

CHAPTER 15

OXYGEN REGULATOR HOSE ASSEMBLIES

Section 15-1. Description

15-1. GENERAL.

15-2. The oxygen regulator hose assembly, in conjunction with the seat survival kit and man mounted oxygen regulator, provides an aircrewmember with both oxygen and communication capabilities (figure 15-1). The oxygen source can be either a Liquid Oxygen (LOX) system (figure 15-2) or an Onboard Oxygen Generating System (OBOGS) (figure 15-3).

15-3. CONFIGURATION.

15-4. The oxygen regulator hose assembly consists of a hose with fittings to connect between the oxygen regulator and the seat survival kit hose. The hose is fabricated of a NOMEX weave or rubberized material covering a flexible silicone or rubber hose that is wire wound for stability. At the lower end of the oxygen regulator hose is a quick disconnect fitting which connects to the seat survival kit hose. The communications cable is either internal or external depending on aircraft platform (table 15-1).

15-5. If failure occurs in the aircraft oxygen supply, or in case of high altitude or over water ejection, an emer-

gency supply of oxygen will be provided by either manual or automatic actuation of the emergency oxygen cylinder located in the seat survival kit.

15-6. SUBASSEMBLIES OF OBOGS OXYGEN REGULATOR HOSE ASSEMBLIES. The major subassemblies of the OBOGS oxygen regulator hose assembly are:

1. Oxygen Regulator Hose Assembly, MBEU147722-1
 - a. Cable/Keeper Assembly, MBEU148019
 - b. Oxygen Regulator Hose Subassembly, MBEU148020
2. Oxygen Regulator Hose Assembly, 57012-3
 - a. Cable/Keeper Assembly, 57012-3-1
 - b. Oxygen Regulator Hose Subassembly, 57012-3-2

Table 15-1. Oxygen Regulator Hose Assembly Part Numbers and Application

Part Number	Aircraft Platform	OBOGS/LOX	Internal or External	Communicational Cord
REDAR-A10116-2	EA-6B, F-4, F-14A/B, F/A-18A/B/C/D, S-3, T-2	LOX	Internal	
57012-3	F-14D, F/A-18C/D, T-45/A, AV-8B (NACES equipped)	OBOGS	External	
REDAR-A11206-2	F-14D, F/A-18C/D, T-45/A, AV-8B (NACES equipped)	OBOGS	Internal	

