents are found on intercommunications unit.

b. Communications cord and patch cord shall have no frayed wires, corroded pins or receptacles.

c. Ensure 9V battery (NIIN 00-900-2139) is not leaking fluid or any other substance.

d. Ensure mechanical integrity of intercommunications unit by checking for loose knobs, loose hardwire jack connection or a broken spring clip.

**4-126. Intercom Unit Functional Test.** To perform the intercom unit functional test, proceed as follows:

**WARNING**

Ensure intercom unit is turned off prior to removing or installing batteries. Failure to turn the intercom unit off may cause electrical arcing, resulting in fatal explosion or fire, especially in combustible atmospheres.

**NOTE**

The following functional test shall be performed while the aircrew is wearing the appropriate vest and flight helmet.

The AM-3597C/A amplifier, if installed, must be temporarily removed for the intercom unit to operate properly.

1. Connect intercom unit to mask microphone and aircrew helmet with the appropriate ground communications cord as indicated in table 4-2A.

2. Turn control knob, on intercom unit, to the first position - listen only.

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3. Talk into intercom unit and have aircrew confirm sound in helmet earphones.

### NOTE

The second position, talk/listen, is the recommended position for all ground communications.

4. Turn control knob to the second position - Talk/Listen.

5. Instruct aircrew to talk and confirm sound coming from intercom speaker.

6. Talk into intercom unit and have aircrew confirm sound in helmet earphones.

7. If the intercom unit fails the functional test, replace intercom unit and repeat [steps 1 through 6](#).

8. Secure intercom unit to the survival vest with the intercom spring clip.

**4-127. Respirator Assembly Functional Test.** To perform the respirator assembly functional test, proceed as follows:

### NOTE

Ensure H-manifold selector knob is in the open (horizontal) position.

1. Have subject don respirator assembly with pusher fan ON.

2. Perform functional test as follows:

a. Close hood outlet valve.

b. Ensure pusher fan is ON.

c. Ensure hood inflates.

d. Open hood outlet valve to ensure proper operation. (Pusher fan air should vent through valve.)

e. Pinch-off hood inlet hose with fingers. Air should not vent through the hood outlet valve. Release hose.

f. Pinch-off mask inlet hose with fingers. Air should vent through hood outlet valve. Release hose.

g. Switch OFF pusher fan.

3. Ensure pusher fan and battery are in survival vest mounting pocket.

**4-128. POSTFLIGHT INSPECTION.** Postflight Inspection, consisting of visual inspection and cleaning of the A/P22P-14(V)1 through (V)4 respirator assemblies, shall be performed after each flight at Organizational Level and shall be performed by a qualified Aircrew Survival Equipmentman (PR). To perform Postflight Inspection, proceed as follows:

### Materials Required

Quantity	Description	Reference Number
As Required	Pad, Gauze	—
As Required	Water	—
As Required	Cloth, Cotton	—
As Required	Cloth, Abrasive	—
As Required	Towelettes, SANI-COM	No. 3205 (CAGE 18195)
As Required	Bleach, Laundry	A-A-1427 NIIN 00-598-7316
As Required	Cleaning Compound, Type I	MIL-C-43616
1	Brush, Acid	NIIN 00-514-2417
1	Brush, Sable	—
As Required	Cotton Swab	—
As Required	Alcohol, Isopropyl Rubbing	TT-I-735 NIIN 00-655-8366
As Required	Cloth, Chamois	—
1	Cable Tie, 3.6 mm	CL 6226

**Table 4-2A. CBR Communications Matrix**

Priority Aircraft	CBR Mask	Helmet/Headset	Helmet Connector	CBR Ground Communications Cord (Not E)	In-Flight Amp
F/A-18 series	A/P22P-14(V)2 or A/P22P-14(V)3	HGU-66(V)/P or HGU-68(V)/P or JHMCS or HGU-87/(V)/P22P-16	CX-4708A/AIC	CL 6597 (CX-4707C)	AM-3597C/A**
F-14 series	A/P22P-14(V)2 or A/P22P-14(V)3	HGU-68(V)/P	CX-4708A/AIC	CL 6597 (CX-4707C)	AM-3597C/A**
AV-8B	A/P22P-14(V)3	HGU-85(V)/P	CX-4708A/AIC	CL 6597 (CX-4707C)	AM-3597C/A**
EA-6B	A/P22P-14(V)2	HGU-68(V)/P	CX-4708A/AIC	CL 6597 (CX-4707C)	AM-3597C/A**
KC-130	A/P22P-14(V)4	HGU-84/5P	CX-4832A or CX-12972	CL 6922* (4832 ICU) or CL 6922* (4832 ICU) W/Pattern* (Not E)	N/R
C-2A	A/P22P-14(V)4	HGU-68(V)1	CX-4708A/AIC	CL 6597 (CX-4707C)	N/R
S-3 series	A/P22P-14(V)2	HGU-68(V)3	CX-13128/A (Not E)	CL 6922* (4832 ICU) W/Pattern* (Not E)	AM-3597C/A
E-2C	A/P22P-14(V)4	HGU-68(V)4	CX-4708A/AIC	CL 6597 (CX-4707C)	AM-3597C/A**
P-3 series	A/P22P-14(V)4	HGU-68(V)2	CX-4832A or CX-12972	CL 6922* (4832 ICU) or CL 6922* (4832 ICU) W/Pattern* (Not E)	N/R
CH-46D	A/P22P-14(V)1	HGU-84/5P	CX-4832A or CX-12972	CL 6922 (4832 ICU) or CL 6922 (4832 ICU) W/Pattern* (Not E)	N/R
CH-46E	A/P22P-14(V)1	HGU-84/6P	CX-13128/A (Not E)	CL 6922 (4832 ICU) W/Pattern* (Not E)	AM-3597C/A
AH-1W	A/P22P-14(V)1	HGU-67/P	CX-13165	CL 6922 (4832 ICU)	N/R
UH-1N	A/P22P-14(V)1	HGU-84/2P or HGU-84/3P (SAR Only)	CX-4832A or CX-12972	CL 6922 (4832 ICU) or CL 6922 (4832 ICU) W/Pattern* (Not E)	N/R
CH-53D	A/P22P-14(V)1	HGU-84/7P - pilot/copilot	CX-13165	CL 6922 (4832 ICU)	AM-3597C/A
		HGU-84/4P - crew	CX-4832A or CX-12972	CL 6922 (4832 ICU) or CL 6922 (4832 ICU) W/Pattern* (Not E)	AM-3597C/A
CH-53E	A/P22P-14(V)1	HGU-84/1P	CX-4832A or CX-12972	CL 6922 (4832 ICU) or CL 6922 (4832 ICU) W/Pattern* (Not E)	AM-3597C/A
H-3	A/P22P-14(V)1	HGU-84/5P	CX-4832A or CX-12972	CL 6922 (4832 ICU) or CL 6922 (4832 ICU) W/Pattern* (Not E)	N/R

Change 4 4-68A

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Table 4-2A. CBR Communications Matrix (Cont)

Priority Air Filter	CBR Mask	Helmet/Headset	Helmet Connector	CBR Ground Communications Cord (Not)	In-Flight Amp
SH-60 series	A/P22P-14(V)1	HGU-84/6P	CX-13128/A (Not)	CL 6922 (4832 CU) W/Patch* (Not)	AM-3597C/A
C-9 (Not)	A/P22P-14(V)4	Headset CE 15711-8	4-172/U	CL 6597 (CX-4707C)	AM-3597C/A**
C-20 (Not)	A/P22P-14(V)3 or (V)4	Microphone Wire (Not) B/E Aerospace 179002-48	N/A	CL 6597 (CX-4707C)	AM-3597C/A**
C-40 (Not)	A/P22P-14(V)3 or (V)4	Microphone Wire (Not) B/E Aerospace 179002-48	N/A	CL 6597 (CX-4707C)	AM-3597C/A**

- Notes:
1. Ground communications cords are supplied within each respirator assembly transit case. If the correct cord is not supplied, it must be ordered through normal supply channels. These cords are designed to operate with the A/P22P-14(V)1 through (V)4 Respirator Assembly intercom units only. In-flight communications cords shall be utilized from existing helmets and oxygen masks, as applicable.
  2. The M22442/19-1 (CX-12972/AR) Communication Cable is an authorized alternative for the M22442/28-1 (CX-13128/A) Communication Cable.
  3. Patch denotes Patch Cord (NIIN 01-355-8019).
  4. Aft aircrew will use ground intercommunication unit and cords for in-flight and ground communication. To conserve battery life, intercommunication unit shall remain in OFF position until required.
  5. Microphone wire is used in conjunction with standard headset.

Legend:

- \* Denotes that this item must be requisitioned through normal supply channels if not available with the existing CBR system.
- \*\* Denotes that this item must be requisitioned through normal supply channels if not used during day to day flight operations.

Support Equipment Required

Quantity	Description	Reference Number
1	Pliers, Side Cutting, 4-inch	—
1	Cable Tie Tool, Standard	MS90387-1

**4-129. Visual Inspection.**

4-130. Mask Assembly. Inspect mask assembly as follows:

1. Hood assembly for damage, deterioration and security of bonded joints. Invert hood for thorough inspection of hood internal sections.

2. Orinasal mask for damage, deterioration of seal edge, and to the area of rubber swept by nose occluder shaft assemblies.

3. Orinasal mask deflector plate for damage and security of attachment.

4. Inhalation valve assembly for damage, security of attachment, and correct position. (Lug slots should be at right angles to mark in orinasal mask.)

5. Iceguard for damage and blockage. Refit. Ensure it is in locked position. (Arrow engraved on body should point towards compensated exhalation valve.)

6. Compensated exhalation valve for damage and correct fitting.

7. Hood cowl padding strip for damage, deterioration, and security of attachment.

8. Restore hood to normal position.

9. Snout for damage and security of attachment.

10. Nose occluder for damage and security of attachment. Operate nose occluder and check for full, free movement. Position stirrup in full-down position. If nose occluder is not installed, check to ensure blanking plugs are fully seated in faceplate nose occluder bushings and are not damaged.

11. Toggle harness for damage and security of attachment. Operate toggle harness and check for full, free movement.

12. Microphone assembly for security of attachment. Check connecting lead for fraying. Check plug condition.

13. Hood outlet valve for damage and security of attachment.

14. Hood inlet hose and mask inlet hose for damage and security of attachment. Ensure the lie of hoses is satisfactory.

15. Anti-suffocation disconnect for security of connection and correct locking.

16. Mask inlet adapter for damage and security of attachment. Where failure of bonded joint is evident, remove mask inlet adapter as detailed in paragraph 4-171. Install as detailed in paragraph 4-231.

17. Inspect interior of mask assembly for excessive dirt, sand, dried liquid nourishment, or vomit. The mask shall be disassembled and all component parts cleaned in accordance with paragraph 4-192 if any foreign matter is present.

4-131. Lower Assembly. Inspect lower assembly as follows:

1. Inspect the H-manifold to ensure selector knob moves freely.

2. Inspect pusher fan subassembly as follows:



If hose is damaged, it must be removed and replaced.

a. Ensure both ends of H-manifold hose are secured with stepless low profile clamps; one to H-manifold right-side inlet port and one to J-manifold. Carefully check hose for damage.

b. Remove and inspect the J-manifold gasket. If damage or deterioration is evident, replace with a new gasket. Reinstall new gasket in accordance with paragraph 4-221, step 7.

c. Inspect C2 or C2A1 canister for obvious damage. If damage is noticeable or rust is found on the canister surface, a more detailed inspection shall be done in accordance with paragraph 4-220. Ensure that the canister is securely fastened to the J-manifold (fully hand-tightened).

**WARNING**

Do not subject pusher fan power cord to excessive stress such as when disconnecting battery by pulling on cord rather than plug. Failure to firmly grasp the plug itself when disconnecting battery may compromise integrity of power cord and/or electrical connection and result in an in-flight failure.

d. Inspect the pusher fan for signs of rips, tears, or obvious damage. Check fan operation by switching the battery ON and rotating the electrical cord at both the battery terminal and pusher fan junction. If the fan fails to operate or is intermittent in operation, a more detailed inspection shall be done in accordance with [paragraph 4-115](#). Ensure that the pusher fan is properly secured to the canister and is in its proper orientation.

e. Inspect battery as follows:

**NOTE**

Replace the battery pack if any of the following problems are apparent.

- (1) Battery pack case appears swollen or cracked.
- (2) Battery pack leaks fluid or any substance of any kind.
- (3) Battery pack 3-pin receptacle has become corroded, cracked, or damaged.
- (4) Battery pack case is contaminated with oil, grease or other matter.
- (5) Rubber cover of ON/OFF push switch is damaged or missing.
- (6) Fuse extractor knob is missing (NiCad only).

3. Inspect oxygen delivery subassembly ((V)2 thru (V)4 only) as follows:

**WARNING**

If hose is damaged, it must be removed and replaced.

a. Ensure both ends of hose are secured with stepless low profile clamps; one to H-manifold left-side inlet port and one to J-manifold. Carefully check hose for damage.

b. Remove and inspect J-manifold gasket. If damage or deterioration is evident, replace with a new gasket. Reinstall new gasket in accordance with [paragraph 4-221](#), [step 7](#).

c. Carefully inspect the 90° rubber molding for damage.

d. Ensure the 90° rubber molding is securely attached to the C2 or C2A1 canister with an applicable cable tie.

e. (LOX variant) - Ensure 90° rubber molding is securely fastened to one end of 3/4 inch - 3/4 inch coupling with a stepless low profile clamp. Ensure regulator hose is securely attached to the other end of coupling with a stepless low profile clamp. Ensure opposite end of regulator hose is securely attached to LOX regulator with a stepless low profile clamp.

f. (OBOGS variant) - Ensure 90° rubber molding is securely fastened to 3-pin (MS27796) bayonet connector with a stepless low profile clamp.

g. (Panel Mount variant) - Ensure 90° rubber molding is securely fastened to quick disconnect fitting with a stepless low profile clamp.

**WARNING**

If the LOX/OBOGS regulator assembly is damaged, it must be removed and replaced.

h. Inspect the LOX/OBOGS regulator assembly for dirt, corrosion, cracks, and other damage.

i. Ensure seat kit hose is firmly threaded into the LOX/OBOGS regulator assembly.

4. Inspect intercommunications unit as follows:

- a. Ensure no mechanical damage, cracks or dents are found on unit.
- b. Communications cord and patch cord shall have no frayed wires, corroded pins or receptacles.
- c. Ensure battery is not leaking fluid or any other substance.

d. Ensure mechanical integrity of intercommunications unit by checking for loose knobs, loose hardware jack connection or a broken spring clip.

**4-132. Cleaning.** Clean respirator assembly in accordance with [paragraph 4-120](#).

**4-133. Transit and Ready for Use Storage.** Following cleaning, pack respirator assembly in accordance with [paragraph 4-101](#).

**NOTE**

Special Inspection of the respirator assembly does not commence until the respirator assembly is removed from its vacuum sealed foil bag.

**4-134. SPECIAL INSPECTION.** The Special Inspection shall be performed on the A/P22P-14(V)1 through (V)4 respirator assemblies by a qualified Aircrew Survival Equipmentman (PR) at 90-day intervals for CBR assemblies being used for training, and every 270 days for those assemblies placed in service for operational use. The inspection shall include Visual Inspection, battery voltage check, bench testing, and cleaning of all assemblies and their component parts where specified. The battery shall be inspected in accordance with Chapter 6, and the oxygen regulator shall be special inspected in accordance with NAVAIR 13-1-6.4. Organizational Level Maintenance (O level) shall route all assemblies and their component parts to Intermediate Level Maintenance (I level) for Visual Inspection, bench testing, and cleaning where specified.

Materials Required		
Quantity	Description	Reference Number
As Required	Pad, Gauze	—
As Required	Swab-Cotton	—
As Required	Towelettes, SANI-COM	No. 3205 (CAGE 18195)
As Required	Bleach, Laundry	A-A-1427 NIIN 00-598-7316
As Required	Water	—
As Required	Alcohol, Isopropyl Rubbing	TT-I-735 NIIN 00-655-8366
As Required	Cleaning Compound, Type I	MIL-C-43616
As Required	Cloth, Chamois	—
As Required	Cloth, Cotton	—
1	Brush, Acid	NIIN 00-514-2417
1	Brush, Sable	—

1. Unpack respirator assembly in accordance with paragraph 4-107.

2. Visually inspect respirator assembly in accordance with paragraph 4-113.

3. Perform bench test on respirator assembly in accordance with paragraph 4-138.

4. Clean respirator assembly in accordance with paragraph 4-120.

**NOTE**

Rubber products have a natural memory and may develop permanent wrinkles or folds over a period of time when stored wrinkled or folded.

5. Stow respirator assembly. Carefully place the respirator assembly in its transit case with as few folds and wrinkles as possible. Secure with retaining straps as illustrated on the transit case lid.

6. Document in accordance with OPNAVINST 4790.2 Series.

**4-135. CABLE TIE AND STEPLESS LOW PROFILE CLAMP INSTALLATION PROCEDURES.**

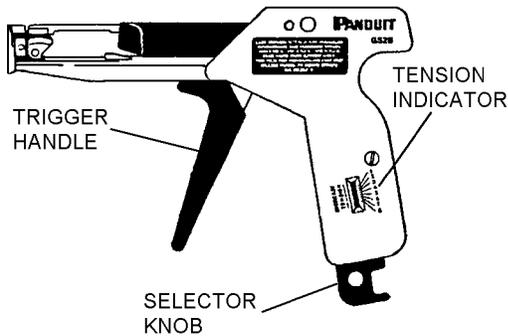
**4-136. CABLE TIE INSTALLATION.** The following cable tie installation procedures shall be used as required.

Materials Required		
Quantity	Description	Reference Number
1	Cable Tie, 2.4 mm	CL 6225
1	Cable Tie, 3.6 mm	CL 6226
1	Cable Tie, 4.8 mm	CL 6227
Support Equipment Required		
Quantity	Description	Reference Number
1	Cable Tie Tool, Standard	MS90387-1
1	Cable Tie Tool, Heavy Duty	NIIN 00-937-5438
1	Pincer Tool, Low Profile	Oetiker 14100055
or		
1	Pliers, Hose Clamp	NIIN 01-073-4187
1	Pliers, Side Cutting, 4-inch	—
1	Screwdriver, 6 X 1/8 inch, Std.	—

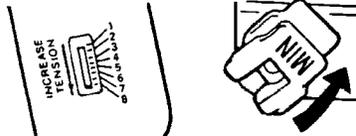
# NAVAIR 13-1-6.10

1. Locate the selector knob on the bottom of the cable tie tool's handle and flip knob to the correct position for cable ties being installed.

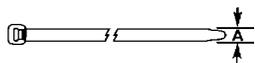
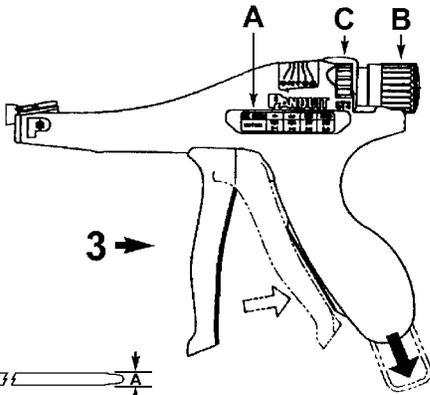
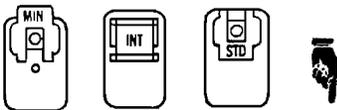
2. Adjust the tension indicator on handle of tool by turning selector knob clockwise to increase tension, or counter-clockwise to decrease tension.



MIN: NO 3  
INT: NO 5  
STD: NO 8



### SELECTOR KNOB SETTINGS



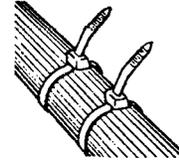
A					
		SUBMIN .070" (1.8mm)	MIN .098" (2.5mm)	INT .142" (3.6mm)	STD .190" (4.8mm)
B					
C		0 - 1	1 - 3	3 - 5	5 - 8

MS90387-1 SHOWN

### Steps 1 and 2 - Para 4-136

4p136s1

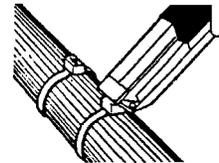
3. Loop cable tie around component to be secured, with head facing outward, and insert tip through head. Pull cable tie tight snug by hand. Refer to Step 4 for proper position of cable tie head on the component.



### Step 3 - Para 4-136

4p136s3

4. Insert tail of cable tie into tool. With nose of tool flush to cable tie head, squeeze trigger handle. Tool will tighten cable tie and cut off excess.



### Step 4 - Para 4-136

4p136s4

### NOTE

Cable tie shall secure component snugly to the mask, so that inadvertent disconnection is not possible. However, at no time shall component show signs of distortion upon installation of cable tie.

**4-137. STEPLESS LOW PROFILE CLAMP INSTALLATION.** The following stepless low profile clamp installation procedures shall be used as required (refer to Table 4-3).

## WARNING

It is critical the correct size clamp be used. Size of the clamp is marked in mm just above PAT marking on clamp.

## CAUTION

Do not over expand clamp.

1. Place the low profile clamp over end of hose or tube to be clamped. The clamp may be slightly expanded to fit over end of the hose or tube.

2. Engage the lock table in slot. This is a pre-clamping position only.

**Table 4-3. Cable Tie Tool, Cable Tie and Low Profile Clamp Selection Chart**

Panduit or Equivalent

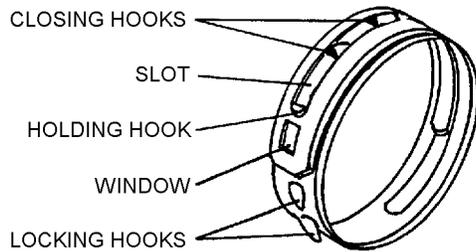
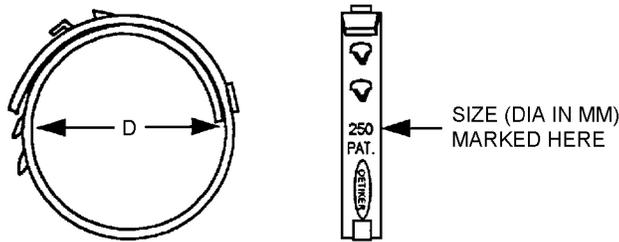
P/N GS2B (STD) MS90387-1			P/N GS4H (Heavy) NIIN 00-937-5438		
Tension	Setting	lbs	Tension	Setting	lbs
MIN	1-3		STD	1-4	
INT	3-5	4 (18 lbs)	HVY	5-8	8 (65 lbs)
STD	6-8	7 (30 lbs)			

Cable Ties (with Barb)

CL P/N	Width	Application	Tension
6225	2.4 mm	Microphone, drink facility	INT (No. 4)
6226	3.6 mm	Snout, orinasal mask inhalation duct	INT (No. 4)
6227	4.8 mm	Hood inlet adapter, anti-suffocation disconnect	STD (No. 7)
6528	7.6 mm	Pusher fan and 90° rubber molding	HVY (No. 8)

Low Profile Clamps

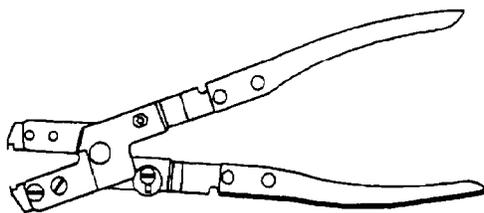
CL P/N	Dia.	Application
6592	16.5 mm	H-Manifold outlet port (right)
6593	21.9 mm	H-Manifold outlet port (left)
6670	24.5 mm	90° rubber molding, (V)2 O <sub>2</sub> regulator hose, H-Manifold inlet port (left & right)
6594	26.5 mm	J-Manifolds, H-Manifold blanking cap



4p137s2

**Step 2 - Para 4-137**

3. Insert the pointed tips of low profile pincers into tensioning hook and tensioning tunnel.



OETIKER 14100055 OR PLIERS,  
HOSE CLAMP, NIIN 01-073-4187

4p137s3

**Step 3 - Para 4-137**

4. Secure clamp by drawing closing hooks together. When both slot and window are directly over the hooks, press end of clamp down with thumb to engage the clamp. Release tension on tool and inspect hooks for proper engagement.

5. To remove clamp, engage tips of low profile pincers in closing hooks as in step 3 above. Draw hooks together and disengage windows from locking hooks.

**4-138. BENCH TESTS.**

4-139. The following are bench test procedures for testing the A/P22P-14(V)1 through (V)4 Respirator Assemblies on the A/E47T-28 Respirator Assembly Test Set only. Procedures for testing the digital test set are contained in the NAVAIR 17-15HB-21 manual. Bench tests shall be performed by a qualified Aircrew Survival Equipmentman (PR) with the portable test set - A/E47T-28, Meggitt Avionics Ltd., Part No. 6200005. The tests shall be performed as close to normal temperature and pressure conditions (NTP) as possible (+15 °C and 760 mm Hg) and maintained throughout each test. Changes in temperature and pressure during testing may affect digital manometer readings. All pressures quoted are gage pressure (that pressure difference above standard atmospheric pressure). Testing of the portable test set shall be performed (in sequence) prior to testing any part of the respirator assembly.

**NOTE**

A Technical Data Indoctrination Package is available for the CBR Respirator Test Set A/E47T-28, PIN# 113914. It is available in VHS, CD, DVD or electronically on the PMA-202 Website [HTTPS://pma202.navair.navy.mil/](https://pma202.navair.navy.mil/). For further information, contact your FAILSAFE Representative or Aeromedical Safety Officer.

Before any of the following bench tests can be performed, a dc power supply shall be acquired that is capable of providing an output of 3.75 Vdc at 1 amp. If a dc power supply is not available, a fully charged NiCad battery pack (P/N 3297AS601-1) shall be utilized. (Charging instructions are contained in [Chapter 6](#). If a NiCad battery pack is not available, or time does not permit charging, a Lithium Battery pack (P/N 3297AS601-2) may be used instead.

Prior to testing the A/P22P-14(V)1 through (V)4 Respirator Assembly, the Digital Test Set (A/E47T-28) ([figure 4-70](#)) shall have successfully passed its functional tests as specified in NAVAIR 17-15HB-21.

Where specified, test results shall be recorded on the Performance Test Sheet ([figure 4-73](#)).

Blanks and adapters referred to in the following text are illustrated in [figures 4-71 and 4-72](#).

**4-139A. ADAPTER M REPAIR.**

1. If black ring is loose on adapter M, note the location and position of the black ring.
2. Remove the black ring and sand old epoxy off the adapter and black ring.
3. Wipe adapter and black ring clean and free from dust.
4. Make sure areas are free from dust, oil and grease.
5. Mix epoxy per instructions (Epi Seal 20-20 or equivalent NIIN 00-738-6429).
6. Apply epoxy to the inside of black ring with the large screw opening going on first.

7. Put black ring on the adapter in the proper location.

8. Wipe excess epoxy from the adapter using isopropyl alcohol, methyl isobutyl ketone (MIBK), mineral spirits or paint thinner.

9. Let cure overnight before using.

**4-140. PUSHER FAN.** The Pusher Fan (figure 4-22) consists of a molded rubber boot, housing, and an internal centrifugal fan. The large, open end of the rubber boot fits over the C2 or C2A1 canister and is secured with a cable tie. An electrical cord connects the fan to a rechargeable NiCad battery pack or disposable Lithium battery pack. The NiCad battery pack provides 3-4 hours of operation (at ambient temperatures) while the Lithium battery pack provides 10-12 hours. The NiCad battery pack is designed to be used for proficiency training while the Lithium is intended for war reserve. An On/Off switch is located on the top of the battery.

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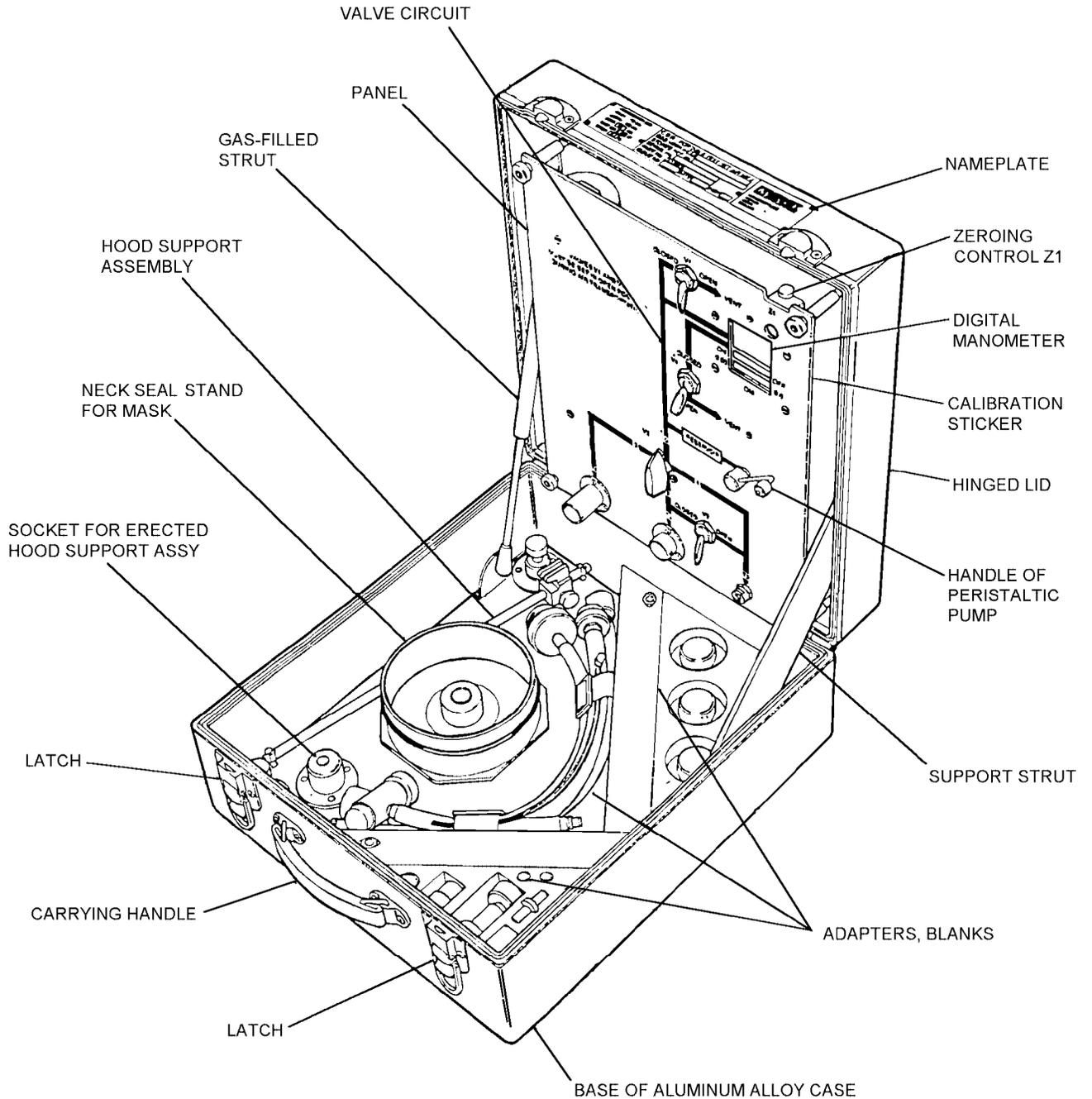
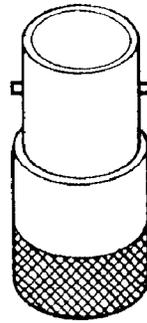
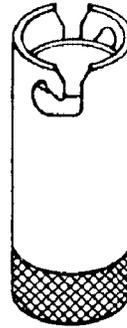


Figure 4-70. Respirator Assembly Test Set - A/E47T-28



BLANK B1



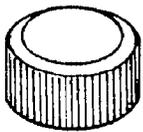
BLANK B2



BLANK B3



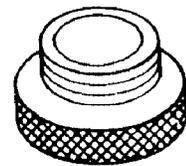
BLANK B4



BLANK B5



BLANK B6



BLANK B7

BLANKS NOT DRAWN TO SCALE

Figure 4-71. Respirator Assembly Test Set - A/E47T-28 - Blank Selection

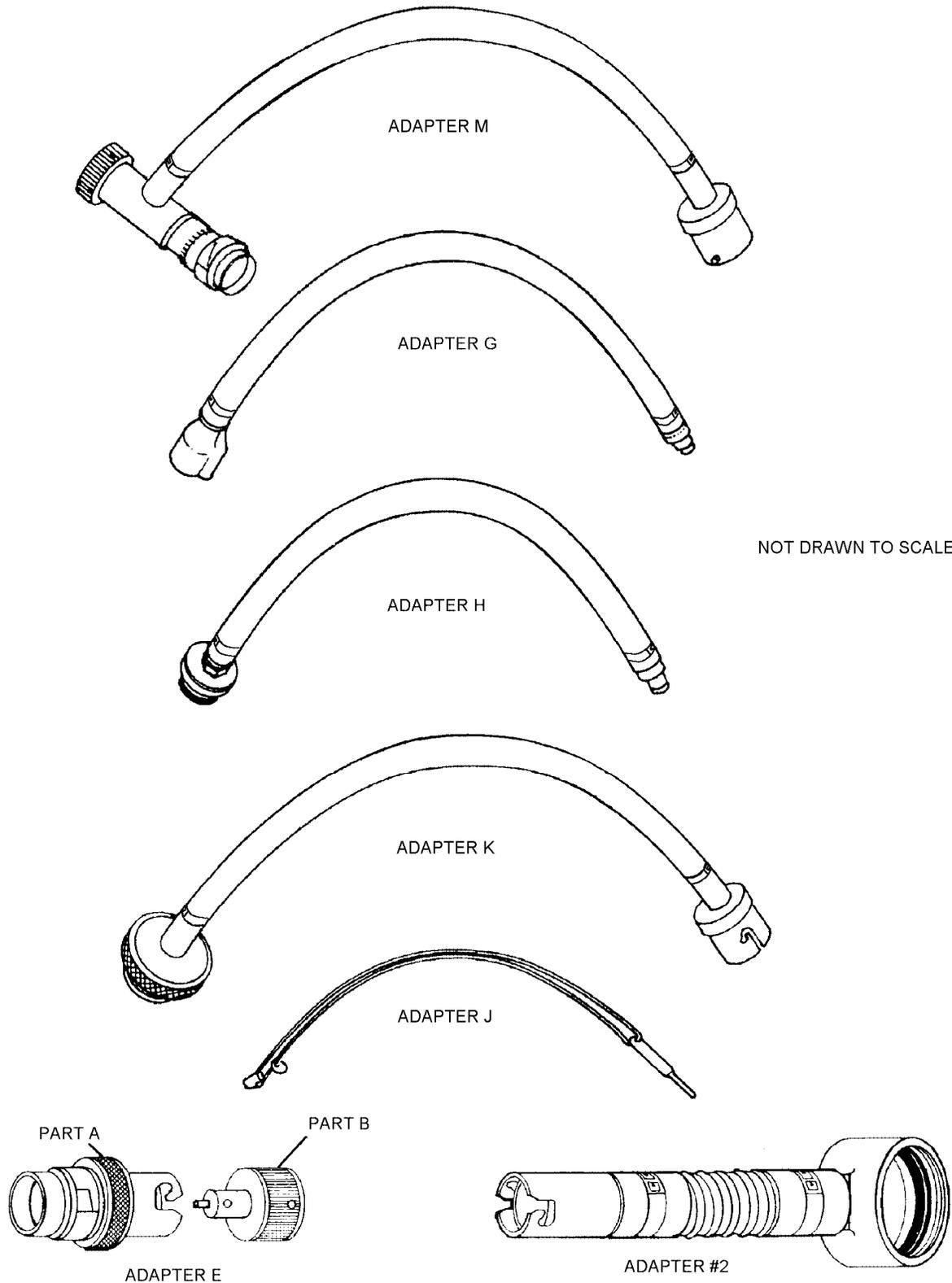


Figure 4-72. Respirator Assembly Test Set - A/E47T-28 - Adapter Selection

4-72

# NAVAIR 13-1-6.10

## PERFORMANCE TEST SHEET

DATE \_\_\_\_\_ VARIANT TYPE: \_\_\_\_\_  
OPERATOR: \_\_\_\_\_ MASK P/N: \_\_\_\_\_  
MASK S/N: \_\_\_\_\_  
DIGITAL TEST SET S/N: \_\_\_\_\_

THE DIGITAL TEST SET SHALL HAVE SUCCESSFULLY PASSED ITS TEST BEFORE PERFORMING ANY OF THE FOLLOWING TESTS:

### PUSHER FAN - PRESSURE TEST

REQUIRED READING	ACTUAL READING
2.6 IN. H <sub>2</sub> O OR HIGHER	

NOTE: BEFORE PROCEEDING, THE PUSHER FAN MUST HAVE PASSED THE PRESSURE TEST.

### INHALATION & HOOD INLET VALVE - REVERSE LEAKAGE TEST

REQUIRED READING	ACTUAL READING @ T = 7 SEC.
BETWEEN -2 AND -4 IN. H <sub>2</sub> O	

### H-MANIFOLD INLET VALVE - REVERSE LEAKAGE TEST

REQUIRED READING	ACTUAL READING @ T = 7 SEC.
BETWEEN -2 AND -4 IN. H <sub>2</sub> O	

### EXHALATION OUTLET VALVE - REVERSE LEAKAGE TEST

REQUIRED READING	ACTUAL READING @ T = 12 SEC.
BETWEEN 0.5 AND 1.0 IN. H <sub>2</sub> O	

Figure 4-73. Performance Test Sheet (Sheet 1 of 2)

COMPENSATED EXHALATION VALVE - FUNCTIONAL TEST

	REQUIRED READING	ACTUAL READING	DOES AIR VENT?
1	2.6 IN. H <sub>2</sub> O OR HIGHER		
	NOT MORE THAN 1.5 IN. H <sub>2</sub> O		
2	2.6 IN. H <sub>2</sub> O OR HIGHER		
	NOT MORE THAN 1.5 IN. H <sub>2</sub> O		
3	2.6 IN. H <sub>2</sub> O OR HIGHER		
	NOT MORE THAN 1.5 IN. H <sub>2</sub> O		

MASK ASSEMBLY - OVERALL LEAKAGE TEST

REQUIRED READING	ACTUAL READING
BETWEEN 1.95 AND 2.0 IN. H <sub>2</sub> O	

NOTE: THE FOLLOWING TEST IS ONLY TO BE PERFORMED AS A BACKUP TEST TO THE MASK ASSEMBLY - OVERALL LEAKAGE TEST IN HELPING TO ISOLATE A DEFICIENCY

HOOD ASSEMBLY - OVERALL LEAKAGE TEST

REQUIRED READING	ACTUAL READING
BETWEEN 1.95 AND 2.0 IN. H <sub>2</sub> O	

CIRCLE ONE: PASS OR FAIL, IF FAIL, LIST REASONS BELOW:

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Figure 4-73. Performance Test Sheet (Sheet 2 of 2)

## NAVAIR 13-1-6.10

### NOTE

A power supply adapter, P/N 3297AS623-1, (figure 4-74) is recommended for use during all tests requiring a Pusher Fan. If the power supply adapter is not available, the pusher fan can be wired directly to the external power supply (figure 4-75).

### 4-141. Pressure Test.

1. If attached, remove pusher fan from mask's J-manifold.

### NOTE

Ensure J-manifold gasket is seated in base of J-manifold.

2. Attach Adapter #2 to pusher fan.

3. With external power supply in the ON position, set output to 3.75 Vdc at 1 amp.

4. Turn external power supply OFF.

5. If using power supply adapter, connect test leads from power supply to power supply adapter and plug pusher fan into power supply adapter.

6. If not using power supply adapter, connect test leads to pins of pusher fan plug as shown in figure 4-75. If a dc power supply is not available, connect battery to pusher fan plug.

7. Connect free end of adapter #2 to T2.

8. Close V1 and V3.

9. Set V4 to OPEN.

10. Set V2 to 2.

11. Turn ON power supply. Allow pusher fan to stabilize for a period of 1 minute before taking a reading.

12. Manometer reading shall be no less than 2.6 in. H<sub>2</sub>O. Record results on Performance Test Sheet. If the reading is not 2.6 in. H<sub>2</sub>O or higher refer to table 4-4, Respirator Assembly Troubleshooting.

13. Turn off power supply.

14. Remove adapter #2 from T2.

15. Remove adapter #2 from pusher fan.

16. Disconnect pusher fan plug.

### 4-142. A/P22P-14(V)1 THROUGH (V)4 RESPIRATOR ASSEMBLIES.

### NOTE

The digital test set and pusher fan shall have successfully passed its test prior to performing the following mask tests.

The following tests shall be performed in the order in which they appear.

The following items are required for bench testing the mask:

#### Materials Required

Quantity	Description	Reference Number
As Required	Leak Detection Compound	MIL-L-25567
As Required	Paper, Absorbent	—
1	Cable tie, 3.6 mm	CL 6226
1	Brush, 1 inch	—
As Required	Latex Coating, SPRAYLAT A	NIIN 00-598-5941

#### Support Equipment Required

Quantity	Description	Reference Number
1	Cable Tie Tool, Standard	MS90387-1
1	Test Set, Respirator Assembly, A/E47T-28	6200005

### NOTE

Applying a latex coating to the outside visual area of the faceplate will help protect the faceplate from damage during testing. If time does not allow the use of SPRAYLAT latex coating, the velveteen cover shall be fitted to protect the optical area during testing.

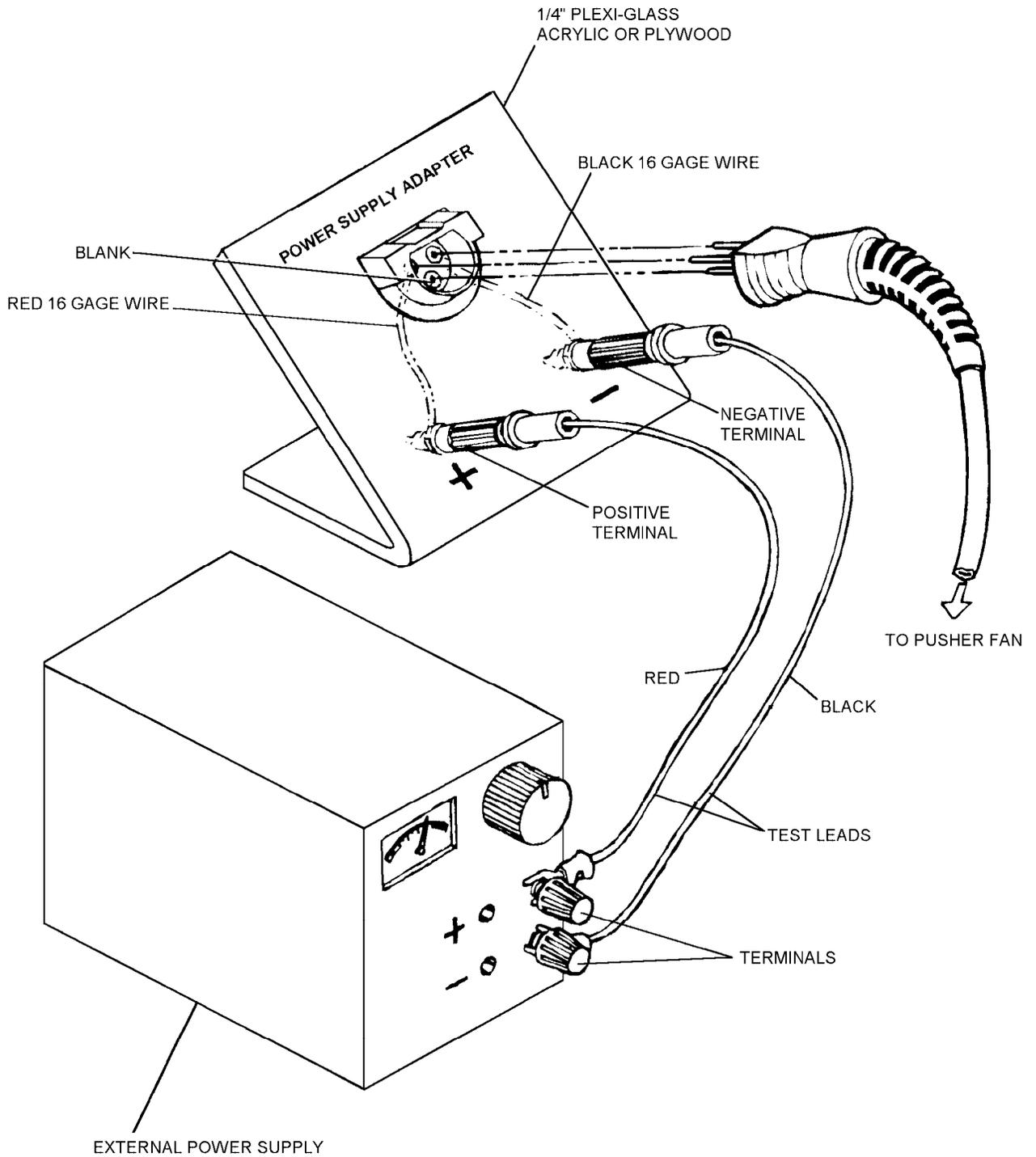


Figure 4-74. Pusher Fan Pressure Test Using Power Supply Adapter (P/N 3297AS623-1)

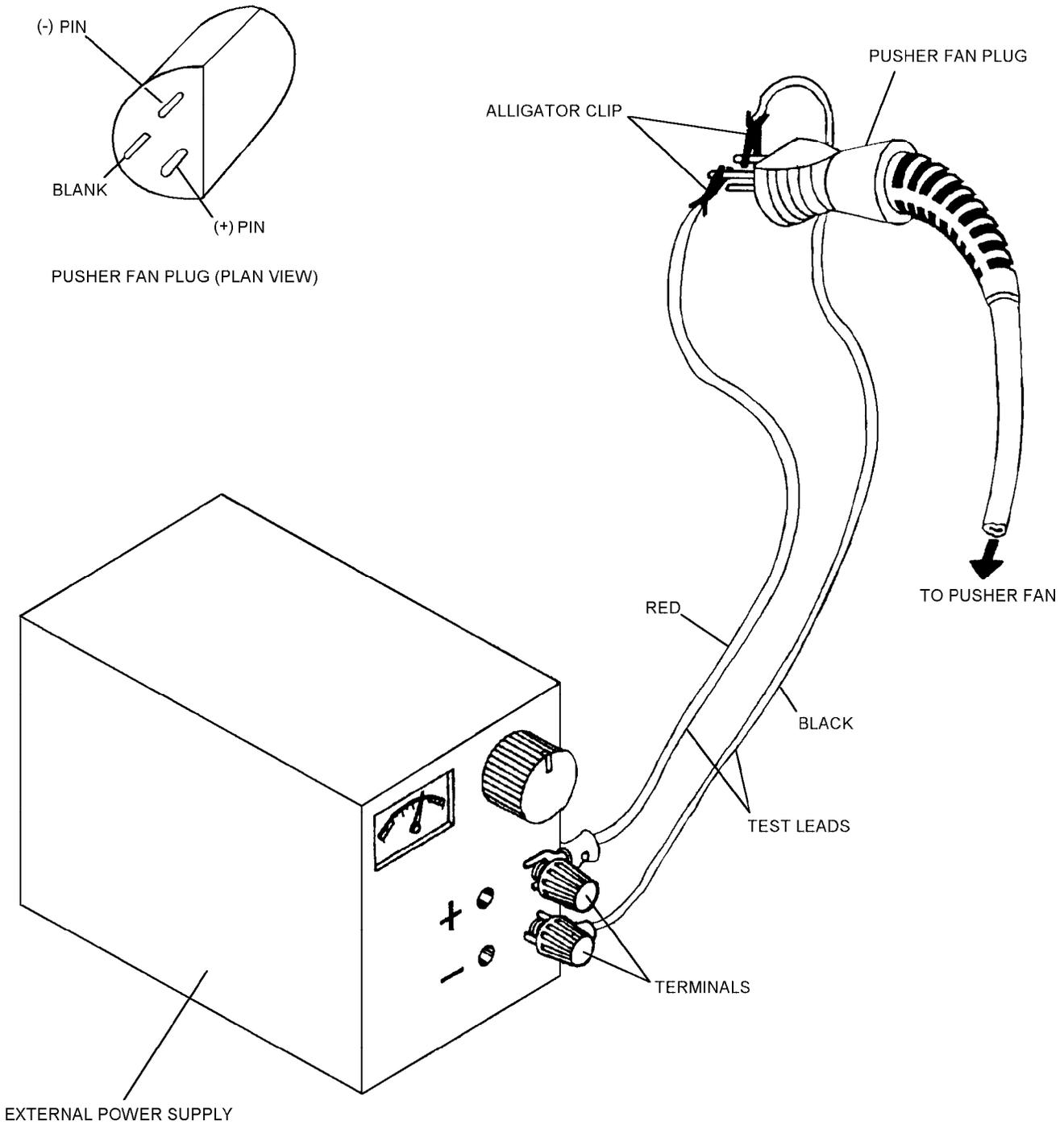


Figure 4-75. Pusher Fan Pressure Test Using Direct Wiring

**4-143. Faceplate Visual Area - Protective Coating.**

1. Apply an even coat of latex coating to outer visual area of faceplate using a 1 inch brush.

2. Allow coating to dry several hours, or overnight if possible. Coating turns from white to clear and becomes tough as it dries.

