

# CHAPTER 8

## E-2C EMERGENCY OXYGEN SYSTEM

### Section 8-1. Description

#### 8-1. GENERAL.

8-2. The E-2C Emergency Oxygen System (P/Ns 269D200-3 and 269D200-5) is manufactured by East Weid Indust (CAGE 30941) (figure 8-1). The E-2C Emergency Oxygen System is designed to provide an emergency source of breathing oxygen during high altitude parachute descent. Table 8-1 contains leading particulars for the E-2C Emergency Oxygen System.

#### 8-3. CONFIGURATION.

8-4. The E-2C Emergency Oxygen System is supplied in two basic configurations that are designed to be incorporated into a backpack assembly which includes a

parachute assembly, liferaft assembly, and survival items.

#### 8-5. FUNCTION.

8-6. Design characteristics and operation of the E-2C Emergency Oxygen System are described in this paragraph.

1. When an installed system is inactive (off), high pressure oxygen (1800 to 2000 psig, full) is present from the oxygen cylinder (13, figure 8-2) to the base of the poppet (6), and to the oxygen pressure gage (11). The oxygen pressure gage (11) indicates the amount of oxygen pressure available to the system at all times.

**Table 8-1. Leading Particulars**

E-2C Emergency Oxygen System (P/Ns 269D200-3 and 269D200-5) . . . . .	250 to 2100 psig
Mounting . . . . .	Installed E-2C Emergency Backpack Assembly
Operating Altitude Range . . . . .	Up to 40,000 feet
Visual Indicator . . . . .	Pressure Gage
Oxygen Cylinders . . . . .	Two, 22.5 cu. in, P/N 235D300-3
Pressure Reducer Assy . . . . .	Reduces system pressure down to 45 to 80 psig
CRU-79/P Oxygen Regulator . . . . .	Model 3260024-0101
Overall Dimensions:	
Length . . . . .	23 inches
Width . . . . .	8 inches
Height . . . . .	3 inches
Weight . . . . .	6 pounds
Duration . . . . .	Approximately 4 to 8 minutes depending on altitude