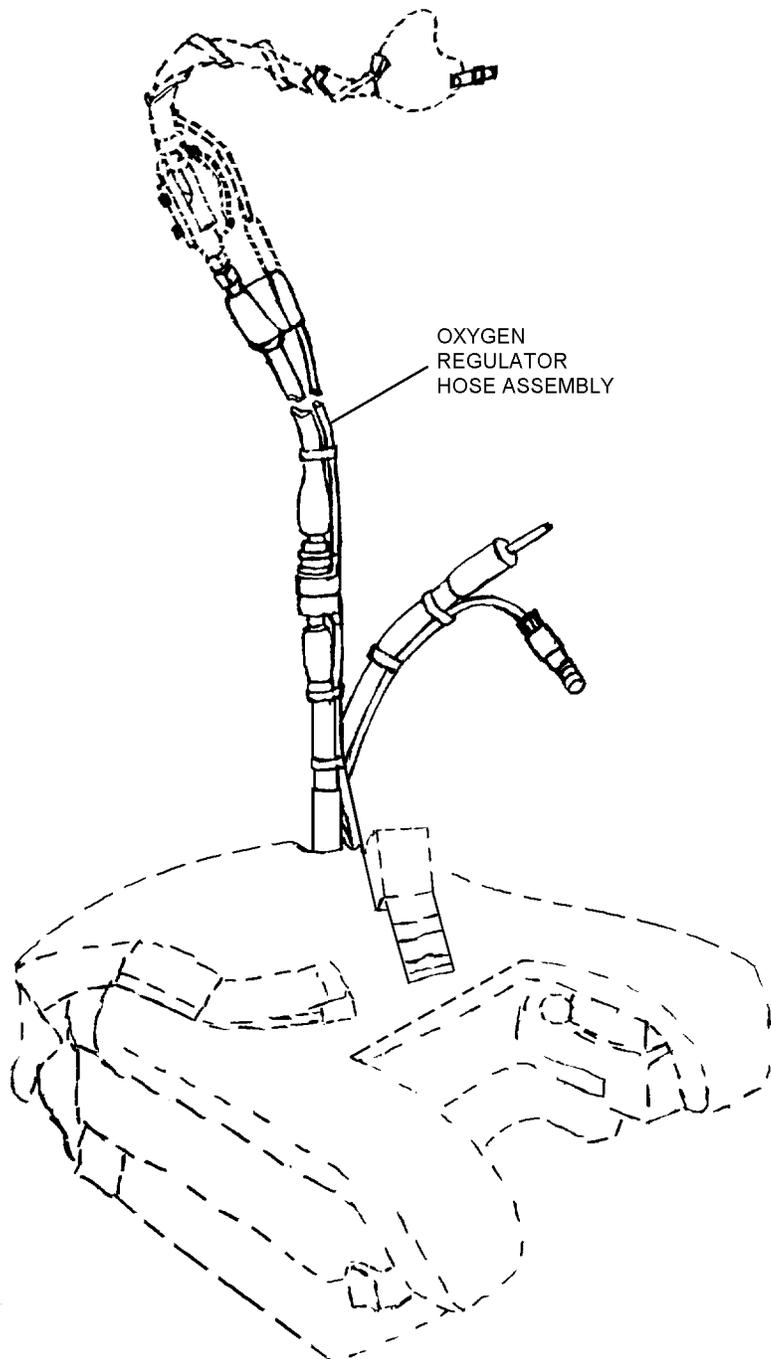
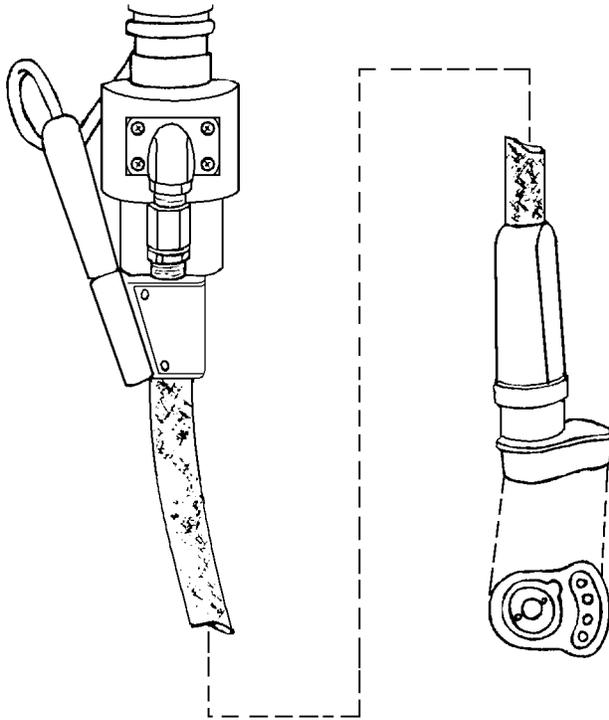
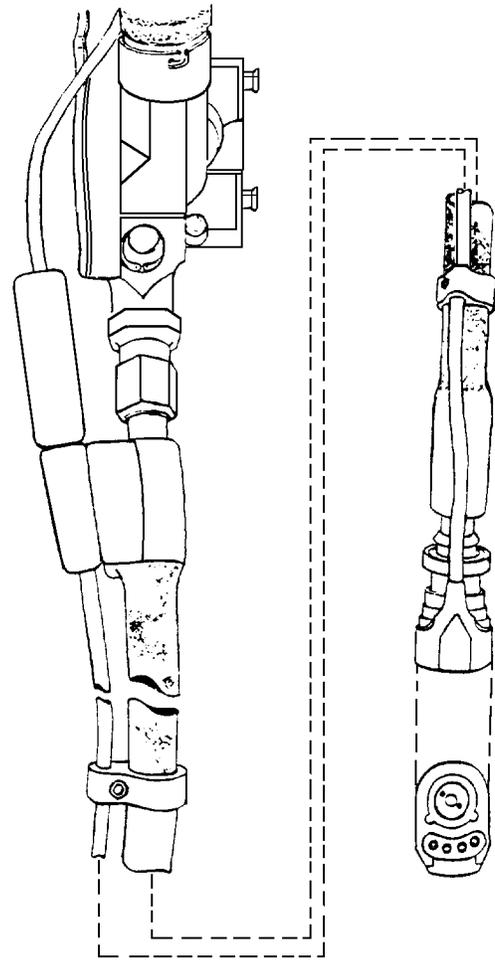


Figure 15-1. Oxygen Regulator Hose Assemblies Configuration (Typical)

015001



015002
Figure 15-2. Oxygen Regulator Hose Assembly
 (Typical. Used for Liquid Oxygen Only)



015003
Figure 15-3. Oxygen Regulator Hose Assembly
 (Typical. Used for OBOGS Only)

15-7. SUBASSEMBLIES OF LOX OXYGEN REGULATOR HOSE ASSEMBLY. LOX Regulator Hose Assembly does not have subassemblies.