**4-144. A/P22P-14(V)1 Respirator Assembly Only.****NOTE**

Ensure H-manifold is in the horizontal position (open) during all tests.

**4-145. Inhalation and Hood Inlet Valves - Reverse Leakage Test.**

1. Remove pusher fan from J-manifold.

2. Support mask toggle harness on hood support clamp (figure 4-76).

3. Remove and retain brass shear screw from anti-suffocation disconnect.

4. Disconnect anti-suffocation disconnect from mask inlet adapter.

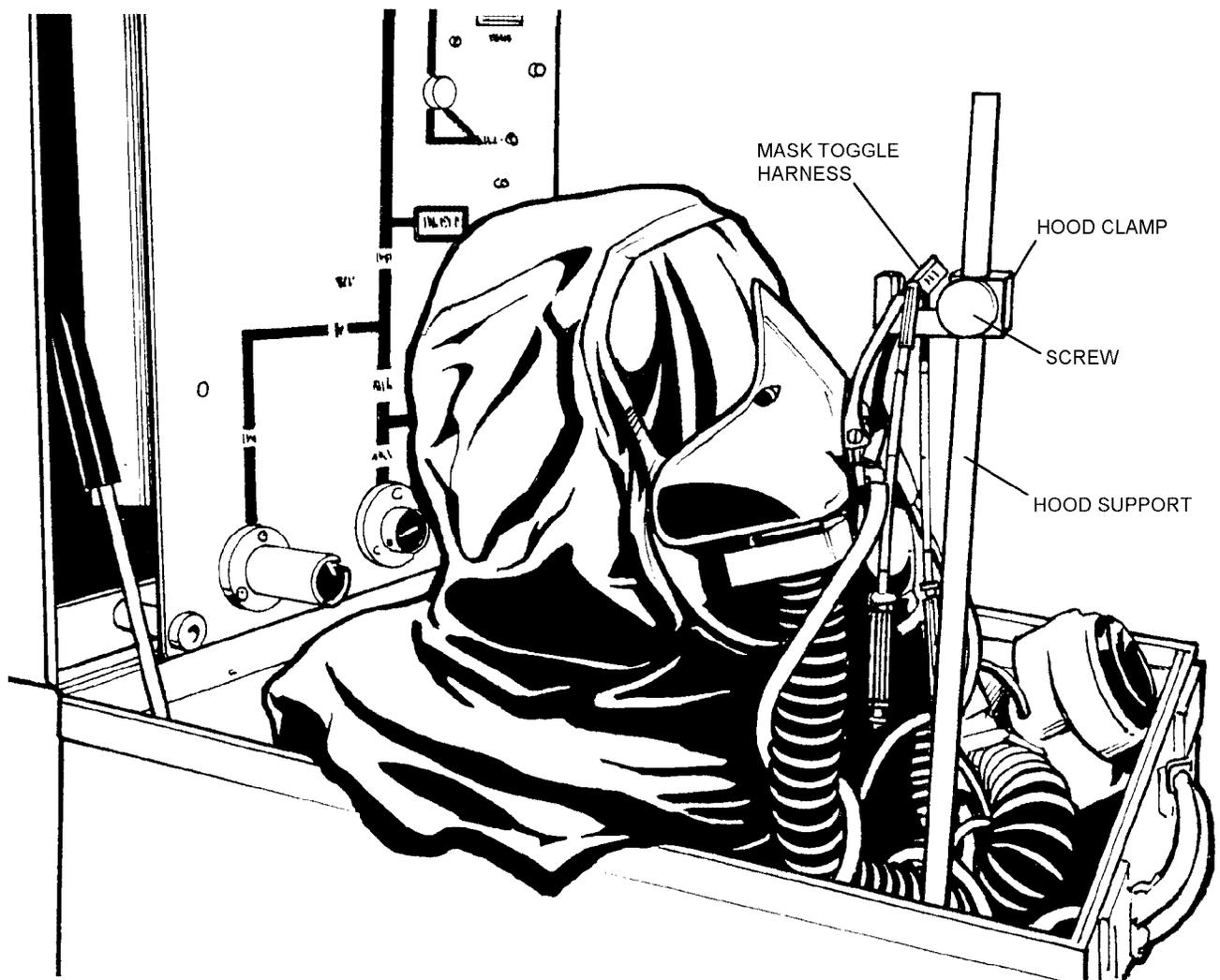


Figure 4-76. Hood Support Clamp

4-76

## NAVAIR 13-1-6.10

5. Connect adapter M between mask inlet adapter and anti-suffocation disconnect (figure 4-77).

### NOTE

If blanking is close on adapter M, repair in accordance with paragraph 4-139A.

6. Connect free end of adapter M to T (figure 4-78).

7. Fit blank B7 to J-manifold.

8. Set V1 and V3 to CLOSED.

9. Set V2 to 3.

10. Ensure V4 is OPEN.

### WARNING

Overpressurization will collapse stepped rubber valve into valve seat.

11. Rotate pump handle (P1) counter-clockwise until digital manometer reads -4 in. H<sub>2</sub>O. Once the digital manometer reads -4 in. H<sub>2</sub>O, observe and note the suction reading on digital manometer during a period of 7 seconds. Do not allow pressure to exceed -4.25 in. H<sub>2</sub>O. Reading shall be between -2 and -4 in. H<sub>2</sub>O. Record results on Performance Test Sheet. If reading is not between 2 and 4 in. H<sub>2</sub>O after 7 seconds, refer to table 4-4, Respirator Assembly Troubleshooting.

12. Set V1 to OPEN.

13. Remove adapter M from T1.

14. Remove adapter M from the anti-suffocation disconnect and mask inlet adapter.

15. Remove blank B7 from J-manifold.

### 4-146. H-Manifold Inlet Valve - Reverse Leakage Test.

1. Ensure H-manifold selector knob is set to the OPEN (horizontal) position.

2. Connect adapter K to J-manifold and T2 (figure 4-79 and 4-80).

3. Set V1 to CLOSED.

4. Set V2 to 2.

5. Set V3 to CLOSED.

6. Ensure V4 is open.

7. Rotate pump handle (P1) counter-clockwise until digital manometer reads -4 in. H<sub>2</sub>O. Observe and note pressure reading on digital manometer during a period of 7 seconds. Do not allow pressure to exceed -4.25 in. H<sub>2</sub>O. Reading shall be between -2 and -4 in. H<sub>2</sub>O. Record results on the Performance Test Sheet.

### NOTE

If digital manometer does not read between -2 and -4 in. H<sub>2</sub>O, refer to table 4-4 for troubleshooting procedures.

8. Set V1 to OPEN.

9. Remove adapter K from T2 and J-manifold.

10. Reconnect anti-suffocation disconnect to mask inlet adapter.

### 4-147. Exhalation Outlet Valve - Reverse Leakage Test.

1. Remove and discard cable tie from rubber snout.

2. Remove snout.

3. Invert hood and prop open compensated exhalation valve (inside or on a mask) using adapter J (figure 4-81).

### NOTE

Wetting the O-ring on adapter H, with water will make it easier to fit the exhalation valve port. Ensure O-ring does not roll out of its seat.

4. Slowly push adapter H into exhalation valve port. Push straight-in until O-ring is no longer visible (figure 4-82).

5. Connect free end of adapter H to T3 (figure 4-83).

6. Set V1 to CLOSED.

7. Set V2 to 1.

8. Set V3 to CLOSED.

9. Set V4 to OPEN.

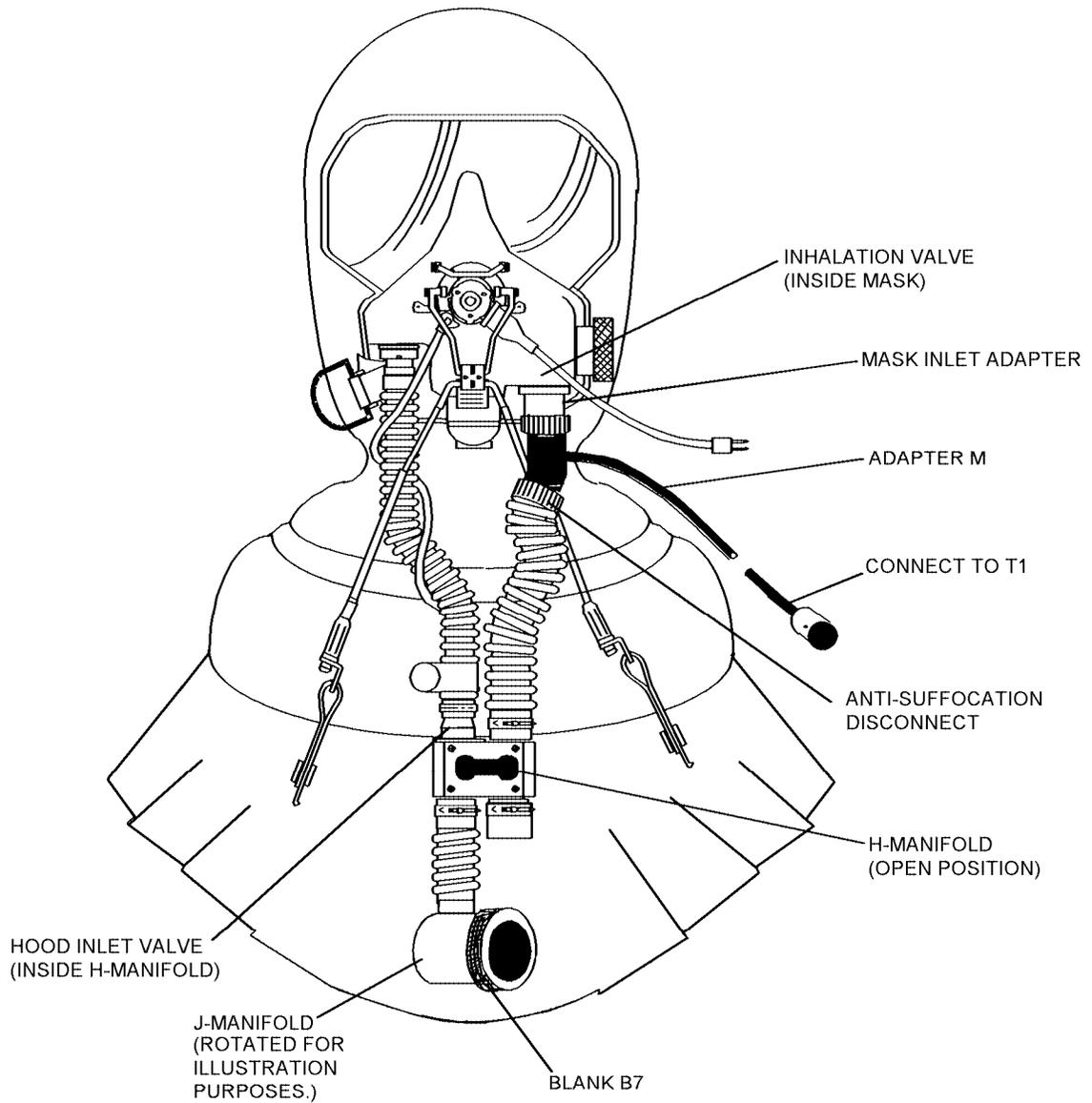


Figure 4-77. (V)1 Variant - Non-Oxygen Inhalation and Hood Inlet Valves - Reverse Leakage Test

4-77

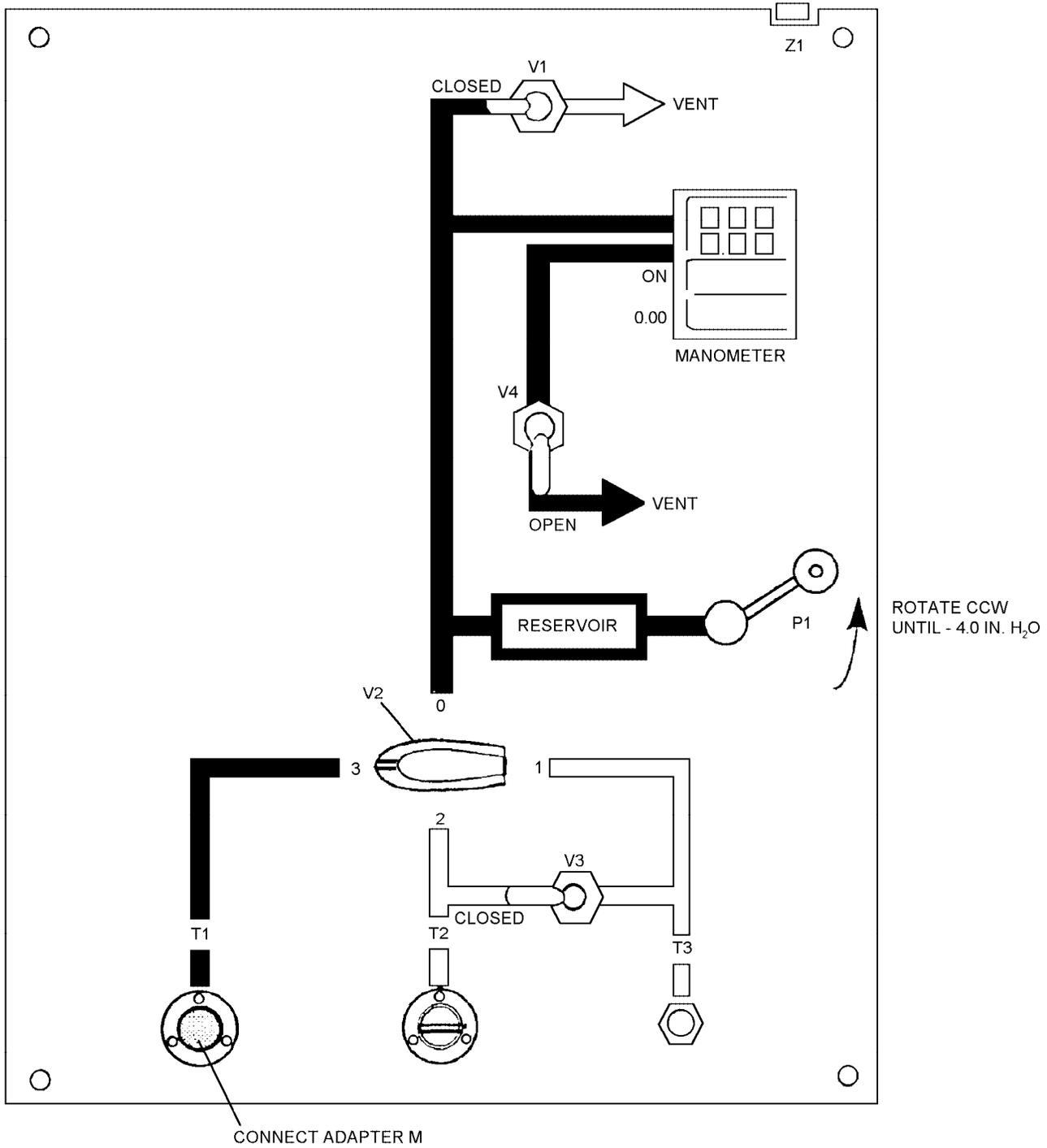


Figure 4-78. Inhalation and Hood Inlet Valves - Reverse Leakage Test

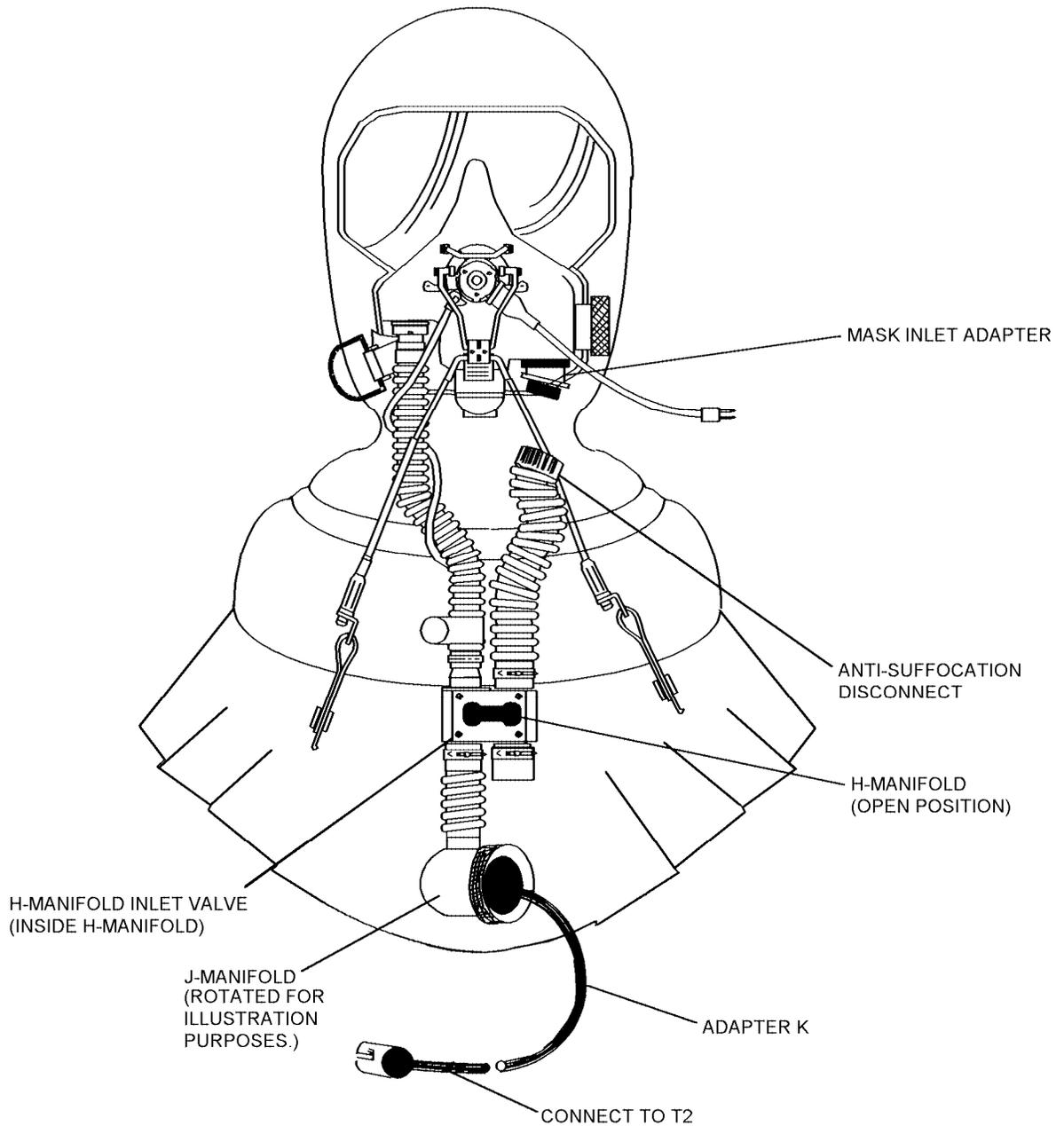


Figure 4-79. (V)1 Variant - Non-Oxygen H-Manifold Inlet Valve - Reverse Leakage Test

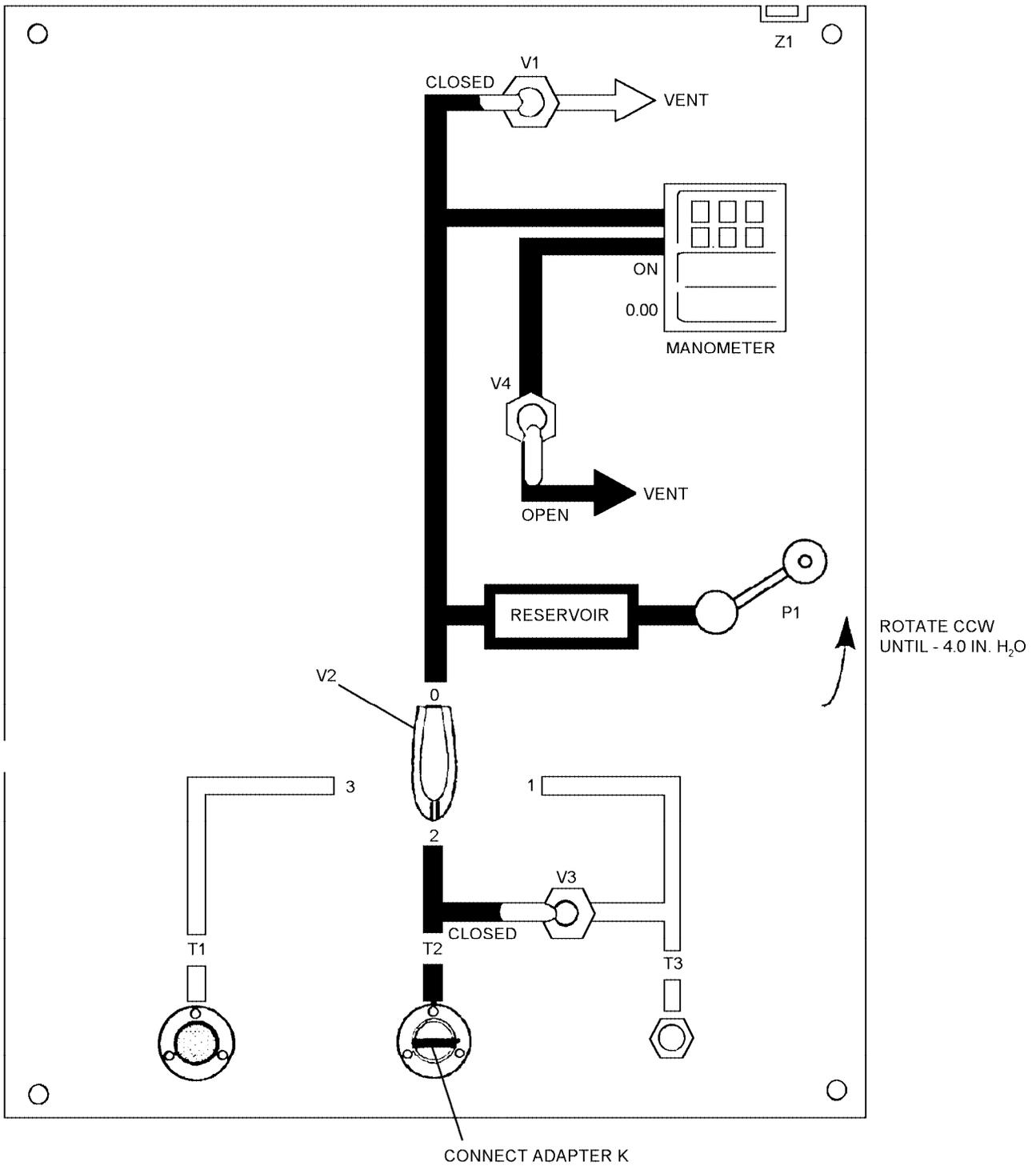


Figure 4-80. H-Manifold Inlet Valve - Reverse Leakage Test

10. Very slowly, rotate pump handle (P1) clockwise until digital manometer reads 1 in. H<sub>2</sub>O. Once the digital manometer reaches 1 in. H<sub>2</sub>O, observe and note the pressure reading during a 12 second period. The digital manometer reading shall be between 0.5 and 1.0 in. H<sub>2</sub>O. Record results on Performance Test Sheet. If reading is not between 0.5 and 1.0 in. H<sub>2</sub>O after 12 seconds, refer to [table 4-4](#), Respirator Assembly - Troubleshooting.

11. Set V1 to OPEN.

12. Remove adapter H from T3 and exhalation valve port.

13. Remove adapter J from the compensated exhalation valve.

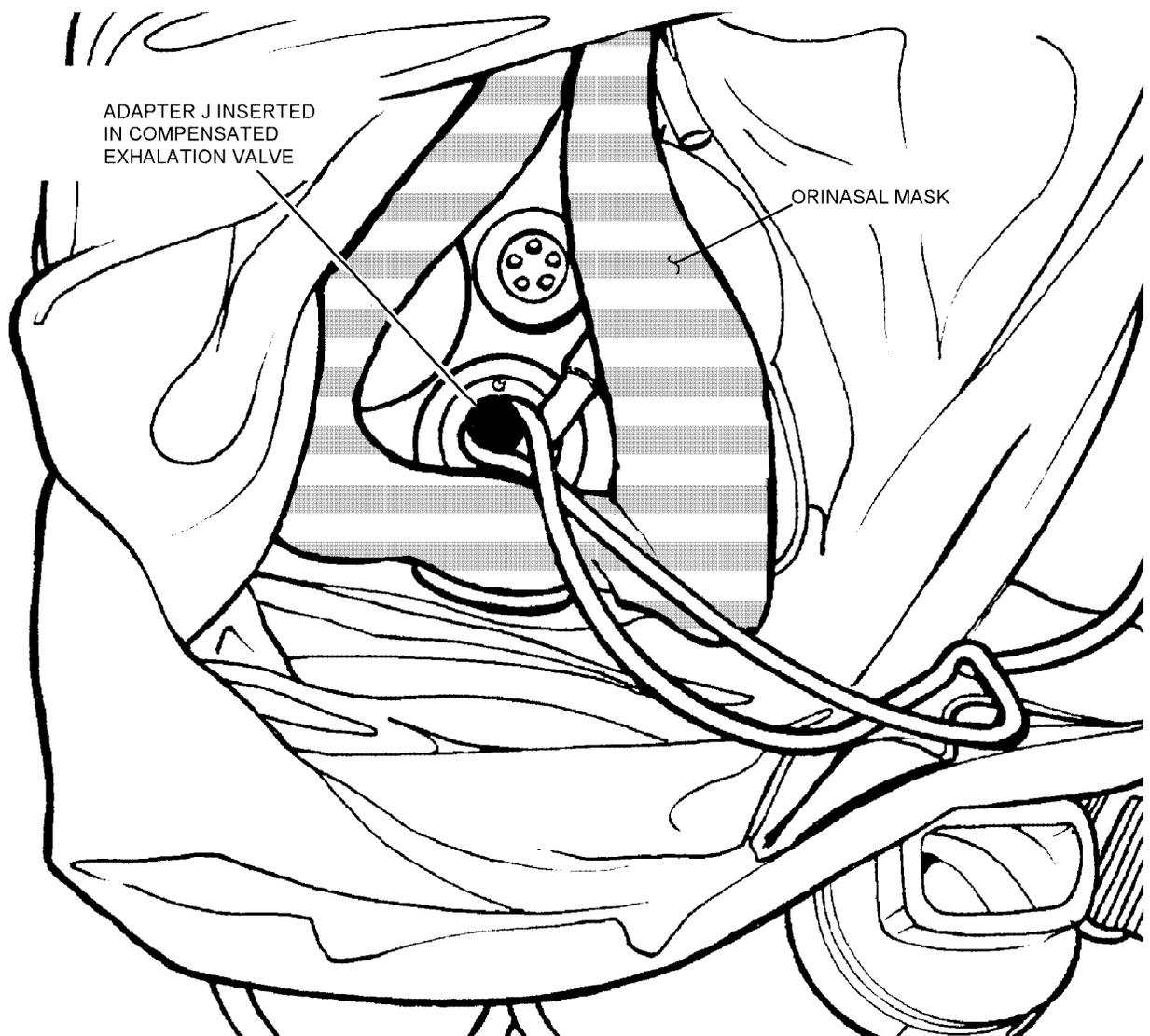


Figure 4-81. Inverted Hood

4-81

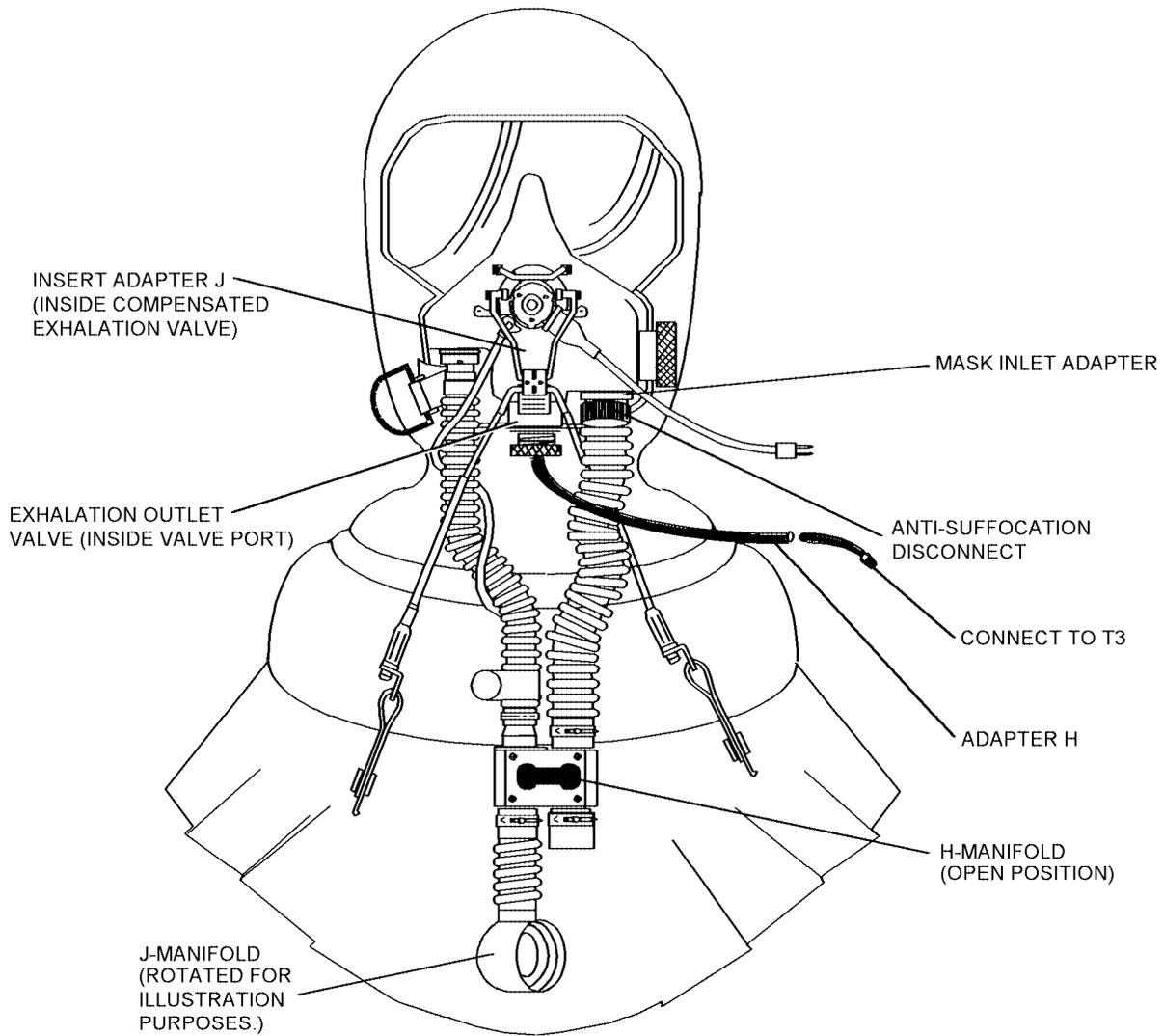


Figure 4-82. (V)1 Variant - Non-Oxygen Exhalation Outlet Valve - Reverse Leakage Test

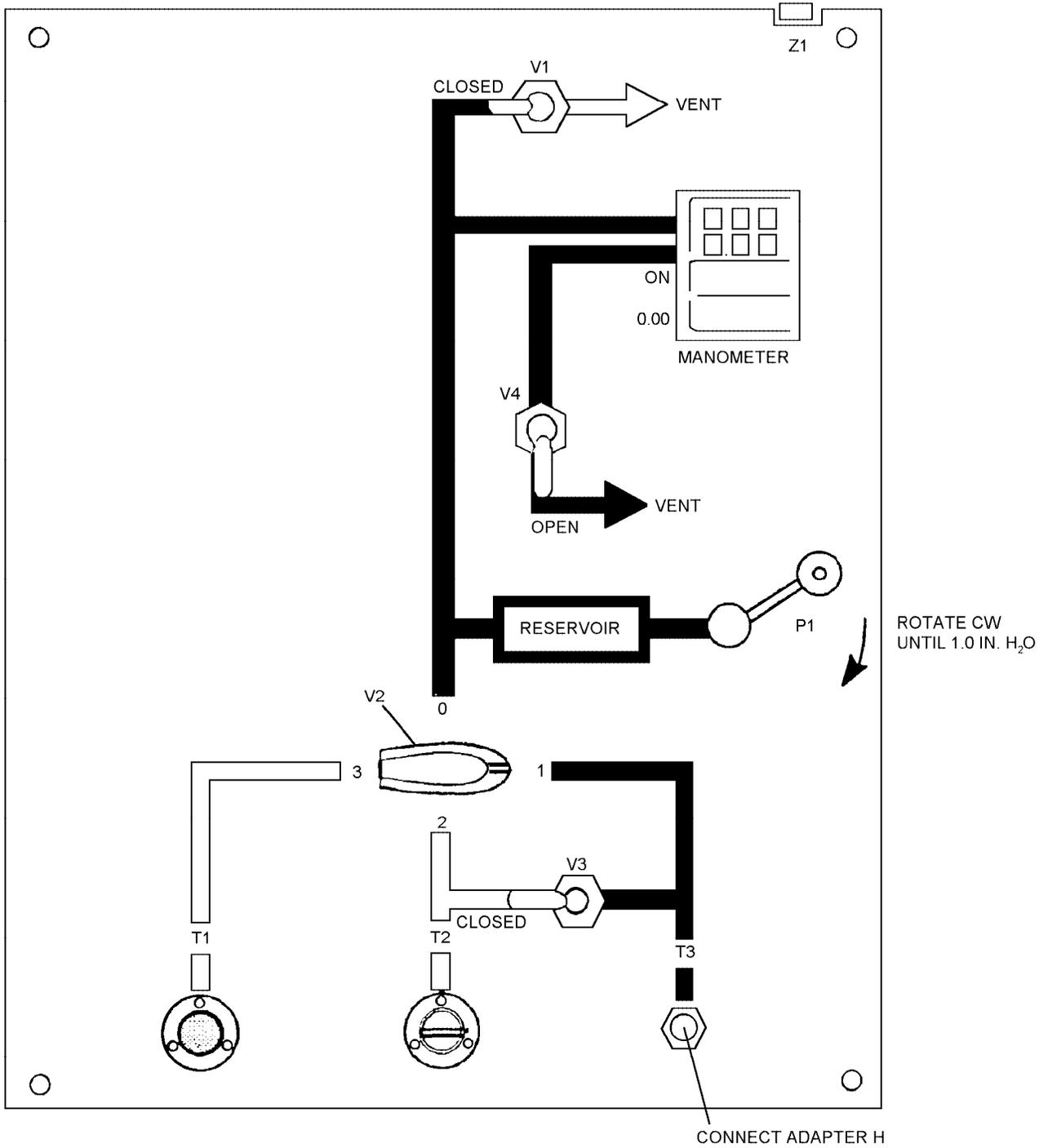


Figure 4-83. Exhalation Outlet Valve - Reverse Leakage Test

## NAVAIR 13-1-6.10

### 4-148. Compensated Exhalation Valve - Functional Test.

1. Ensure brass shear screw is removed from anti-suffocation disconnect.
2. Separate anti-suffocation disconnect from mask inlet adapter.
3. Connect adapter E between the anti-suffocation disconnect and mask inlet adapter (figure 4-84).
4. Connect adapter G to T3 and the neck seal test stand (figure 4-85).

### WARNING

Be careful not to rip the neck seal when fitting to neck seal test stand.

5. Fit the respirator neck seal to the neck seal test stand and secure with O-ring (figure 4-86).
6. Close hood outlet valve.
7. Fit pusher fan to J-manifold (if not already connected).
8. Connect power supply (as performed during pusher fan pressure test) to the pusher fan.

### NOTE

If a dc power supply is not available, a fully charged NiCad battery pack (P/N 3297AS601-1) may be used instead. If a NiCad battery pack is not available a Lithium battery pack (P/N 3297AS601-2) may be used.

9. Set V1 to CLOSED.
10. Set V2 to 1.
11. Ensure V3 is CLOSED.
12. Ensure V4 is OPEN.
13. Turn power supply ON and note pressure on digital manometer after hood is fully inflated. Ensure

external power supply is providing an output of 3.75 Vdc at 1 amp. Allow to stabilize for a period of 1 minute before taking a reading. The digital manometer shall read 2.6 in. H<sub>2</sub>O or higher. Record result on Performance Test Sheet. If manometer does not read 2.6 in. H<sub>2</sub>O or higher, refer to table 4-4, Respirator Assembly - Troubleshooting.

14. Disconnect adapter E (quick disconnect) into two halves. Ensure air vents from mask exhalation valve port.

15. Observe and note pressure shall not be more than 1.5 in. H<sub>2</sub>O. Record result on Performance Test Sheet. If the pressure is more than 1.5 in. H<sub>2</sub>O, refer to table 4-4, Respirator Assembly - Troubleshooting.