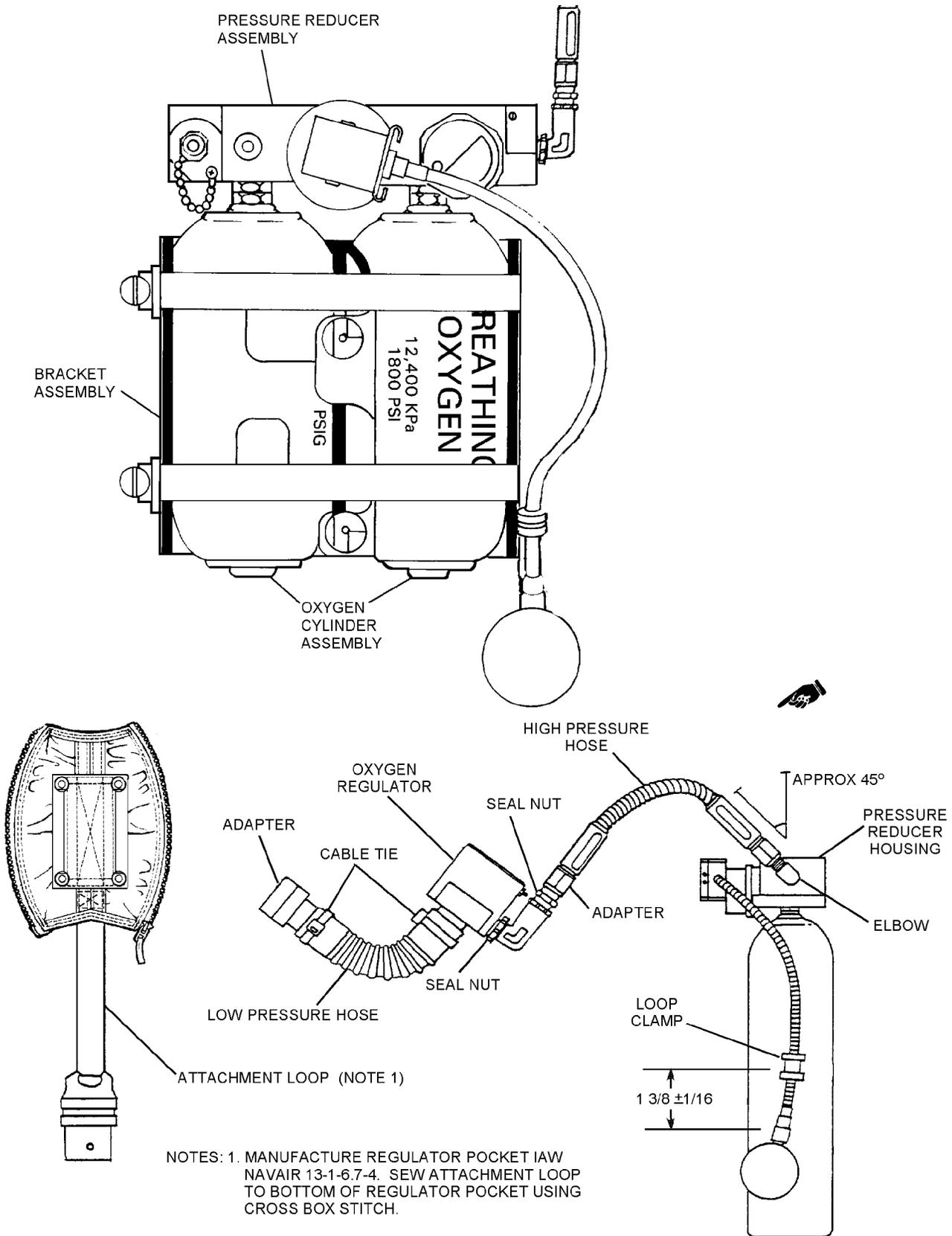


Figure 8-1. E-2C Emergency Oxygen System and Bracket Assembly

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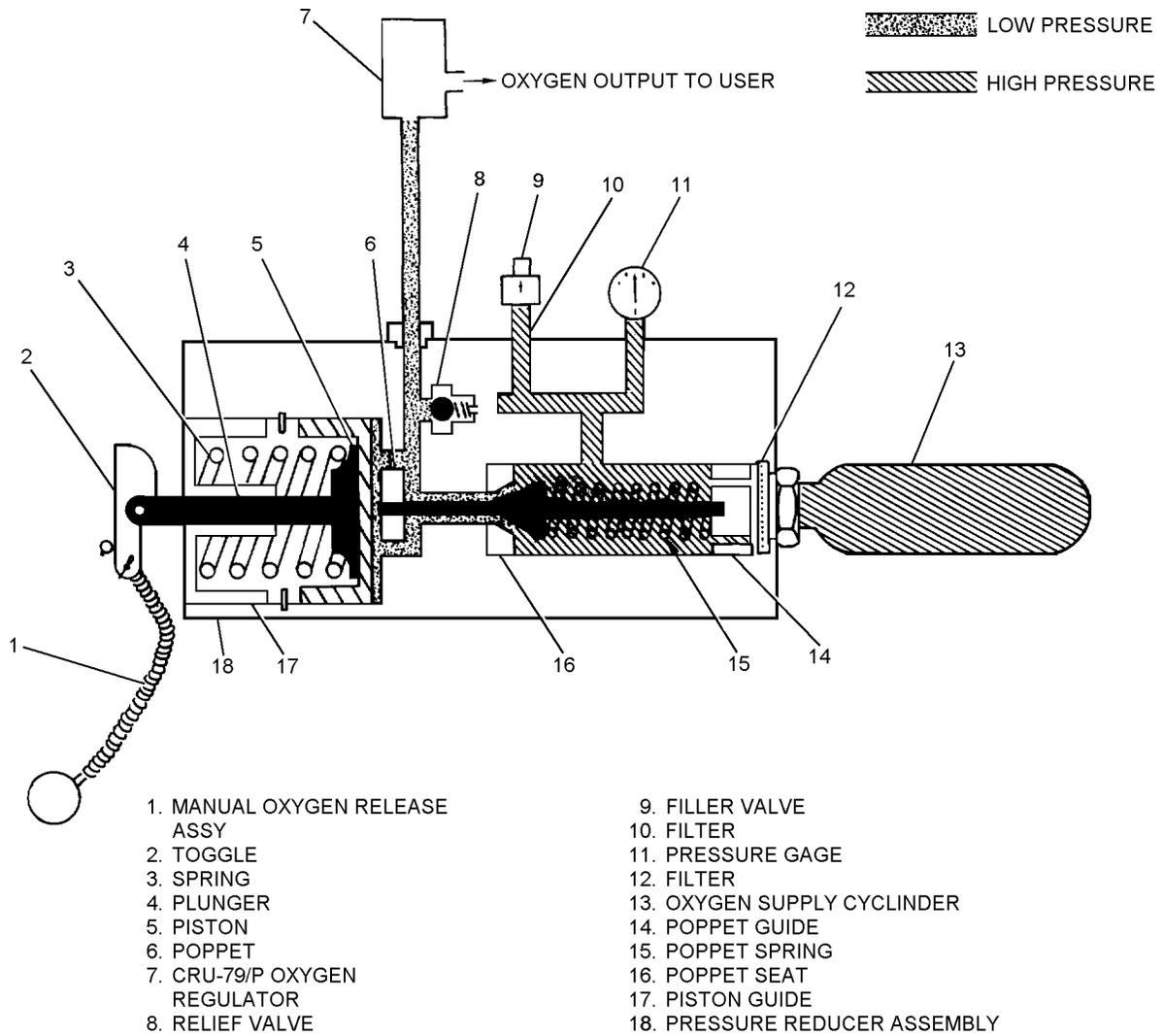


Figure 8-2. E-2C Emergency Oxygen System Functional Diagram

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2. When the manual oxygen release assembly (1) is pulled, toggle (2) will release spring (3), which forces plunger (4) down on piston (5). The force exerted on piston (5) moves poppet (6) away from the poppet seat (16) allowing reduced system oxygen pressure to flow to the relief valve (8) and to the inlet of the CRU-79/P oxygen regulator (7), providing the regulator with operating pressure.