15-8. APPLICATION.

15-9. The oxygen hose assemblies that are part of the survival equipment used by aircrewmembers aboard aircraft listed in [table 15-1](#).

15-10. REFERENCE NUMBERS, ITEMS AND SUPPLY DATA.

15-11. [Figure 15-6 through 15-8](#) contain information on each assembly, subassembly and component part of the oxygen hose assemblies. The figure and index num-

ber references, part numbers, descriptions and units per assembly are provided in their respective figures.

15-12. FUNCTION.

15-13. During normal flight conditions, the hose assembly supplies the aircrewmember with aviators breathing oxygen and a means of communication to ground and other aircraft/aircrewmembers. Oxygen flows from the aircraft through the seat survival kit hose assembly, seat survival kit to regulator to hose assembly, oxygen regulator, oxygen mask delivery tube, oxygen mask and then to the aircrewmember. When an aircrewmember ejects, the following series of events occur: as the ejection seat travels up the rails, the seat survival kit to console hose is disconnected and the emergency oxygen lanyard actuates the emergency oxygen in the seat survival kit. During the ejection and de-

NAVAIR 13-1-6.4-1

scent, while in the seat or after separation from the ejection seat the aircrewmember is provided with emergency oxygen until the supply is exhausted. Also in the event of an in-flight emergency the aircrewmember has the capability of actuating the emergency oxygen system in the seat survival kit by pulling the actuation lanyard manually.

NOTE

The service life of an Oxygen Regulator Hose Assembly shall be 5 years from the date placed in service.

Section 15-2. Modifications

15-14. GENERAL.

15-15. There are no modifications to the regulator hose assemblies required/authorized at this time.

Section 15-3. Rigging

15-16. GENERAL.

15-17. Unless operational requirements demand otherwise, rigging of oxygen regulator hose assemblies shall be accomplished at the Organizational Level of maintenance. All rigging shall be performed only by qualified personnel.

15-18. RIGGING PROCEDURES.

15-19. Refer to NAVAIR 13-1-6.7-3 for procedures on rigging the oxygen regulator hose assembly to the regulator.

Section 15-4. Maintenance

15-20. GENERAL.

15-21. This section contains procedural steps for inspection, testing, and repair of oxygen regulator hose assemblies.

15-24. INSPECTION.

15-25. All oxygen regulator hose assemblies shall be subjected to Place-In-Service, Daily/Preflight, and Special Inspections.

15-22. SERIALIZATION.

15-23. All Oxygen Regulator Hose Assemblies have been identified as critical safety items and must be serialized prior to placing in service.

15-26. PLACE-IN-SERVICE INSPECTION. The Place-In-Service inspection is performed on each Oxygen Regulator Hose Assembly prior to issuing to aircrewmember. Perform place-in-service inspection as follows:

NOTE

If oxygen hose fails the inspection refer to [table 5-2](#) for probable causes and remedies.

1. Carefully engrave a serial number on the quick disconnect fitting that mates with the quick disconnect of the Seat Survival Kit hose. The serial number shall consist of the AIMD/squadron organizational code followed by a sequential number.

1. Ensure Oxygen Regulator Hose Assembly has passed functional test.

2. Initiate an Aircrew Systems Record (OPNAV 4790/138) on Oxygen Regulator Hose Assembly.

2. Ensure engraved serial number is present, and legible, on the quick disconnect fitting that mates with the quick disconnect of the Seat Survival Kit hose.

3. Perform Daily/Preflight Inspection in accordance with [paragraph 15-27](#).

15-27. DAILY/PREFLIGHT INSPECTION. The Daily/Preflight inspection is performed daily or prior to each flight by the aircrewmember to whom it is issued. Visually inspect the following:

NOTE

If oxygen hose fails the inspection refer to [figure 15-2](#), Troubleshooting for probable causes and remedies.

1. Hose for obvious damage, wear, splits, cuts or frayed fabric.
2. Quick disconnect for damage, corrosion, bent or missing pins, cleanliness and presence of foreign matter.
3. Fitting for damaged threads, rounded hexagon flats and corrosion.
4. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 series.