16. Re-connect adapter E (quick disconnect).

17. Repeat the test procedure from steps 14-16 three times.

18. Turn OFF power supply.

19. Open hood outlet valve.

20. Disconnect pusher fan from power supply.

21. Remove adapter E from mask inlet adapter and anti-suffocation disconnect.

22. Reconnect mask inlet adapter and anti-suffocation disconnect.

23. Reassemble adapter E.

### 4-149. Mask Assembly - Overall Leakage Test.

1. Ensure neck seal is properly fitted to neck seal test stand (figure 4-86).

- 1A. Remove Pusher Fan. ■

2. Fit blank B7 to J-manifold (figure 4-87).

3. Ensure adapter G is correctly fitted between T3 and neck seal test stand port (figure 4-88).

4. Close hood outlet valve.

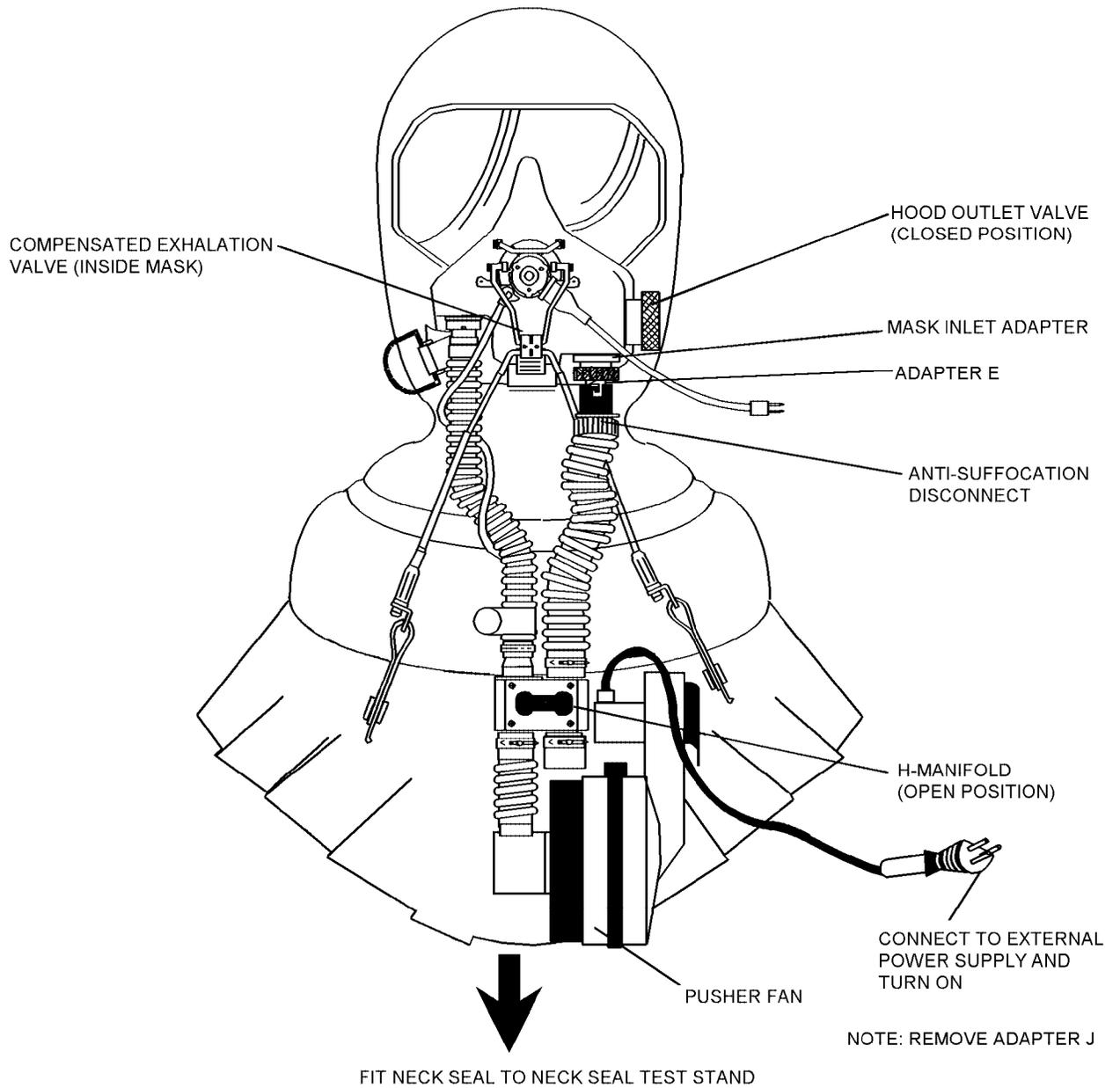


Figure 4-84. (V)1 Variant - Non-Oxygen Compensated Exhalation Valve - Functional Test

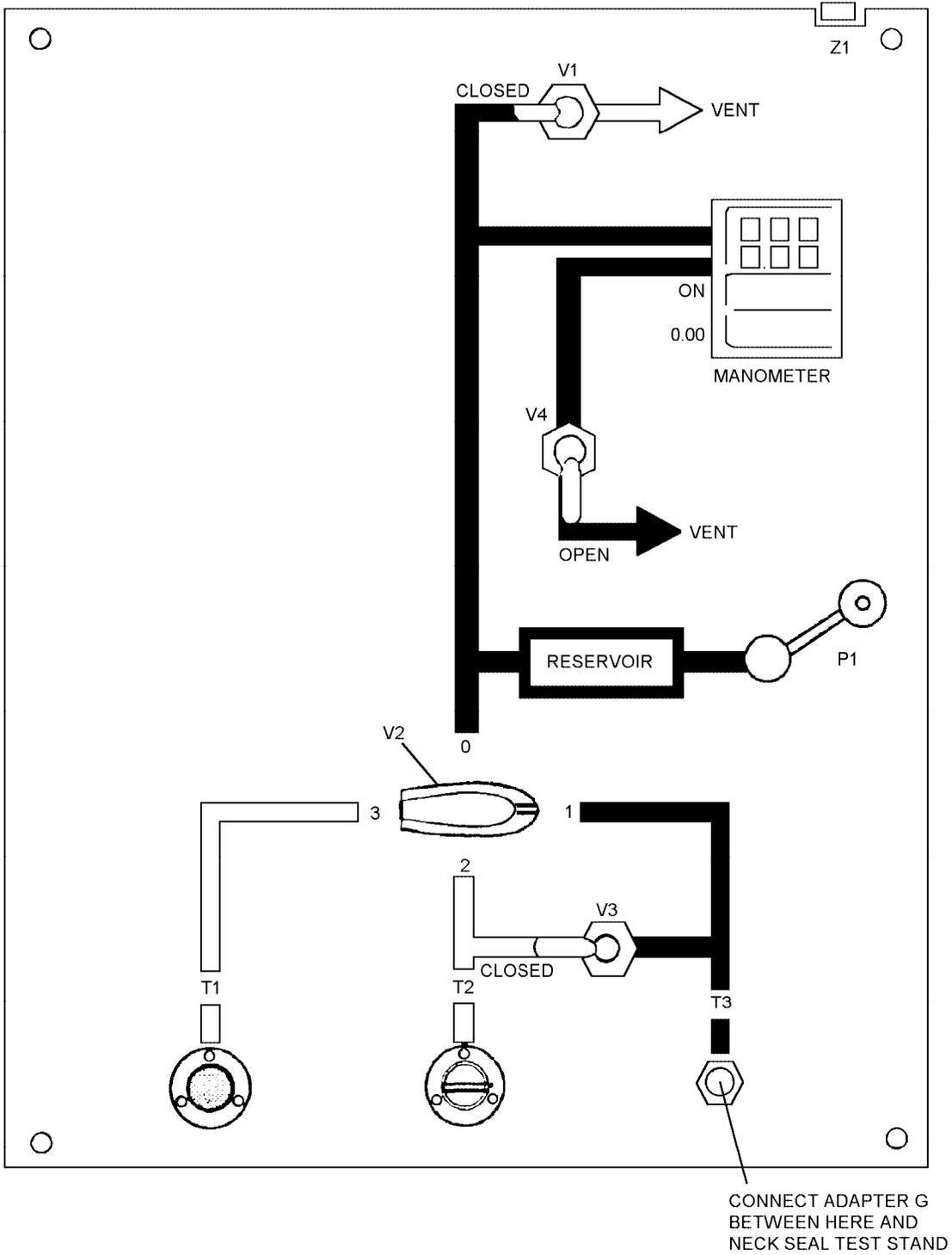


Figure 4-85. Compensated Exhalation Valve - Functional Test

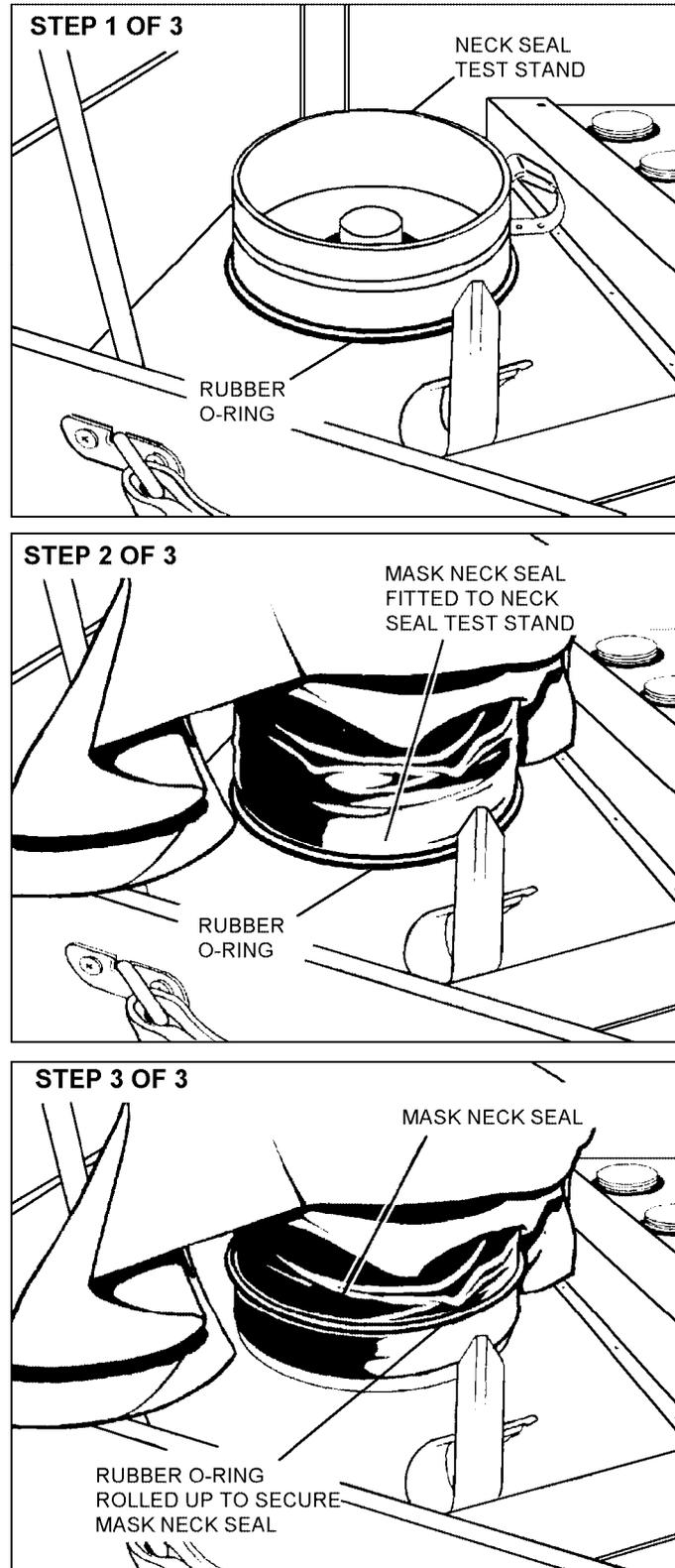


Figure 4-86. Neck Seal Test Stand

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### NOTE

Wetting O-ring on adapter H with water will make it easier to fit into exhalation valve port. Ensure O-ring does not roll out of its seat.

5. Slowly push adapter H into the exhalation valve port. Push straight-in until O-ring is no longer visible.

6. Fit blank B4 to free end of adapter H ([figure 4-87](#)).

7. Screw pusher fan into test adapter #2.

8. Connect free end of test adapter #2 to T2 ([figure 4-88](#)).

9. Set V1 to CLOSED.

10. Set V2 to 1.

11. Set V3 and V4 to OPEN.

12. Connect pusher fan to the power supply. Ensure power supply output is on and set to 3.75 Vdc at 1 amp.

13. Inflate hood until 2 in. H<sub>2</sub>O is indicated on the digital manometer then set V3 to CLOSED.

14. Allow system to stabilize for a period of 1 minute. Switch V3 from OPEN to CLOSED to maintain 2 in. H<sub>2</sub>O.

15. Set V3 to CLOSED and turn off power supply to pusher fan.

16. Observe and note the pressure on the digital manometer is between 2.0 and 1.95 in. H<sub>2</sub>O after one minute. It may be necessary to exceed 2 in. H<sub>2</sub>O and repeat several times until pressure stabilizes. Record result on Performance Test Sheet. If manometer does not read between 1.95 and 2.0 in. H<sub>2</sub>O then refer to [table 4-4](#), Respirator Assembly - Troubleshooting.

17. Open hood outlet valve.

18. Set V1 to OPEN.

19. Disconnect pusher fan from external power supply.

20. Disconnect adapter #2 from T2.

21. Remove adapter #2 from pusher fan.

22. Remove respirator from neck seal test stand.

23. Remove adapter G from T3 and neck seal test stand.

24. Remove adapter H and blank B4.

25. Refit snout and secure with a 3.6 mm wide, black cable tie. Tension with a cable tie tool set to INT, 4 (Intermediate) setting. Position cable tie head to wearer's right side.

26. Remove blank B7 from J-manifold.

27. Refit pusher fan assembly to J-manifold.

28. Refit shear screw to anti-suffocation disconnect.

29. Complete Performance Test Sheet.

### NOTE

The following test should only be performed to help isolate a leak in mask.

#### 4-150. Hood Assembly - Overall Leakage Test.

1. Remove shear screw and retain. Detach hood inlet and mask inlet hoses from mask in accordance with disassembly, [paragraph 4-159](#).

2. Remove cable tie securing snout to faceplate. Remove snout.

3. Connect adapter H to the mask exhalation outlet valve port.

4. Fit blank B4 to free end of adapter H.

5. Support mask on hanger by its toggle harness.

6. Fit hood assembly to neck seal test stand and adjust neck seal to lie without creasing the sealing ring.

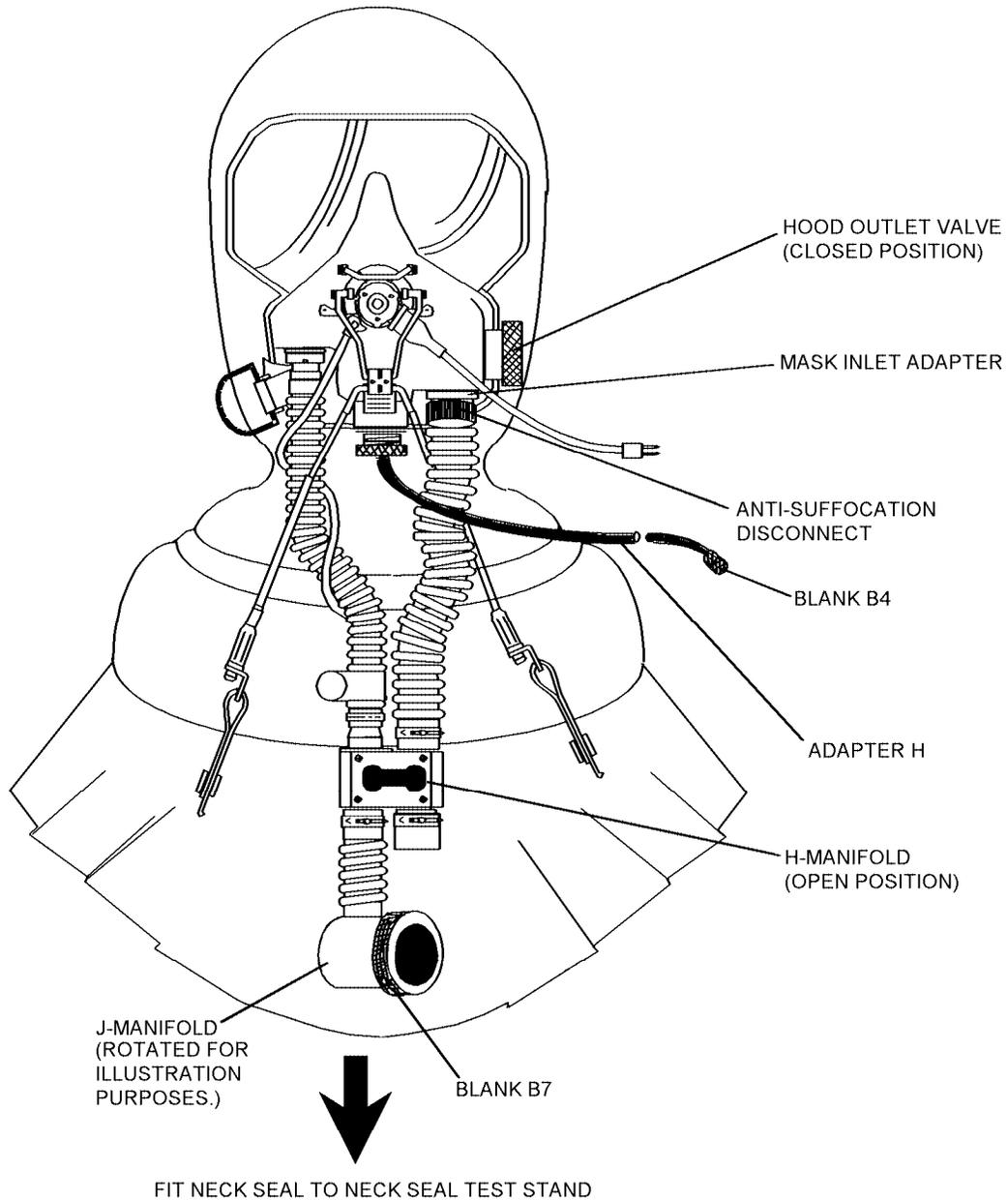


Figure 4-87. (V)1 Variant - Non-Oxygen Mask Assembly - Overall Leakage Test

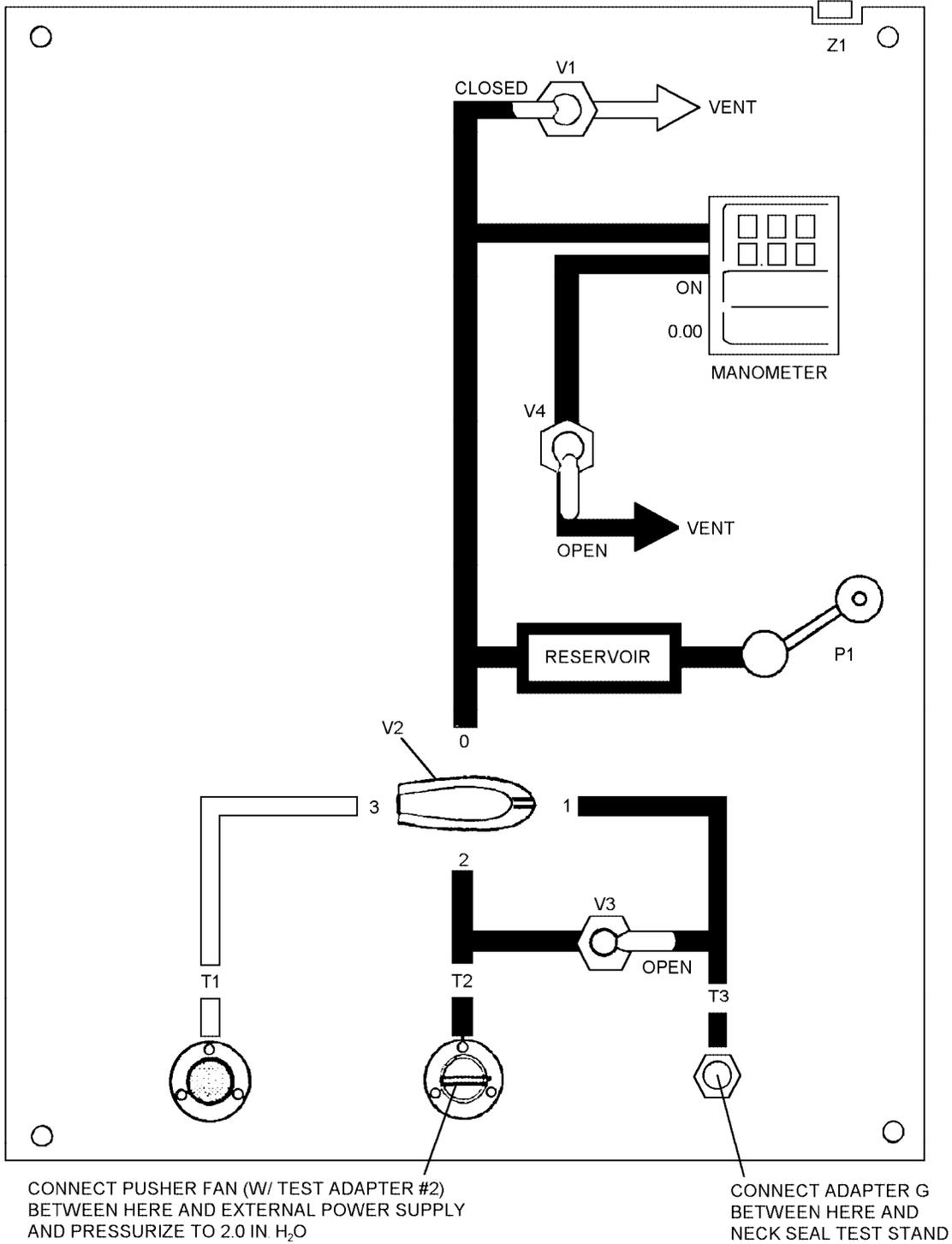


Figure 4-88. Mask Assembly - Overall Leakage Test

7. Close hood outlet valve.
8. Connect one end of Adapter G to T3 and other end to neck seal test stand port.
9. Fit blank B5 to mask inlet adapter (figure 4-89).
10. Fit blank B6 to hood inlet adapter (figure 4-89).
11. Remove the pusher fan from J-manifold.
12. Screw pusher fan canister into J-manifold of test adapter #2.
13. Connect test adapter #2 to T2 (figure 4-90).
14. Connect power supply to the pusher fan and turn on. Ensure power supply is set to 3.75 Vdc at 1 amp.
15. Set V2 to 1 and V3 to the OPEN position. Inflate the hood until 2 in. H<sub>2</sub>O is indicated on digital manometer.
16. Set V1 to CLOSED position. Set V4 to OPEN. Allow pressure within hood to stabilize, if necessary, by adjusting V1 (opening and closing) to maintain 2 in. H<sub>2</sub>O.
17. When stabilized, set V1 to Closed. In the event reading is too high, reduce pressure by opening hood outlet valve. Set power supply switch to OFF.
18. Observe pressure indicated on digital manometer. Pressure shall be between 1.95 and 2.0 in. H<sub>2</sub>O during a one minute period. If manometer fails to indicate or if pressure is not between 1.95 and 2.0 in. H<sub>2</sub>O refer to table 4-4, Respirator Assembly - Troubleshooting. Record results on Performance Test Sheet.
19. Set V1 to OPEN.
20. Open the hood outlet valve.
21. Disconnect test adapter #2 from T2 and disconnect from the external power supply.
22. Remove the pusher fan from test adapter #2.
23. Replace pusher fan to J-manifold.
24. Remove adapter G.
25. Remove blanks B4, B5, and B6.
26. Remove mask from the neck seal stand and support hanger, and fit velveteen cover.
27. Remove adapter H from exhalation valve port.
28. Refit restraint cords/pins and snout, hood and mask inlet hoses in accordance with paragraph 4-223, Assembly.
29. Peel away protective coating (if applied to faceplate area prior to bench testing). Ensure no traces remain on visual area.

#### 4-151. A/P22P-14(V)2 through (V)4 Respirator Assemblies Only.

##### NOTE

Left-side or right-side pertains to the side when wearing mask.

#### 4-152. Inhalation and Hood Inlet Valves - Reverse Leakage Test.

1. Ensure H-manifold selector knob is set to OPEN (horizontal position).
2. Unscrew pusher fan from right-side J-manifold (do not remove cable tie).
3. Remove 90° rubber molding/filter canister from left-side J-manifold.
4. Support mask on test set hanger (figure 4-76) by toggle harness.
5. Remove and retain brass shear screw from anti-suffocation disconnect.
6. Twist off anti-suffocation disconnect from mask inlet adapter.

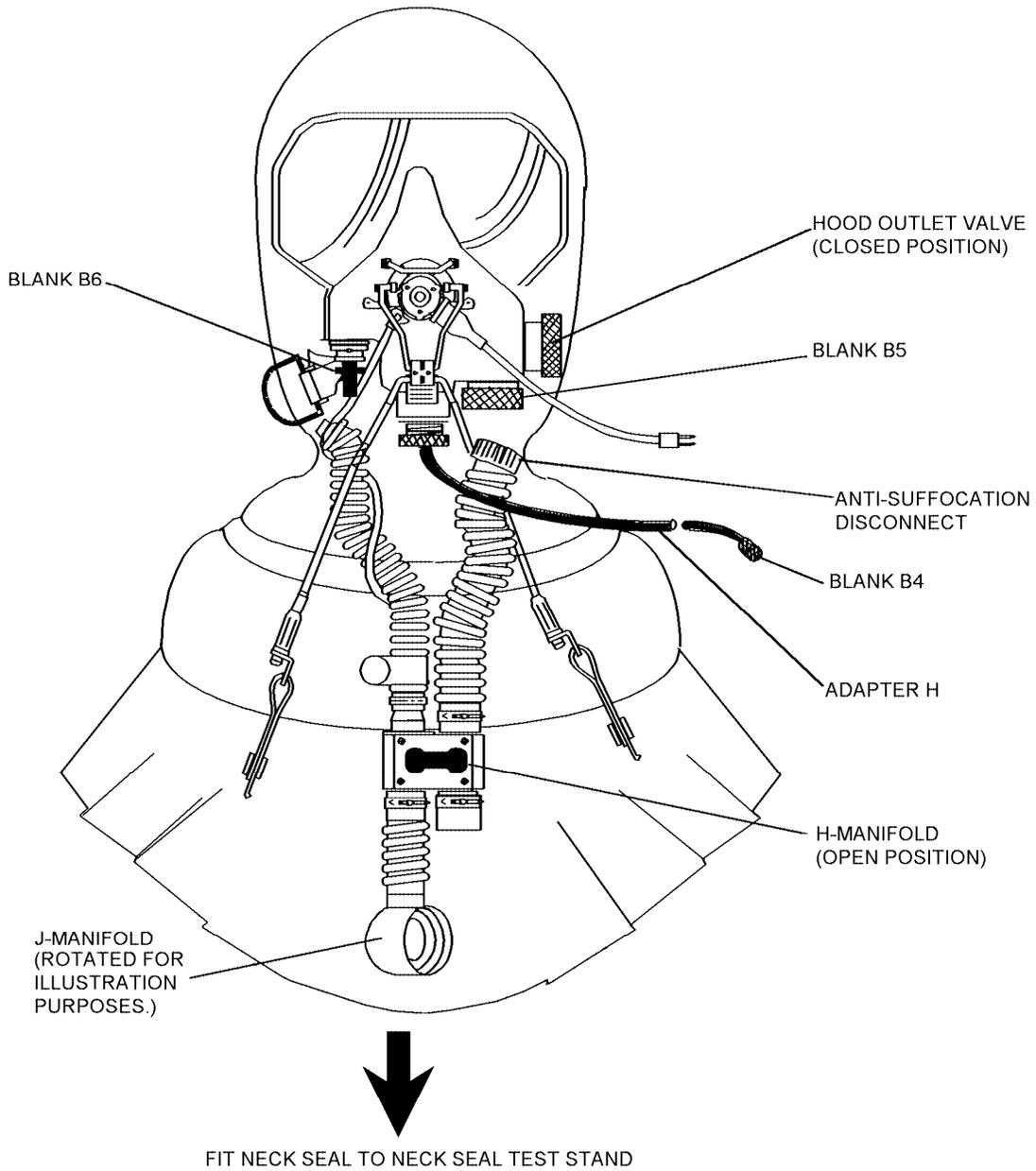
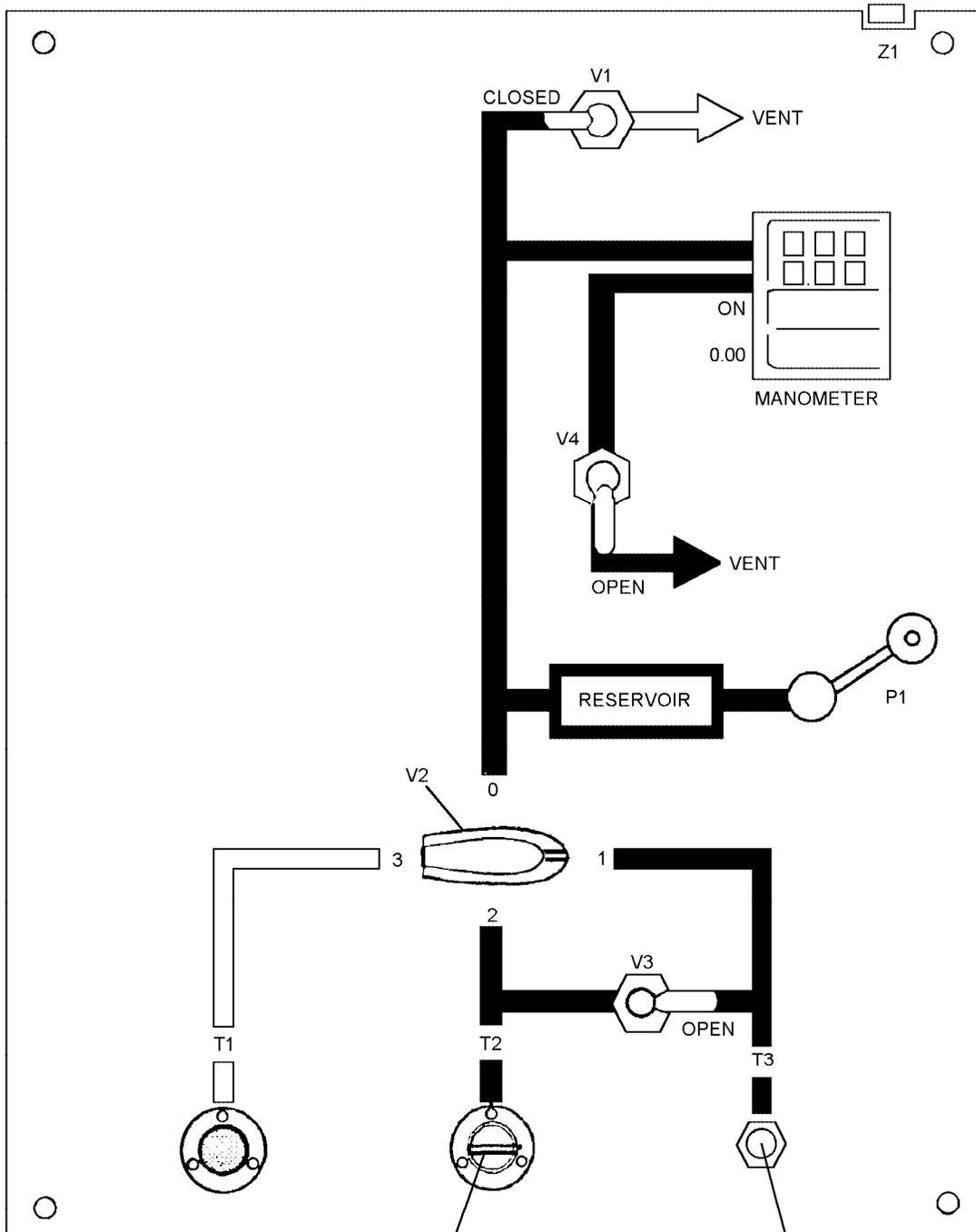


Figure 4-89. (V)1 Variant - Non-Oxygen Hood Assembly - Overall Leakage Test



CONNECT PUSHER FAN (W/ TEST ADAPTER #2) BETWEEN HERE AND EXTERNAL POWER SUPPLY AND PRESSURIZE TO 2.0 IN. H<sub>2</sub>O

CONNECT ADAPTER G BETWEEN HERE AND NECK SEAL TEST STAND

Figure 4-90. Hood Assembly - Overall Leakage Test

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7. Connect adapter M between mask inlet adapter and anti-suffocation disconnect (figure 4-91).

8. Connect free end of adapter M to T1 (figure 4-92).

9. Fit blanks B7 to both J-manifolds.

10. Set V1 and V3 to CLOSED.

11. Set V2 to 3.

12. Ensure V4 is OPEN.

### WARNING

Overpressurization will collapse stepped rubber valve into valve seat.

13. Slowly rotate pump handle (P1) counter-clockwise until digital manometer reads -4 in. H<sub>2</sub>O. Once the digital manometer reads -4 in. H<sub>2</sub>O, observe and note the suction reading on digital manometer during a period of 7 seconds. Do not allow pressure to exceed -4.25 in. H<sub>2</sub>O. Reading shall be between -2 and -4 in. H<sub>2</sub>O. Record results on Performance Test Sheet.

### NOTE

If digital manometer does not hold a steady pressure or read between -2 and -4 in. H<sub>2</sub>O, refer to the table 4-4 for troubleshooting procedures.

14. Set V1 to OPEN.

15. Remove adapter M from T1.

16. Remove adapter M from anti-suffocation disconnect and mask inlet adapter.

17. Remove both B7 blanks from J-manifolds.

4-153. H-manifold Inlet Valve - Reverse Leakage Test.

1. Ensure H-manifold selector knob is set to the OPEN (horizontal) position.

2. Connect adapter K to right-side J-manifold and T2 (figure 4-93 and 4-94).

3. Set V1 to CLOSED.

4. Set V2 to 2.

5. Set V3 to CLOSED.

6. Ensure V4 is OPEN.

7. Rotate pump handle (P1) counter-clockwise until digital manometer reads -4 in. H<sub>2</sub>O. Observe and note pressure reading on digital manometer during a period of 7 seconds. Do not allow pressure to exceed -4.25 in. H<sub>2</sub>O. Reading shall be between -2 and -4 in. H<sub>2</sub>O. Record results on Performance Test Sheet.

### NOTE

If digital manometer does not read between -2 and -4 in. H<sub>2</sub>O, refer to table 4-4 for troubleshooting procedures.

8. Set V1 to OPEN.

9. Remove adapter K from T2 and right-side J-manifold.

10. Reconnect anti-suffocation disconnect to mask inlet adapter.

4-154. Exhalation Outlet Valve - Reverse Leakage Test.

1. Remove and discard cable tie from rubber snout.

2. Remove snout.

3. Prop open compensated exhalation valve (inside orinasal mask) using adapter J (rubber stopper) (figure 4-81).

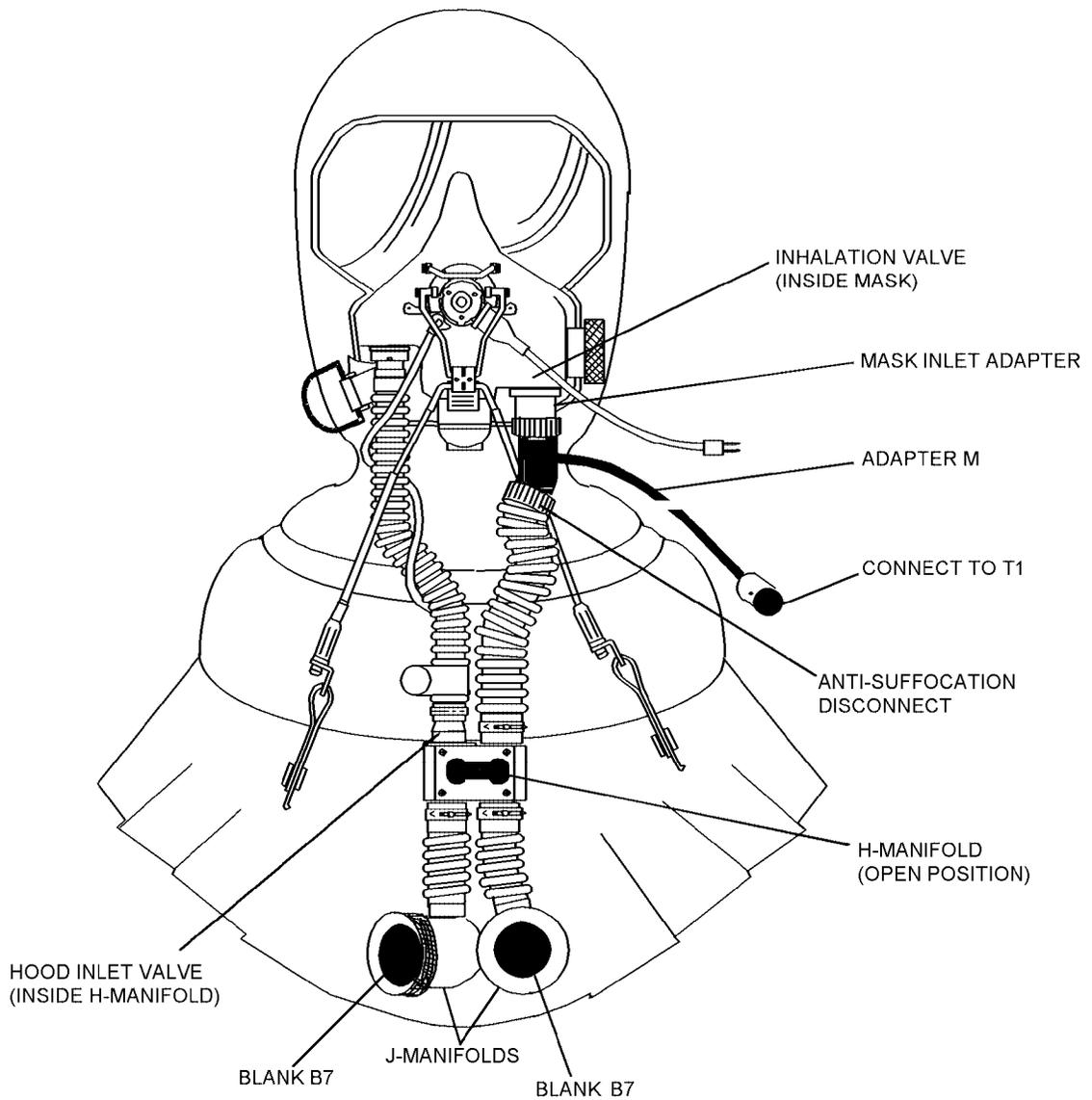


Figure 4-91. (V)2 thru (V)4 Variants Inhalation and Hood Inlet Valves - Reverse Leakage Test

4-91

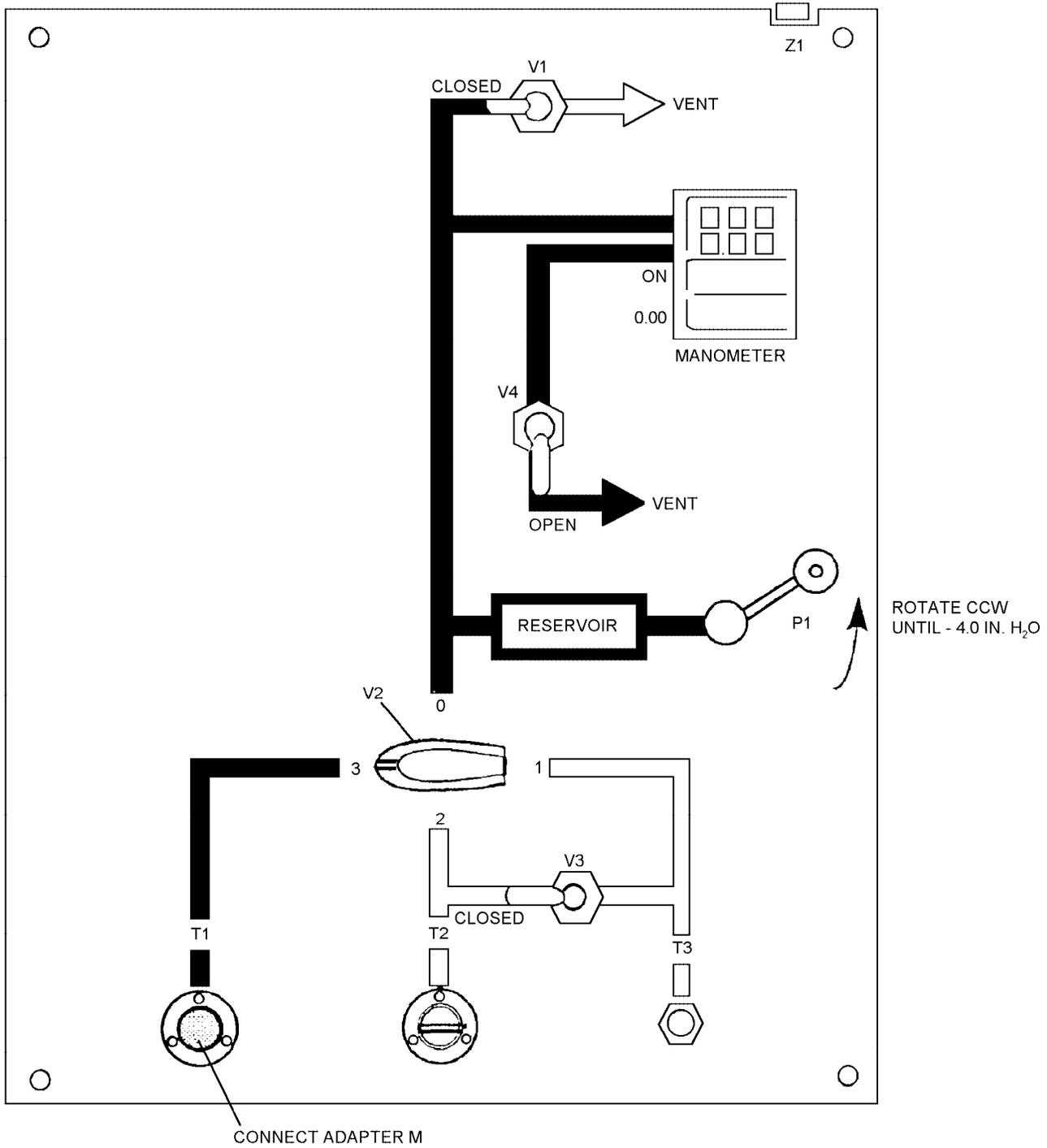


Figure 4-92. Inhalation and Hood Inlet Valves - Reverse Leakage Test

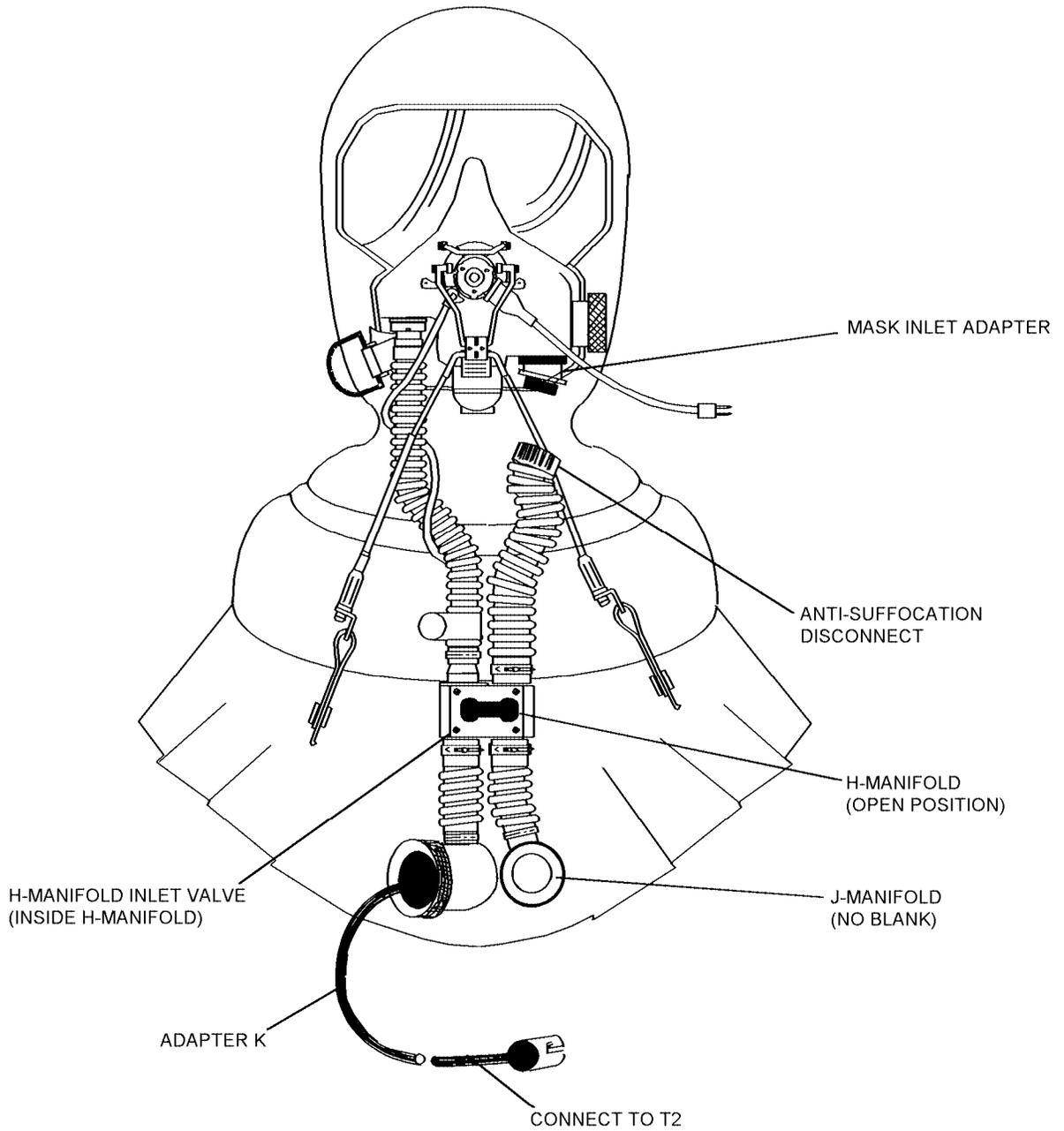


Figure 4-93. (V)2 thru (V)4 Variants - H-Manifold Inlet Valve - Reverse Leakage Test

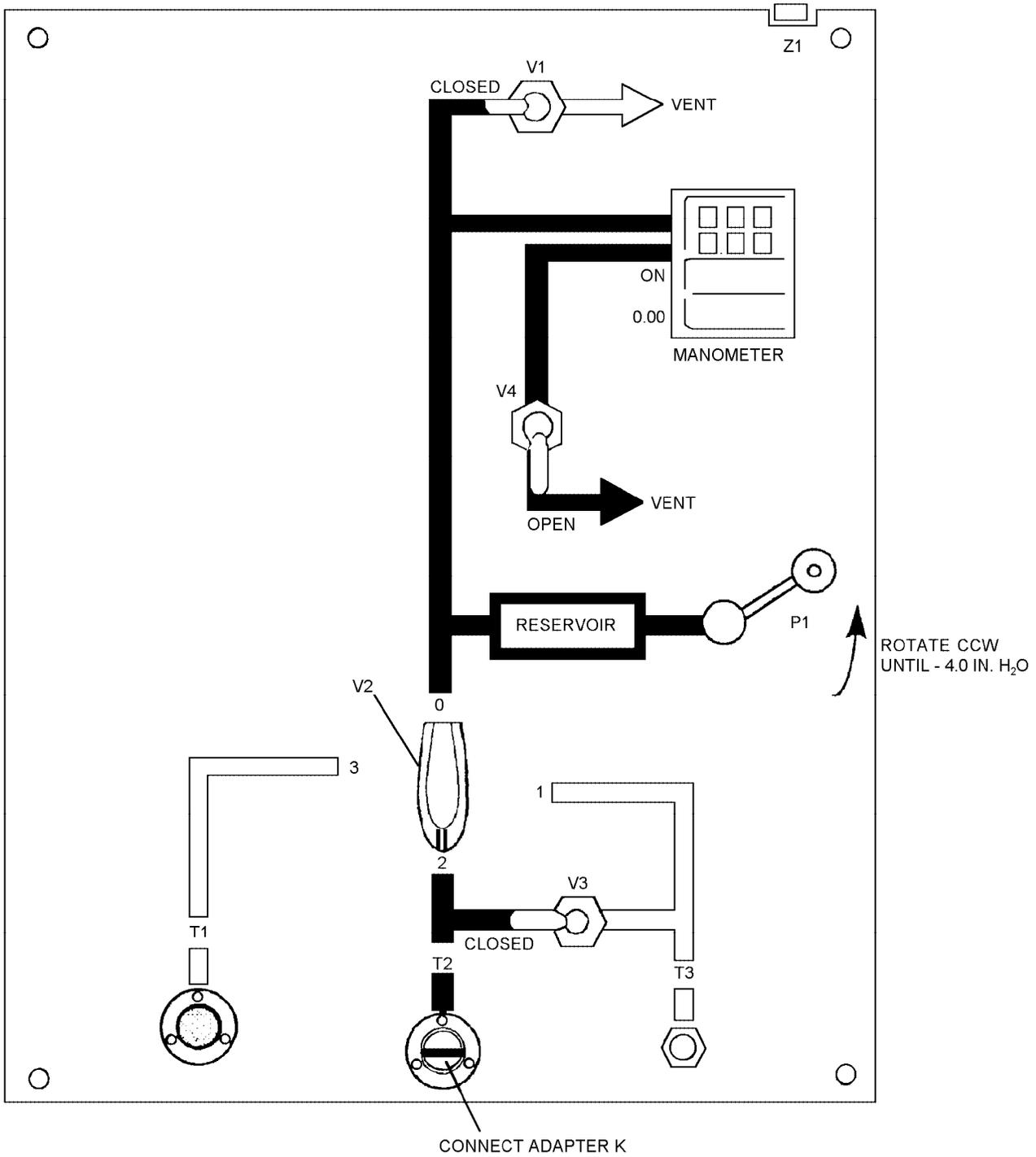


Figure 4-94. H-Manifold Inlet Valve - Reverse Leakage Test

**NOTE**

Wetting the O-ring on adapter H will make it easier to fit the exhalation valve port. Ensure O-ring does not roll out of its seat.

4. Slowly push adapter H into exhalation valve port. Push straight-in until O-ring is no longer visible (figure 4-95).
5. Connect free end of adapter H to T3 (figure 4-96).
6. Set V1 to CLOSED.
7. Set V2 to 1.
8. Set V3 to CLOSED.
9. Set V4 to OPEN.
10. Don't rotate pump handle too fast. Rotate pump handle (P1) clockwise until digital manometer reads 1 in. H<sub>2</sub>O. Once digital manometer reaches 1 in. H<sub>2</sub>O, observe and note the pressure reading during a 12 second period. Digital manometer reading shall be between 0.5 and 1.0 in. H<sub>2</sub>O. Record results on Performance Test Sheet.