3. The relief valve (8) is a safety feature for the system. In the event of system failure, relief valve (8) opens when operating pressure reaches 120 to 140 psig. This releases excess pressure to ambient and reduces supply pressure to 45 to 80 psig.

4. An inlet pressure of 45 to 80 psig provides operating pressure for the CRU-79/P oxygen regulator (7). The regulator provides emergency breathing oxygen at a pressure of 0.5 inches to 20.0 inches of water pressure depending on the altitude at which the E-2C system is used. The duration of breathing oxygen in a full cylinder of oxygen is approximately 4 to 8 minutes, depending on the altitude at which the system is used.

### 8-7. SERVICE LIFE.

8-8. E-2C Emergency Oxygen Systems shall remain in service as long as they continue to function properly.

## Section 8-2. Modifications

### 8-9. GENERAL.

8-10. There are no modifications to the E-2C Emergency Oxygen System at this time.

## Section 8-3. Performance Test Sheet Preparation

### 8-11. GENERAL.

8-12. Preparation of the Performance Test Sheet ([figure 8-3](#)), used during Bench Test, requires entering appropriate values for indicated flows and pressures in the spaces provided on the test sheet. The indicated flow and pressure values are determined from the test stand calibration correction cards. Refer to the appropriate ground support equipment manual for the test stand in use.

8-13. Test stand calibration correction cards are normally prepared during calibration of the test stands by converting actual flow and pressure readings to indicated flow and pressure values. Test stand calibration correction cards contain all the flow and pressure data required to test the E-2C Emergency Oxygen System. See test stand ground support equipment manual for calibration intervals.

8-14. The Performance Test Sheet shall be prepared as shown in [figure 8-3](#). The Performance Test Sheet shown is a sample, but may be reproduced for local use.

8-15. The following tests require the extraction of appropriate indicated flow and/or pressures from the test stand calibration correction cards:

Pressure Reducer Flow Test  
Relief Valve Test

#### NOTE

For correction card numbers refer to appropriate ground support equipment manual.

### 8-16. SYSTEM PERFORMANCE TESTS.

**8-17. PRESSURE REDUCER FLOW TEST.** The E-2C Emergency Oxygen System pressure reducer assembly shall be capable of reducing system pressure to 45 to 80 psig while delivering a 0 to 100 liters per minute (lpm) flow. Determine the following values and enter them on the Performance Test Sheet:

1. Using calibration correction card number 2, determine the indicated psig values for actual pressures 45 and 80 psig and enter the values on the test sheet.

PERFORMANCE TEST SHEET

E-2C EMERGENCY OXYGEN SYSTEM

DATE: \_\_\_\_\_ PRESS. REDUCER SERIAL NO. \_\_\_\_\_

TEST STAND SERIAL NO. \_\_\_\_\_ OPERATOR: \_\_\_\_\_

CDI: \_\_\_\_\_

1. VISUAL INSPECTION: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

REMARKS: \_\_\_\_\_

2. EXTERNAL LEAKAGE (1800 PSIG): SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

3. ACTUATOR PULL TEST (20 ± 10 FT-LB): \_\_\_\_\_

4. PRESS REDUCER FLOW TEST (45-80 PSIG):

E-2 CYLINDER	DELIVERY PRESS		"0"	PG-1	ACTUAL	PG-2	PG-1
	GAGE PRESS	ACTUAL					
1800	45		0		100		
250	80		0		100		

5. RELIEF VALVE TEST (120-140 PSIG):

ACT. PSIG	PG-1 IND	PG-1 READ	ACT. PSIG	PG-1 IND	ACT. LPM	PG-2 IND	ACT. PSIG	PG-1 IND	ACT. LPM	PG-2 IND	PG-2 READ
120			140		100		1		.01		
140											

6. EMERGENCY OXYGEN SYSTEM PURGE:

TEMPERATURE	CHARGING PRESSURE	CHARGE	DEplete	CHARGE	DEplete	FLOW 10 MIN
203°-266°F						
110°-130°C	100 PSIG					

Figure 8-3. Performance Test Sheet, E-2C Emergency Oxygen System (Sheet 1 of 2)

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7. EMERGENCY OXYGEN CHARGE: (FILL TIME EACH STAGE MINIMUM 3 MINUTES WITH A 2 MINUTES COOL DOWN BETWEEN STAGES)

STAGE	PSIG
1	0-500
2	500-1000
3	1000-1500
4	1500-1800
5	1800-2000

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

**Figure 8-3. Performance Test Sheet, E-2C Emergency Oxygen System (Sheet 2 of 2)**

2. Using calibration correction card number 4, determine the indicated inches of water pressure (inH<sub>2</sub>O) for actual flow of 100 lpm and enter the value on the test sheet.