15-28. SPECIAL INSPECTION. Special inspections are required at specified intervals other than Daily/Preflight inspections. The interval for oxygen regulator hoses is 30 days. This inspection consist of a visual inspection and a functional test, both to be performed by the personnel of the Aviators Equipment Branch. To perform the special inspection, proceed as follows:

NOTE

If oxygen hose fails the inspection refer to [figure 15-2](#), Troubleshooting for probable causes and remedies.

1. Perform Daily/Preflight Inspection in accordance with [paragraph 15-27](#).
2. Ensure engraved serial number is present, and legible, on the quick disconnect fitting that mates with the quick disconnect of the Seat Survival Kit hose.



When working with oxygen, make certain that clothing, tubing fittings, and equipment

are free of oil, grease, hydraulic fluid, or any combustible material. Fire or explosion can result when even a slight trace of combustible material comes in contact with oxygen under pressure.

3. Perform Functional Test in accordance with [paragraph 15-31](#).

15-29. TESTING.

15-30. All oxygen regulator hose assemblies shall be subjected to Functional, Continuity Check and Insulation Breakdown, and Bench tests.

15-31. FUNCTIONAL TEST. To perform the Functional Test the oxygen regulator hose assembly as follows:

1. Attach the oxygen regulator hose assembly to be tested, along with a known good oxygen mask and regulator, to a suitable oxygen supply source.

NOTE

There will be a slight resistance during exhalation if a positive pressure oxygen regulator is being utilized for the functional test.

2. Turn on supply source, don mask, and breathe.
3. Perform the electrical Continuity and Insulation Breakdown Test in accordance with [paragraph 15-32](#).
4. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 series.

15-32. CONTINUITY CHECK AND INSULATION BREAKDOWN TEST. To perform the continuity check proceed as follows:

NOTE

If oxygen hose fails Continuity and Insulation Breakdown Test, refer to [figure 15-2](#), Troubleshooting for probable causes and remedies.

If the TTU-489/E test set is not available refer to [paragraph 15-33](#) to perform the electrical continuity and insulation breakdown test

1. Perform the electrical continuity and insulation breakdown test using the TTU-489/E test set in accordance with the 17-15BC-22 technical manual.

Table 15-2. Troubleshooting

Trouble	Probable Cause	Remedy
Lost or broken Communications	Broken or misaligned pins	Replace communications cord or replace hose assembly (Not E).
	Open short circuit in Hose wiring	Replace communications cord or replace hose assembly (Not E).
	Corrosion on pins	Remove corrosion in accordance with NAVAIR 16-1-540.
Torn or split rubberized or material hose	Overstressing of Hose assembly	Replace hose assembly.
Hose assembly leaking	Hole in hose assembly	Replace hose assembly.
	Loose cap, plug, adapter or test stand hose connection.	Tighten as needed.
Notes: 1. LOX regulator hose communication cord cannot be replaced, hose must be discarded.		

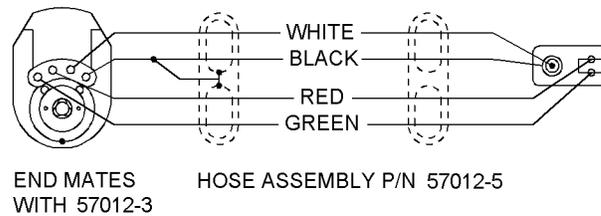


Figure 15-4. Oxygen Regulator Hose Wiring Diagram

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2. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 series.

15-33. To perform the insulation breakdown and electrical continuity check when the TTU-489/E is not available, see Figure 15-4 and proceed as follows:

1. Using a 500 VDC Megger, perform insulation breakdown test. Insulation resistance shall be measured at test potential of 500 ± 50 volts dc applied for not less than 0.1 second. Check resistance between any two conductors and hose. Indication shall be 100 megohms or greater.

NOTE

Ensure Rx1 scale is used in performance of electrical continuity check.

Support Equipment Required

Quantity	Description	Reference Number
1	500 VDC Megger	—
1	Ohmmeter or Equivalent	—

2. Using an ohmmeter or its equivalent, perform electrical continuity test by checking continuity of each wire at its respective termination point according to Figure 15-4.

15-34. BENCH TEST.

WARNING

Because of possible vacuum pump explosion, only water pumped nitrogen, Type I, Class I, Grade B (Fed Spec BB-N-411) shall be used in testing.

For oxygen test stands and purging equipment, use only nitrogen from any cylinders marked NITROGEN OIL FREE in white letters. Two 3-inch wide bands mark the tops of these cylinders. Do not use 3500 psig nitrogen cylinders used on NAN servicing cart. These cylinders cannot be certified contaminant free.