**NOTE**

If digital manometer does not read between 0.5 and 1.0 in. H<sub>2</sub>O, refer to table 4-4 for troubleshooting procedures.

11. Set V1 to OPEN.
  12. Remove adapter H from T3 and exhalation valve port.
  13. Remove adapter J from the compensated exhalation valve.
- 4-155. Compensated Exhalation Valve - Functional Test.
1. Ensure H-manifold is set to OPEN (horizontal) position.

2. Ensure brass shear screw is removed from anti-suffocation disconnect.
3. Separate anti-suffocation disconnect from mask inlet adapter.
4. Connect adapter E between the anti-suffocation disconnect and the mask inlet adapter (figure 4-97).
5. Connect adapter G to T3 and neck seal test stand (figure 4-98).
6. Fit respirator neck seal to neck seal test stand (figure 4-76).
7. Close hood outlet valve.
8. Fit pusher fan to right-side J-manifold (if not already connected).
9. Connect power supply (as performed during Pusher Fan Pressure Test) to pusher fan.
10. Blank B7 to left-side J-manifold.

**NOTE**

If a dc power supply is not available, a fully charged NiCad battery pack shall be used. If a NiCad battery is not available a Lithium battery pack (P/N 3297AS601-2) may be used instead.

11. Set V1 to CLOSED.
12. Set V2 to 1.
13. Ensure V3 is CLOSED.
14. Ensure V4 is OPEN.
15. Turn power supply on and note pressure on digital manometer after hood is fully inflated. Ensure power supply is providing an output of 1A and 3.75 Vdc. Digital manometer shall read 2.6 in. H<sub>2</sub>O or higher. Record result on Performance Test Sheet.

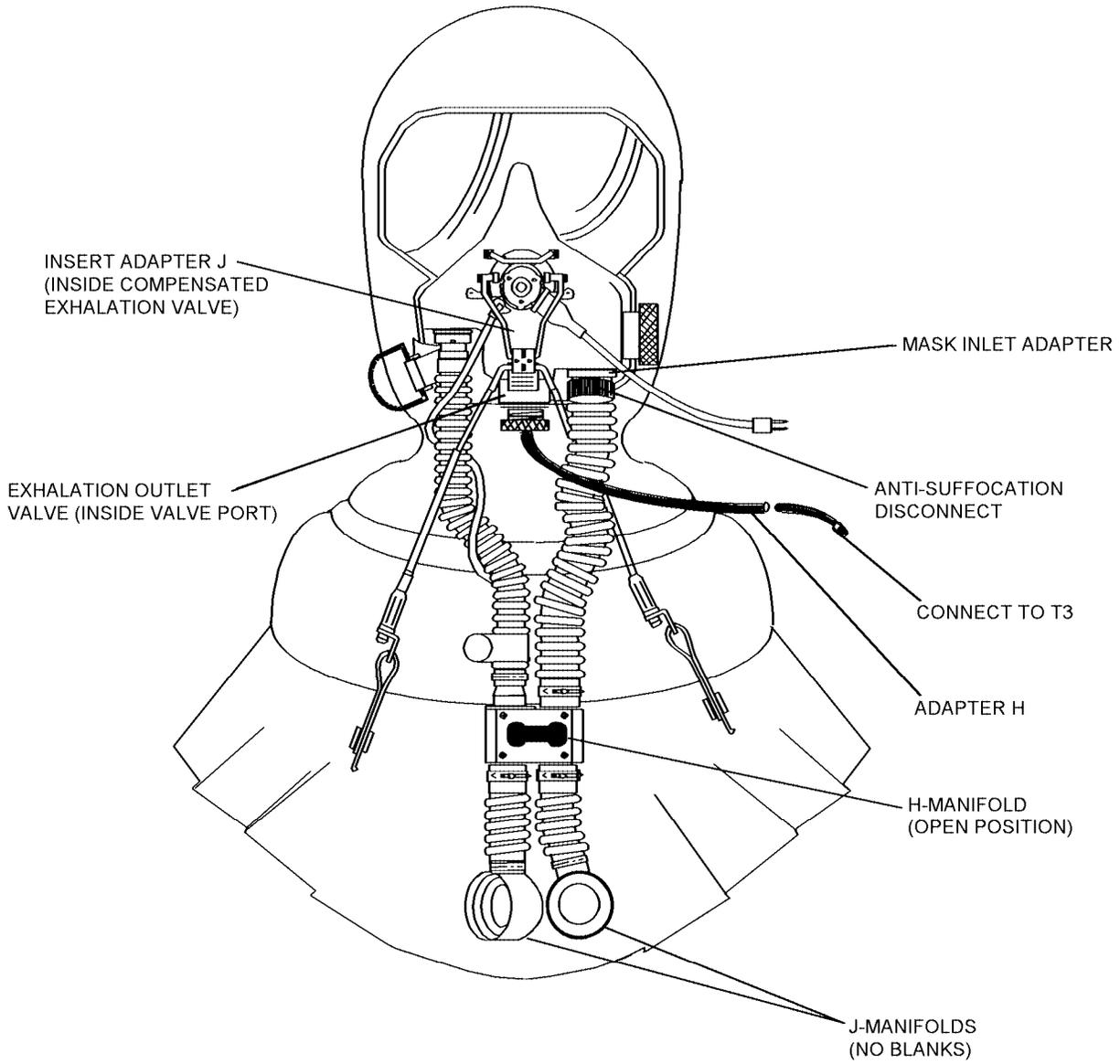


Figure 4-95. (V)2 thru (V)4 Variants - Exhalation Outlet Valve - Reverse Leakage Test

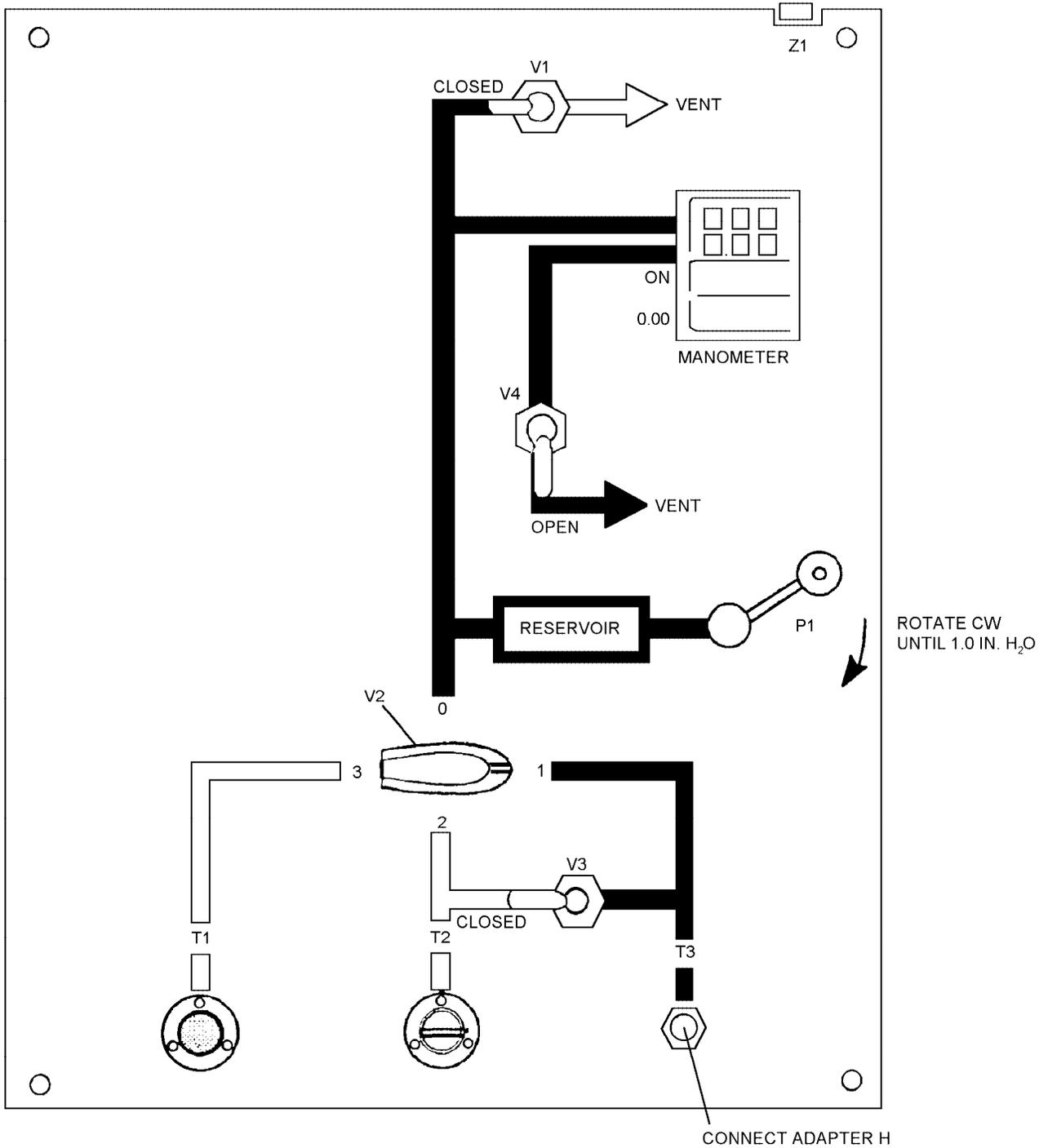


Figure 4-96. Exhalation Outlet Valve - Reverse Leakage Test

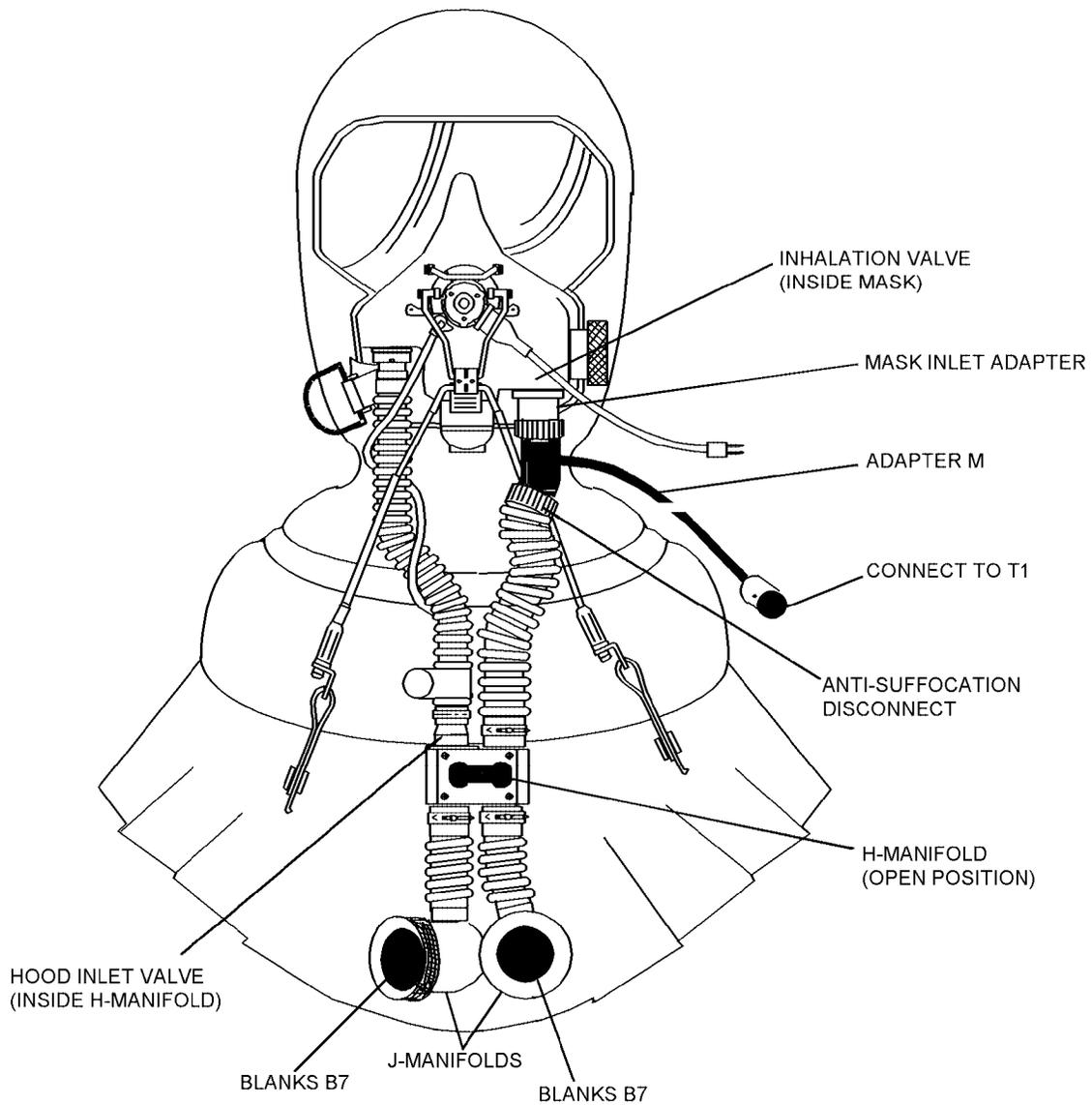


Figure 4-97. (V)2 thru (V)4 Variants - Compensated Exhalation Valve - Functional Test

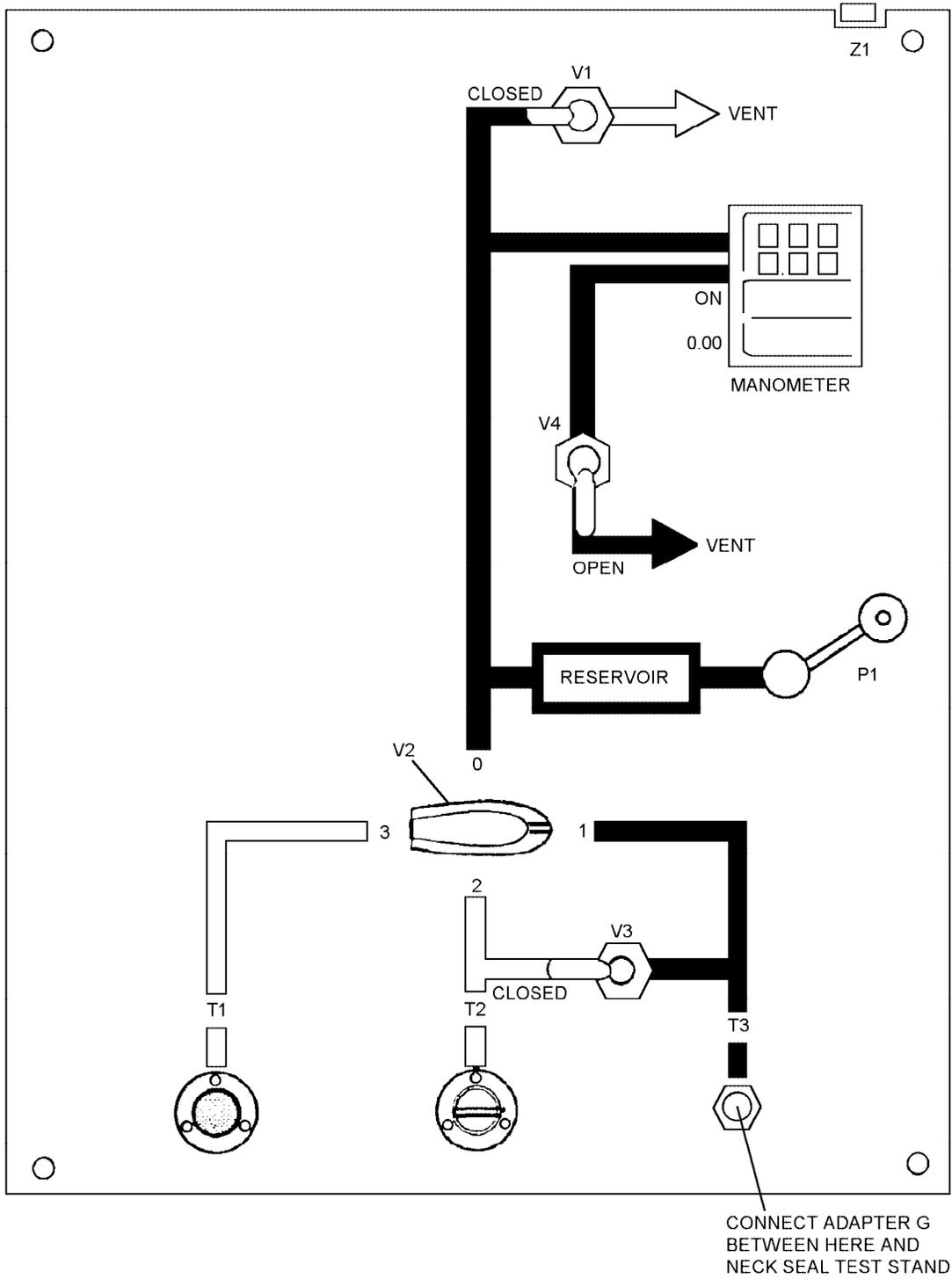


Figure 4-98. Compensated Exhalation Valve - Functional Test

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### NOTE

If digital manometer does not read 2.6 in. H<sub>2</sub>O or higher, refer to [table 4-4](#) for troubleshooting procedures.

16. Disconnect adapter (quick disconnect) E into two halves. Ensure air vents from mask exhalation valve port.

### NOTE

If air does not vent from exhalation valve port, refer to [table 4-4](#) for troubleshooting procedures.

17. Record result on Performance Test Sheet.

18. Observe and note pressure. Pressure shall not be more than 1.5 in. H<sub>2</sub>O. Record result on the Performance Test Sheet.

19. Re-connect adapter E (quick disconnect).

20. Repeat test procedure from [steps 16 - 19](#) three times.

### NOTE

If digital manometer reads more than 1.5 in. H<sub>2</sub>O, refer to [table 4-4](#) for troubleshooting procedures.

21. Turn OFF power supply.

22. Open hood outlet valve.

23. Disconnect pusher fan from power supply.

24. Remove adapter E from mask inlet adapter and anti-suffocation disconnect.

25. Reassemble adapter E.

26. Reconnect mask inlet adapter and anti-suffocation disconnect.

27. Refit shear screw to anti-suffocation disconnect.

28. Remove pusher fan from right-side J-manifold.

4-156. Mask Assembly - Overall Leakage Test.

1. Ensure neck seal is properly fitted to neck seal test stand.

2. Fit blank B7 to right-side J-manifold ([figure 4-99](#)).

3. Ensure adapter G is correctly fitted between T3 and neck seal test stand port ([figure 4-100](#)).

4. Close hood outlet valve.

### NOTE

Wetting O-ring on adapter H will make it easier to fit in exhalation valve port. Ensure O-ring does not roll out of its seat.

5. Slowly push adapter H into exhalation valve port. Push straight in until O-ring is no longer visible.

6. Fit blank B4 to free end of adapter H.

7. Screw pusher fan into test adapter #2.

8. Connect free end of test adapter #2 to T2.

9. Set V1 to CLOSED.

10. Set V2 to 1.

11. Set V3 and V4 to OPEN.

12. Connect power supply and switch to ON. Ensure power supply output is 1A and 3.75 Vdc.

### NOTE

Ensure H-manifold is in OPEN position.

13. Inflate hood until 2 in. H<sub>2</sub>O is indicated on digital manometer, then set V3 to CLOSED.

14. Allow system to stabilize. Switch V3 from OPEN to CLOSED to maintain 2 in. H<sub>2</sub>O.

15. Set V3 to CLOSED and turn off power supply to pusher fan.

16. Observe and note pressure on digital manometer is between 2.0 and 1.95 in. H<sub>2</sub>O after one minute. It may be necessary to repeat several times until pressure stabilizes. Record result on Performance Test Sheet.

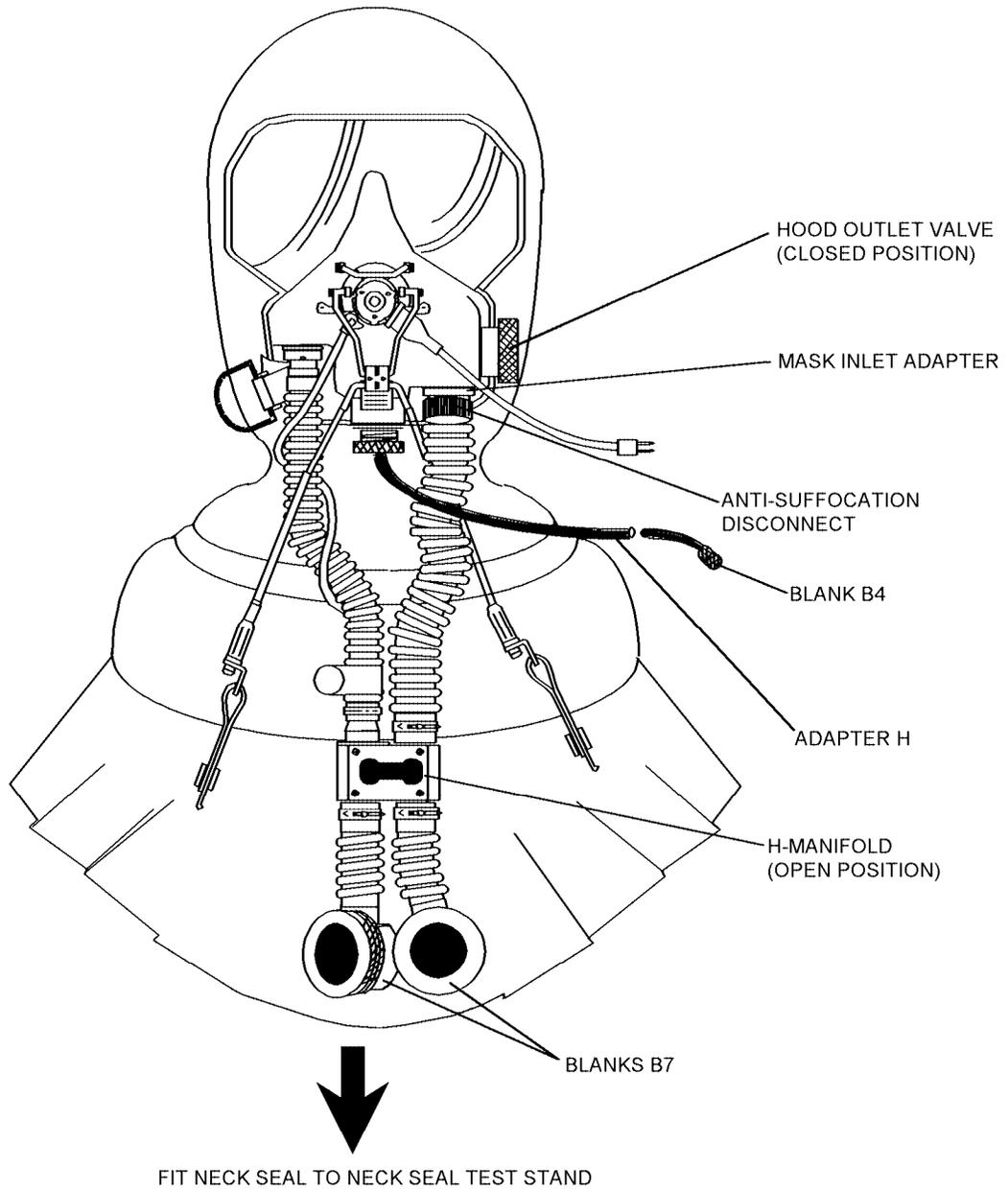


Figure 4-99. (V)2 thru (V)4 Variants - Mask Assembly - Overall Leakage Test

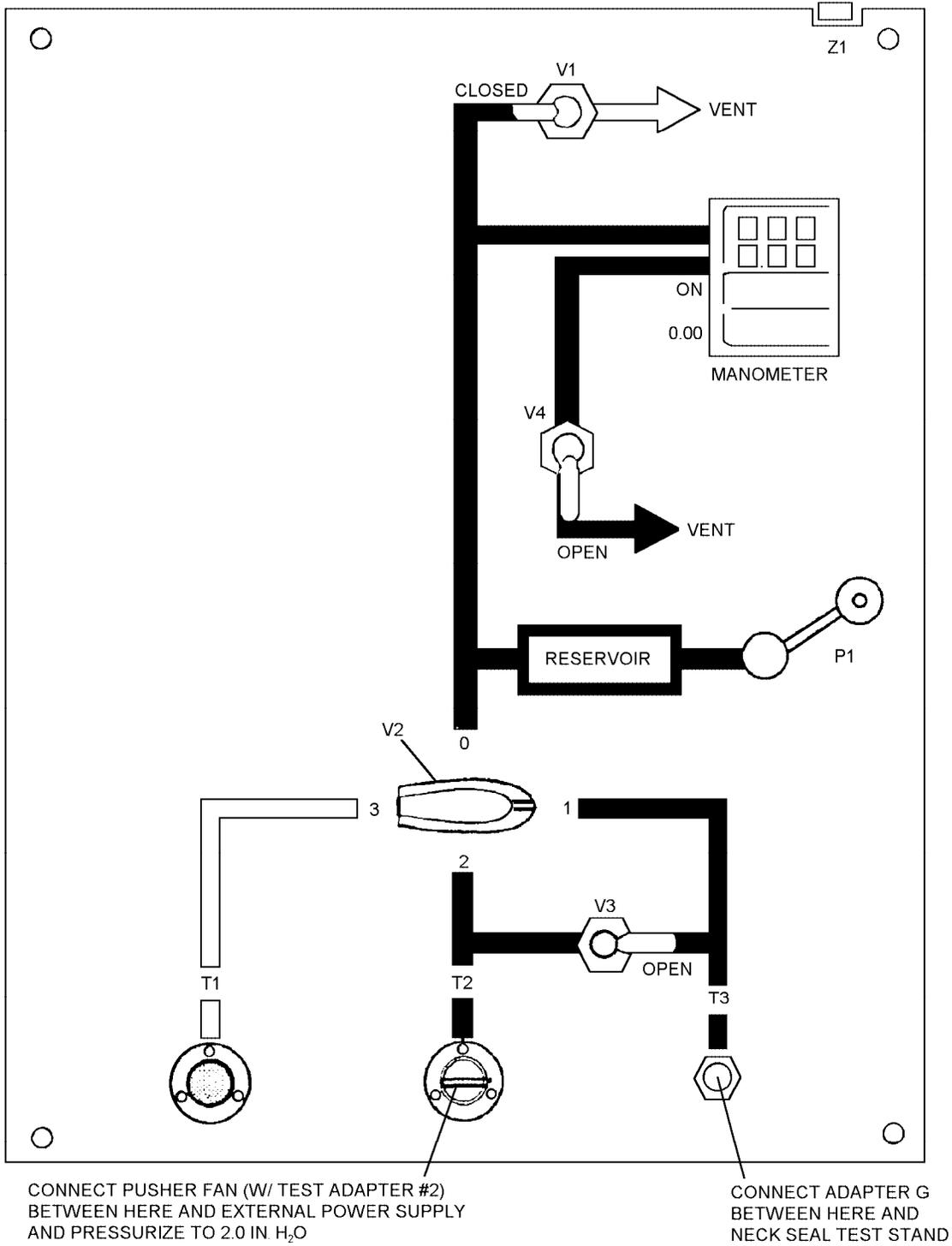


Figure 4-100. Mask Assembly - Overall Leakage Test

**NOTE**

If digital manometer does not read between 2.0 and 1.95 in. H<sub>2</sub>O after one minute, refer to [table 4-4](#) for troubleshooting procedures.

17. Open hood outlet valve.
18. Set V1 to OPEN.
19. Disconnect pusher fan from power supply.
20. Disconnect adapter #2 from T2.
21. Remove adapter #2 from pusher fan.
22. Remove respirator from neck seal test stand.
23. Remove adapter G from T3 and neck seal test stand.
24. Remove adapter H and Blank B4.
25. Refit snout and secure with a 3.6 mm black cable tie. Tension with a cable tie tool set to STD setting. Position cable tie head close to mask.
26. Remove blank B7 from both J-manifolds.
27. Refit pusher fan assembly to right-side J-manifold.
28. Refit 90° rubber molding to left-side J-manifold.
29. Complete Performance Test Sheet.
30. Ensure shear screw is fit to anti-suffocation disconnect.

**NOTE**

The following test should only be performed to help isolate a leak in mask.

## 4-157. Hood Assembly - Overall Leakage Test.

1. Detach hood and mask inlet hoses from mask ([figure 4-101](#)).

2. Remove cable tie securing snout to faceplate. Remove snout.
3. Connect adapter H to the mask exhalation outlet valve port.
4. Slowly, fit blank B4 to free end of adapter H.
5. Support mask on hanger by its toggle harness.
6. Fit hood assembly to neck seal test stand and adjust neck seal to lie without creasing the sealing ring.
7. Close hood outlet valve.
8. Connect one end of adapter G to T3 and other end to neck seal test stand port ([figure 4-102](#)).
9. Fit blank B5 to mask inlet adapter.
10. Fit blank B6 to the hood inlet adapter
11. Remove pusher fan from right-side J-manifold.
12. Screw pusher fan canister into test adapter #2.
13. Connect test adapter #2 to T2.
14. Connect power supply to pusher fan and switch on. Ensure correct output settings.
15. Set V1 to CLOSED and V4 to OPEN.
16. Set V2 to 1 and V3 to OPEN position. Inflate hood until 2 in. H<sub>2</sub>O is indicated on digital manometer.
17. Allow pressure within hood to stabilize if necessary, by adjusting V1 (opening and closing) to maintain 2 in. H<sub>2</sub>O.
18. When stabilized, set V1 to CLOSED. In the event reading is too high, reduce pressure by opening hood outlet valve. Set pusher fan switch to OFF.
19. Observe pressure indicated on digital manometer. Pressure shall be between 1.95 and 2.0 in. H<sub>2</sub>O during a one minute period. If manometer fails to indicate or if pressure is not between 1.95 and 2.0 in. H<sub>2</sub>O, refer to [table 4-4](#) for troubleshooting procedures. Record results on Performance Test Sheet.

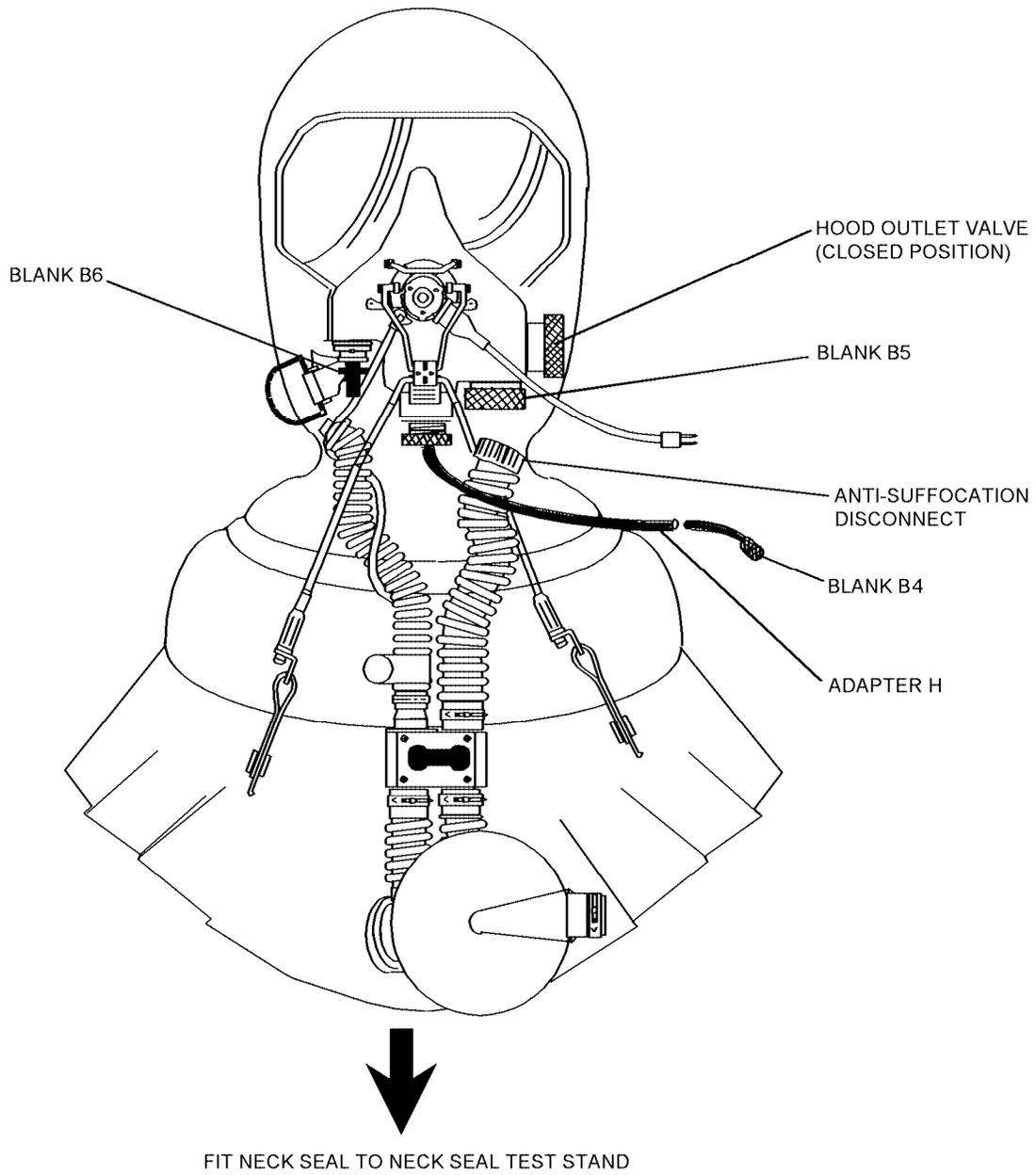


Figure 4-101. (V)2 thru (V)4 Variants - Hood Assembly - Overall Leakage Test

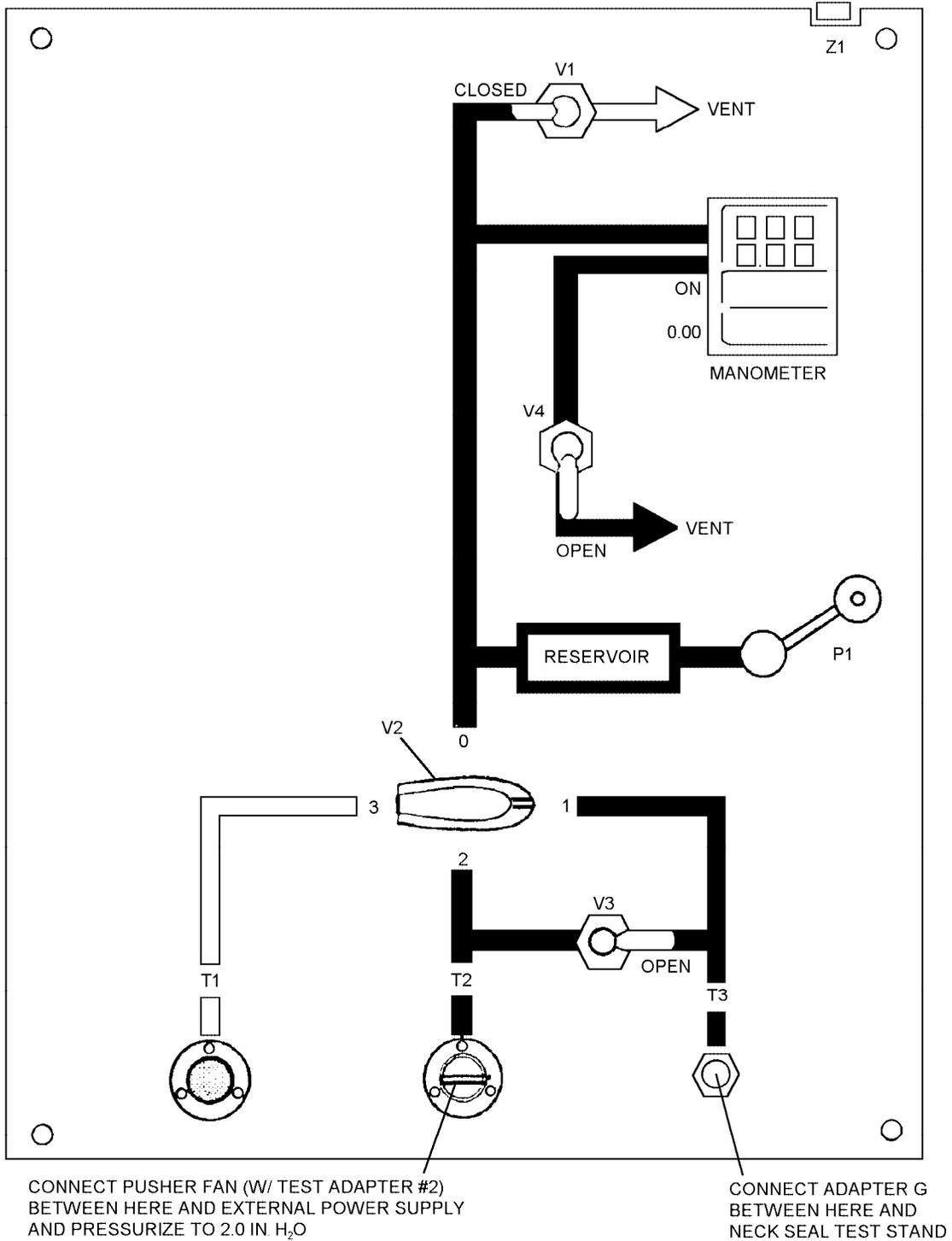


Figure 4-102. Hood Assembly - Overall Leakage Test

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20. Set V1 to OPEN.
  21. Open hood outlet valve.
  22. Disconnect test adapter #2 from T2 and disconnect pusher fan from external power supply.
  23. Remove the pusher fan from test adapter #2.
  24. Remove adapter G.
  25. Remove blanks B4, B5, and B6.
  26. Remove mask from neck seal stand and support hanger, and fit velveteen cover.
  27. Replace pusher fan to right-side J-manifold.
  28. Remove adapter H from exhalation valve port and remove blank B4.
  29. Refit hood and mask inlet hoses in accordance with assembly section.
  30. Refit snout.
- 4-158. RESPIRATOR ASSEMBLY TROUBLESHOOTING.** Refer to [table 4-4](#) for troubleshooting procedures.

Table 4-4. Respirator Assembly - Troubleshooting

Trouble	Probable Cause	Remedy
<b>PUSHER FAN - PRESSURE TEST</b>		
Digital manometer does not read at least 2.6 in. H <sub>2</sub> O or nothing happens.	Incorrect output setting on power supply or incorrect wiring.	Adjust power setting to 3.75V @ 1 amp. and check wiring.
	Used lithium battery. Check usage and/or shelf life.	Replace with new battery.
	Adapter #2 leaking or loose connections on test set.	Check for leakage.
	Bad pusher fan motor.	Replace w/new pusher fan.
<b>INHALATION AND HOOD INLET VALVE - REVERSE LEAKAGE TEST</b>		
Digital manometer does not read between -2 and -4 in. H <sub>2</sub> O after 7 sec.	Leakage through hood inlet valve.	Disconnect adapter M from mask inlet adapter only. Separate adapter E into two halves. Insert part A half into the open end of adapter M. Retest. If it passes, suspect inhalation valve. If it fails, remove and replace the H-manifold. There are no repairs authorized on the H-manifold or its internal components such as the hood inlet valve. Only an authorized manufacturer can open and reseal an H-manifold.
	Leakage through inhalation valve.	Disconnect anti-suffocation disconnect from adapter M.  Insert blank B5 into open end of adapter M. Retest. If it passes, suspect hood inlet valve. If it fails, remove iceguard and examine stepped rubber valve. Clean or replace and retest.
	Leakage through adapter M, test connections or incorrect valve settings.	Check, repair or replace.
<b>H-MANIFOLD INLET VALVE - REVERSE LEAKAGE TEST</b>		
Digital manometer does not read between -2 and -4 in. H <sub>2</sub> O after 7 sec.	Dirty or leaky valve.	Remove adapter K. Inhale and exhale lightly through the J-manifold to reseat the valve in the H-manifold. When inhaling, you should feel the valve being seated. If it fails again, replace the H-manifold.
	Loose connection or incorrect valve settings.	Check all connections for secure attachment. Check valve settings.

**Table 4-4. Respirator Assembly - Troubleshooting (Cont)**

Trouble	Probable Cause	Remedy
EXHALATION OUTLET VALVE - REVERSE LEAKAGE TEST		
Digital manometer does not read between 0.5 and 1.0 in. H <sub>2</sub> O after 12 sec.	Dirty or leaky valve.	Remove stepped rubber valve from valve seat. Clean seat and valve, and retest. If it fails, replace and retest
	Loose connection or incorrect valve settings.	Check all connections for secure attachment. Check valve settings.
COMPENSATED EXHALATION VALVE		
Digital manometer does not read at least 2.6 in. H <sub>2</sub> O.	Hood outlet valve open.	Select hood outlet valve to close position.
	Compensated exhalation valve faulty.	Examine valve plate for correct operation by gently depressing plate against spring tension several times to exercise valve. Replace valve if suspect. Make sure J-prop has not been left in valve from previous test.
	Neck seal not correctly seated on neck seat test stand.	Seat correctly.
	Pusher fan faulty or power supply not set to correct settings. Dead or low battery.	Ensure power supply is set at 3.75V @ 1 amp. If using battery, check battery life and/or shelf life. Service or replace with new battery as required.
	Incorrect valve settings or loose test connections.	Check all valve settings for correct settings and check all connections for security of attachment.
Digital manometer does not read less than 1.5 in. H <sub>2</sub> O when adapter E is separated.	Valve plate stuck.	Examine valve plate. Replace valve if suspect.

Table 4-4. Respirator Assembly - Troubleshooting (Cont)

Trouble	Probable Cause	Remedy
MASK ASSEMBLY - OVERALL LEAKAGE TEST		
Digital manometer does not read between 1.95 and 2.0 in. H <sub>2</sub> O.	Incorrect valve settings or loose test connections.	Check all valve settings for correct settings and check all connections for security of attachment.
	Pusher fan faulty or power supply not set to correct settings. Dead or low battery.	Ensure power supply is set at 3.75V @ 1 amp. If using battery, check battery life and/or shelf life. Service or replace with new battery.
	Neck seal not correctly seated on neck seal test stand.	Seat correctly.
	Hood outlet valve open or valve not seated correctly.	Seat valve to closed position. Examine for dirt/dust. Clean as necessary.
	Hole/split in rubber cowl or neck dam.	Examine for tears/holes. Replace if tears/holes are present.
	Holes/splits in mask inlet hose or hood inlet hose.	Examine for tears/holes. Replace if tears or holes are present.
	Occluded mask or hood inlet hose.	Ensure hoses are free from kinks.
	Drink Facility.	Examine for leaks and security of attachment.

**Table 4-4. Respirator Assembly - Troubleshooting (Cont)**

Trouble	Probable Cause	Remedy
HOOD ASSEMBLY - OVERALL LEAKAGE TEST		
Digital manometer does not read between 1.95 and 2.0 in. H <sub>2</sub> O.	Pusher fan faulty or power supply not set to correct settings. Dead or low battery.	Ensure power supply is set at 3.75V @ 1 amp. If using battery, check battery life and/or shelf life. Service or replace with new battery as required.
	Neck seal not correctly seated on neck seal test stand.	Seat correctly.
	Hood outlet valve open or valve not seated correctly.	Select valve to closed position. Examine for dirt/dust. Clean as necessary.
	Hole/split in rubber cowl or neck dam.	Examine for tears/holes. Replace if tears/holes are present.
	Incorrect valve settings or loose test connections.	Check all valve settings for correct settings and check all connections for security of attachment.

**4-159. DISASSEMBLY.**

4-160. Instructions for disassembling the A/P22P-14(V)1 through (V)4 respirator assemblies are contained in the following paragraphs. Disassemble respirator assembly only as far as is required to correct malfunctions. The disassembly instructions can be followed in sequence for complete disassembly, or each step can be done separately, as required for that specific part or subassembly. All damaged or affected parts shall be replaced when the respirator assembly is disassembled. All replacement parts shall have the same part number as the damaged or removed part. To disassemble respirator assembly or any of its components, proceed as follows:



Only parts listed in the [Illustrated Parts Breakdown \(IPB\)](#) are authorized to be disassembled.

Materials Required

Quantity	Description	Reference Number
As Required	Latex Coating, SPRAYLAT A	NIIN 00-598-5941

Support Equipment Required

Quantity	Description	Reference Number
1	Screwdriver, Jewelers	—
1	Pliers, side cutting, 4-in.	—
1	Screwdriver, 6 X 1/8-in. Std.	—
1	Socket, 8 mm (12 pt., 1/4 drive)	NIIN 01-031-0702
1	Pliers, flat nose, 4 3/4-in.	—
1	Wrench, socket, 1/4-in. square drive	—
1	Nut driver, 3/8-inch	GGG-W-657
1	Pincer Tool, Low Profile	Oetiker 14100055
	or	
1	Pliers, Hose Clamp	NIIN 01-073-4187



All replacement/disassembly, inspection, repair, and assembly must be done on benches having good lighting.

Apply a latex coating to the outside visual area of faceplate before disassembly to protect optical area of faceplate from damage. The velveteen cover may be installed over the visual area when latex coating (SPRAYLAT) is not available or time is not sufficient to permit drying.