**8-18. RELIEF VALVE TEST.** The relief valve is designed to open at a pressure between 120 and 140 psig and vent pressure at a rate of at least 100 lpm with an applied pressure of 140 psig. The maximum allowable leakage with an applied pressure of 110 psig is 0.01 lpm. Determine the following values and enter them on the Performance Test Sheet:

1. Using calibration correction card number 2, determine the indicated psig for actual pressures 110, 120, and 140, and enter the values on the test sheet.

2. Using calibration correction card number 4, determine the indicated inches of water pressure (inH<sub>2</sub>O) for the actual flow of 100 lpm and enter the value on the test sheet.

3. Using calibration correction card number 7, determine the indicated inches of water pressure (inH<sub>2</sub>O) for the actual flow of 0.01 lpm and enter the value on the test sheet.

## Section 8-4. Maintenance

### 8-19. GENERAL.

8-20. This section contains the procedures for inspection, testing, troubleshooting, disassembly, cleaning, repair, assembly, and adjustment of the E-2C Emergency Oxygen System.

#### NOTE

Upon completion of any maintenance action (e.g., inspection, repair, modification, etc.) be sure to complete the required maintenance data collection system form.

8-21. Procedural steps outlined in this section are listed under the inspection cycle in which they are required and in the sequence in which they normally occur.

### 8-22. INSPECTION.

**8-23. ACCEPTANCE/TURNAROUND/DAILY/PRE-FLIGHT/POSTFLIGHT AND TRANSFER INSPECTION.** Required Visual Inspections of aircraft, (acceptance, turnaround, daily, preflight, postflight, and/or transfer) by the responsible aircrew personnel shall include a Visual Inspection of the E-2C emergency backpack assembly whenever the assembly is installed in the aircraft being inspected.

8-24. Any E-2C Emergency Oxygen System which does not pass the Visual Inspection (other than the requirement for topping-off system pressure) shall be removed from the aircraft and replaced with a ready for issue (RFI) unit.

**8-25. Visual Inspection.** The Visual Inspection of the E-2C Emergency Oxygen System and the immediate vicinity shall include the following:

#### WARNING

Ensure that clothing, equipment, and work area are free of dirt, grease, oil, fuels, hydraulic fluids, or other combustible materials or hydrocarbons. Fire and/or explosion may result if even slight traces of these combustible materials come in contact with oxygen under pressure.

#### NOTE

Index numbers referred to reference [figure 8-13](#) unless otherwise noted.

1. Ensure that clothing, equipment, and work area are free of dirt and combustible materials.

2. Ensure legibility of nameplate, all placards, and other markings.

3. Check security of attachment of the emergency oxygen system to the E-2C emergency backpack assembly (three attaching screws on back of backpack assembly).

4. Check pressure gage (49, [figure 8-13](#)) to ensure system pressure is 1800 to 2150 psig.

5. Check manual release assembly (40) for security of attachment to cocking toggle (38).

6. Check manual release assembly cable (40) for broken strands of wire, kinks, bends, broken housing, security of loop clamp (54), and secure attachment of the manual actuation ball.

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7. Check for corrosion on and around the oxygen system.

8. Check date of last bench test. No more than 224 days shall have passed since the last bench test.

9. Check CRU-79/P regulator (5) for security and apparent visual damage.

10. Check high pressure hose for good condition and security of attachment.

8-26. Components of the aircraft oxygen system which do not pass inspection and cannot be repaired in the aircraft shall be removed and replaced with a ready for issue (RFI) component. Forward defective components to AIMD for bench test.

**8-27. CALENDAR INSPECTION.** The Calendar Inspection shall be performed on all E-2C Emergency Oxygen Systems prior to placing in service, and at intervals not exceeding 224 days thereafter. This interval applies to all E-2C Emergency Oxygen Systems; aircraft installed, shop spares, and those maintained in servicing pools.

8-28. The Calendar Inspection consists of a Visual Inspection followed by a Bench Test. All work shall be performed in a clean, dust-free and oil-free area. E-2C Emergency Oxygen Systems found to be damaged or out of adjustment shall be repaired by replacing or adjusting the discrepant part or parts. After repair, repeat the Bench Test.

**8-29. Visual Inspection.** Perform a Visual Inspection of the E-2C Emergency Oxygen System in accordance with [table 8-2](#) and record the results on the Performance Test Sheet ([figure 8-3](#)).

8-30. E-2C Emergency Oxygen Systems failing the Visual Inspection or Bench Test ([paragraph 8-31](#)) shall be repaired, if specific repair is authorized. SM&R codes define repairable components and levels of maintenance authorized to perform repairs. Further explanation is found in Naval aviation maintenance program manual, OPNAVINST 4790.2 Series.