15-35. The Bench Test shall be performed using an Oxygen System Components Test Stand, Model 1172AS100 or 1316AS100. Refer to the appropriate ground support equipment manual for identification of test stand controls and indicators referred to in the Bench Test procedures that follow. Do not attempt to perform any Bench Test before becoming thoroughly familiar with the test stand.

WARNING

Ensure altitude chamber is configured in accordance with NAVAIR 17-15BC-21, WP003 00, Figure 3, sheets 2 thru 4 as applicable. Ensure High Pressure or Low Pressure H assembly listed in NAVAIR 17-15BC-21, WP003 00 Figure 1 or Figure 2 is attached to N2 Input Connection (18) or Tee connection (28) in altitude chamber as applicable for the item being tested. Remove hose assembly not being used and cap connection (18) or (28) when not in use.

Materials Required

Quantity	Description	Reference Number
As Required	Nitrogen, oil free, Water pumped, Type I, Class I, Grade B	Fed Spec BB-N-411, NIIN 00-985-7275
As Required	Compound, Leak Detection, Type I	MIL-L-25567

Support Equipment Required

Quantity	Description	Reference Number
1	Oxygen System Components Test Stand	1172AS100 or 1316AS100
1	Adapter Assembly	REDAR-A10116-2
1	Nipple Adapter	AN919-7D
1	Locknut	TSE01-13
1	Coupling Adapter	AN929-4

NOTE

If oxygen hose fails pressure decay test refer to [Figure 5-2, Troubleshooting for probable causes and remedies.](#)

15-36. PRESSURE DECAY TEST. [Figure 5-5](#) illustrates components of pressure decay adapter assembly. To perform the pressure decay test proceed as follows:

1. Connect adapter assembly (1) onto Oxygen Regulator hose quick disconnect.
2. Install nipple adapter (2) into Oxygen Regulator hose "B" nut (use locknut (3) and coupling adapter (4) for LOX hoses).
3. Connect nipple adapter (2) to N2 INPUT Connection (18).
4. Ensure all test stand valves and regulators are properly secured and turn on N2 supply cylinder.
5. Turn INLET PRESS. ON/OFF valve to on.
6. Using LOW PRESS. REGULATOR (N) slowly adjust inlet pressure to 100 psig as indicated on N2 INPUT PRESS. Gage (27).
7. Turn INLET PRESS. ON/OFF valve to off.
8. Observe N2 INPUT PRESS. Gage (27) for two minutes.
9. Regulator hose shall be leak tight (no indication on N2 INPUT PRESS. Gage (27) of pressure drop).
10. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 series.

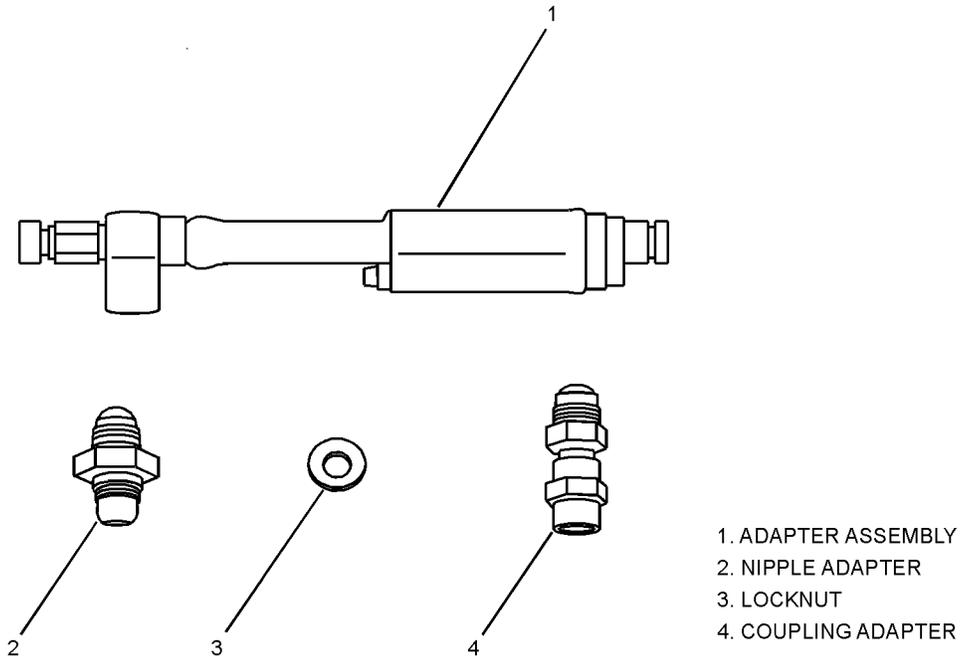


Figure 15-5. Pressure Decay Adapter Assembly

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Section 15-5. Illustrated Parts Breakdown

15-37. GENERAL.