**4-161. MASK COMPONENTS REMOVAL.**

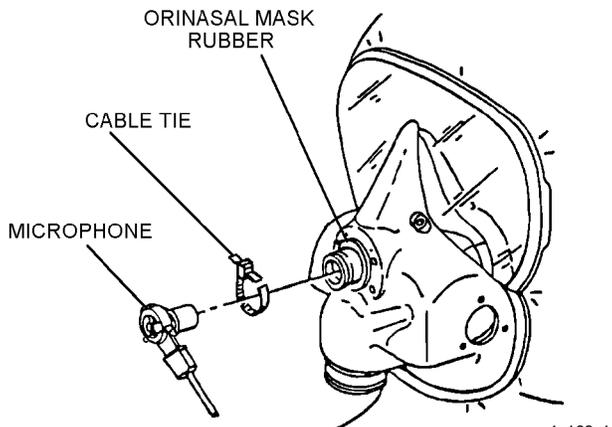
**4-162. Microphone Removal.**

1. Using side cutting pliers, remove and discard cable tie that clamps orinasal mask rubber to microphone, taking care not to damage orinasal mask rubber.



Do not use microphone wire as a lever to remove microphone - it will break.

2. Carefully remove microphone from orinasal mask by twisting exposed portion of microphone, while at the same time, pushing microphone out from inside of orinasal mask.



Steps 1 and 2 - Para 4-162

4p162s1

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### 4-163. Snout Removal.

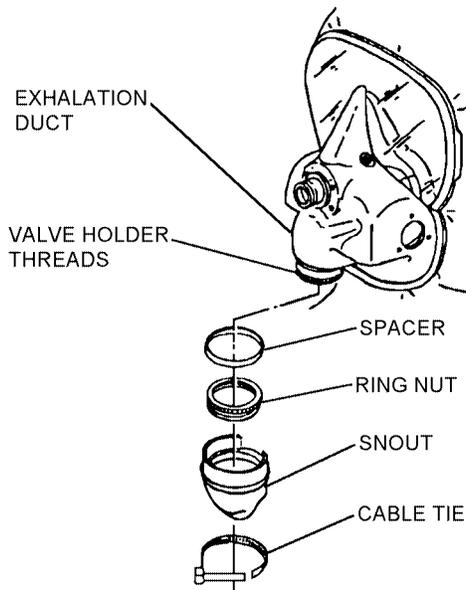
1. Remove rubber snout by cutting cable tie and easing snout from ring nut of exhalation outlet valve holder.

2. If removing orinasal mask, remove ring nut and spacer that clamps orinasal mask to faceplate.

### 4-164. Drink Facility Removal.



Be careful not to damage external drink tube when removing cable tie. If drink tube is cut, nicked, or damaged in any way, discard and replace with new drink tube.



Steps 1 and 2 - Para 4-163

4p163s1

### NOTE

In order to remove Drink Facility Assembly from mask, orinasal mask removal will be required.

1. If not previously accomplished, remove microphone by first cutting cable tie securing it in orinasal mask cavity, then gently pushing it out of cavity from inside hood.

2. Invert hood to expose orinasal mask.

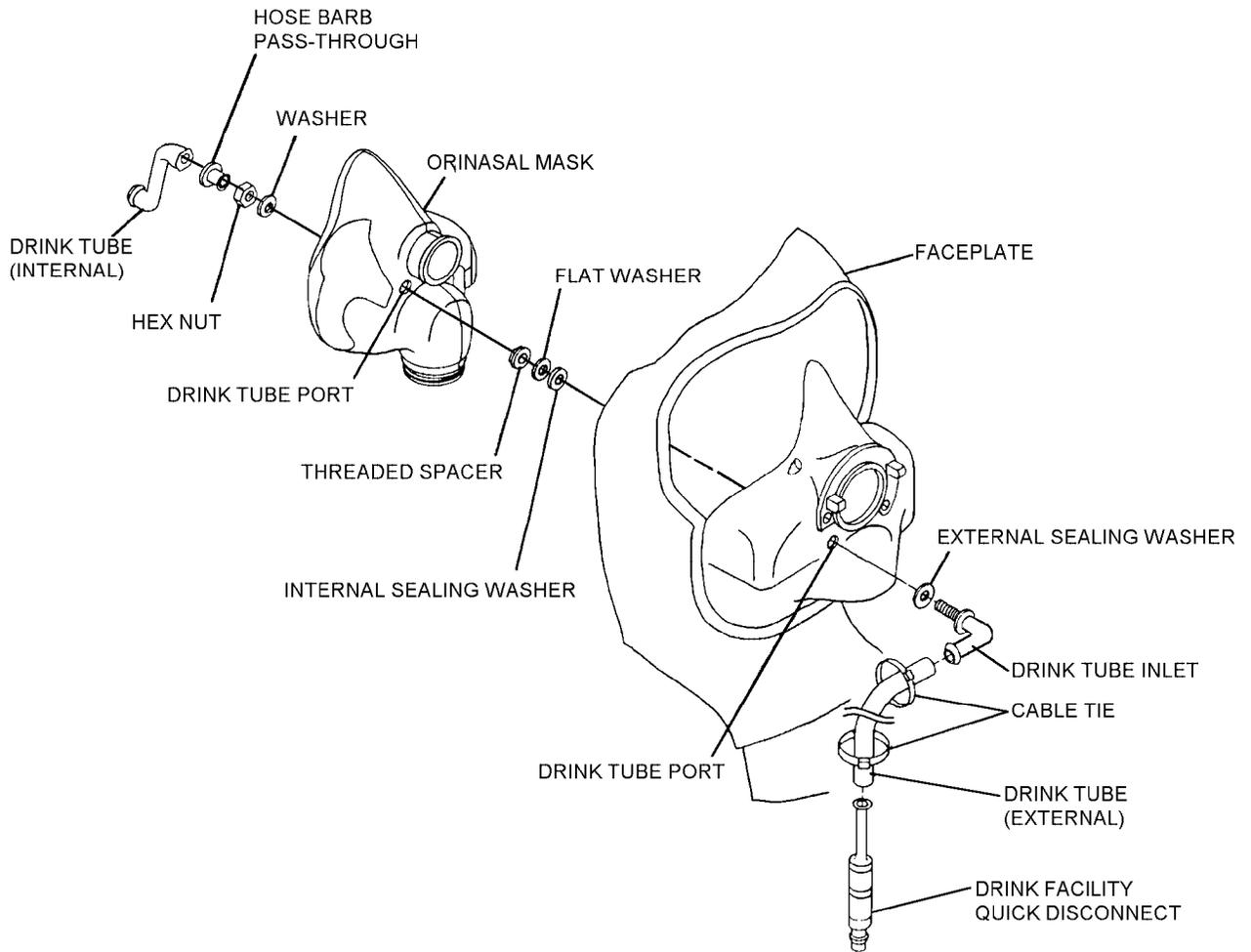
3. Carefully remove internal drink tube from hose barb pass through.

4. Using a 3/8-inch nut driver, remove and retain hose barb pass through and underlying hex nut from drink tube inlet. Remove and retain flat metal washer from drink tube inlet.

5. Carefully pull orinasal mask over threaded end of drink tube inlet in order to expose threaded spacer, flat metal washer and internal sealing washer between orinasal mask and faceplate.

6. Using a 3/8-inch nut driver, remove and retain threaded spacer. Remove and retain flat metal washer and internal sealing washer.

7. Remove drink tube inlet and external sealing washer from outside of faceplate, by pulling it away from faceplate.



Steps 1 thru 7 - Para 4-164

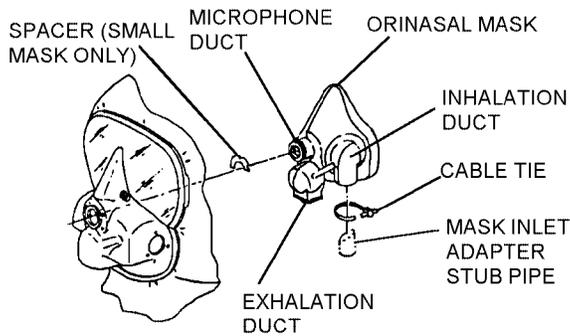
4p164s1

4-165. Orinasal Mask Removal.



Ensure components in paragraphs 4-162 and 4-163 have been removed prior to removing orinasal mask.

1. Invert hood to expose orinasal mask.
2. Cut, remove, and discard cable tie securing orinasal mask inhalation duct to mask inlet adapter.
3. Remove orinasal mask from within faceplate. If disassembling Small size orinasal mask, remove and retain spacer.



4p165s2

Steps 2 and 3 - Para 4-165

4. Remove orinasal mask deflector plate, if required.
5. If needed, complete disassembly of drink tube assembly.

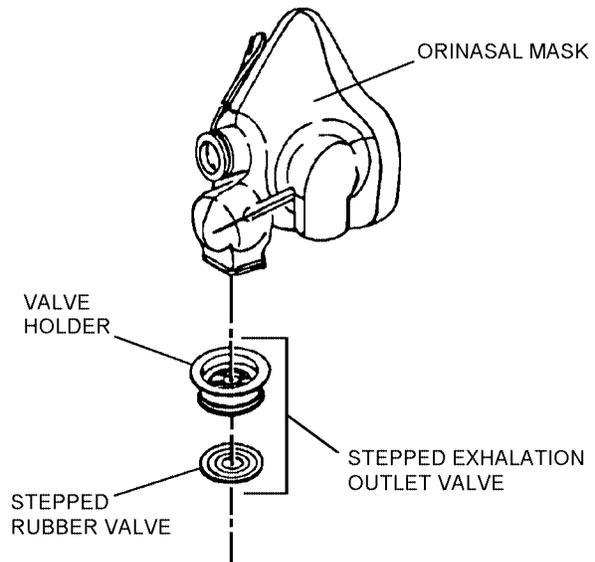


Ensure components in paragraphs 4-162 through 4-164 have been removed prior to removing exhalation outlet valve.

4-166. Exhalation Outlet Valve Removal. Ease the exhalation outlet valve from the orinasal mask duct.

NOTE

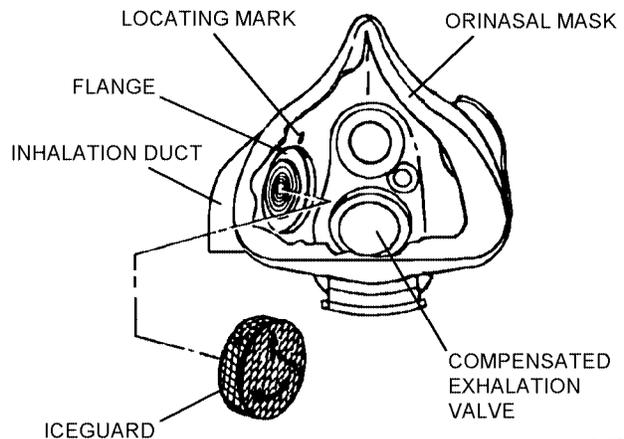
If only stepped rubber valve is to be removed, it is not necessary to complete paragraphs 4-162 or 4-164. Carefully pull valve off valve holder.



Para 4-166

4p166

4-167. Iceguard Removal. Remove iceguard by rotating iceguard body until engraved arrow is in line with mark molded on orinasal mask interior.



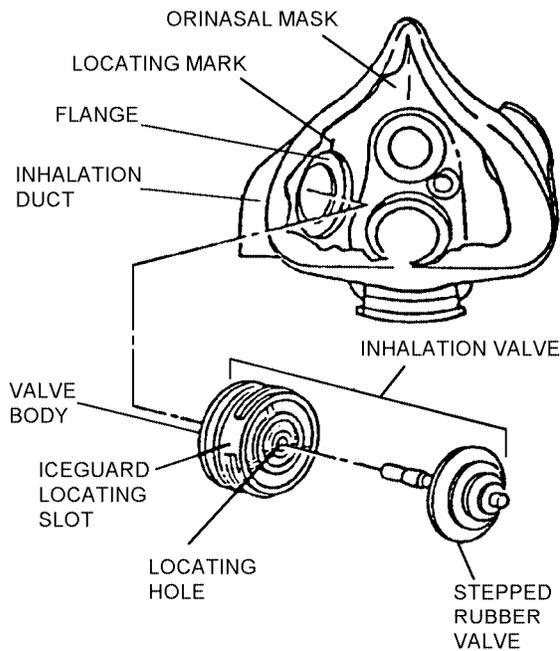
Para 4-167

4p167



Ensure iceguard has been removed as specified in [paragraph 4-167](#).

**4-168. Inhalation Valve Removal.** Remove inhalation valve by easing its valve body from securing flange of orinasal mask.



Para 4-168

4p168

**4-169. Compensated Exhalation Valve Removal.**



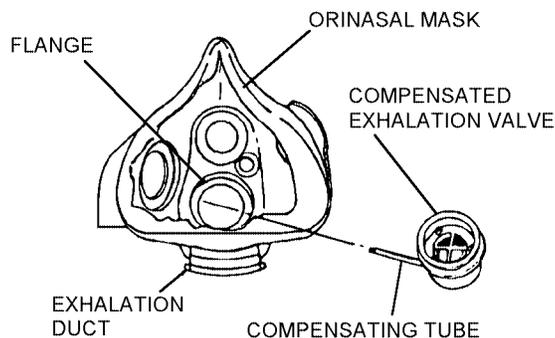
Ensure orinasal mask has been removed as specified in [paragraph 4-165](#).

1. Remove compensated exhalation valve body from its securing flange by gently pushing into orinasal mask cavity from exhalation duct.

2. Carefully withdraw compensating tube from within connecting passage.

**NOTE**

Compensated exhalation valve is not to be dismantled. If defective, valve assembly shall be replaced.



4p169s1

Steps 1 and 2 - Para 4-169

**4-170. Mask Inlet Hose/Anti-Suffocation Disconnect Removal.**

1. Remove shear screw (brass) from anti-suffocation disconnect and disengage mask inlet hose from mask inlet adapter.

2. Untie restraint cord from within anti-suffocation disconnect.

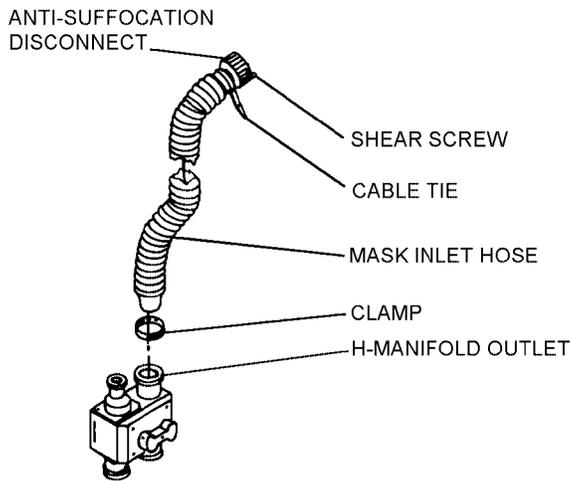
3. Cut, remove, and discard cable tie securing mask inlet hose to anti-suffocation disconnect.

4. Pry mask inlet hose from anti-suffocation disconnect.

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5. Using low profile pincer, remove and retain stepless low profile clamp securing mask inlet hose to H-manifold outlet port.

6. Remove mask inlet hose from manifold, discard and replace if damaged.



Steps 3, 5, and 6 - Para 4-170

4p170s3

### 4-171. Mask Inlet Adapter Removal.

1. Remove shear screw (brass) from anti-suffocation disconnect. Disengage anti-suffocation disconnect from mask inlet adapter.

2. Remove two screws securing mask inlet adapter to faceplate.

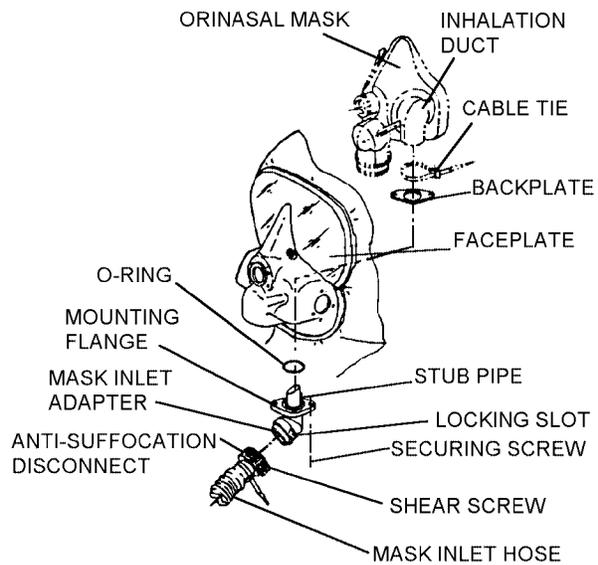
3. Invert hood to expose inner side of mask.

4. Cut and discard cable tie securing orinasal mask to mask inlet adapter if not previously done in [paragraph 4-165](#).

5. Withdraw mask inlet adapter from faceplate.

6. Remove backplate.

7. Remove and discard sealing O-ring.



Steps 4 thru 7 - Para 4-171

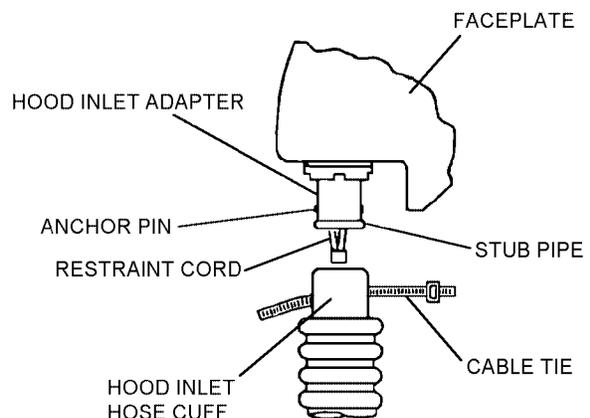
4p171s4

### 4-172. Hood Inlet Hose Removal.

1. Cut, remove, and discard the cable tie securing hood inlet hose to hood inlet adapter.

2. Pry hood inlet hose off hood inlet adapter.

3. Withdraw and retain hood inlet hose restraint cord anchor pin from within duct of hood inlet adapter using flat nose pliers.

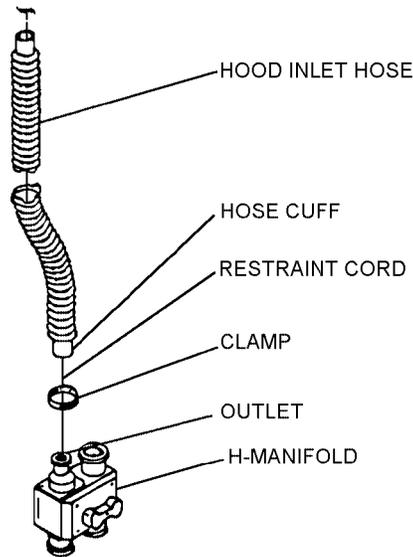


Steps 1 thru 3 - Para 4-172

4p172s1

4. Using low profile pincer, remove stepless low profile clamp securing hood inlet hose to H-manifold port.

5. Ease hood inlet hose from manifold and remove hood inlet hose. Leave restraint cord attached to manifold.



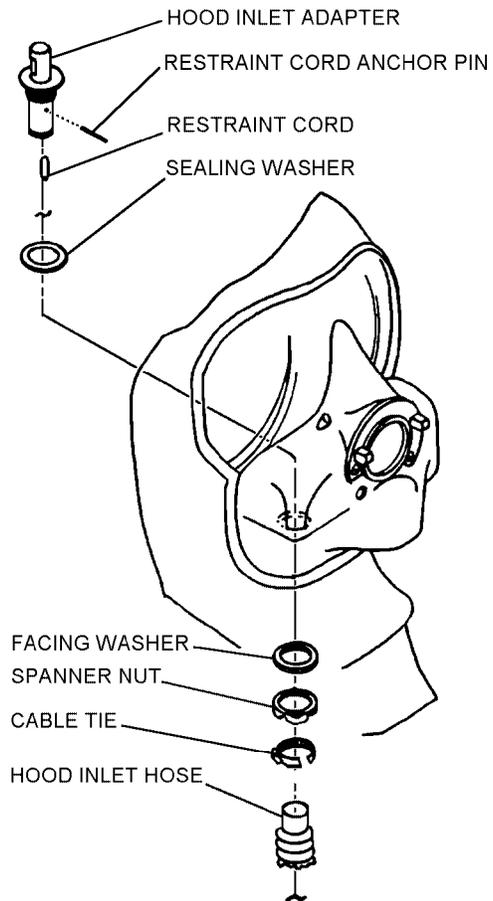
Steps 4 and 5 - Para 4-172

4p172s4

6. If damaged, discard and replace hood inlet hose.

**4-173. Hood Inlet Adapter Removal.**

1. Remove hood inlet hose as specified in [paragraph 4-172](#) if not already done.
2. Remove hood inlet spanner nut securing hood inlet adapter to faceplate.
3. Remove facing washer.
4. Invert hood to expose inner side of mask.
5. Remove hood inlet adapter and discard sealing washer.



Steps 2, 3, and 5 - Para 4-173

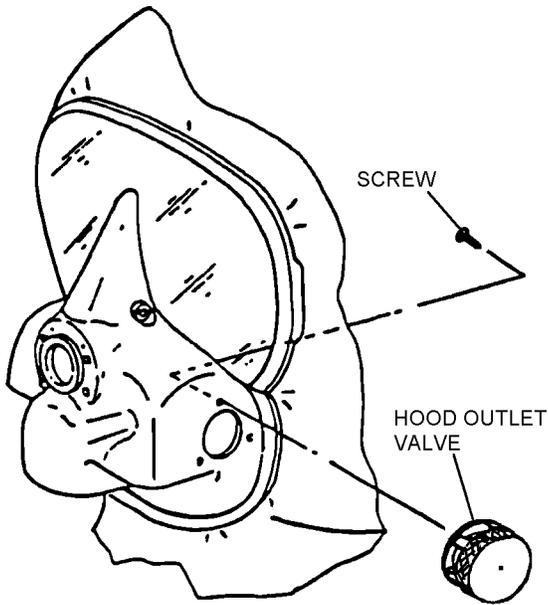
4p173s2

**4-174. Hood Outlet Valve Removal.**



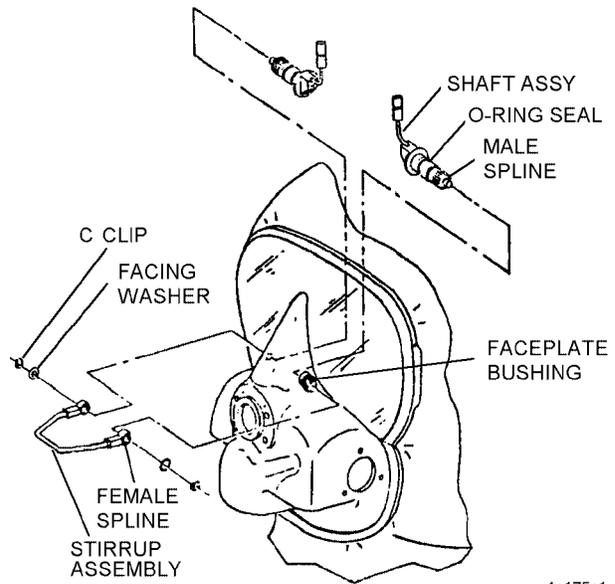
Ensure orinasal mask has been removed as specified in [paragraph 4-165](#).

1. Invert hood to expose inner side of mask.
2. Remove and retain three screws securing hood outlet valve to faceplate.
3. Remove valve assembly.



Steps 2 and 3 - Para 4-174

4p174s2



Steps 1 thru 6 - Para 4-175

4p175s1

**4-176. Toggle Harness Removal.**



Ensure orinasal mask has been removed as specified in [paragraph 4-165](#).

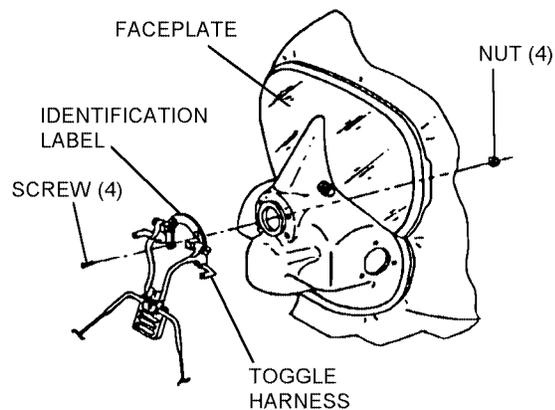
1. Invert hood to expose inner side of mask.
2. Remove four screws and nuts securing toggle harness to faceplate. Retain hardware.

**NOTE**

In order to maintain clarity of the visual presentation, toggle harness and nose occluder assemblies will be illustrated only in steps pertaining to these components.

**4-175. Nose Occluder Removal.**

1. Remove C-clips from the nose occluder stirrup.
2. Remove facing washers.
3. Invert hood to expose inner side of mask.
4. Ease shaft assembly through nose occluder stirrup, then through faceplate bushing.
5. Remove shaft assembly from mask.



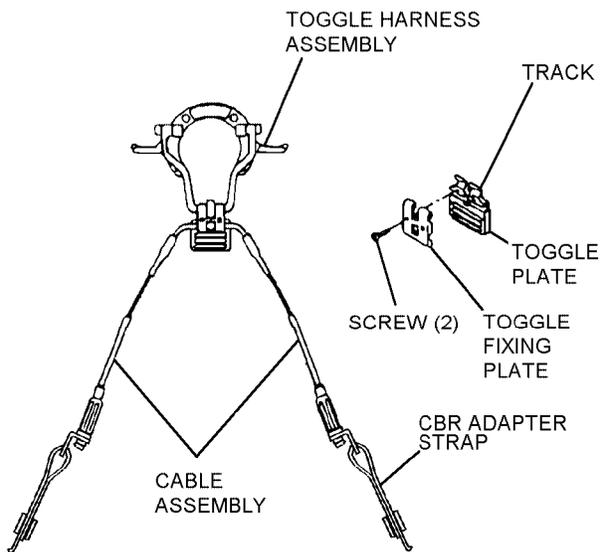
Steps 1 and 2 - Para 4-176

4p176s1

6. Remove two rubber O-rings seals from shaft assembly and discard.

3. Remove two screws securing the toggle plate and toggle fixing plate to toggle harness assembly.

4. Remove the two cable assemblies.



Steps 3 and 4 - Para 4-176

4p176s3

**4-177. LOWER ASSEMBLY.**

**4-178. H-Manifold (figure 4-103).**

**4-179. Mask Inlet Hose Removal.**

1. Carefully open and remove clamp securing mask inlet hose to left-side outlet port so as not to damage mask inlet hose or outlet port.

2. Remove mask inlet hose from left-side outlet port.

**4-180. Hood Inlet Hose Removal.**

1. Carefully open and remove the clamp securing hood inlet hose to right-side outlet port so as not to damage hood inlet hose or outlet port.

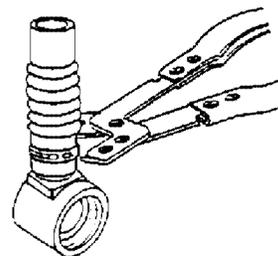
2. Remove hood inlet hose from right-side outlet port.

**4-181. Manifold Hose(s) Removal.**

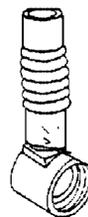
1. Carefully open and remove clamp(s) securing manifold hose(s) to inlet port(s) so as not to damage inlet port(s).

2. Pull the manifold hose(s) off inlet port(s) and retain manifold hose(s) for further disassembly.

3. Carefully remove manifold hose(s) from J-manifold(s) in a similar manner.



↑ PULL



Steps 1 thru 3 - Para 4-181

4p181s1

**4-182. Blanking Cap ((V)1 Variant only) Removal.**

1. Carefully remove clamp securing blanking cap to H-manifold.

2. Remove blanking cap from left side inlet port.

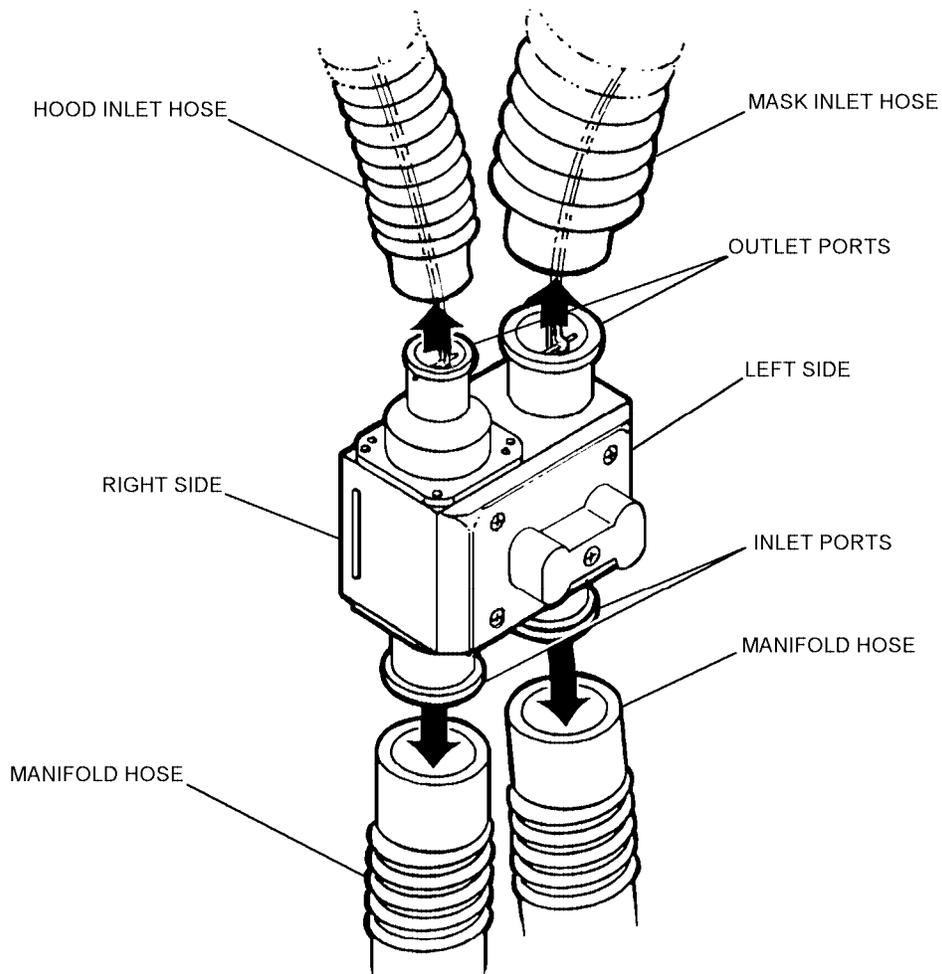


Figure 4-103. H-Manifold Hose Removal

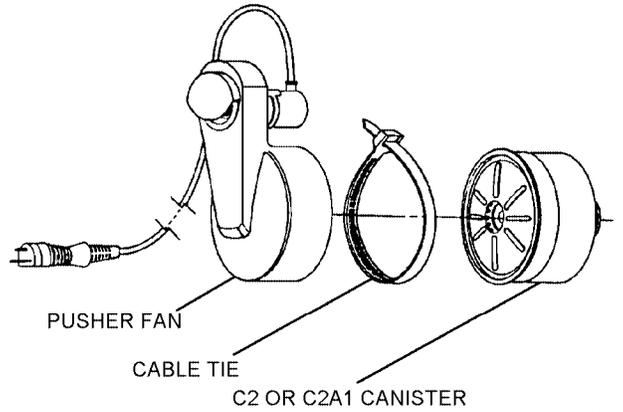
**NOTE**

The following procedures also apply to the 90° rubber molding and canister.

2. Pull pusher fan off canister. Retain pusher fan and canister.

**4-183. J-Manifold and Gasket Removal.**

1. Unscrew J-manifold from C2 or C2A1 canister.
2. Pull J-manifold gasket from threaded end of J-manifold. Retain J-manifold and gasket.



4p185s1

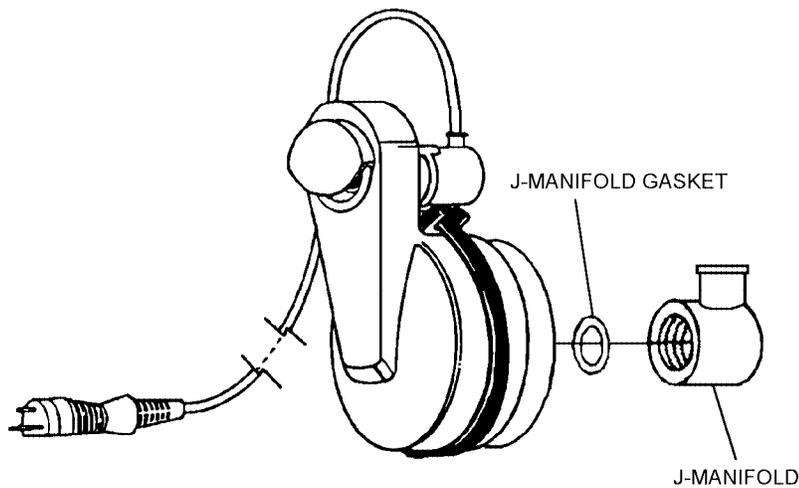
**Steps 1 and 2 - Para 4-185**

**4-184. Pusher Fan Subassembly.**

- 4-185. Pusher Fan and C2 or C2A1 Canister Removal.

1. Carefully cut, remove, and discard 18 inch cable tie securing pusher fan to C2 or C2A1 canister.

- 4-186. Pusher Fan Battery Pack Removal. Disconnect battery pack from pusher fan. Retain battery for storage.



4p183s1

**Steps 1 and 2 - Para 4-183**

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### 4-187. Oxygen Delivery Subassembly Disassembly (V2 through V4 only).

### 4-188. 90° Rubber Molding and C2 or C2A1 Canister.

1. Carefully cut, remove, and discard cable tie securing 90° rubber molding to canister so as not to damage 90° rubber molding or canister.

2. Pull 90° rubber molding from canister. Retain 90° rubber molding and canister.

### 4-189. LOX Variant.

1. Carefully open and remove clamp securing 90° rubber molding to 3/4 inch - 3/4 inch coupling.

2. Carefully pry coupling from 90° rubber molding.

3. Carefully open and remove the clamp securing coupling to regulator hose.

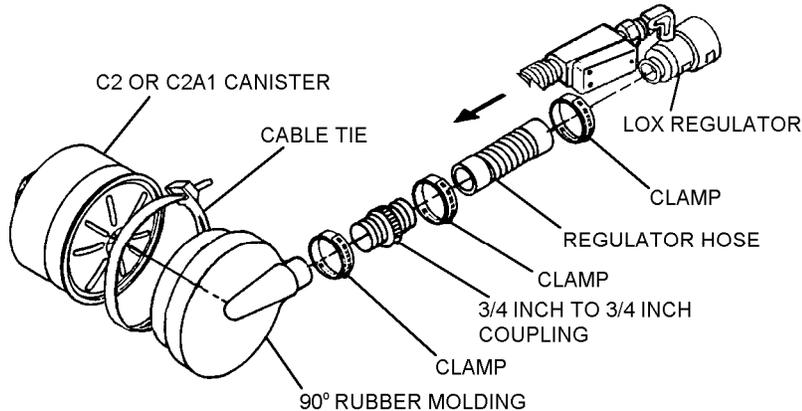
4. Similarly, open and remove clamp from regulator hose/LOX regulator connection. Retain all clamps, coupling, and regulator hose.

### 4-190. OBOGS Variant.

1. Carefully open and remove clamp securing the 90° rubber molding to bayonet connector.

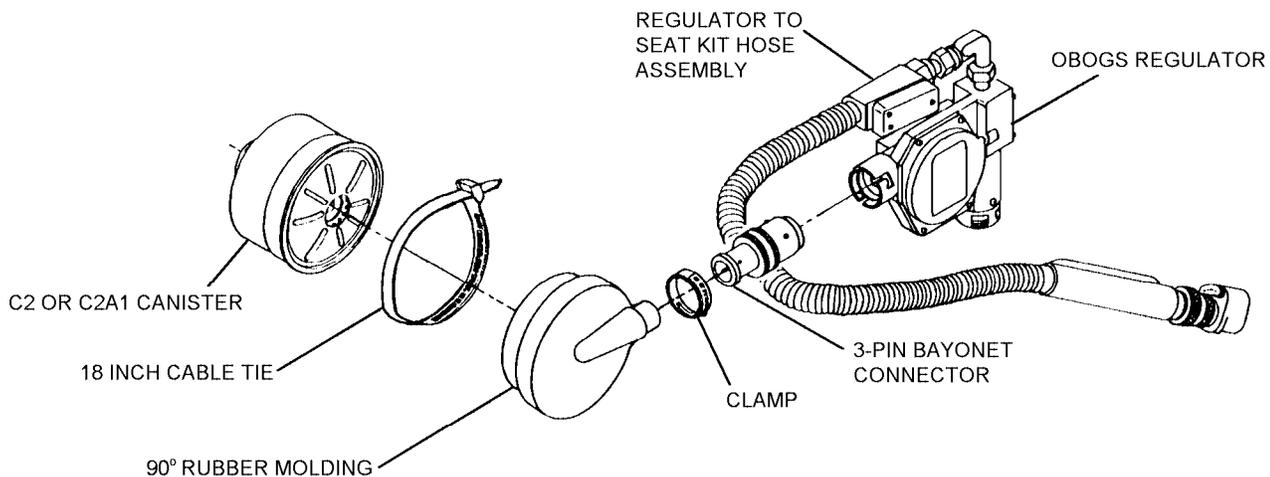
2. Disconnect bayonet connector from OBOGS regulator.

4-191. Panel Mounted Variant. Carefully open and remove clamp securing 90° rubber molding to quick disconnect fitting.



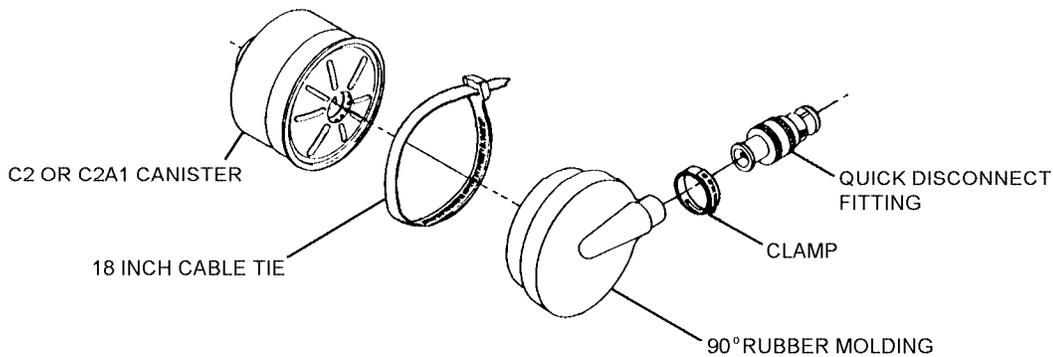
Steps 1 thru 4 - Para 4-189

4p189s1



Steps 1 and 2 - Para 4-190

4p190s1



Para 4-191

4p191

**4-192. CLEANING OF DISASSEMBLED COMPONENTS.**

4-193. Disassembled component parts of the A/P22P-14(V)1 through (V)4 respirator assemblies shall be thoroughly cleaned to remove all traces of sealing compound, sealing varnish, lubricant, and other foreign matter such as dirt, sand, dried liquid nourishment, or vomit. If internal compartments of valves and hoses cannot be thoroughly cleaned, they shall be replaced. Cleaning of the disassembled mask shall be performed by a qualified Aircrew Survival Equipmentman (PR). Cleaning procedures are as follows:

Materials Required (Cont)

Quantity	Description	Reference Number
1	Brush, Acid	NIIN 00-514-2417
As Required	Cleaning Compound, Type I	MIL-C-43616
As Required	Cloth, Abrasive	—
As Required	Cloth, Cotton	—
1 pr.	Gloves, Acrylonitrile rubber or Neoprene	—

Materials Required

Quantity	Description	Reference Number
As Required	Toothpick	—
As Required	Swab, Cotton	—
As Required	Soap Mild	—
As Required	Cloth, Cotton	—
As Required	Pad, Gauze	—
As Required	Solvent, Toluene	NIIN 00-281-2002
As Required	Alcohol, Isopropyl Rubbing	TT-I-735 NIIN 00-655-8366
1	Brush, Sable	—
As Required	Water	—
As Required	Towelettes, SANI-COM,	No. 3205 (CAGE 18195)
As Required	Bleach, Laundry	A-A-1427 NIIN 00-598-7316
As Required	Cleaner, Tobacco Pipe	—



When cleaning mask, do not allow solvent to come in contact with faceplate.

**NOTE**

Velveteen covers are not to be used for cleaning or polishing.

**4-194. MASK ASSEMBLY CLEANING.**

**4-195. Toggle Harness Cleaning.**

1. Remove all traces of sealing compound using a gauze pad. If necessary, gently scrape sealing compound with fingernail or toothpick to loosen it.

2. Remove sealing compound from toggle harness and four attaching screws in a similar manner.

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### 4-196. Nose Occluder Cleaning.

1. Clean lubricant from nose occluder shaft assemblies and faceplate bushings with a cotton swab using mild soap and warm water.

2. Rinse soap from shaft assemblies using a cotton swab and warm water.

3. Wipe shaft assemblies with a clean dry cloth. Allow to air dry completely.

### 4-197. Hood Outlet Valve Cleaning.

1. Remove all traces of sealing compound from around the areas of hood outlet valve port of faceplate using a gauze pad. If necessary, gently scrape sealing compound with fingernail or toothpick to loosen it.

2. Remove sealing compound from hood outlet valve and three attaching screws in a similar manner.

### 4-198. Hood Inlet Adapter Cleaning.

1. Remove any traces of sealing varnish from outer surface of hood inlet adapter using a gauze pad moistened with solvent.

2. Wipe cleaned surfaces dry using a clean, dry gauze pad.

### 4-199. H-Manifold Ports Cleaning.

1. Clean surface of manifold outlet ports using a gauze pad moistened with water.

2. Wipe cleaned surfaces dry using a clean, dry gauze pad.

### 4-200. Mask Inlet Adapter Cleaning.

1. Remove all traces of sealing compound from around the areas of mask inlet adapter using a gauze pad. If necessary, gently scrape sealing compound with fingernail or toothpick to loosen it.

2. Remove sealing compound from mask inlet adapter and attaching screws in a similar manner.

### 4-201. Anti-Suffocation Disconnect Cleaning.

1. Remove any traces of sealing varnish from outer surface of the anti-suffocation disconnect using a gauze pad moistened with solvent.

2. Wipe the cleaned surfaces dry using a clean, dry gauze pad.



Compensated exhalation valve must be removed from orinasal mask before internal cleaning with isopropyl alcohol.

### 4-202. Compensated Exhalation Valve Cleaning.

1. Add isopropyl alcohol to a container of sufficient size to partially submerge compensated exhalation valve.

#### NOTE

Valve plate cannot be depressed while compensating tube is covered.

2. Cover end of compensating tube with finger to prevent alcohol from entering tube.

3. Submerge valve in alcohol and use a sable brush to gently clean valve.

4. Gently shake excess alcohol from valve and allow to air dry.

### 4-203. Inhalation Valve Cleaning.



Do not clean inhalation or exhalation valves with SANI-COM towelettes or sanitizing solution.

1. Ensure iceguard is removed and then gently lift valve with finger and clean underside of valve and valve seat with a sable brush moistened with water.

2. Clean top of valve in same manner.

3. Allow to air dry.

4. Clean iceguard with a sable brush and water to remove any foreign particles from mesh.

5. Allow to air dry.

### 4-204. Snout and Exhalation Outlet Valve Cleaning.

1. Grasp raised rubber knob at valve center and pull valve off its seating pin.

**CAUTION**

Do not clean inhalation or exhalation valves with SANI-COM towelettes or sanitizing solution.

2. Clean both sides of valve, and valve seat using a sable brush moistened with water.
3. Set valve aside to air dry with knob side of valve facing down on bench. Allow valve seat area to air dry.
4. Reinstall valve on seating pin, ensuring it is fully seated on pin.
5. Clean snout with a gauze pad moistened with water.
6. Wipe dry with a clean, dry cotton cloth.

**4-205. Drink Tube Cleaning.**

1. Remove all traces of sealing compound from drink tube's mounting flange, backing plate, hex nut, and screw using a gauze pad. If necessary, gently scrape sealing compound with fingernail or toothpick to loosen it.
2. Remove all traces of sealing compound from faceplate's drink tube port in a similar manner.

**4-206. Orinasal Mask Cleaning.**

1. Clean internal surfaces of the orinasal mask with cleansing towelettes (SANI-COM No. 3205) being sure to wipe under rolled-over edges of orinasal mask.
2. Wipe microphone with a towelette.
3. Allow to air dry.

**4-207. Faceplate, Hood, Hoses, Apron, and Neck Seal Cleaning.****CAUTION**

Abrasive cleaners, adhesives, and solvents must not be applied to visual areas of faceplate. Velveteen covers are not to be used for cleaning or polishing.

**CAUTION**

Damage or scratches to the faceplate cannot be repaired. Use care when cleaning the faceplate.

1. Clean the inner visual area of the faceplate using water with a soft cotton cloth or dampened cham-  
ois.
2. Wipe faceplate with clean, dry cotton cloth to remove excess water.
3. Allow to air dry.
4. Clean interior and exterior surfaces of hood, apron, and neck seal with a gauze pad moistened with water.
5. Clean all hoses with a gauze pad moistened with water.
6. Wipe excess water from hood, hoses, apron, and neck seal using a clean, dry cotton cloth.
7. Allow to air dry.

**4-208. LOWER ASSEMBLY CLEANING.****4-209. H-Manifold Cleaning.**

1. Clean exterior surfaces, including (V)1 blanking plug, with gauze pad moistened in a solution of mild soap and water.
2. Remove soap residue with a gauze pad moistened with water.
3. Ensure ports have been cleaned in accordance with [paragraph 4-199](#). Allow to air dry.

**4-210. Pusher Fan Subassembly Cleaning.**

4-211. J-Manifold and Gasket Cleaning. Clean J-manifold gasket using a gauze pad moistened with distilled water and allow to air dry. Wipe cleaned surfaces dry using a clean dry gauze pad.