## 8-31. BENCH TEST.

### WARNING

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

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

### NOTE

Some liquid oxygen converter test stands that bear part numbers other than those mentioned in [paragraph 8-32](#) or covered in appropriate ground support equipment manual still exist. Use of these test stands is authorized provided they are capable of monitoring the E-2C Emergency Oxygen System performance as specified in the Bench Test.

8-32. The Bench Tests shall be performed using liquid oxygen converter test stand P/Ns 59A120, 31TB1995-1, 31TB1995-4, or 1455AS100-1. Do not attempt to perform any bench test without first becoming thoroughly familiar with the test stand and its operation. Refer to NAVAIR 17-15BC-23 for the details of test stand operations and service. The operator shall also be thoroughly familiar with the test to be performed, the anticipated results of the test, and how to record the results on the Performance Test Sheet. The Performance Test Sheet ([figure 8-3](#)) shall be used to record test data when performing all bench tests.

**Table 8-2. Visual Inspection of the E-2C Emergency System**

Part Nomenclature	Index Number	Inspect for	Remedy
Note: Index numbers in this table refer to <a href="#">figure 8-13</a> .			
Identification plates.	-50	Legibility, condition, and security.	Secure in place, or replace.
Cylinders.	-11	Corrosion, proper marking, proof test markings.	Replace or apply as required. Replace cylinder.
Actuation cable and cable housing.	-40	Corrosion, broken cable strands, damage, bent or cracked housing, security of attachment, or other obvious damage.	Replace, clean, or tighten as necessary.
Pressure reducer housing.	-1	Corrosion, stripped threads, cracks, dents, other obvious damage.	Repair or replace as necessary.
Pressure gage assembly.	-49	Security of attachment legibility, other obvious damage.	Tighten or replace as necessary.
Oxygen filler valve.	-29	Stripped threads, dirt, or other obvious damage.	Replace.
Relief valve assembly.	-24	Dirt, corrosion, security of attachment.	Tighten or replace as necessary.
Low Pressure Hose.	-9	Holes, fraying, and good condition.	Replace.
High Pressure Hose.	-2	Cuts, fraying, breaks, and good condition.	Replace.
Seal Nuts.	-4	Good condition.	Replace.

**NOTE**

Tests are arranged so they proceed from one test to the next with a minimum of flow changes. Troubleshooting tables are provided following each test.

3. Loosen seal nut (4) from adapter (3) and remove CRU-79/P Oxygen Regulator (6) and elbow (5) from adapter (3).

4. Bench test CRU-79/P Oxygen Regulator in accordance with NAVAIR 13-1-6.4-2.

**8-33. BENCH TEST CRU-79/P OXYGEN REGULATOR.** Bench Test the Oxygen Regulator using the following procedures:

**8-34. CHARGING THE E-2C EMERGENCY OXYGEN SYSTEM.** Charging (filling) the Emergency Oxygen System with aviator’s breathing oxygen is a critical operation requiring close attention to procedures. To charge the system, proceed as follows:

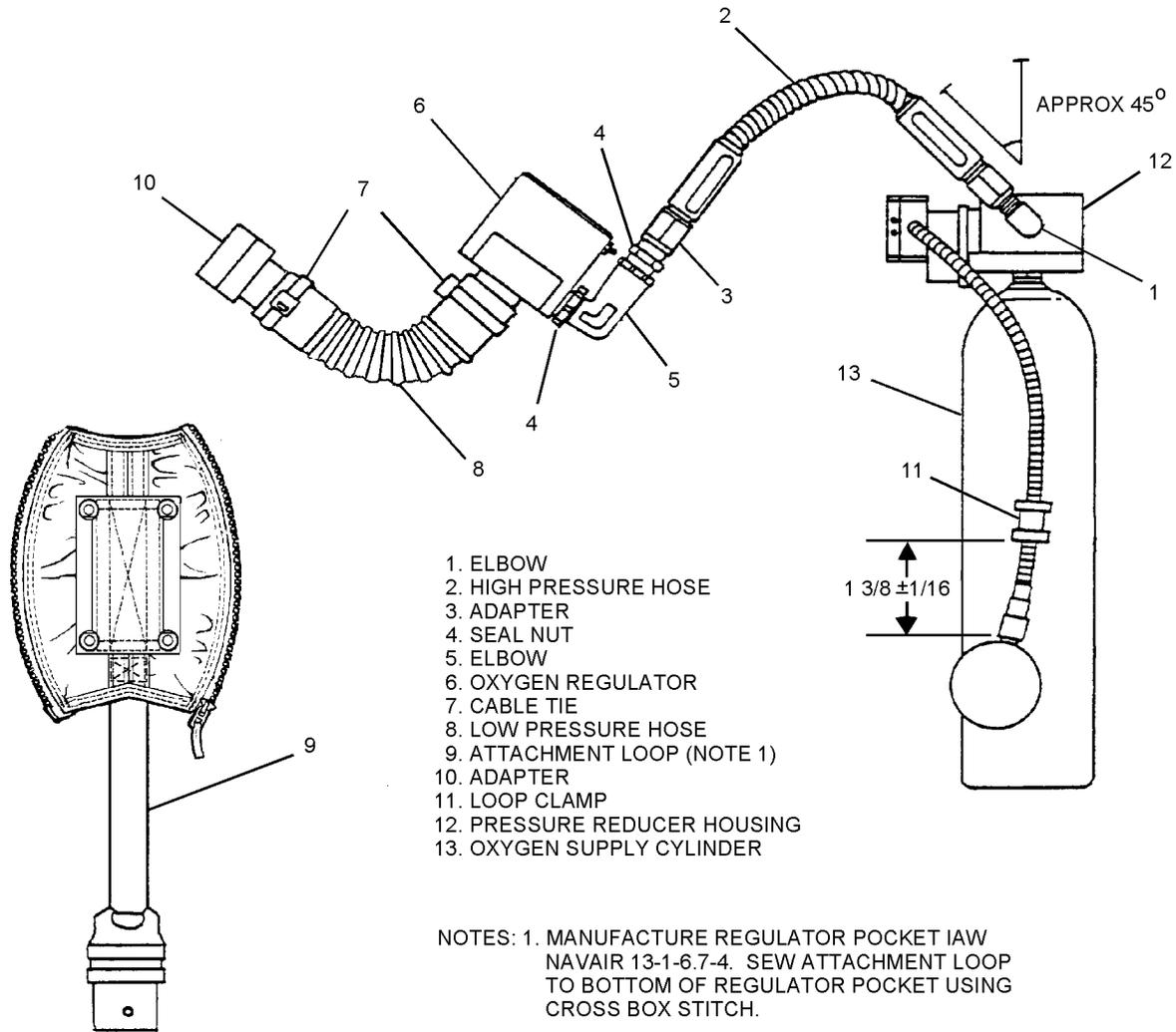
**NOTE**

Index numbers refer to [figure 8-4](#) unless otherwise noted.

1. Cut and remove cable tie (7) from low pressure hose (8) at CRU-79/P Oxygen Regulator (6) outlet.
2. Disconnect low pressure hose (8) from CRU-79/P Oxygen Regulator (6).

**Materials Required**

Quantity	Description	Reference Number
As Required	Aviator’s Breathing Oxygen, Type 1	MIL-O-27210



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Figure 8-4. E-2C Emergency Oxygen System Configuration

Support Equipment Required

NOTE

Quantity	Description	Reference Number
1	Adapter, Filler	T186C100-1 (CAGE 30941)
1	Regulator, Pressure	283028-0001 (CAGE 99657) NIIN 01-101-8827 or equivalent

If the E-2C Emergency Oxygen System is contaminated or the supply cylinders have been empty for more than two hours, purge the system in accordance with [paragraph 8-39](#).

2. Connect pressure regulator to oxygen supply cylinder (11, [figure 8-13](#)).
3. Connect filler adapter to pressure regulator.
4. Remove filler cap (28) from filler valve (29) of E-2C Emergency Oxygen System.
5. Connect filler adapter to filler valve (29).

1. Open then close oxygen supply cylinder to purge oxygen cylinder.

6. Ensure pressure reducer has been reset (toggle (38) in up (off) position).
7. Open oxygen supply cylinder.

**NOTE**

Refer to [table 8-3](#) for filling stages and [table 8-4](#) for ambient air temperature vs charging pressures.



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

Allow no less than three minutes for each filling stage and two minutes between each stage for cooling.

**Table 8-3. Charging Stages**

STAGE	PSIG
1	0-500
2	500-1000
3	1000-1500
4	1500-1800
5	1800-2000

**Table 8-4. Ambient Air Temperature Vs Charging Pressures**

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

8. Using pressure regulator, charge the E-2C Emergency Oxygen System to 1800 psig with aviator's breathing oxygen in strict compliance with [tables 8-3](#) and [8-4](#).

9. Close oxygen supply cylinder.
10. Turn pressure regulator to vent position.



Visually check to ensure that filler valve (29) does not turn (loosen) as filler adapter is removed. Serious injury could result.

11. Loosen filler adapter until all pressure is bled from high pressure line. Remove filler adapter from filler valve (29).

12. Proceed to External Leakage Test.

**8-35. EXTERNAL LEAKAGE TEST.** To perform the External Leakage Test, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Compound, Leak Detection, Type I	MIL-L-25567

Support Equipment Required

Quantity	Description	Reference Number
1	LOX Converter Test Stand	P/N 59A120 or 31TB1995-1 or 31TB1995-4 or 1455AS100-1

**WARNING**

If any leakage is encountered, the E-2C Emergency Oxygen System must be depleted of all pressure prior to attempting any repairs.

Prior to use, inspect leak detection compound. Compound which is not clear and free of suspended material/sediment is considered contaminated and shall be disposed of. Additionally, if the compound has any peculiar odors such as acetone or alcohol it is considered contaminated and shall be disposed of.