15-38. This section lists and illustrates the assemblies and details of all oxygen regulator hose assemblies.

15-39. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.

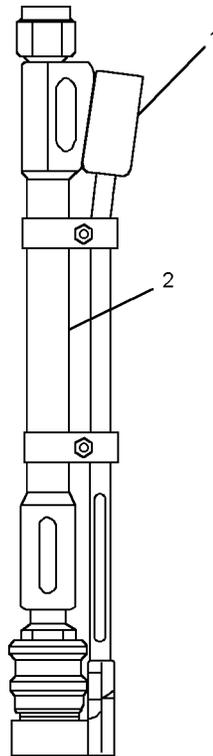


Figure 15-6. Oxygen Regulator Hose Assembly

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Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
15-6	MBEU147722-1	OXYGEN REGULATOR HOSE ASSEMBLY							1	A
	57012-3	OXYGEN REGULATOR HOSE ASSEMBLY							1	B
-1	MBEU148019	. CABLE/KEEPER ASSEMBLY							1	A
	57012-3-1	. CABLE/KEEPER ASSEMBLY							1	B
-2	MBEU148020	. OXYGEN HOSE, SUBASSEMBLY, Regulator . . .							1	A
	57012-3-2	. OXYGEN HOSE, SUBASSEMBLY, Regulator . . .							1	B

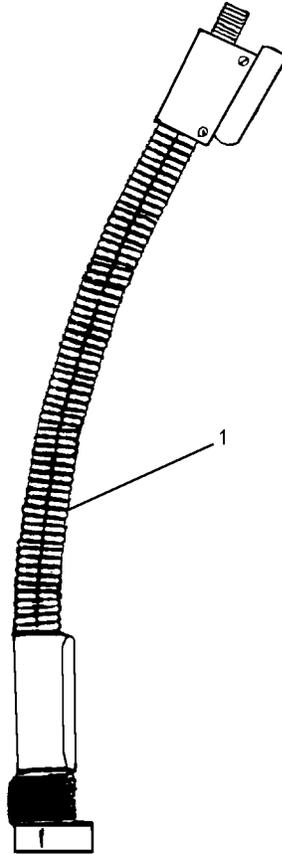


Figure 15-7. Oxygen Regulator Hose Assembly

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Figure and Index Number	Part Number	Description						Units Per Assembly	Usable On Code
		1	2	3	4	5	6		
15-7	REDAR-A10116-2	OXYGEN REGULATOR HOSE ASSEMBLY						1	

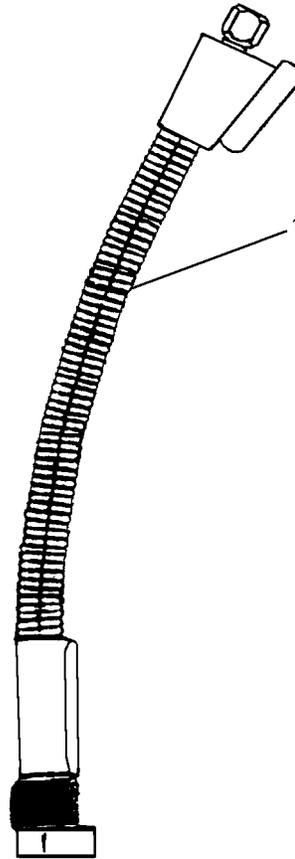


Figure 15-8. Oxygen Regulator Hose Assembly

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Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
		1 2 3 4 5 6 7		
15-8	REDAR-A11206-2	OXYGEN REGULATOR HOSE ASSEMBLY	1	

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code
MBEU147722-1	15-6	PAOOO
MBEU148019	15-6-1	PAOZZ
MBEU148020	15-6-2	PAOZZ
REDAR-A10116-2	15-7	PAOZZ

Part Number	Figure and Index Number	SM&R Code
REDAR-A11206-2	15-8	PAOZZ
57012-3	15-6	PAOOO
57012-3-1	15-6-1	PAOZZ
57012-3-2	15-6-2	PAOZZ