4-212. Pusher Fan. Carefully cut 18 inch cable tie that secures C2 or C2A1 canister to pusher fan. Remove canister from pusher fan. Clean internal and external surfaces of pusher fan with cleansing towelettes. Moisten gauze pad with a 10% sanitizing solution of laundry bleach and water and squeeze to remove excess to prevent dripping. Wipe pusher fan interior and pusher fan inlet. Allow to air dry.

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4-213. **Canister.** Clean, using a cleansing towelette to remove dirt, grime or any other debris from external surfaces or threads. Wipe cleaned surfaces dry using a clean dry gauze pad. Be sure no moisture remains inside canister.

4-214. **Battery.** Clean, using a cleansing towelette to remove dirt, grime or any other debris from external surfaces. If dirt or debris is found in battery receptacle, it should be removed using a toothpick or pipe cleaner. If 3-pin receptacle is corroded, battery pack should be replaced. Wipe cleaned surfaces dry using a clean dry gauze pad.

### 4-215. Oxygen Delivery Subassembly Cleaning.

1. 90° rubber molding. Clean 90° rubber molding surface with a gauze pad moistened with water. Wipe cleaned surfaces dry using a clean, dry gauze pad.

2. Canister. Clean, using a cleansing towelette to remove dirt, grime or any other debris from external surfaces or threads. Wipe cleaned surfaces dry using a clean dry gauze pad. Be sure no moisture remains inside canister.

3. 3/4 inch to 3/4 inch coupling, bayonet connector, or quick disconnect fitting. Clean using a gauze pad moistened with water. Wipe cleaned surfaces dry using a clean dry gauze pad.

### 4-216. INTERCOMMUNICATIONS UNIT.

1. Clean external surface with gauze pad moistened with water.

2. Wipe cleaned surfaces dry using a clean, dry gauze pad.

### 4-217. CRITERIA AND PROCEDURES FOR REPLACEMENT OF FILTER CANISTERS.

4-218. Only the repairs listed in this section are authorized. All repairs will be conducted at the Organizational or Intermediate Maintenance Level.

**4-219. C2 OR C2A1 CANISTER REPLACEMENT.** The C2 canister is a standard NATO approved charcoal filter. It is currently being replaced by the C2A1 canister. Either the C2 or C2A1 canister may

be used with the A/P22P-14(V)1 thru (V)4 respirator assemblies. They are designed to remove toxic and/or irritating chemical vapors, gases, and particulate contaminants including biological organisms likely to be used in warfare. Protective capability can be affected by environmental conditions. Hot and humid climates will degrade protection after two months, basic cold climates after twenty-four months, and all other climates after twelve months. Unit NBC officers will provide specific instructions for replacement depending on the unique tactical situation.

## WARNING

Only the C2 or C2A1 canister (NIIN 01-119-2315) shall be used as part of the A/P22P-14(V)1 thru (V)4 Respirator Assembly.

Wear protective mask and clothing, in accordance with local standard operating procedures, when replacing or disposing of a canister that has been exposed to a toxic agent.

J-manifold gasket(s) are occasionally displaced from the manifold when the C2 or C2A1 canister is removed. Visual inspection to ensure that the gasket is in place must be performed when canisters are removed or installed.

Filter canisters do not provide protection against ammonia gas or carbon monoxide. Protection against sulfur dioxide gas can be provided for only 5 to 10 minutes.

**4-220. Criteria for C2 or C2A1 Replacement.** Replace the canisters after any of the following occurrences:

1. Physical damage.

a. Canister is cracked, split, dented on a seam, dented deeper than 1/4-inch, crushed or has holes.

b. Threads are damaged or dented.

c. Lip of threaded neck is dented in excess of 1/32-inch deep.

- d. Body of canister has rust or pitting.
- e. Seams have excessive rust (approximately greater than 10% of seam length).
- 2. Canister has been immersed in water.
- 3. Canister inlets clogged with dirt, oil, grease, or other foreign matter.
- 4. Excessive resistance to airflow or an increase in breathing resistance is felt.
- 5. The lot number of the canister is listed as un-serviceable in SB-3-30-2.
- 6. CB agent contamination.

**NOTE**

Upon its availability, refer to U.S. Navy/ U.S. Marine Corps Nuclear, Biological & Chemical (NBC) Defense Handbook for detailed procedures for disposition of contaminated canisters. Until its issuance refer to the U.S. Army Field Manual, FM 3-5, NBC Decontamination and the Naval Aviation Nuclear, Biological, and Chemical Defense Resource Manual.

- a. Canisters have been exposed to any agents for any period of time under battlefield conditions during typical missions.
- b. Prior to a mission where CB agents may be employed.
- 7. When directed by unit commander or higher authority.

**4-221. Canister Replacement.**

- 1. Carefully cut, remove, and discard the 18 inch cable tie securing the pusher fan rubber housing and/or 90° rubber molding to the C2 or C2A1 canister.

- 2. Remove rubber housing and/or 90° rubber molding from canister and retain.
- 3. Unscrew (counterclockwise) canister from the J-manifold.
- 4. Remove and inspect J-manifold gasket

**NOTE**

Replace with new gasket only if damage or deterioration is evident.

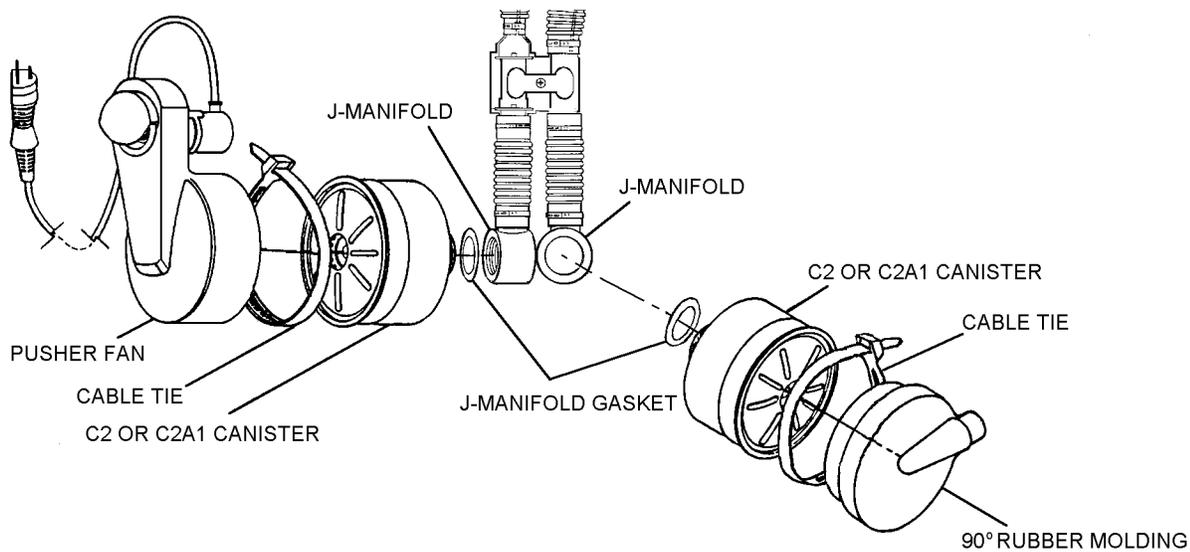
- 5. Clean J-manifold using a gauze pad moistened with isopropyl alcohol and allow to air dry.
- 6. Clean gasket using a gauze pad moistened with distilled water and allow to air dry.
- 7. Reinstall J-manifold gasket ensuring gasket is fully seated and flat. The gasket should be below the threads in the J-manifold canister opening.

**NOTE**

Ensure canister plug and cap are removed.

- 8. Screw replacement C2 or C2A1 canister clockwise into the J-manifold until hand tight.
- 9. Slide pusher fan rubber housing and/or 90° rubber molding over the C2 or C2A1 canister until the canister lip bottoms against rubber surface. Ensure correct installation as shown in [figures 4-1](#) or [4-2](#), as applicable.
- 10. Using cable tie tool preset to HVY (No. 8) setting, install 18 inch cable tie centered around canister to secure pusher fan rubber housing and/or 90° rubber molding. Ensure connection is tight as explained in [paragraph 4-247](#) or [4-255](#), as applicable.

**4-222. Pusher Fan Battery.** Plug pusher fan cord into the battery pack. Be careful when inserting plug to avoid breaking off any of the prongs. Ensure plug bottoms out in battery socket.



Steps 1 thru 10 - Para 4-221

4p221s1

**4-223. ASSEMBLY.**

4-224. Instructions for assembling the A/P22P-14(V)1 thru (V)4 Respirator Assemblies are contained in the following paragraphs. Instructions can be followed in sequence for the complete assembly of respirator assemblies, or each step can be done separately as required for that specific part or assembly. To assemble the respirator assembly or any of its components, proceed as follows:

Materials Required (Cont)

Materials Required			Materials Required (Cont)		
Quantity	Description	Reference Number	Quantity	Description	Reference Number
As Required	Sealing Compound, Type I, White	NIIN 00-877-8972	As Required	Cable Tie, 4.8 mm	CL 6227
As Required	Lubricant, KRYTOX, Type II, 240AC	NIIN 00-961-8995	As Required	Cable Tie, 3.6 mm	CL 6226
As Required	Cloth, Cotton	—	As Required	Cable Tie, 2.4 mm	CL 6225
As Required	Tape, PCV, 1/4 Inch	—	As Required	Cable Tie, 7.6 mm, 18 inch	CL 6528
As Required	Thread Locking Compound, Locktite 222	NIIN 01-085-3639	As Required	Sealant, RTV 732	—
			As Required	Varnish, Sealing	TBD
			1	Applicator Brush	—
			As Required	Stepless Low Profile Clamp, 16.5 mm	CL 6592
			As Required	Stepless Low Profile Clamp, 21.9 mm	CL 6593
			As Required	Stepless Low Profile Clamp, 24.5 mm	CL 6670
			As Required	Stepless Low Profile Clamp, 26.5 mm	CL 6594

Support Equipment Required

Quantity	Description	Reference Number
1	Cable Tie Tool, Standard	MS90387-1
1	Cable Tie Tool, Heavy Duty	NIIN 00-937-5438
1	Elastrator	NIIN 01-124-0649
1	Pincer Tool, Low Profile	Oetiker 14100055
	or	
1	Pliers, Hose Clamp	NIIN 01-073-4187
1	Torque Driver	—
1	Square Drive 1/4-Inch	—
1	Torque Driver	—
1	Screwdriver, Slot Head	—
1	Screwdriver, Slot Head	—
1	Nut Driver, 1/8-Inch	—
1	Nut Driver, 3/8-Inch	GGG-W-657

**NOTE**

All parts must be cleaned in accordance with paragraph 4-192 before assembly can begin.

Refer to paragraph 4-135 for cable tie and stepless low profile clamp installation procedures.

**4-225. MASK ASSEMBLY.**

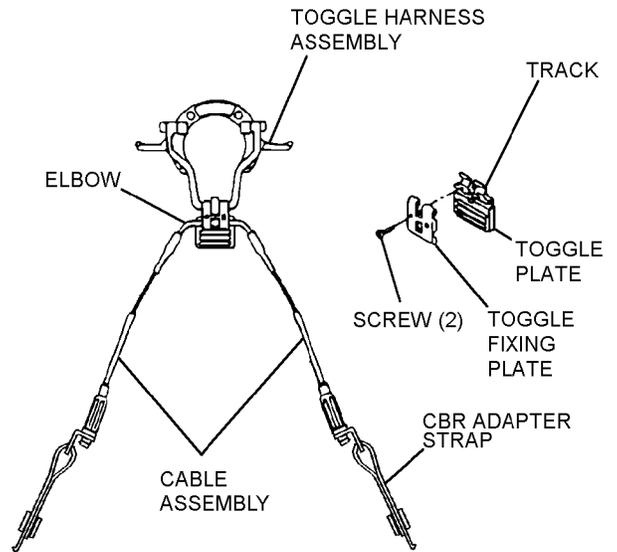
**NOTE**

In order to improve clarity of the illustrations in the following mask assembly instructions, the toggle harness and nose occluder assemblies will appear only in figures addressing these items.

**4-226. Toggle Harness Installation.**

1. Place the elbow portions of the two cable assemblies into track located on front of toggle plate.

2. Align mask harness assembly with upper lips of toggle plate. Fasten toggle fixing plate to front of toggle plate using two screws.



**Steps 1 and 2 - Para 4-226**

4p226s1

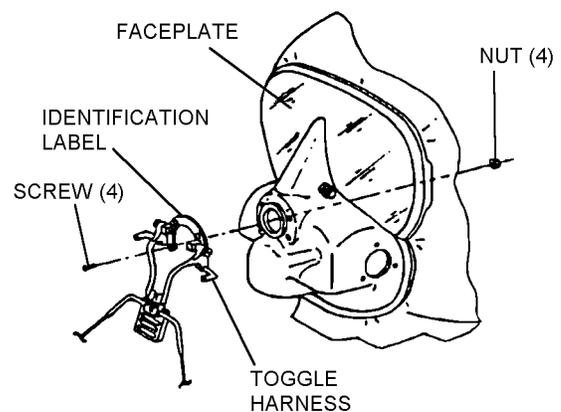
3. Coat countersunk portions of four mounting screws using sealing compound.

4. Fasten toggle harness assembly to faceplate using the four coated screws.



Do not overtighten. Overtightening the screws will crack polycarbonate faceplate.

5. Invert hood, attach and tighten nuts to screws entering faceplate using torque wrench set to 40-42 oz. in.



**Steps 3 thru 5 - Para 4-226**

4p226s3

4-227. Nose Occluder Installation.



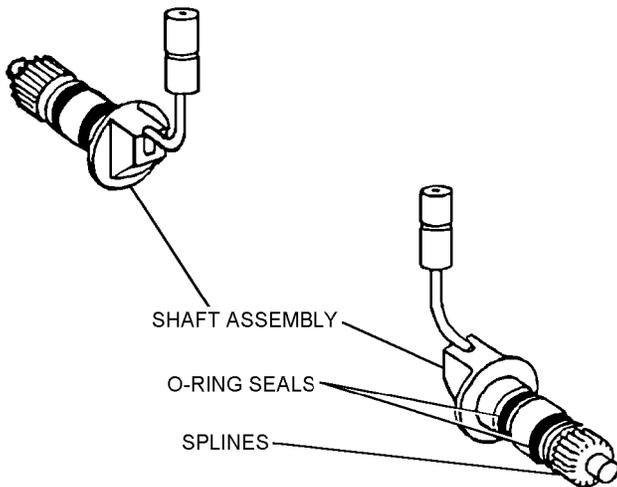
When assembling nose occluder into mask, care should be taken not to force any parts together. Nose occluder and faceplate bushings which are in good working order should fit together snugly but easily. Bushings are black coated brass inserts which are press fitted into the faceplate and sealed with a silicone rubber sealant. Using excessive pressure could dislodge nose occluder faceplate bushings.

**NOTE**

It is suggested that prior to assembling nose occluder in mask, the shaft assemblies and stirrup be engaged several times to remove any excess coating on splines. If the splines do not engage smoothly after this, they may be out of specification and should be replaced. Use Krytox sparingly to ensure that shaft assembly splines will properly fit into the stirrup splines without excess force. There are no published repair procedures for either spline interference or faceplate bushings at this time.

1. After selecting proper nose occluder kit, before assembling nose occluder to stirrup assembly, apply Krytox lubricant to splined ends of nose occluder shaft assemblies. Work splines of both shaft assemblies in and out of stirrup assembly splines several times until male splines engage smoothly with female splines.

2. Inspect and lightly lubricate two O-ring seals on shaft assemblies.



Steps 1 and 2 - Para 4-227

4p227s1

3. Insert one shaft assembly through inside of faceplate bushing. Position roller portion of assembly flush against inner side of faceplate nose bridge and then engage splines. Repeat for opposite shaft assembly.

4. Position stirrup assembly to be fully down into outer portion of faceplate.

5. Maintain relative positions of shaft assemblies and stirrup, and then ease shaft assemblies through faceplate bushing to engage splines of stirrups.

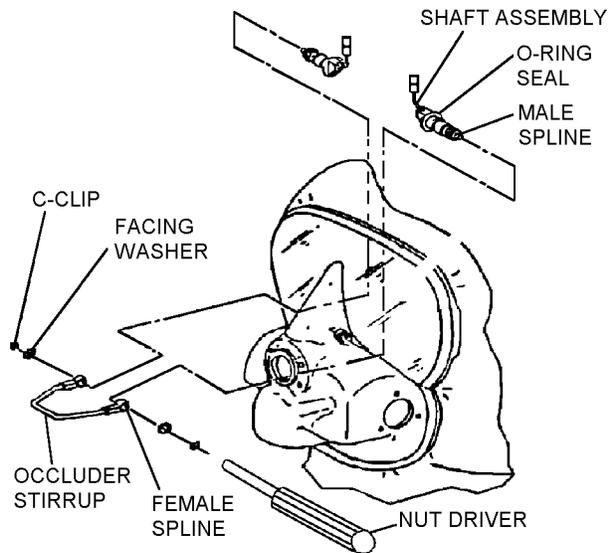
6. Ensure stirrup assembly is in down position. If right handed, use left hand inside of mask to support shaft assembly during C-clip installation, vice versa if left handed.

7. Ensure shaft assembly is completely seated through stirrup end. Place washer on shaft end. Ensure C-clip groove is visible with washer in place.

8. Apply Krytox to end of a 1/8-inch nut driver. Krytox will serve as an installation lubricant and will hold C-clip in place on nut driver.

9. Place C-clip on end of nut driver and adjust C-clip to be centered over nut driver opening.

10. Line up 1/8-inch nut driver directly over center of shaft end and press C-clip into groove. Verify C-clip is properly seated.



Steps 3 thru 10 - Para 4-227

4p227s3

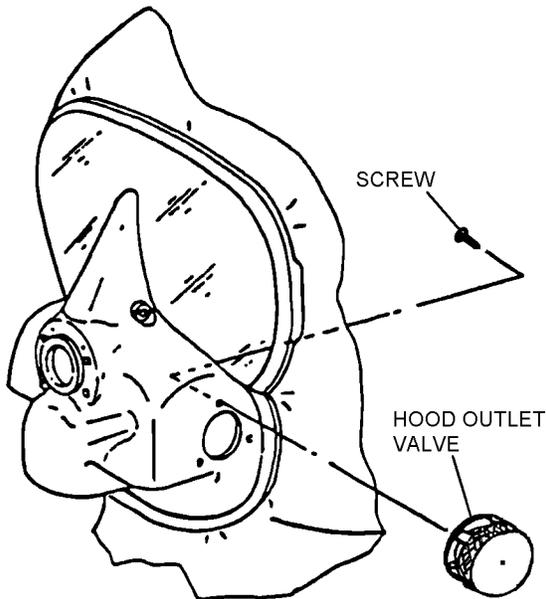
11. Repeat steps 3 through 10 for opposite side

**4-228. Hood Outlet Valve Installation.**

1. Coat threaded portions of three securing screws with a thin, even coat of sealing compound.
2. Apply an even film of sealing compound to mating surface of hood outlet valve and to faceplate joint. Place valve over hood outlet port with valve vent positioned to discharge towards rear of hood.

**CAUTION**

Do not overtighten screws. Overtightening screws will crack polycarbonate faceplate.



**Steps 1 and 2 - Para 4-228**

4p228s1

3. Install the coated screws to secure the valve into place. Tighten screws with torque screwdriver set to 8-10 oz. in.

4. Remove any excess sealing compound using clean, dry absorbent cloth.

**4-229. Hood Inlet Adapter Installation.**

1. Invert hood to expose the inner side of the mask.

2. Position a new sealing washer and install hood inlet adapter through faceplate port, taking care to align flat side on adapter flange with molded flat on faceplate port.

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- Restore hood to its normal position.



Do not overtighten. Overtightening spanner nut will crack polycarbonate faceplate.

- Install facing washer, then fit the spanner nut. Tighten spanner nut to 14-16 lb. in.

- Install the hood inlet hose in accordance with paragraph 4-230.

**4-230. Hood Inlet Hose Installation.**

- Feed free end of restraint cord through hood inlet hose.

- Install a 16.5 mm stepless low profile clamp around hood inlet hose cuff.

- Engage cuff of hood inlet hose over manifold outlet pipe, then hand-seat cuff to fully engage hose on manifold outlet.

- Using a low profile pincer, secure clamp in place.

- Insert the loop formed at the free end of the restraint cord into orifice of hood inlet adapter.

- Fit restraint cord anchor pin through hood inlet adapter, engaging loop of restraint cord and terminating flush with sides of hood inlet adapter.

- Apply a thin, even coat of sealing varnish to the external surface of stub pipe, taking care not to apply any rubber adhesive to inner surface of hood inlet adapter.

- Center the loop of restraint cord around anchor pin.

- Engage cuff of hood inlet hose over stub pipe of hood inlet adapter, then push cuff down for full engagement.

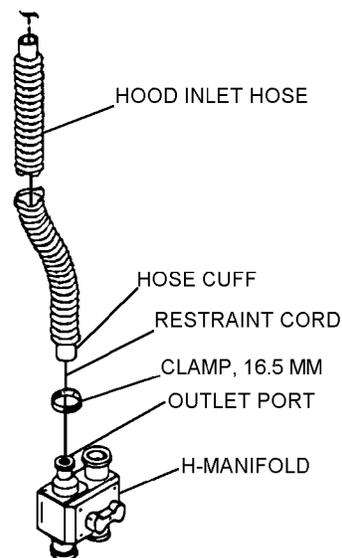
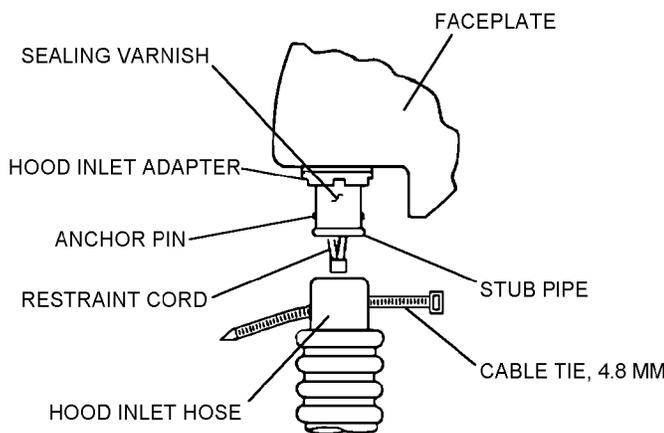
- Rotate cuff around stub pipe to assure an even spread of sealing varnish over inner surface of the cuff.

- Remove any excess sealing varnish using clean, dry absorbent cloth.

- Ensure hood inlet hose is straight and free of twists.

- Position a 4.8 mm cable tie to attach hood inlet hose to hood inlet adapter such that locking head is facing to left rear end of connector.

- Set cable tie tool (MS90387-1) to its STD (No. 7) setting, then tension cable tie to secure hood inlet hose cuff connection to hood inlet adapter. Remove and discard excess portion of cable tie.



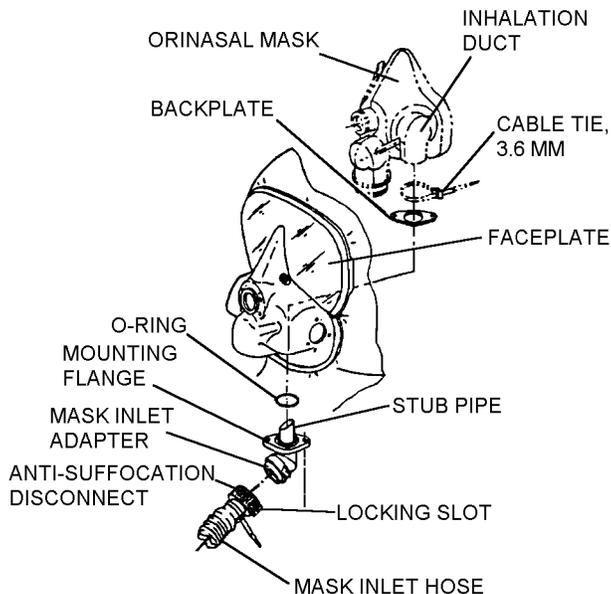
Steps 1 thru 14 - Para 4-230

4p230s1

## NAVAIR 13-1-6.10

### 4-231. Mask Inlet Adapter Installation.

1. Install a new O-ring within mounting flange on mask inlet adapter.
2. Insert mask inlet adapter through faceplate port.
3. Invert hood to expose inside of orinasal mask.
4. Insert backplate over the mask inlet adapter stub pipe, assuring backplate, faceplate, and mounting flange screw holes are aligned.



Steps 1 thru 4 - Para 4-231

4p231s1

5. Return hood to normal position.

6. Apply a thin, even coat of sealing compound to threaded portion of two securing screws.

7. Thread screws through holes in mask inlet adapter mounting flange and faceplate to engage back plate.

### CAUTION

Do not overtighten. Overtightening screws will crack polycarbonate faceplate.

8. Ensure sealing O-ring is correctly positioned to seal mask inlet adapter to faceplate, then tighten screws with torque wrench set to 40-42 oz. in.

9. Remove any excess sealing compound using a clean, dry absorbent cloth.

10. If orinasal mask was not removed, proceed with [step 13](#). If orinasal mask was removed, proceed with [step 11](#).

11. Ensure orinasal mask is centered within faceplate, then engage orinasal mask inhalation duct over mask inlet adapter stub pipe; ensure a firm fit.

12. Using a cable tie tool preset to its INT (No. 4) tension setting, secure orinasal mask inhalation duct to mask inlet adapter stub pipe using a 3.6 mm cable tie, with locking head positioned near lower end of inhalation duct. Remove and discard excess portion of cable tie.

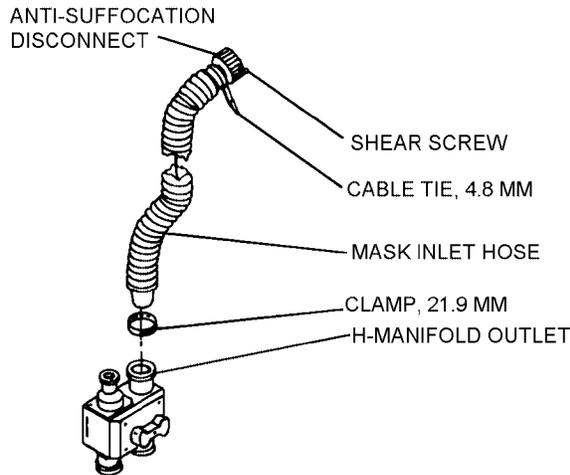
13. Connect anti-suffocation disconnect to mask inlet adapter, taking care to assure mask inlet hose is not twisted.

14. Install shear screw (brass) to lock anti-suffocation disconnect.

### 4-232. Mask Inlet Hose/Anti-Suffocation Disconnect Installation.

1. Feed free end of restraint cord through mask inlet hose and anti-suffocation disconnect.

2. Using a bowline knot, tie restraint cord to restraint cord pin.
3. Position a 21.9 mm stepless low profile clamp to secure mask inlet hose to manifold outlet.



**Steps 1 thru 3 - Para 4-232**

4p232s1

4. Apply a thin, even coat of sealing varnish to anti-suffocation disconnect, taking care not to apply any sealing varnish to inner surface.
5. Ease one end of mask inlet hose cuff onto left side H-manifold outlet, and the other cuff onto anti-suffocation disconnect.
6. Rotate mask inlet hose around the anti-suffocation disconnect to ensure an even spread of sealing varnish.
7. Fully seat mask inlet hose connections, then adjust the mask inlet hose to lie without kinks.
8. Using a low profile pincer tool, secure clamp in place.
9. Position a 4.8 mm cable tie to secure mask inlet hose to anti-suffocation disconnect. Position locking head toward the wearer.

10. Install cable tie into place using cable tie tool, preset to the STD (No. 7) tension setting. Remove and discard excess portion of cable tie.

11. Connect anti-suffocation disconnect to mask inlet adapter, taking care to assure mask inlet hose is not twisted.

12. Install shear screw (brass) to lock anti-suffocation disconnect.

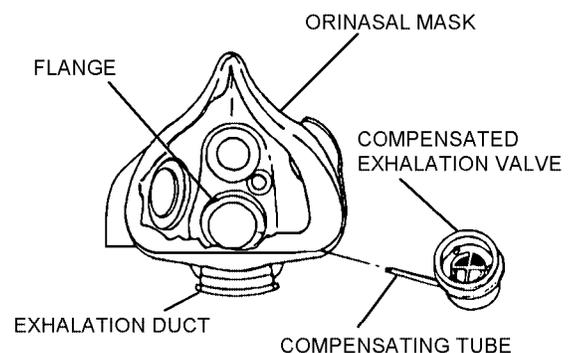
13. Apply a slight clockwise then counterclockwise twist to anti-suffocation disconnect to ensure that the shear screw (brass) has engaged locking slot.

**4-233. Compensated Exhalation Valve Installation.**

**NOTE**

A lubricant (KRYTOX, Type II, 240AC) should be provided to aid in this procedure. Ensure no lubricant enters hose opening.

1. Gently work valve's compensating tube into the connective passage between exhalation duct and inhalation duct. Take extreme care not to break or bend compensating tube or puncture rubber of the connective passage.

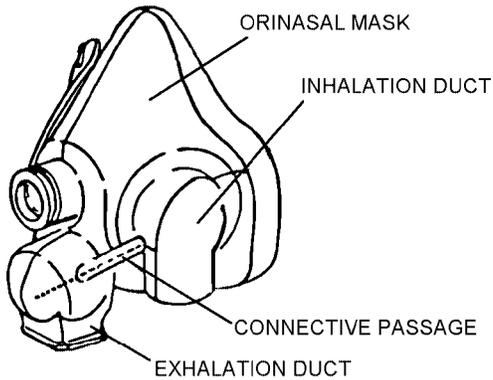


**Step 1 - Para 4-233**

4p233s1

2. Ensure orifice of compensating tube lies flush with orifice of inhalation duct, and is free of obstruction.

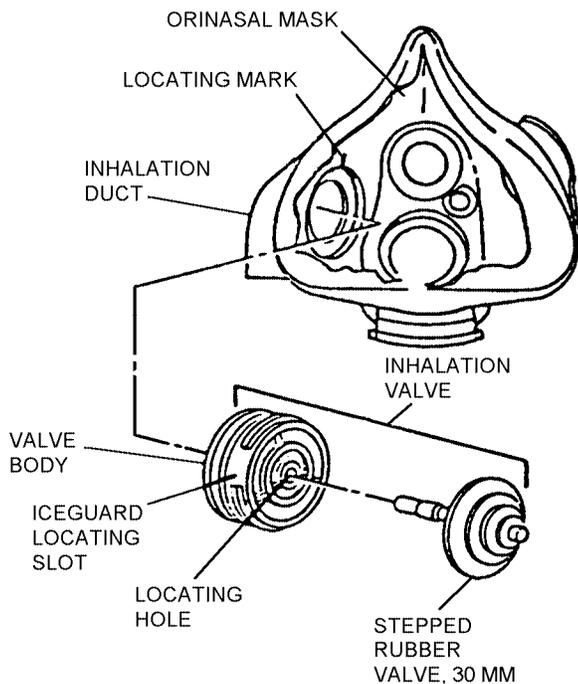
3. Install compensated exhalation valve body into flange of exhalation duct. Ensure valve body is fully engaged within flange.



Steps 2 and 3 - Para 4-233

4p233s2

**4-234. Inhalation Valve Installation.** Install inhalation valve to flange of orinatal mask inhalation duct, taking care to ensure iceguard locating slots of valve holder are aligned at 90° to molded locating mark on interior of orinatal mask.



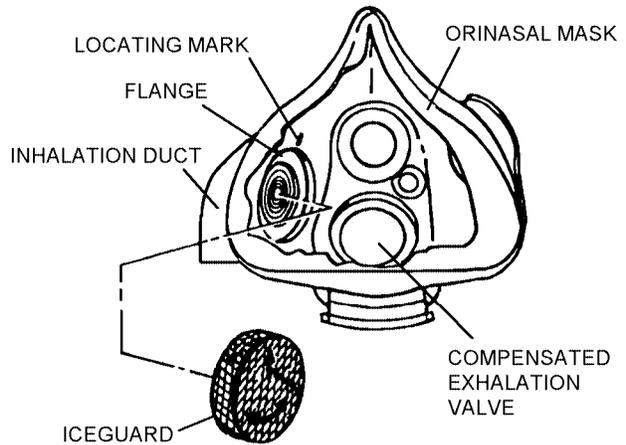
Para 4-234

4p234

**4-235. Iceguard Installation.**

1. Align arrow engraved on iceguard body with locating mark molded on interior of orinatal mask.

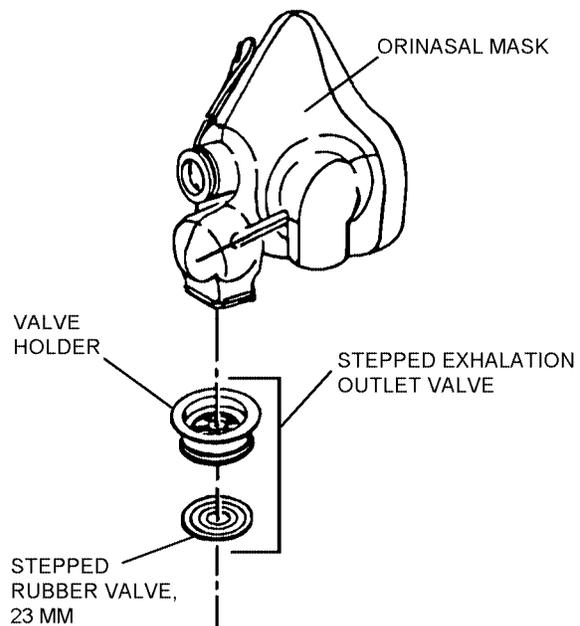
2. Apply a light pressure to iceguard and engage lugs into slots in the inhalation valve holder, then rotate iceguard clockwise 90°. When iceguard is installed correctly, engraved arrow points towards compensated exhalation valve.



Steps 1 and 2 - Para 4-235

4p235s1

**4-236. Exhalation Outlet Valve Installation.** Using an elastrator, spread mask exhalation duct. Install assembled stepped exhalation outlet valve into orinatal mask exhalation duct, ensuring an even fit of valve holder within duct.



Para 4-236

4p236

**4-237. Drink Facility Installation.****NOTE**

Orinasal mask must be removed before installing drink facility.

1. Invert hood to expose orinasal mask, but do not cover faceplate.
2. Place external sealing washer over threaded end of drink tube inlet, orienting it so edges align with edges of drink tube inlet.
3. Insert threaded end of drink tube inlet through faceplate.
4. Install internal sealing (rubber) washer followed by flat (metal) washer, over threaded end of drink tube inlet.



To avoid damaging faceplate, do not over-tighten spacer.

5. Carefully attach threaded spacer onto drink tube inlet so that hexagon-shaped face of spacer is oriented toward inner surface of faceplate. Tighten threaded spacer using a torque wrench set to 8.5 -

9.2 lb. in., while ensuring concave edges of external sealing washer and inlet base fit correctly between raised ridge of microphone orifice and external bulge of orinasal mask cavity.

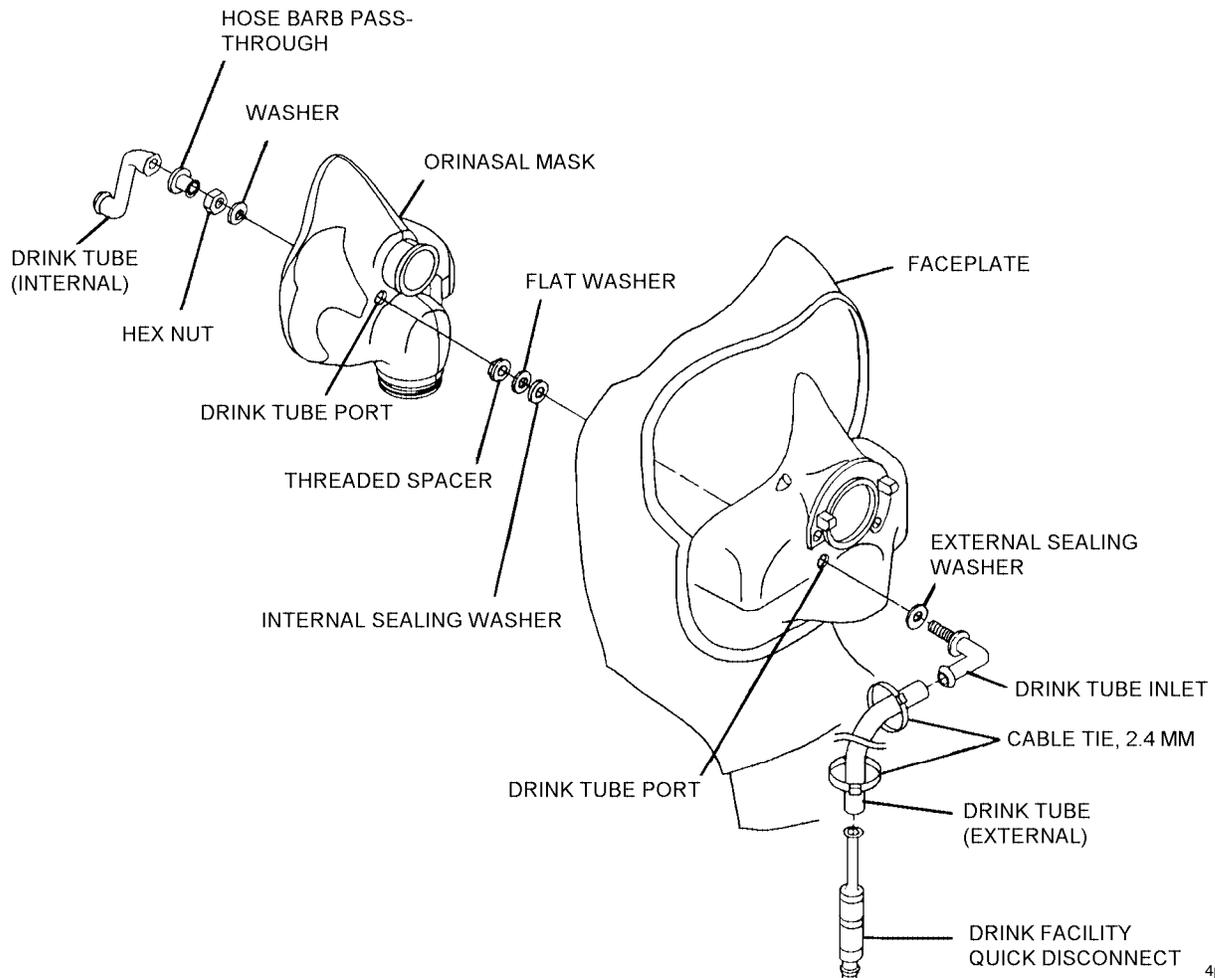
6. Carefully manipulate orinasal mask to insert threaded end of drink tube inlet into hole located immediately above and right of compensated exhalation valve. Ensure microphone cavity extends through faceplate.

7. Place flat (metal) washer over threaded end of drink tube inlet, followed by hex nut. Continue threading hex nut onto inlet until enough threads are exposed to allow threading hose barb onto inlet.

8. Thread hose barb pass through onto drink tube inlet, with the hexagon-shaped face toward hex nut, until it makes contact with hex nut. Align edges so that 3/8-inch nut driver will engage both at the same time.

9. Using the 3/8-inch nut driver, tighten hex nut and hose barb until edge of compensated exhalation valve cavity begins to distort.

10. Place internal drink tube over hose barb, positioning barbed end over compensated exhalation valve.



Steps 1 thru 10 - Para 4-237

4p237s1

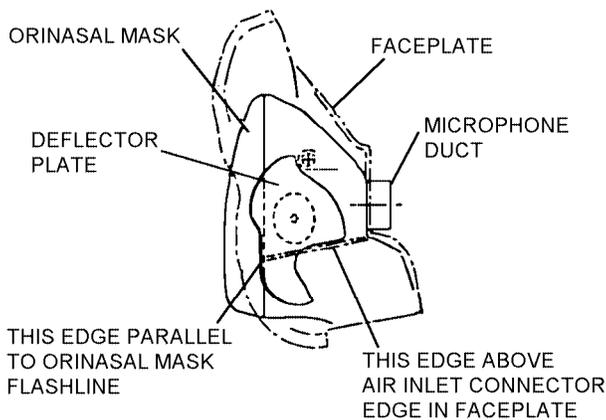
## NAVAIR 13-1-6.10

11. Perform mask assembly overall leakage test in accordance with [paragraph 4-149](#) or [4-156](#), as applicable.

### 4-238. Orinasal Mask Installation.

1. Insert orinasal mask deflector plate into orinasal mask as shown. Lower straight edge of deflector plate should be parallel to edge above air inlet connector ledge in faceplate and should not strike ledge.

2. Ensure proper positioning of deflector plate on orinasal mask.



#### Steps 1 and 2 - Para 4-238

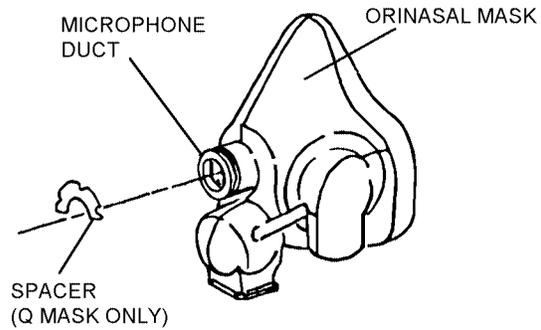
4p238s1

3. Ensure all component parts are installed on orinasal mask in accordance with [paragraphs 4-233 through 4-236](#).



Spacer must be inserted between small orinasal mask microphone duct and inside of faceplate prior to orinasal mask installation.

4. For small-size orinasal mask (Q-designation) only, invert hood and position black spacer inside faceplate. Align notches in spacer with nuts securing the toggle harness assembly to inner surface of faceplate.



#### Step 4 - Para 4-238

4p238s4

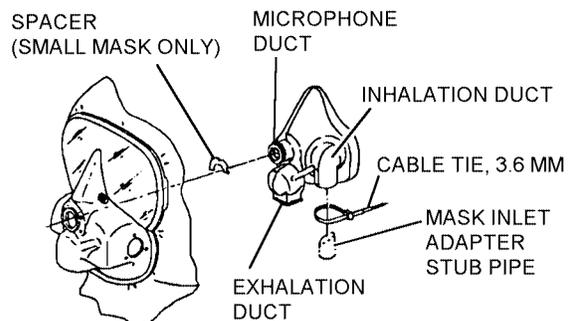
5. With hood remaining inverted, place orinasal mask into faceplate by easing flange of microphone duct and that of exhalation duct through their respective faceplate ports. For small orinasal mask, ensure spacer remains in proper location.

6. Center orinasal mask within faceplate, then engage inhalation duct over mask inlet adapter, ensuring a firm fit. Ensure threaded portion of drink tube assembly passes through grommet in orinasal mask.

7. Clamp inhalation duct to mask inlet adapter using a 3.6 mm cable tie with locking head positioned between the left-hand side of mask inlet and faceplate.

8. Using a cable tie tool preset to its INT (No. 4) tension setting, secure inhalation duct to mask inlet adapter stub pipe. Remove and discard excess portion of the cable tie.

9. If not already done, apply a thin, even coat of thread locking compound to the threaded portion of drink tube assembly, then fit and tighten the locknut using a torque wrench set to 11.5-12.5 in. lb.



#### Steps 5 thru 9 - Para 4-238

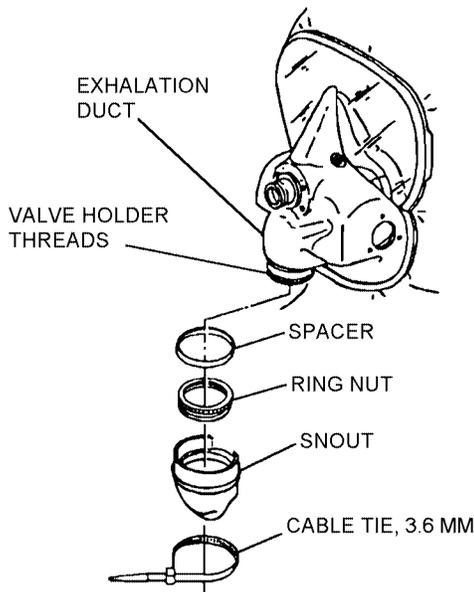
4p238s5

**4-239. Snout Installation.**

1. Ease lip of exhalation duct through port of faceplate, ensuring valve is not disturbed within duct, then install spacer.

2. Screw ring nut to threaded portion of valve holder (knurled ring facing up), sealing orinasal mask rubber to faceplate.

3. Install snout over ring nut and position a 3.6 mm cable tie with locking head located to the right of snout. Install with cable tie tool set to INT (No. 4) position. Remove excess portion of cable tie.



**Steps 1 thru 3 - Para 4-239**

4p239s1

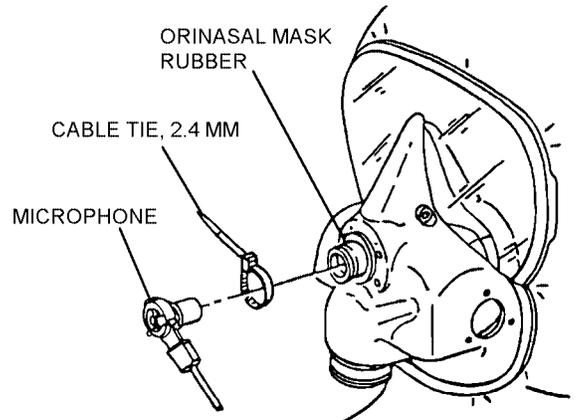
**4-240. Microphone Installation.**

1. Push microphone into the orinasal mask rubber duct, taking care not to push orinasal mask rubber back into faceplate port.

2. Position a 2.4 mm cable tie around orinasal mask rubber with locking head of cable tie located to lower right of microphone.