Apply leak detector compound sparingly to avoid penetration and contamination of oxygen system.

1. Apply leak detection compound to the oxygen filler valve (29, figure 8-13), pressure gage assembly (49), pressure reducer assembly outlet port, all inlet attach points, and all external screws and plugs.

**NOTE**

No leakage is acceptable. Leaks are indicated by the formation of bubbles in the leak detection compound.

2. Upon completion of the test, remove all trace of the leak detection compound using a damp, clean, lint-free cloth.
3. Record results of the test on the performance test sheet (figure 8-3).

**WARNING**

If any leakage is detected, the E-2C Emergency Oxygen System shall be depleted of all pressure prior to attempting any repair action. To deplete system of pressure, pull manual oxygen release assembly.

4. If any leakage is detected, refer to table 8-5, Troubleshooting (External Leak).

**8-36. ACTUATOR PULL TEST.** The following procedures incorporate the use of a liquid oxygen converter test stand and a locally manufactured actuator pull-test lanyard (figure 8-5). To perform the Actuator Pull Test, proceed as follows:

**Materials Required**

Quantity	Description	Reference Number
As Required	Compound, Leak Detection, Type I	MIL-L-25567

**Support Equipment Required**

Quantity	Description	Reference Number
1	LOX Converter Test Stand	P/N 59A120 or 31TB1995-1 or 31TB1995-4 or 1455AS100-1

1. Ensure all test stand valves are properly secured. Using test stand hose, connect pressure reducer assembly outlet port to test stand SUPPLY TO CONVERTER supply connection (NIP-6).

2. Open TEST PRESSURE GAGE BUILD-UP AND FLOW valve (V-10).

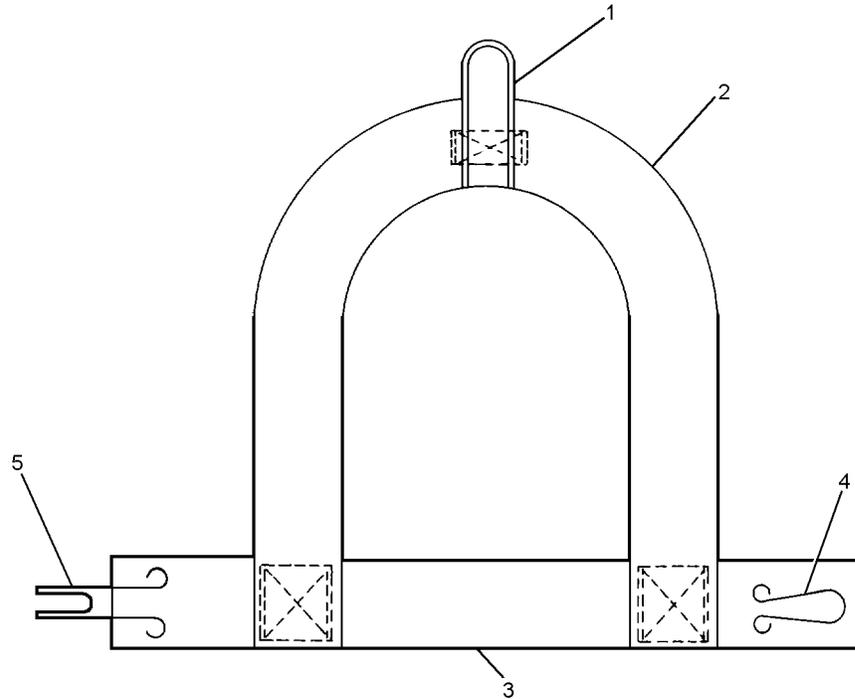
3. Connect test stand hose assembly (P/N 59A120B5-12) to CONVERTER SUPPLY OUTLET connection (NIP-5) and 0-150 lpm FLOWMETER connection (NIP-4).

4. Attach locally manufactured actuator pull test lanyard (figure 8-5) to green actuator ball and attach 50 pound push/pull scale to actuator pull test lanyard. Applying a steady, straight pull, measure and record force required to actuate the pressure reducer assembly (force required shall be 10 to 30 pounds).

**NOTE**

At this point, 0-160 psig TEST PRESSURE gage (PG-1) shall indicate 45 to 80 psig.

5. If force required to actuate pressure reducer assembly is not within tolerance (10-30 pounds), adjust cable of manual release assembly (40, figure 8-13) by loosening nut (36), adjusting nut (35), and retightening nut (36).