3. Using a cable tie tool preset to INT (No. 4) tension position, clamp orinasal mask rubber to microphone.

4. Remove and discard excess portion of cable tie.



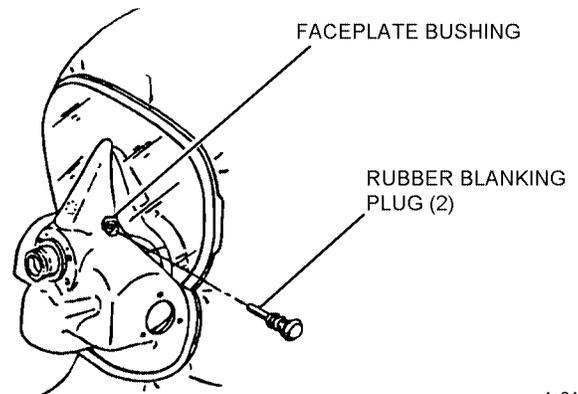
**Steps 1 thru 4 - Para 4-240**

4p240s1

**4-241. Blanking Plug - Nose Occluder Faceplate Bushing.**

1. Insert blanking plug in nose occluder bushing from outside of mask.

2. Press blanking plug fully into bushing. Ensure plug rim contacts bushing.



**Steps 1 and 2 - Para 4-241**

4p241s1

3. Invert hood and ensure lip on end of plug protrudes past end of nose occluder bushing on inner surface of faceplate.

4. Perform Mask Assembly Overall Leakage Test.

## NAVAIR 13-1-6.10

### 4-242. LOWER ASSEMBLY.

### 4-243. Pusher Fan Subassembly.

### 4-244. Right Manifold Hose to H-Manifold Assembly (figure 4-104).

1. Install a 24.5 mm stepless low profile clamp over end of manifold hose.

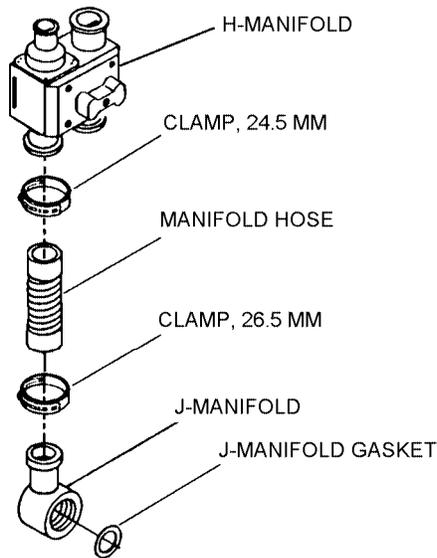


Figure 4-104. Assembling Right Manifold Hose to H-Manifold and J-Manifold

4-104

2. Install 3/4 inch end of Manifold Hose on right-side inlet port of H-manifold.

3. Using a low profile pincer secure, clamp in place around hose approximately 1/4 inch from end of hose. Ensure connection is tight.

### 4-245. Right Manifold Hose to J-manifold and Gasket Assembly (figure 4-104).

1. Install a 26.5 mm stepless low profile clamp over the 7/8 inch end of Manifold Hose.

2. Insert J-manifold into 7/8 inch (larger) end of hose until hose is flush with manifold shoulder. Ensure J-manifold is positioned with opening as shown in figure 4-1 ((V)1 only) or figure 4-2 ((V)2 through (V)4 only).

3. Using low profile pincer, secure clamp in place around hose approximately 1/2 inch from end of hose. Ensure clamp is below J-manifold retention lip, tight and positioned as shown in paragraph 4-246.

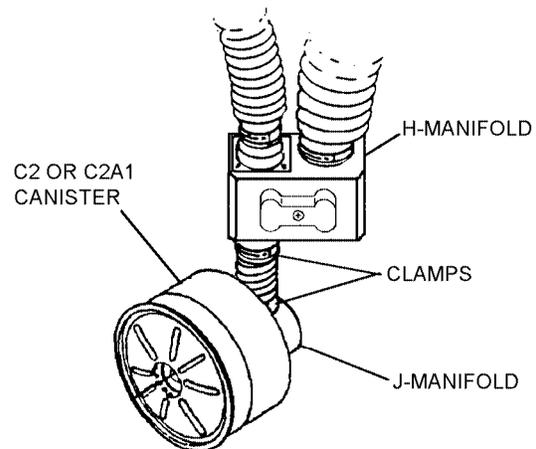
4. Insert J-manifold gasket. Ensure gasket is flat and properly seated.

### 4-246. C2 or C2A1 Canister Installation.

#### WARNING

C2 or C2A1 canisters may not be replaced with any other filter canister.

1. Inspect gasket for proper seating in manifold.
2. Screw canister (clockwise) into J-manifold until contact is made with gasket and fully hand tighten.



Step 2 - Para 4-246

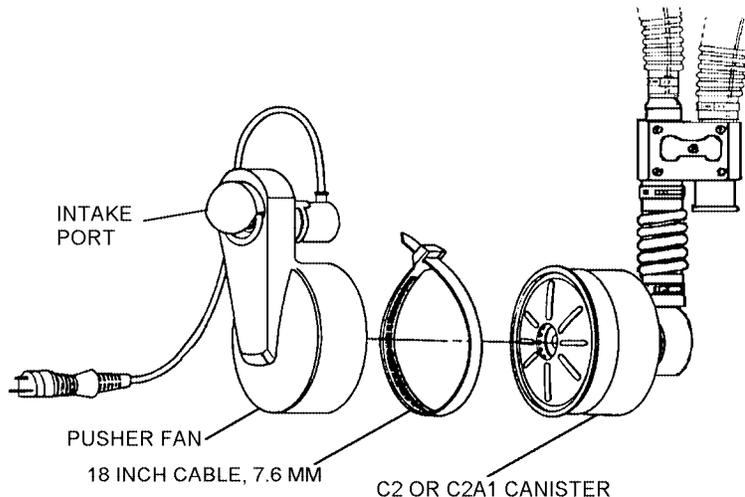
4p246s2

### 4-247. Pusher Fan Installation.

1. Ensure pusher fan has been tested according to pusher fan bench test, paragraph 4-140.

2. Slide the pusher fan rubber housing over filter canister until canister lip bottoms out in rubber housing. Ensure pusher fan is aligned as shown ((V)2 through (V)4 Respirator Assemblies).

3. Ensure pusher fan intake port is positioned with intake port as shown.



4p247s1

**Steps 1 thru 3 - Para 4-247**

4. Using the cable tie tool (NIIN 00-937-5438) preset to HVY (No. 8), install the 18 inch cable tie centered around canister to secure the pusher fan rubber housing. Ensure cable tie is tight and positioned properly.

5. Ensure pusher fan is secured properly to C2 or C2A1 canister.

6. Perform Special Inspection in accordance with paragraph 4-134.

7. Document in accordance with OPNAVINST 4790.2 Series.

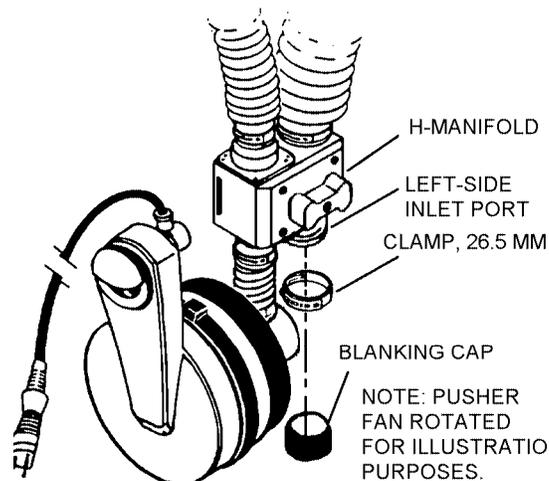
2. Install 26.5 mm stepless low profile clamp over blanking cap.

**4-248. Pusher Fan Battery Installation.** Plug pusher fan cord into the battery pack. Be careful when inserting plug so as not to break off any of the prongs. Be sure plug bottoms out in the battery socket.

**4-249. Blanking Cap - (V)1 Only.**

4-250. Blanking Cap to H-Manifold Installation.

1. Install blanking cap over left side inlet port of H-manifold.



4p250s1

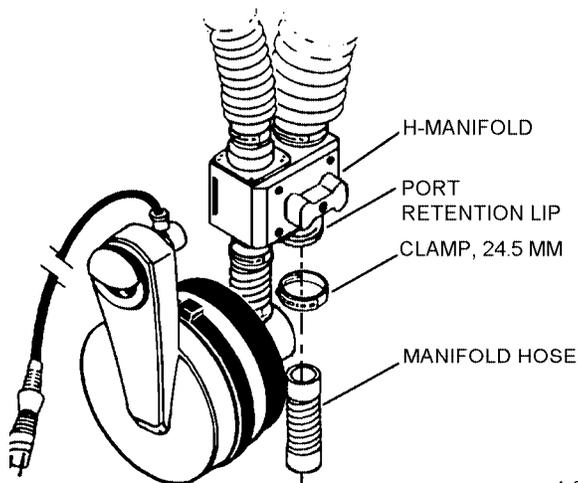
**Steps 1 and 2 - Para 4-250**

3. Using low profile pincer, secure clamp in place approximately 1/4 inch from bottom of H-manifold body. Ensure clamp connection is tight.

**4-251. Oxygen Delivery Subassembly - (V)2 through (V)4 Only.**

**4-252. Left Manifold Hose to H-Manifold Assembly (3/4 inch - 7/8 inch).**

1. Install 24.5 mm stepless low profile clamp over 3/4 inch end of manifold hose.
2. Install 3/4 inch end of Manifold Hose on left-side inlet port of H-manifold.



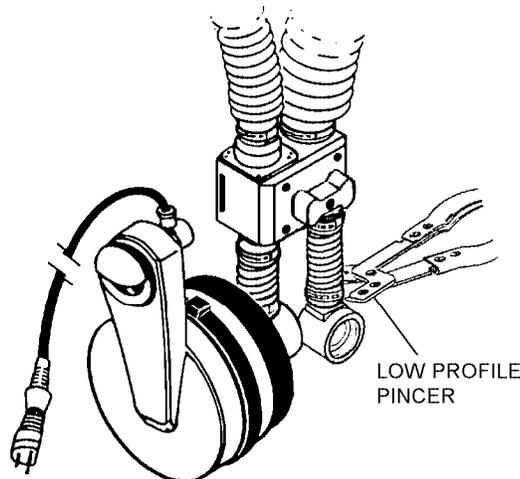
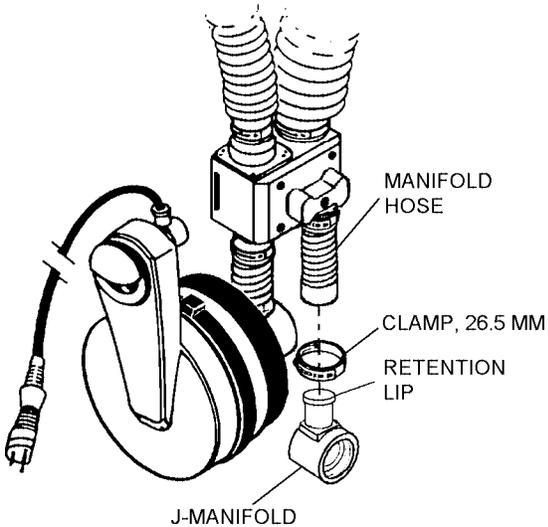
**Steps 1 and 2 - Para 4-252**

4p252s1

3. Using low profile pincer, secure the clamp in place around hose approximately 1/4 inch from end of hose. Ensure clamp is below port retention lip and tight.

**4-253. Left Manifold Hose to J-Manifold Assembly.**

1. Install a 26.5 mm stepless low profile clamp over free end of Manifold Hose.
2. Insert the J-manifold into free end of the Manifold Hose until it bottoms out.
3. Slide stepless low profile clamp over the lip of J-manifold until it is about 1/2 inch from end of hose.
4. Ensure all components are aligned as shown.
5. Using low profile pincer, secure clamp in place around hose. Ensure it is below J-manifold retention lip.
6. Insert J-manifold gasket. Ensure gasket is flat and properly seated in groove below threads in canister opening.



**Steps 1 thru 5 - Para 4-253**

4p253s1

4-254. C2 or C2A1 Canister Installation.

**WARNING**

C2 or C2A1 canisters may not be replaced with any other filter canister.

1. Inspect gasket for proper seating in manifold.
2. Screw canister (clockwise) into J-manifold until contact with gasket and fully hand tighten.

4-255. 90° Rubber Molding Installation.

1. Slide 90° rubber molding over the canister until the outer canister lip is fully seated in groove inside 90° rubber molding.

**WARNING**

Failure to seat rubber molding properly may result in restricted oxygen flow to the

user, i.e., do not push rubber molding past lip groove connection.

**NOTE**

Rubber molding will rotate easily on groove when seated properly.

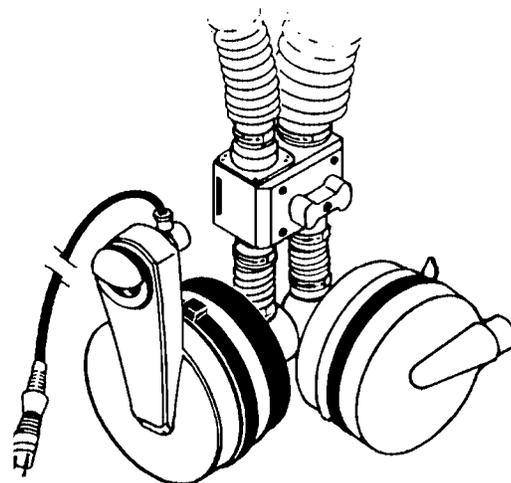
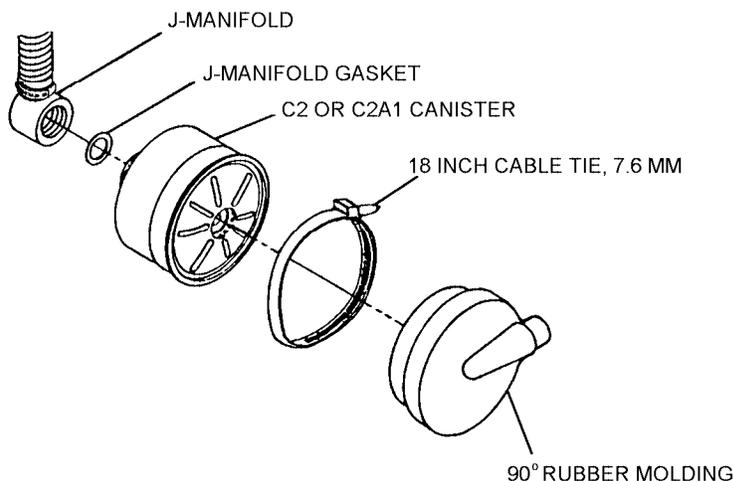
2. Rotate rubber molding clockwise until molding inlet is facing directly to right of Manifold Hose approximately 90°.

3. Using cable tie tool preset to HVY (No. 8), install cable tie centered around canister between the boot apron groove and boot apron lip, to secure 90° rubber molding. Ensure cable tie connection is tight and positioned as shown in figures 4-2 to 4-4.

4. Ensure boot is properly seated on canister.

4-256. LOX ((V)2 Variant) Delivery System Assembly.

1. Install a 24.5 mm stepless low profile clamp over the end of the 90° rubber molding.



Steps 1 thru 3 - Para 4-255

4p255s1

## NAVAIR 13-1-6.10

2. Install 3/4 inch to 3/4 inch coupling into 90° rubber molding inlet until flush.

3. Using the low profile pincer, secure clamp in place approximately 1/4 inch from end of 90° rubber molding inlet. Ensure clamp connection is tight.

4. Install free end of coupling into end of 3/4 inch - 3/4 inch ID regulator hose.

5. Install a 24.5 mm stepless low profile clamp over free end of hose.

6. Using the low profile pincer, secure clamp in place around regulator hose approximately 1/4 inch from end of hose. Ensure clamp connection is tight.

7. Install a 24.5 mm stepless low profile clamp over free end of the regulator hose.

8. Connect the regulator hose to the LOX regulator outlet port and position regulator as shown.

9. Using the low profile pincer, secure clamp in place around regulator hose approximately 1/4 inch

from end of hose. Ensure clamp connection is tight and positioned properly.

### 10. LOX regulator assembly.

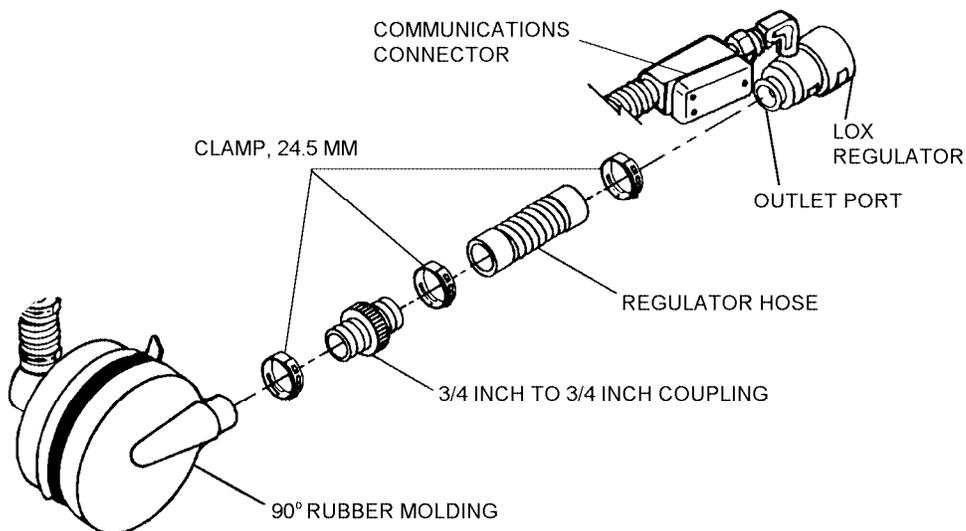
a. Tape the pipe threads of the lox regulator hose with two turns of teflon tape and screw the hose finger tight into the LOX regulator.

b. Position LOX regulator and regulator seat kit hose assembly so that the aircraft communication connector is seated on top of the LOX regulator and in line with 90° elbow.

c. Attach wrench and tighten one to two turns maximum, while maintaining the location of the communications receiver, as detailed above.

### 4-257. OBOGS ((V)3 Variant) Delivery System Assembly.

1. Install a 24.5 mm stepless low profile clamp over the end of the 90° rubber molding.



Steps 1 thru 9 - Para 4-256

4p256s1

2. Position connector so that it will allow OBOGS regulator to be aligned as shown.

3. Install connector into 90° rubber molding inlet until flush.

4. Using low profile pincer, secure clamp in place approximately 1/4 inch from end of 90° rubber molding inlet. Ensure clamp connection is tight.

5. OBOGS regulator assembly.

a. Tape pipe threads of OBOGS regulator hose with two turns of teflon tape and screw hose finger tight into OBOGS regulator.

b. Position OBOGS regulator and regulator seat kit hose assembly so that aircraft communications connector is seated on top of OBOGS regulator and in line with the 90° elbow.

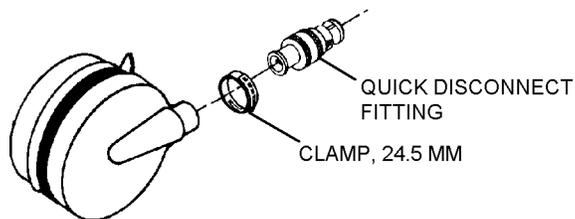
c. Attach wrench and tighten one to two turns maximum, while maintaining location of communications connector, as detailed above.

4-258. Panel Mounted ((V)4 Variant) Delivery System Assembly.

1. Install a 24.5 mm stepless low profile clamp over end of rubber molding.

2. Install quick disconnect fitting into 90° rubber molding inlet until flush.

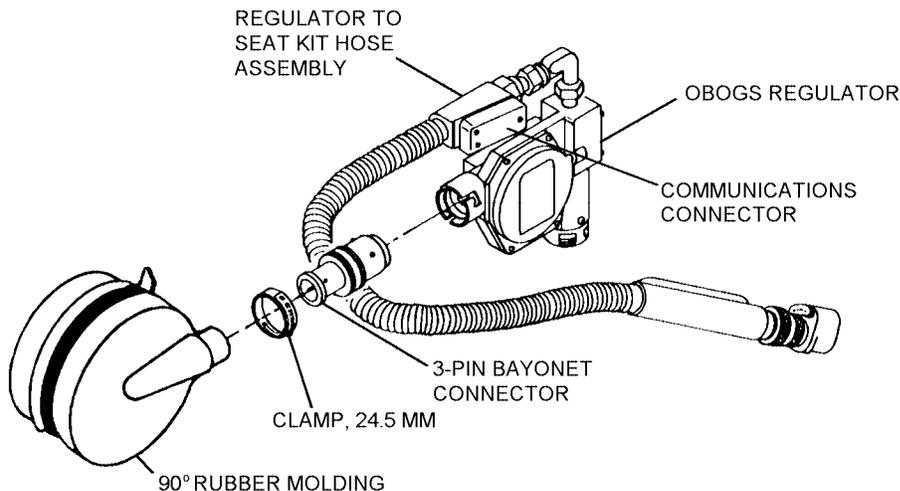
3. Using low profile pincer, secure clamp in place approximately 1/4 inch from end of 90° rubber molding inlet. Ensure clamp connection is tight.



Steps 1 thru 3 - Para 4-258

4p258s1

4. Peel away protective coating, if applied, to faceplate visual area.



Steps 1 thru 4 - Para 4-257

4p257s1

## Section 4-5. Illustrated Parts Breakdown

### 4-259. GENERAL.

4-260. This section lists and illustrates only replaceable components of the respirator assemblies. The IPB is intended for use in identification, procurement and the issuance of replacement components. It also illustrates the necessary disassembly and assembly relationships. Installation, operation, and maintenance of the respirator assemblies shall be performed only by authorized personnel using the instructions set forth in the preceding sections. Source, Maintenance and Recoverability codes are provided for procurable items.

**CAUTION**

Only parts listed in the IPB are authorized to be procured at this time.

### NOTE

For more complete information on the IPB, Group Assembly Parts List and SM&R Codes, refer to Chapter 2, Section 2-4, NAVSUPINST 4423.29, OPNAVINST 4410.2A, and NAVSUP P-719.

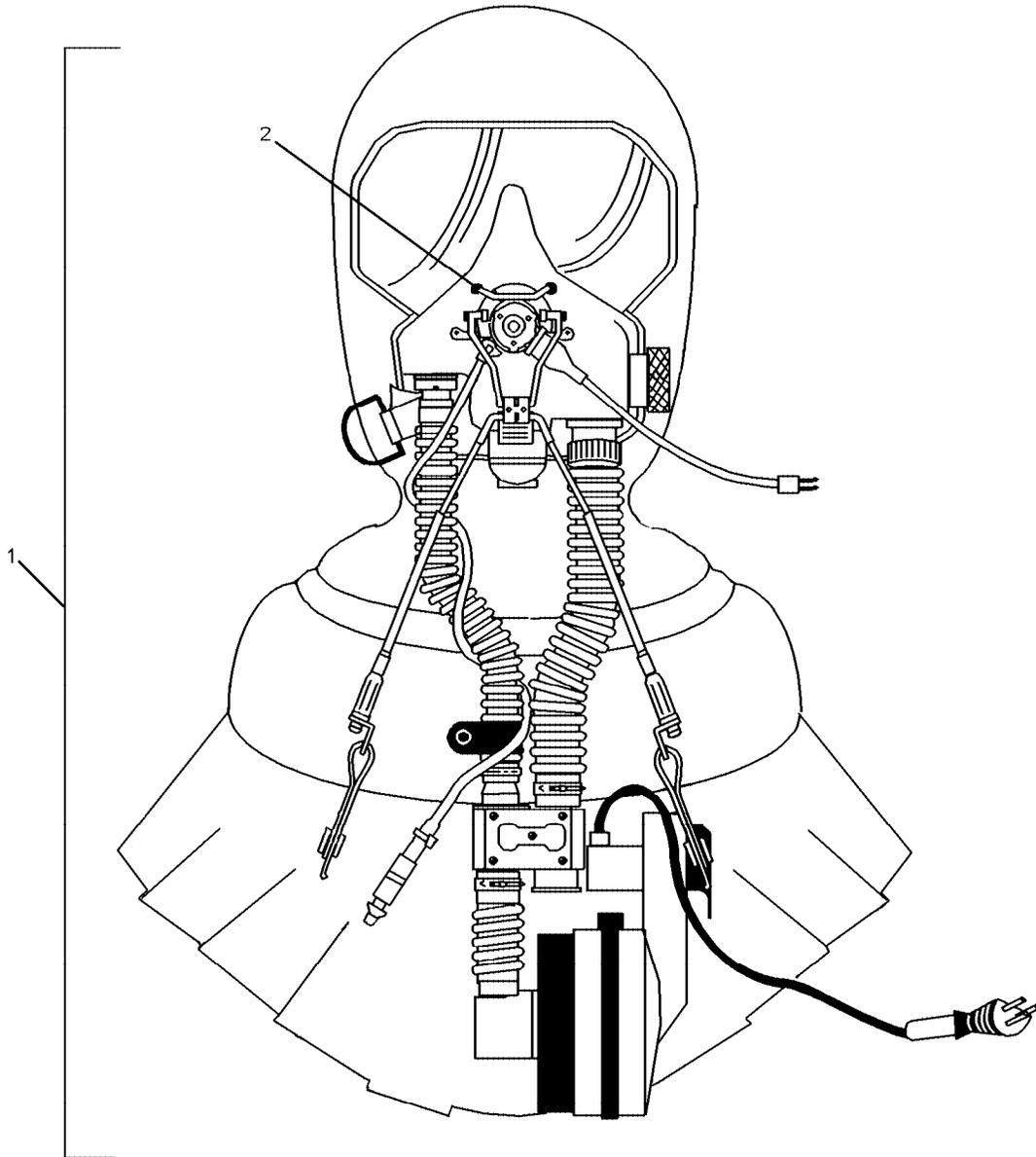


Figure 4-105. A/P22P-14(V) Series Respirator Assemblies (Nose Occluder Identified)

4-105

**NAVAIR 13-1-6.10**

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
4-105-1  -2	—  CL 6564 CL 6565 CL 6566 CL 6567 CL 6568 CL 6569 CL 6570 CL 6571	RESPIRATOR ASSEMBLY, A/P22P-14(V) . . . . . (FIGURE 4-106 FOR BREAKDOWN) OCCLUDER ASSEMBLY, NOSE 4mm LONG . . . . . OCCLUDER ASSEMBLY, NOSE 5mm LONG . . . . . OCCLUDER ASSEMBLY, NOSE 6mm LONG . . . . . OCCLUDER ASSEMBLY, NOSE 7mm LONG . . . . . OCCLUDER ASSEMBLY, NOSE 4mm SHORT . . . . . OCCLUDER ASSEMBLY, NOSE 5mm SHORT . . . . . OCCLUDER ASSEMBLY, NOSE 6mm SHORT . . . . . OCCLUDER ASSEMBLY, NOSE 7mm SHORT . . . . . (FIGURE 4-107 FOR BREAKDOWN)	REF  1 1 1 1 1 1 1 1	

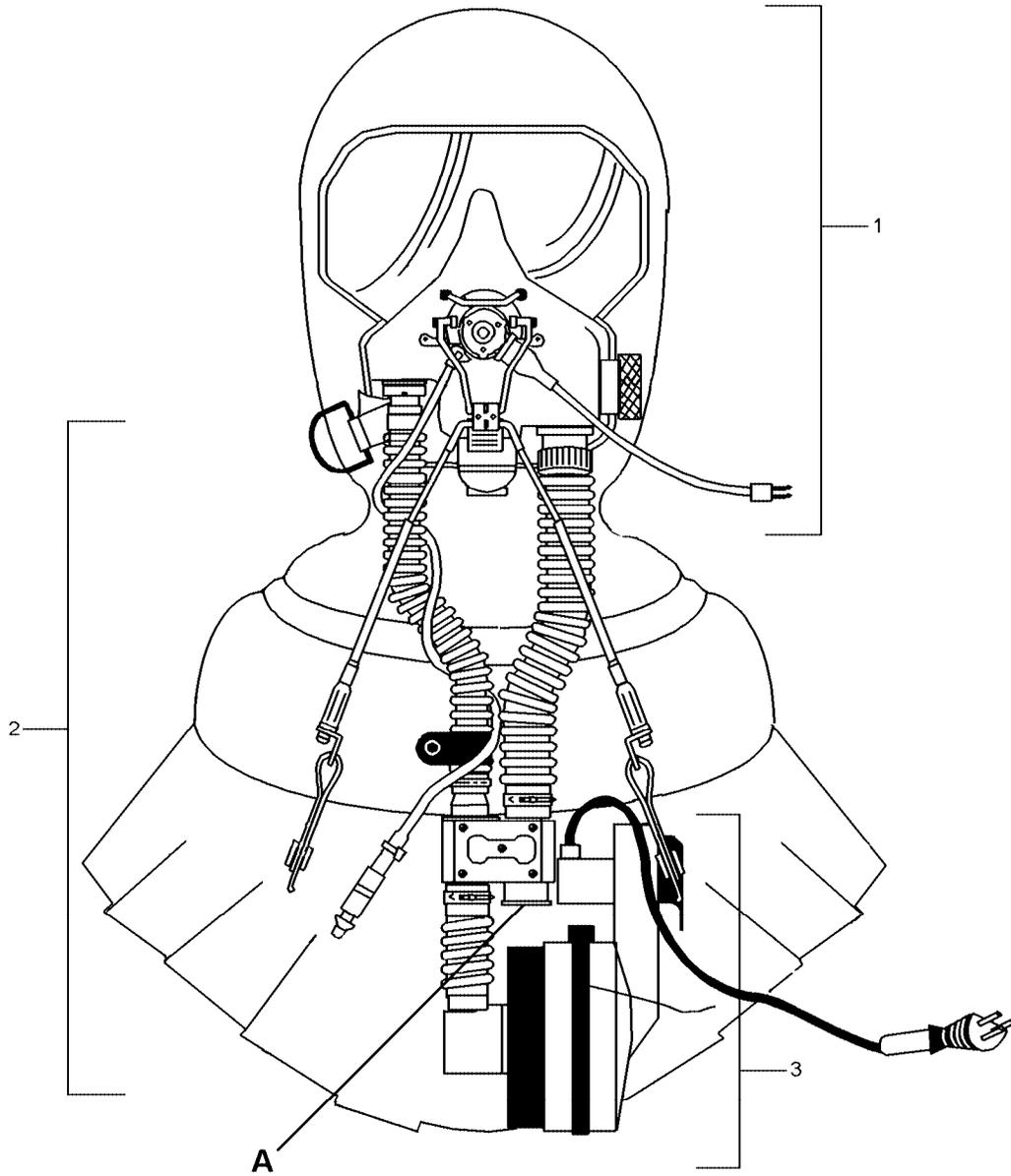


Figure 4-106. A/P22P-14(V) Series Respirator Assemblies  
(Major Components Identified) (Sheet 1 of 2)

4-106-1

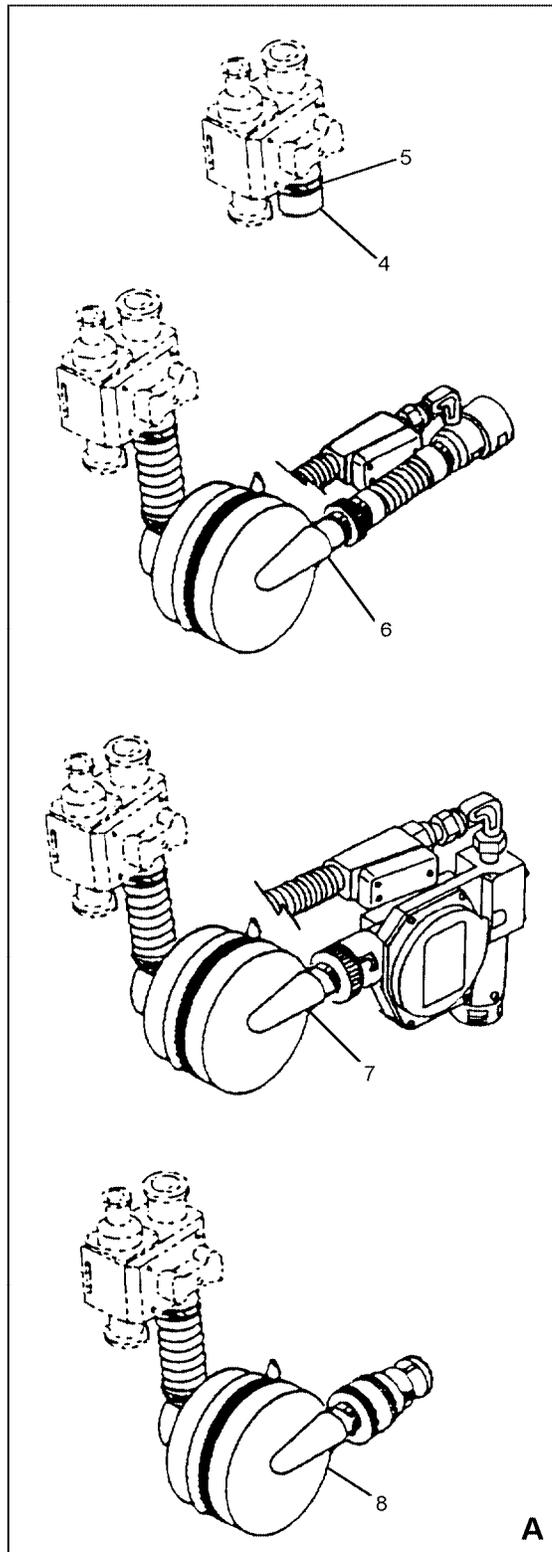


Figure 4-106. A/P22P-14(V) Series Respirator Assemblies  
(Major Components Identified) (Sheet 2 of 2)

4-106-2

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-106	—	RESPIRATOR ASSEMBLY, .....							REF	
		A/P22P-14(V) SERIES								
-1	—	. MASK ASSEMBLY .....							1	
		(FIGURE 4-108 FOR BREAKDOWN)								
-2	—	. LOWER ASSEMBLY ((V)1 VARIANT) .....							1	
		(FIGURE 4-120 FOR BREAKDOWN)								
	—	. LOWER ASSEMBLY ((V)2 - (V)4 VARIANTS) .							1	
		(FIGURE 4-121 FOR BREAKDOWN)								
-3	—	. PUSHER FAN SUBASSEMBLY .....							1	
		(FIGURE 4-122 FOR BREAKDOWN)								
-4	CL 6585	. BLANKING CAP ((V)1 ONLY) .....							1	
-5	CL 6594	. STEPLESS LOW PROFILE CLAMP, 26.5 MM ..							1	
-6	—	. LOX SUBASSEMBLY ((V)2 ONLY) .....							1	
		(FIGURE 4-123 FOR BREAKDOWN)								
-7	—	. OBOGS SUBASSEMBLY ((V)3 ONLY) .....							1	
		(FIGURE 4-123 FOR BREAKDOWN)								
-8	—	. PANEL MOUNTED SUBASSEMBLY .....							1	
		((V)4 ONLY) (FIGURE 4-123 FOR BREAKDOWN)								

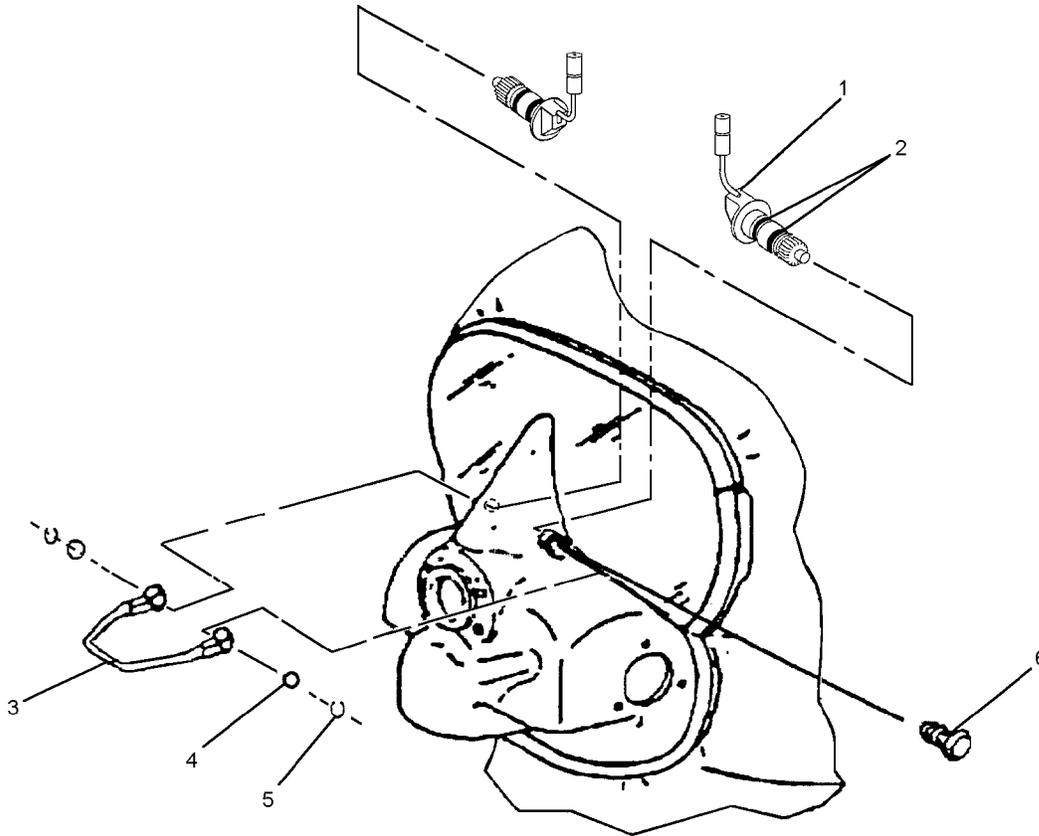


Figure 4-107. Nose Occluder Assembly

004107

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code	
		1	2	3	4	5	6	7			
4-107	CL 6564	OCCLUDER ASSEMBLY, NOSE 4mm LONG . . . . .							1		
	CL 6565	OCCLUDER ASSEMBLY, NOSE 5mm LONG . . . . .							1		
	CL 6566	OCCLUDER ASSEMBLY, NOSE 6mm LONG . . . . .							1		
	CL 6567	OCCLUDER ASSEMBLY, NOSE 7mm LONG . . . . .							1		
	CL 6568	OCCLUDER ASSEMBLY, NOSE 4mm SHORT . . . . .							1		
	CL 6569	OCCLUDER ASSEMBLY, NOSE 5mm SHORT . . . . .							1		
	CL 6570	OCCLUDER ASSEMBLY, NOSE 6mm SHORT . . . . .							1		
	CL 6571	OCCLUDER ASSEMBLY, NOSE 7mm SHORT . . . . .							1		
	-1	—	. SHAFT ASSEMBLY . . . . .							2	
	-2	—	. . O-RING . . . . .							2	
	-3	—	. STIRRUP . . . . .							1	
	-4	—	. WASHER, FACING . . . . .							2	
	-5	—	. □ C-CLIP (Note 2) □ . . . . .							2	
-6	CL 6131	PLUG, BLANKING (Note 1) □ □ □ . . . . .							2		
Notes:		1. Blanking plugs are to be installed when nose occluder is not installed.									
		2. For substitute/replacement C-clip, order P/N 67152728 (MSC Industrial Supply Co., Phone: 1-800-645-7270).									

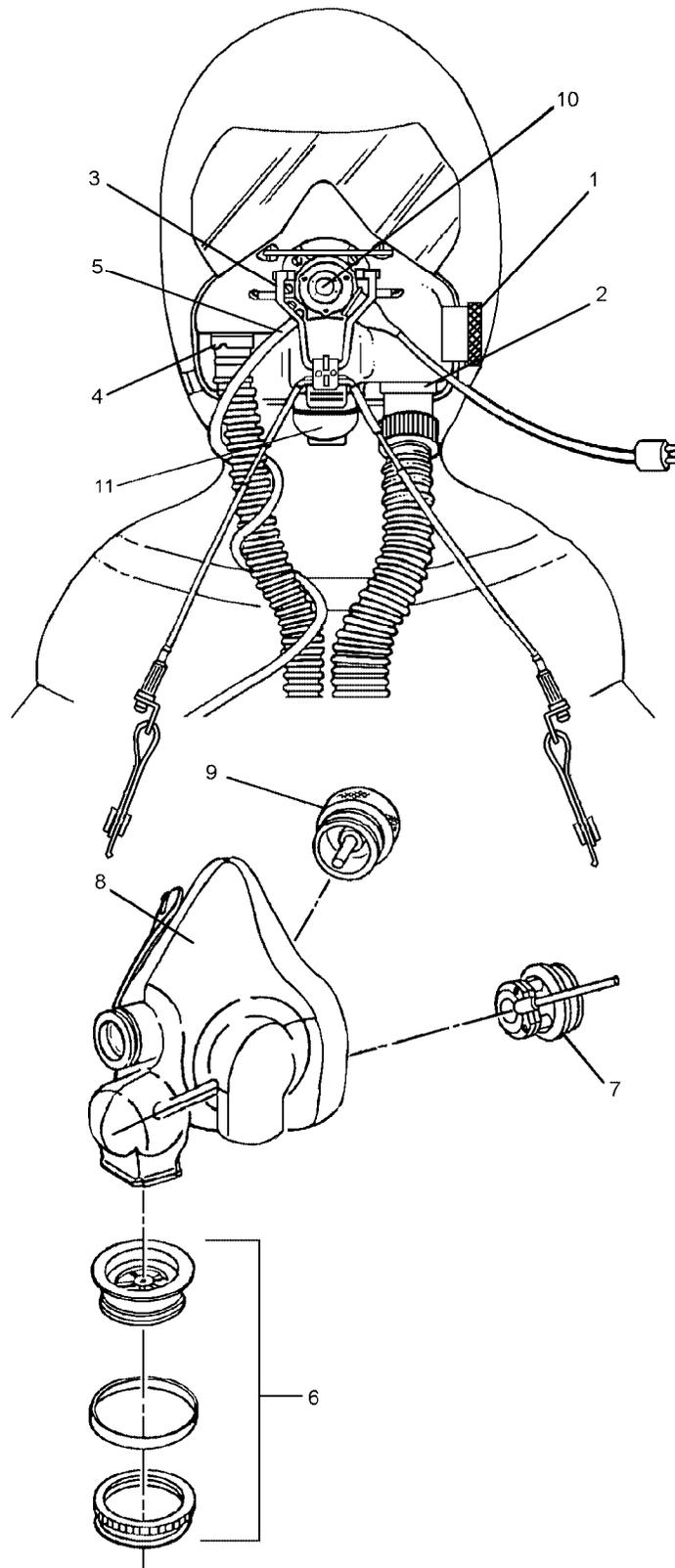
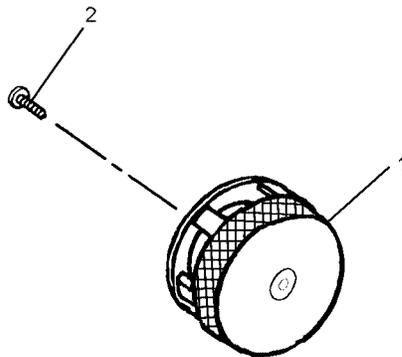


Figure 4-108. Mask Assembly

**NAVAIR 13-1-6.10**

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-108	—	MASK ASSEMBLY .....							REF	
-1	—	. HOOD OUTLET VALVE ASSEMBLY ..... (FIGURE 4-109 FOR BREAKDOWN)							1	
-2	—	. MASK INLET ADAPTER ASSEMBLY ..... (FIGURE 4-110 FOR BREAKDOWN)							1	
-3	—	. TOGGLE HARNESS ASSEMBLY ..... (FIGURE 4-111 FOR BREAKDOWN)							1	
-4	—	. HOOD INLET ADAPTER ASSEMBLY ..... (FIGURE 4-112 FOR BREAKDOWN)							1	
-5	—	. DRINK FACILITY ASSEMBLY ..... (FIGURE 4-113 FOR BREAKDOWN)							1	
-6	—	. EXHALATION OUTLET ..... VALVE ASSEMBLY (FIGURE 4-114 FOR BREAKDOWN)							1	
-7	—	. COMPENSATED EXHALATION ..... VALVE ASSEMBLY (FIGURE 4-115 FOR BREAKDOWN)							1	
-8	—	. ORINASAL MASK ASSEMBLY ..... (FIGURE 4-116 FOR BREAKDOWN)							1	
-9	—	. INHALATION VALVE ASSEMBLY ..... (FIGURE 4-117 FOR BREAKDOWN)							1	
-10	—	. MICROPHONE ASSEMBLY ..... (FIGURE 4-118 FOR BREAKDOWN)							1	
-11	—	. SNOUT ASSEMBLY ..... (FIGURE 4-119 FOR BREAKDOWN)							1	



4-109

Figure 4-109. Hood Outlet Valve Assembly

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-109	—	HOOD OUTLET VALVE ASSEMBLY . . . . .							REF	
-1	CL 6357	. VALVE, HOOD OUTLET . . . . .							1	
-2	—	. SCREW, PANHEAD . . . . .							3	

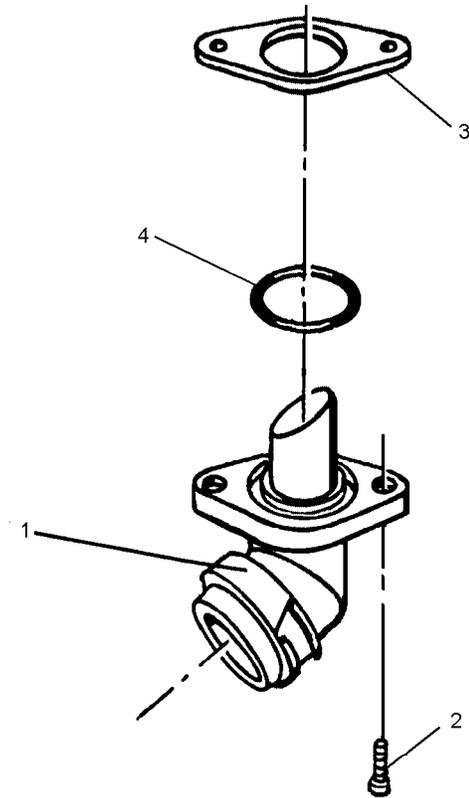


Figure 4-110. Mask Inlet Adapter Assembly

4-110

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-110	—	MASK INLET ADAPTER ASSEMBLY .....							REF	
-1	—	. ADAPTER, MASK INLET .....							1	
-2	—	. SCREW, PANHEAD .....							2	
-3	—	. BACKPLATE .....							1	
-4	—	. O-RING .....							1	

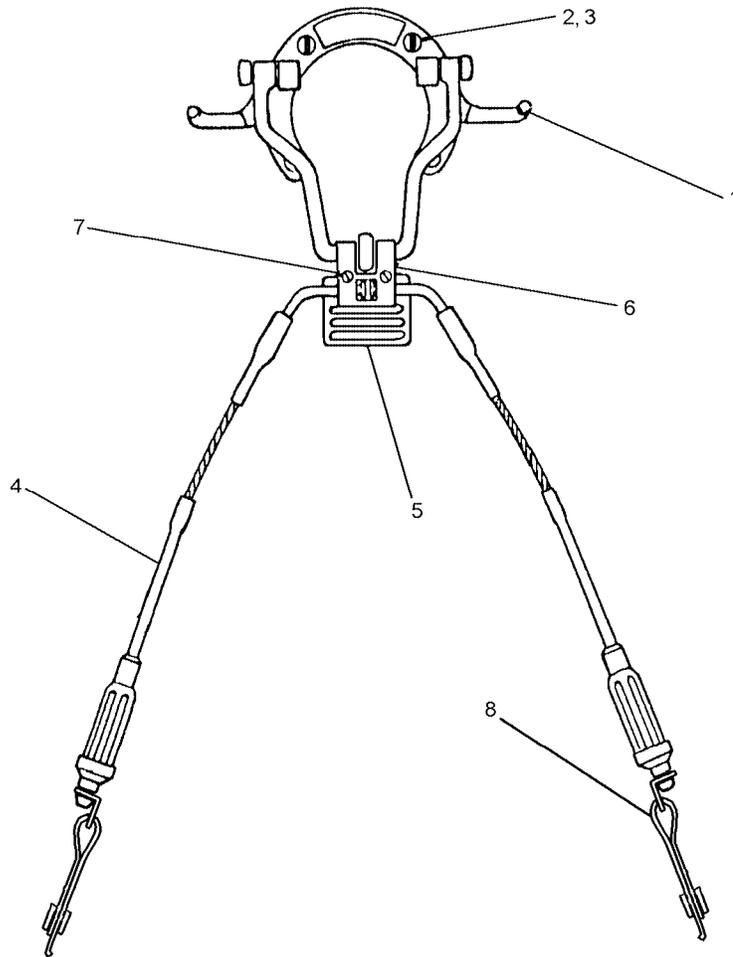


Figure 4-111. Toggle Harness Assembly

4-111

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-111	—	TOGGLE HARNESS ASSEMBLY .....							REF	
-1	—	. HARNESS, MASK .....							1	
-2	—	. . SCREW, COUNTERSUNK .....							4	
-3	—	. . NUT .....							4	
-4	—	. CABLE ASSEMBLY .....							2	
	—	. TOGGLE PLATE KIT .....							1	
-5	—	. . PLATE, TOGGLE (NOTE 1) .....							1	
-6	—	. . PLATE, FIXING (NOTE 1) .....							1	
-7	—	. . SCREW (NOTE 1) .....							2	
-8	—	. STRAP, ADAPTER .....							2	
Notes:		1. Supplied in Toggle Plate Kit.								

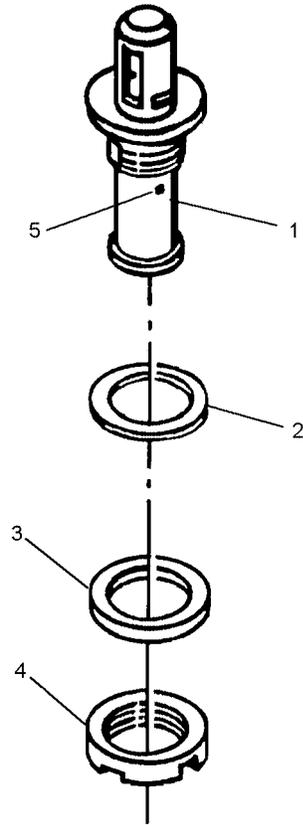


Figure 4-112. Hood Inlet Adapter Assembly

4-112

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-112	—	HOOD INLET ADAPTER ASSEMBLY .....							REF	
-1	—	. ADAPTER, HOOD INLET .....							1	
-2	—	. . WASHER SEALING .....							1	
-3	—	. . WASHER FACING .....							1	
-4	—	. . NUT .....							1	
-5	—	. . PIN, CORD RESTRAINING .....							1	

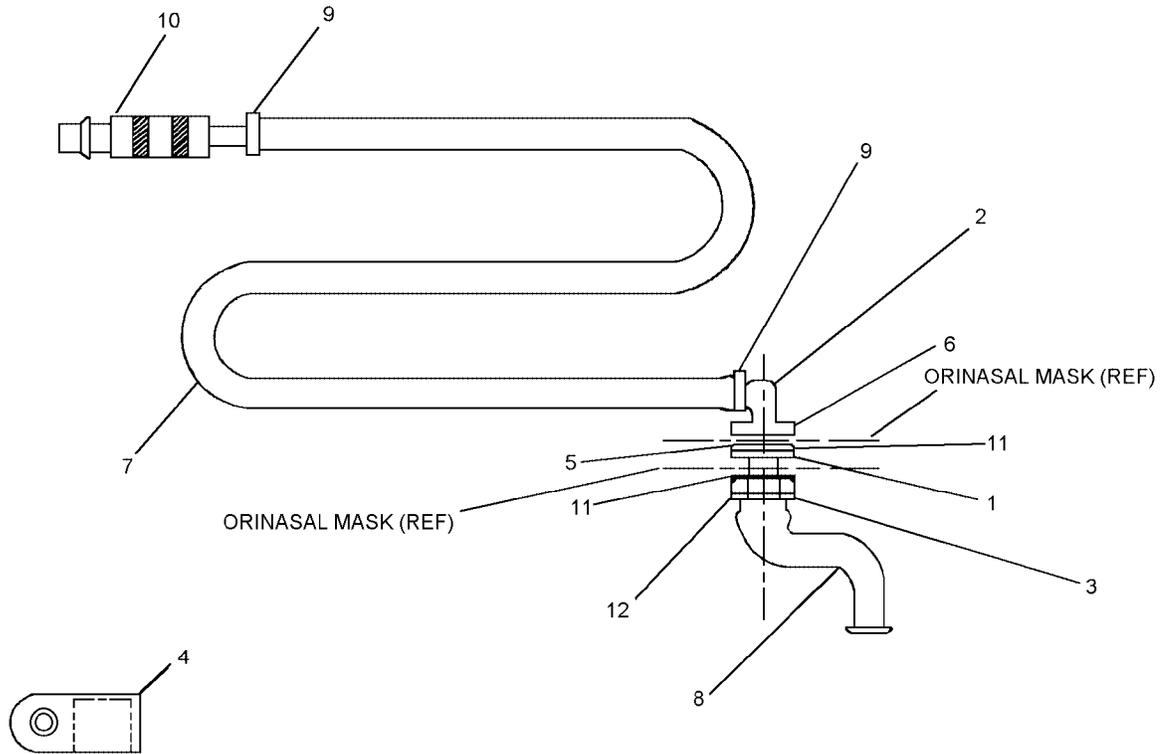


Figure 4-113. Drink Facility Assembly

4-113

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-113	—	DRINK FACILITY ASSEMBLY .....							REF	
-1	—	. SPACER .....							1	
-2	—	. DRINK TUBE, INLET .....							1	
-3	—	. HOSE BARB, DRINK TUBE, PASS THRU .....							1	
-4	—	. DRINK TUBE FACILITY HOLDER .....							1	
-5	—	. WASHER, INTERNAL SEALING .....							1	
-6	—	. WASHER, EXTERNAL SEALING .....							1	
-7	CL 6489	. DRINK TUBE, EXTERNAL .....							1	
-8	CL 6490	. DRINK TUBE, INTERNAL .....							1	
-9	CL 6225	. .CABLE TIE, 2.4 MM .....							2	
-10	CL 6439	. DRINK FACILITY, QUICK DISCONNECT .....							1	
-11	—	. WASHER, FLAT .....							2	
-12	—	. NUT, PLAIN, HEXAGON .....							1	

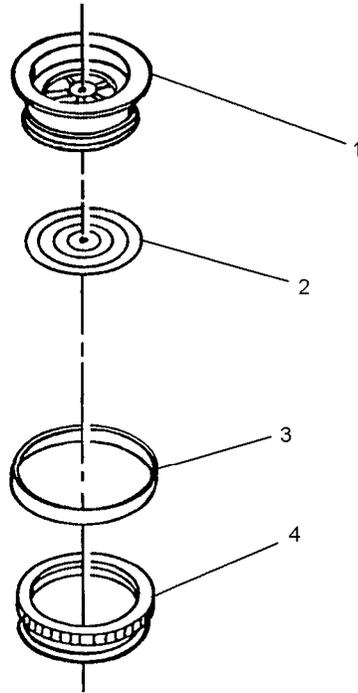


Figure 4-114. Exhalation Outlet Valve Assembly

4-114

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-114	—	EXHALATION OUTLET VALVE ASSEMBLY . . . .							REF	
-1	—	. VALVE BODY, EXHALATION OUTLET . . . . .							1	
-2	CL 6383	. STEPPED RUBBER VALVE . . . . .							1	
-3	—	. SPACER RING . . . . .							1	
-4	—	. LOCKING RING . . . . .							1	

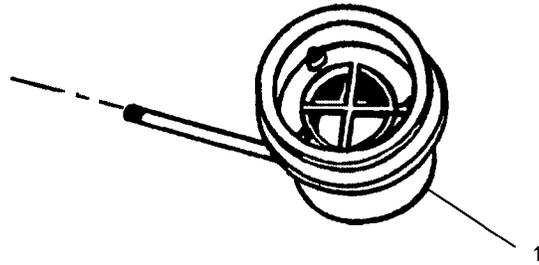


Figure 4-115. Compensated Exhalation Valve Assembly

4-115

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-115	—	COMPENSATED EXHALATION VALVE . . . . .							REF	
-1	—	ASSEMBLY								
		. VALVE, COMPENSATED EXHALATION . . . . .							1	

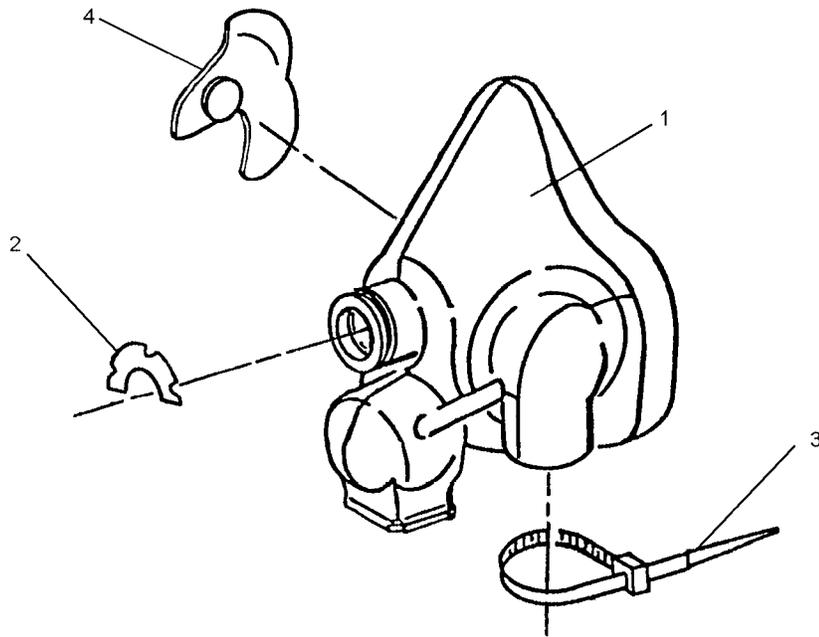


Figure 4-116. Orinasal Mask Assembly

4-116

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-116	—	ORINASAL MASK ASSEMBLY .....							REF	
-1	—	. MASK ORINASAL (LARGE (P) OR SMALL (Q))							1	
-2	—	. SPACER .....							1	
-3	CL 6226	. CABLE TIE, 3.6 MM .....							1	
-4	—	. PLATE, MASK DEFLECTOR .....							1	

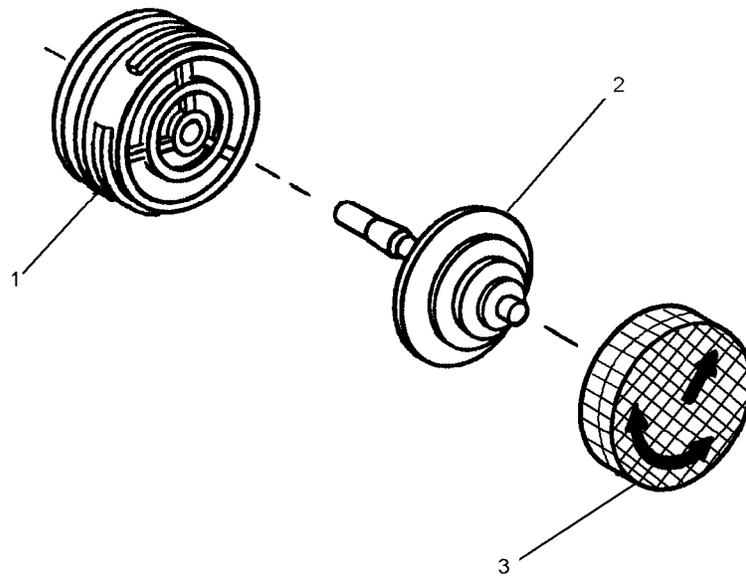


Figure 4-117. Inhalation Valve Assembly

4-117

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-117	—	INHALATION VALVE ASSEMBLY .....							REF	
-1	—	. VALVE BODY, INHALATION .....							1	
-2	CL 6297	. VALVE, STEPPED RUBBER, 30 MM .....							1	
-3	OP 17652	. ICEGUARD .....							1	

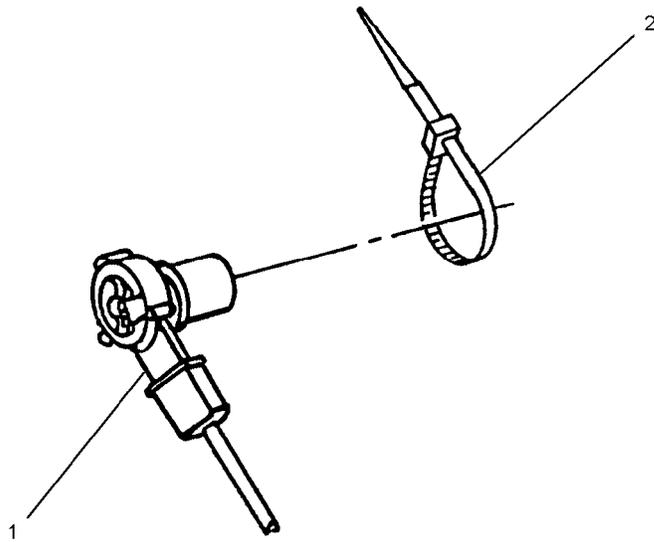


Figure 4-118. Microphone Assembly

4-118

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-118	—	MICROPHONE ASSEMBLY .....							REF	
-1	CL 6605	.							1	
-2	CL 6225	.							1	

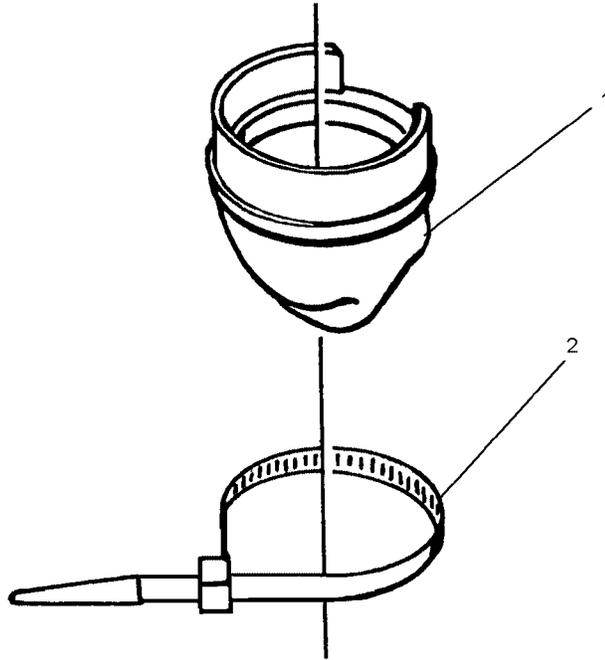
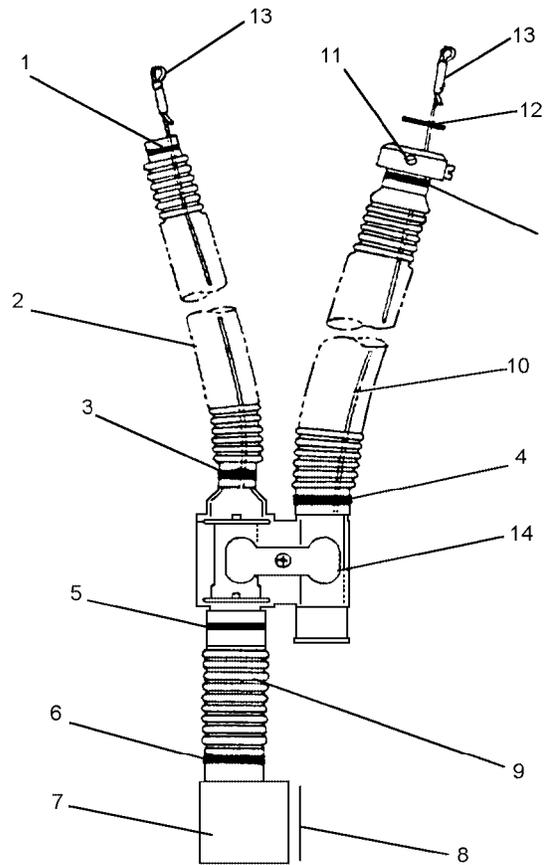


Figure 4-119. Snout Assembly

4-119

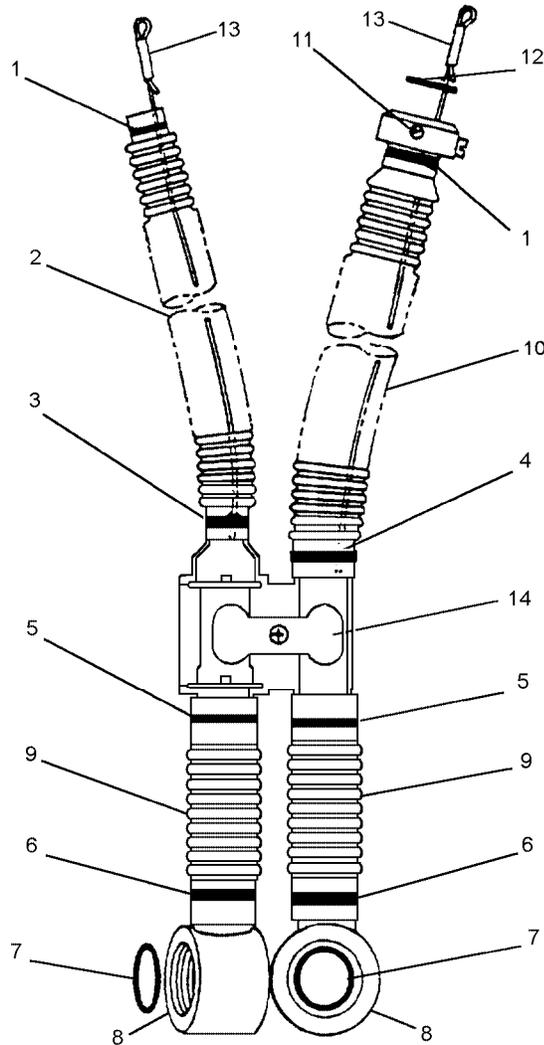
Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-119	—	SNOUT ASSEMBLY .....							REF	
-1	—	. SNOUT .....							1	
-2	CL 6226	. CABLE TIE, 3.6 MM .....							1	



4-120

Figure 4-120. Lower Assembly - (V)1 Variant

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
4-120	—	LOWER ASSEMBLY - (V)1 VARIANT .....	REF	
-1	CL 6227	. CABLE TIE, 4.8 MM .....	2	
-2	CL 6045	. HOOD INLET HOSE .....	1	
-3	CL 6592	. STEPLESS LOW PROFILE CLAMP, 16.5 MM ..	1	
-4	CL 6593	. STEPLESS LOW PROFILE CLAMP, 21.9 MM ..	1	
-5	CL 6670	. STEPLESS LOW PROFILE CLAMP, 24.5 MM ..	1	
-6	CL 6594	. STEPLESS LOW PROFILE CLAMP, 26.5 MM ..	1	
-7	CL 6441	. J-MANIFOLD .....	1	
-8	CL 6442	. GASKET, J-MANIFOLD .....	1	
-9	CL 6418	. MANIFOLD HOSE .....	1	
-10	CL 6046	. MASK INLET HOSE .....	1	
-11	CL 6612	. SCREW, SHEAR .....	1	
-12	CL 6572	. O-RING .....	1	
-13	—	. CORD, RESTRAINT .....	2	
-14	CL 6414	. H-MANIFOLD .....	1	



4-121

Figure 4-121. Lower Assembly - (V)2 thru (V)4 Variants

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-121	—	LOWER ASSEMBLY - (V)2 THRU (V)4 VARIANTS							REF	
-1	CL 6227	.							2	
-2	CL 6045	.							1	
-3	CL 6592	.							1	
-4	CL 6593	.							1	
-5	CL 6670	.							2	
-6	CL 6594	.							2	
-7	CL 6442	.							2	
-8	CL 6441	.							2	
-9	CL 6418	.							2	
-10	CL 6046	.							1	
-11	CL 6612	.							1	
-12	CL 6572	.							1	
-13	—	.							2	
-14	CL 6414	.							1	

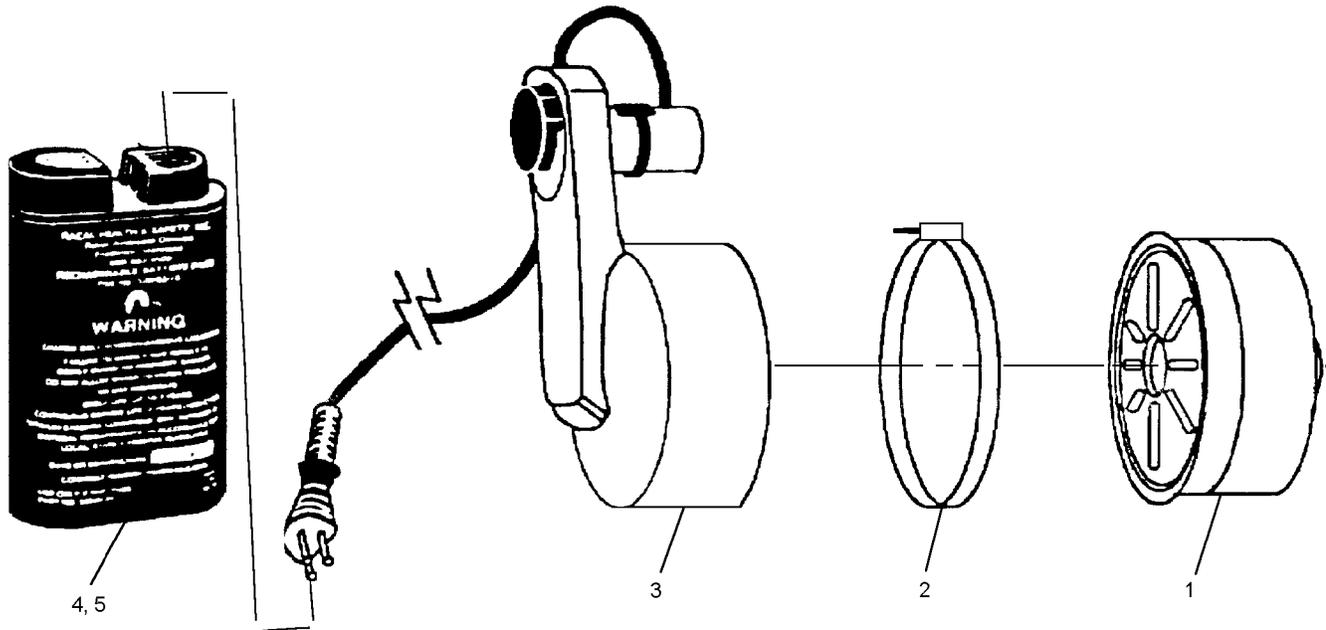
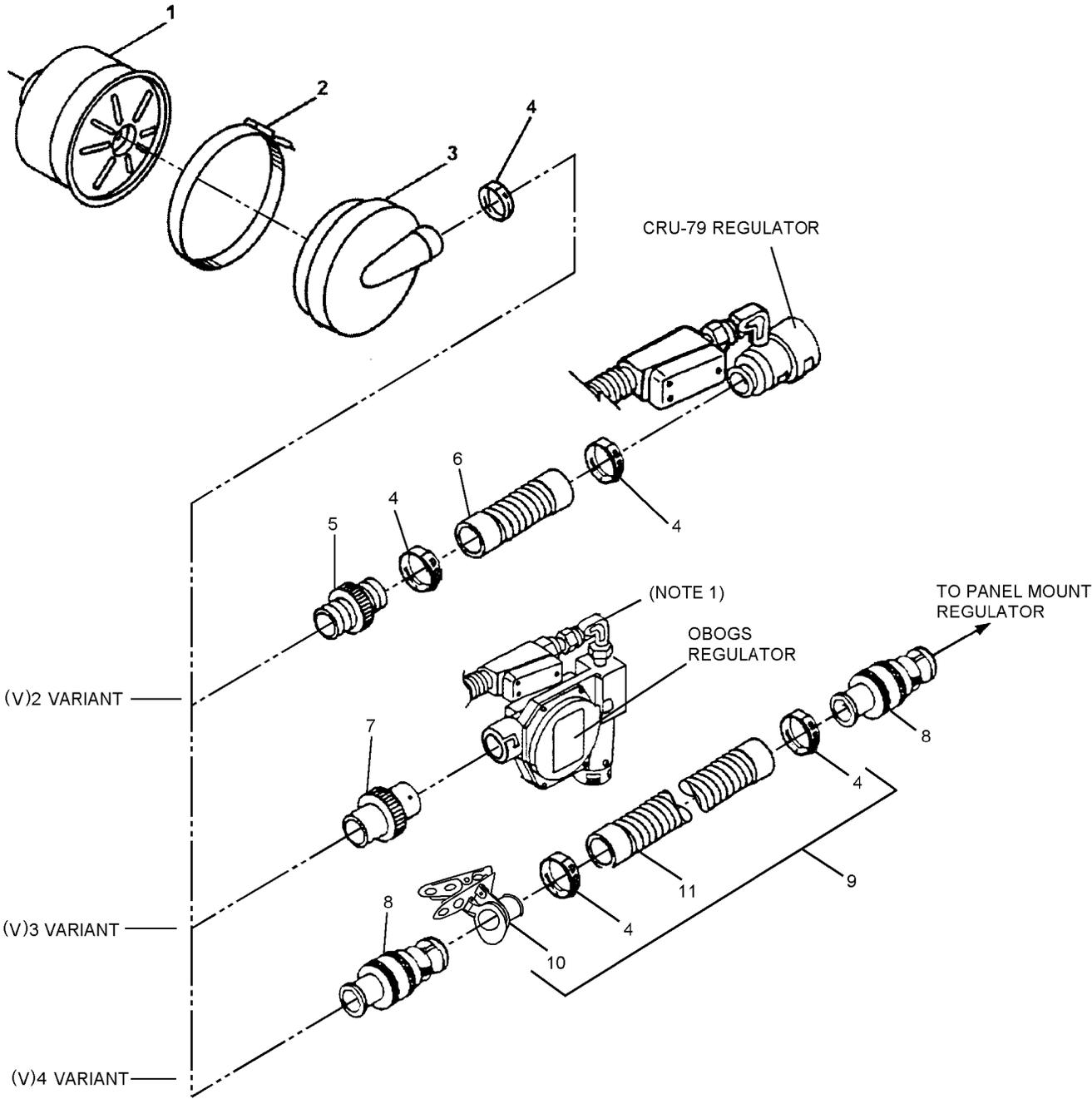


Figure 4-122. Pusher Fan Subassembly

4-122

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-122	—	PUSHER FAN SUBASSEMBLY							REF	
-1	DS-3-1520	.							1	
	DS-3-1500	.							1	
-2	CL 6528	.							1	
-3	CL 6409	.							1	
-4	CL 6410	.							1	
-5	CL 6433	.							1	
Notes:		1. The C2A1 Canister will replace the C2 Canister thru attrition.								



- NOTES:
- 1. 79 ELBOW (LOX HOSE AND CRU-103 REGULATOR)
  - 82 ELBOW (CRU-82 REGULATOR)
  - CBR ELBOW (CRU-88 REGULATOR OR CRU-103 AND OBOGS HOSE)

Figure 4-123. Oxygen Delivery Subassemblies

004123

NAVAIR 13-1-6.10

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-123	—	OXYGEN DELIVERY SUBASSEMBLY . . . . .							REF	A
	—	((V)2 VARIANT)								
	—	OXYGEN DELIVERY SUBASSEMBLY . . . . .							REF	B
	—	((V)3 VARIANT)								
	—	OXYGEN DELIVERY SUBASSEMBLY . . . . .							REF	C
	—	((V)4 VARIANT)								
-1	DS-3-1520	. □ C2A1 CANISTER (NOTE 1) □ . . . . .							1	A, B, C
	DS-3-1500	. □ C2 CANISTER (NOTE 1) □ . . . . .							1	A, B, C
-2	CL 6528	. CABLE TIE, 7.6 MM X 18 IN LG . . . . .							1	A, B, C
-3	CL 6404	. RUBBER MOLDING, 90° . . . . .							1	A, B, C
-4	CL 6670 or 4730-00-269-3760	. STEPLESS LOW PROFILE CLAMP, . . . . .							3	A
		24.5 MM								
	CL 6670 or 4730-00-269-3760	. STEPLESS LOW PROFILE CLAMP, . . . . .							2	B, C
		24.5 MM								
	CL 6670 or 4730-00-269-3760	. STEPLESS LOW PROFILE CLAMP, . . . . .							2	D
		24.5 MM								
-5	CL 6595	. COUPLING, 3/4 INCH TO 3/4 INCH . . . . .							1	A
-6	CL 6703	. HOSE, REGULATOR . . . . .							1	A
-7	CL 6431 or 1660-00-730-2247	. BAYONET CONNECTOR, 3-PIN . . . . .							1	B
-8	CL 6425 or 1660-00-981-8383	. QUICK DISCONNECT FITTING . . . . .							1	C
	CL 6425 or 1660-00-981-8383	. QUICK DISCONNECT FITTING . . . . .							1	D
-9	—	. HOSE ASSEMBLY, OXYGEN . . . . .							REF	C, D
		EXTENSION, 48 INCH (NOTE 2)								
-10	1660-00-348-2162	. . CONNECTOR, OXYGEN HOSE, TYPE 1 . . . .							1	D
-11	22055H48 or 4720-00-470-0447	. . HOSE, 48 INCH . . . . .							1	D
<p>Notes: 1. The C2A1 Canister will replace the C2 Canister thru attrition.                  2. Usable on Code D is assigned to components of the 48-inch extension hose used in conjunction with the (V)4 variant. Hose Assembly, Style A, P/N MS22055A48 (NSN 1660-00-692-3939) can be procured and includes index numbers 4, 10, and 11.</p>										

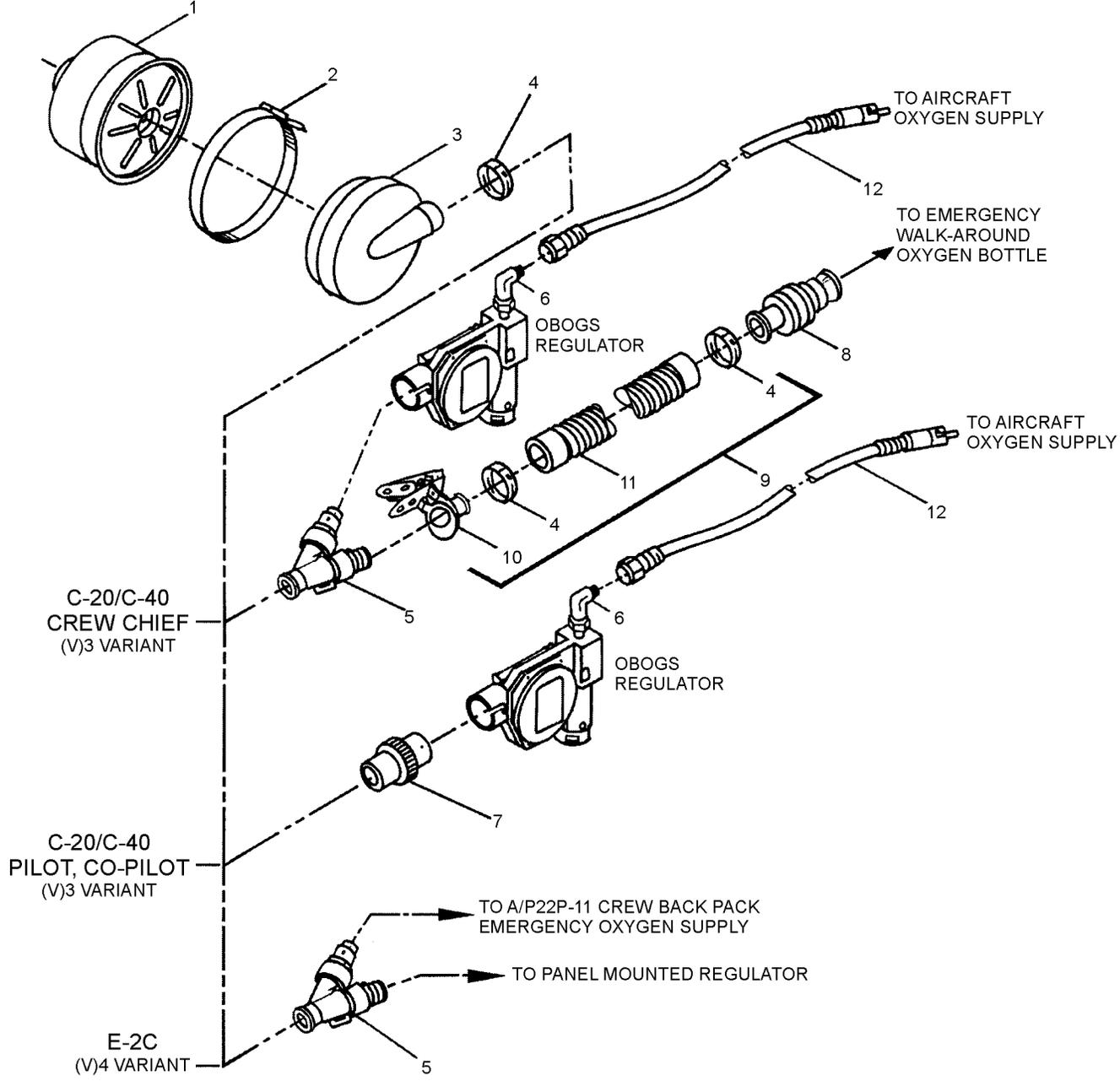


Figure 4-123A. Special Application Oxygen Delivery Subassemblies

004123a

NAVAIR 13-1-6.10

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-123A	—	OXYGEN DELIVERY SUBASSEMBLY . . . . . (C-20, C-40 CREW CHIEF (V)3 VARIANT)							REF	A
	—	OXYGEN DELIVERY SUBASSEMBLY . . . . . (C-20, C-40 PILOT/CO-PILOT (V)3 VARIANT)							REF	B
	—	OXYGEN DELIVERY SUBASSEMBLY . . . . . (E-2C (V) VARIANT)							REF	C
-1	DS-3-1520	. □ C2A1 CANISTER (NOTE 1) □ . . . . .							1	A, B, C
	DS-3-1500	. □ C2 CANISTER (NOTE 1) □ . . . . .							1	A, B, C
-2	CL 6528	. CABLE TIE, 7.6 MM X 18 IN LG . . . . .							1	A, B, C
-3	CL 6404	. RUBBER MOLDING, 90° . . . . .							1	A, B, C
-4	CL 6670 or 4730-00-269-3760	. CLAMP, STEPLESS, LOW PROFILE, . . . . . 24.5 MM							1	A, B, C
	CL 6670 or 4730-00-269-3760	. CLAMP, STEPLESS, LOW PROFILE, . . . . . 24.5 MM							2	D
-5	4730-01-334-3031	. BRANCHED TUBING CONNECTOR, . . . . . CRK-90 (NOTE 3)							1	A, C
-6	CL 6762	. □ CBR ELBOW (NOTE 4) □ . . . . .							1	A, B
-7	CL 6431 or 1660-00-730-2247	. BAYONET CONNECTOR, 3-PIN . . . . .							1	B
-8	CL 6425 or 1660-00-981-8383	. QUICK DISCONNECT FITTING . . . . .							1	A
-9	MS22055A48 or 1660-00-692-3939	. HOSE ASSEMBLY, OXYGEN EXTENSION, . . . . . 48-INCH, STYLE A (NOTE 2)							1	A, D
-10	1660-00-348-2162	. . CONNECTOR, OXYGEN HOSE, TYPE 1 . . . . .							1	D
-11	22055H48 or 4720-00-470-0447	. . HOSE, 48 IN LG . . . . .							1	D
-12	B/E AEROSPACE 4431027-048	. HOSE ASSEMBLY, OXYGEN, AIRCRAFT . . . . .							1	A, B
<p>Notes: 1. The C2A1 Canister will replace the C2 Canister thru attrition.</p> <p>2. Usable on code D is assigned to components of the 48-inch extension hose used in conjunction with the (V)4 variant. Hose Assembly, Style A, P/N MS22055A48 (NSN 1660-00-692-3939) can be procured and includes index numbers 4, 10, and 11.</p> <p>3. Connector utilized from oxygen mask assembly, MBU-17(V)5/P.</p> <p>4. Packaged in A/P22P-14(V)3 variant transit case.</p>										

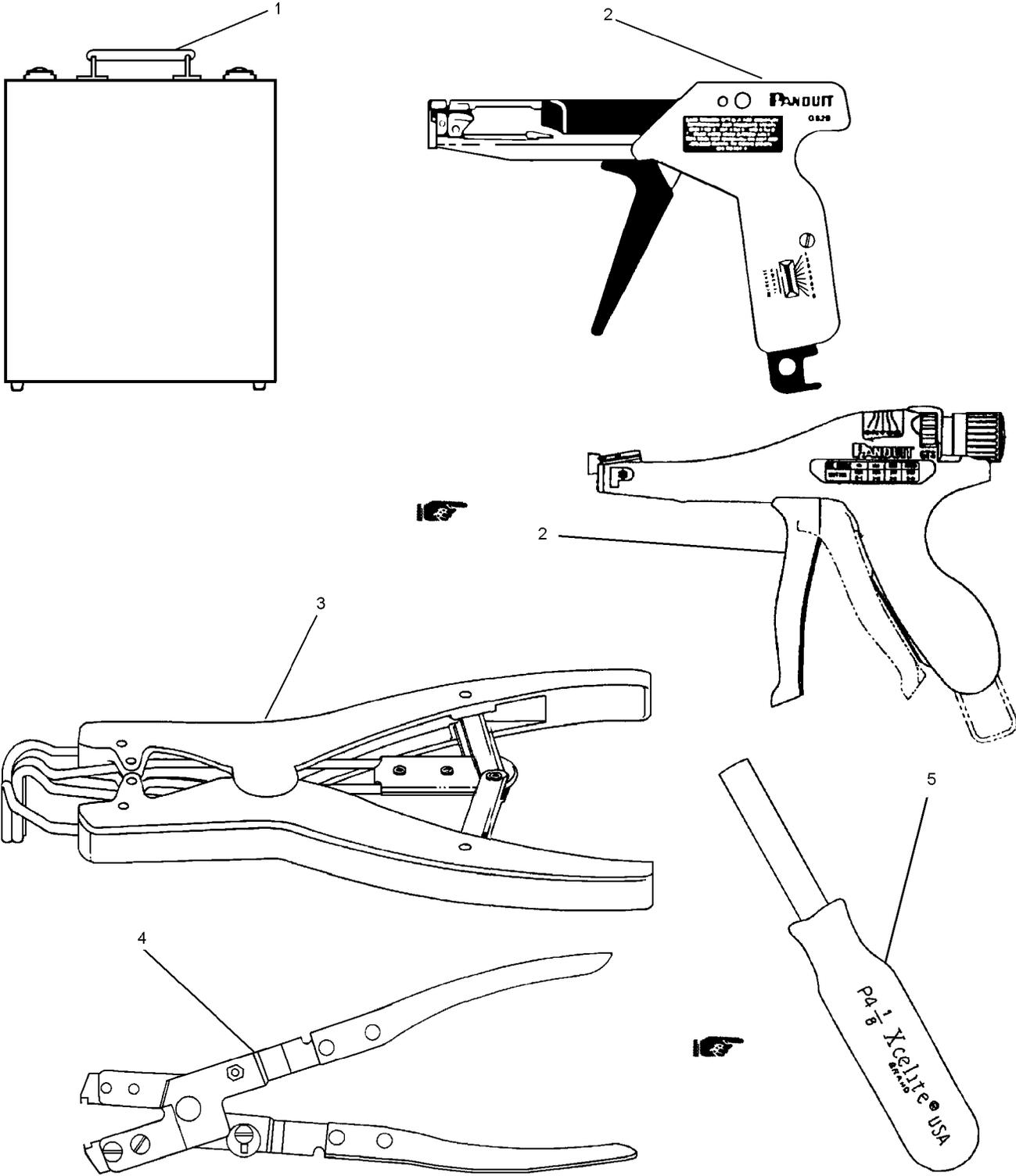


Figure 4-124. Special Support Equipment

004124

**NAVAIR 13-1-6.10**

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
4-124	—	EQUIPMENT, SPECIAL SUPPORT .....							REF	
-1	6200005	. TEST SET, RESPIRATOR ASSEMBLY .....							1	
		A/E47T-28								
-2	MS90387-1	. TOOL, CABLE TIE, STANDARD OR .....							1	
		EQUIVALENT								
	5120-00-937-5438	. TOOL, CABLE TIE, HEAVY DUTY .....							1	
-3	5120-01-124-0649	. ELASTRATOR .....							1	
-4	14100055	. PINCER TOOL, LOW PROFILE .....							1	*
	5120-01-073-4187	. PLIERS, HOSE CLAMP .....							1	*
		(NOT ILLUSTRATED)								
-5	191-382	. NUT DRIVER, 1/8 INCH (JENSEN TOOLS ....							1	
		OR EQUIVALENT) (Note 1)								
Notes :		1. Available from Jensen Tools, Phone: 978-682-9844.								

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CL 6045	4-120-2		CL 6585	4-106-4	
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CL 6046	4-120-10			4-121-3	
	4-121-10		CL 6593	4-120-4	
CL 6131	4-107-6			4-121-4	
CL 6225	4-113-9		CL 6594	4-106-5	
	4-118-2			4-120-6	
CL 6226	4-116-3			4-121-6	
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CL 6227	4-120-1		CL 6605	4-118-1	
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CL 6357	4-109-1		CL 6670	4-120-5	
CL 6383	4-114-2			4-121-5	
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CL 6409	4-122-3		CL 6703	4-123-6	
CL 6410	4-122-4		DS-3-1500	4-122-1	
CL 6414	4-120-14			4-123-1	
	4-121-14		DS-3-1520	4-122-1	
CL 6418	4-120-9			4-123-1	
	4-121-9		MS90387-1	4-124-2	
CL 6425	4-123-8		OP 17652	4-117-3	
CL 6431	4-123-7		14100055	4-124-4	
CL 6433	4-122-5		1660-00-348-2162	4-123-10	
CL 6439	4-113-10		1660-00-730-2247	4-123-7	
CL 6441	4-120-7		1660-00-981-8383	4-123-8	
	4-121-8		22055H48	4-123-11	
CL 6442	4-120-8		4720-00-470-0447	4-123-11	
	4-121-7		4730-00-269-3760	4-123-4	
CL 6489	4-113-7		5120-00-937-5438	4-124-2	
CL 6490	4-113-8		5120-01-073-4187	4-124-4	
CL 6528	4-122-2		5120-01-124-0649	4-124-3	
	4-123-2		6200005	4-124-1	
CL 6564	4-105-2			4-105-1	
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CL 6565	4-105-2		—	4-106-1	
	4-107		—	4-106-2	
CL 6566	4-105-2		—	4-106-2	
	4-107		—	4-106-3	
CL 6567	4-105-2		—	4-106-6	
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CL 6568	4-105-2		—	4-106-8	
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CL 6569	4-105-2		—	4-107-2	
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CL 6570	4-105-2		—	4-107-4	
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CL 6571	4-105-2		—	4-108	
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