1. TWO-INCH LOOP, TYPE I, NYLON CORD, NIIN 00-240-2154
2. NINE INCHES, TYPE III, 1/2 INCH NYLON TAPE, MIL-T-5038C
3. FOUR INCHES, TYPE III, 1/2 INCH NYLON TAPE, MIL-T-5038C
4. LOCK SPRING TURN, P/N 212257-1 (CAGE 80020), NIIN 00-992-5577
5. HOOK, P/N 212257-2 (CAGE 80020), NIIN 00-095-0067

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**Figure 8-5. Actuator Pull Test Lanyard**

**Table 8-5. Troubleshooting (External Leakage)**

Trouble	Probable Cause	Remedy
Filler valve leaks.	Leakage around thread.	Tighten filler valve as necessary.
	Leakage around filler valve core.	Tighten or replace filler valve core.
Pressure gage leaks.	Loose gage, damaged threads, or damage bordon tube.	Tighten or replace gage.
Oxygen cylinder leaks.	Loose cylinder, stripped threads or damage O-ring.	Tighten or replace fittings, O-rings or cylinders as necessary.
External Allen screws leak.	Loose or stripped thread, damaged O-ring.	Tighten or replace screws or O-rings as necessary.
Outlet port of pressure reducer leaks.	Poppet assembly of pressure reducer scared or worn or damaged seat.	Replace poppet assembly or seat.

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### NOTE

Leave all connections and valves unchanged and proceed to Pressure Reducer Flow/Leakage Test.

**8-37. PRESSURE REDUCER FLOW TEST.** To perform the Pressure Reducer Flow Test, the E-2C Emergency Oxygen System must be fully charged to 1800 psig. Proceed as follows:

#### Support Equipment Required

Quantity	Description	Reference Number
1	LOX Converter Test Stand	P/N 59A120 or 31TB1995-1 or 31TB1995-4 or 1455AS100-1

1. Turn FLOW SELECTOR valve (V-1) on the test stand to the 0-150 lpm position FLOWMETER connection (NIP-4).

2. With a 0 lpm flow, record TEST PRESSURE gage (PG-1) reading on Performance Test Sheet (reading must be between 45 and 80 psig).

3. Slowly open test stand CONVERTER SUPPLY FLOW CONTROL valve (V-9) until 100 lpm is indicated on the FLOWMETER INDICATOR gage (PG-2). Immediately record TEST PRESSURE gage (PG-1) reading on Performance Test Sheet (reading shall be between 45 and 80 psig).

4. Close CONVERTER SUPPLY FLOW CONTROL valve (V-9).

5. Open CONVERTER SUPPLY FLOW CONTROL valve (V-9) and observe pressure gage (49, [figure 8-13](#)) on pressure reducer assembly. When the indicator needle on the pressure gage bisects the E and F in the word, REFILL, on the dial, close the CONVERTER SUPPLY FLOW CONTROL valve (V-9).

6. Record the reading from the TEST PRESSURE gage (PG-1) on the Performance Test Sheet (reading shall be 45 to 80 psig).

7. Open CONVERTER SUPPLY FLOW CONTROL VALVE (V-9) to indicate 100 lpm on FLOWMETER INDICATOR gage (PG-2).

8. Record reading from TEST PRESSURE gage (PG-1) on Performance Test Sheet (reading shall be 45 to 80 psig).

9. Deplete all oxygen pressure from E-2C emergency oxygen system using CONVERTER SUPPLY FLOW CONTROL valve (V-9).

10. Close CONVERTER SUPPLY FLOW CONTROL valve (V-9).

11. Disconnect E-2C emergency oxygen system from SUPPLY TO CONVERTER connection (NIP-6).

12. Close TEST PRESSURE GAGE BUILD-UP AND FLOW valve (V-10).

13. Disconnect hose (P/N 59A120-B5-12) from 0-150 lpm connection FLOWMETER (NIP-4) and CONVERTER SUPPLY OUTLET (NIP-5).

14. If readings are not within tolerance, refer to [table 8-6](#), Troubleshooting (Flow Test).

15. Proceed to Relief Valve Test.

**Table 8-6. Troubleshooting (Flow Test)**

Trouble	Probable Cause	Remedy
Pressure steadily increases on PG-1 with 0 flow.	Poppet assembly leaks.	Replace poppet assembly index numbers.
Pressure drops below 45 psig with 100 lpm.	Pressure reducer set too low.	Readjust pressure reducer ( <a href="#">paragraph 8-51</a> ).
	Dirty filter.	Replace filter.
Pressure does not indicate 45 to 80 psig with 0 flow.	Pressure reducer out of adjustment.	Readjust pressure reducer ( <a href="#">paragraph 8-51</a> ).

**8-38. RELIEF VALVE TEST.** To perform Relief Valve (24, [figure 8-13](#)) Test using LOX converter test stand, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	LOX Converter Test Stand	P/N 59A120 or 31TB1995-1 or 31TB1995-4 or 1455AS100-1
18 inches	Tubing, Non-metallic, 5/8-inch Inside Diameter	9561-D47 (available Thomas Scientific, 99 High Hill Rd, P.O. Box 99, Swedesboro, N.J. 08085-0099) or equivalent

1. Reset E-2C Emergency Oxygen System pressure reducer assembly toggle (38, [figure 8-13](#)) in up (off) position.

2. Using test stand hose, connect outlet of pressure reducer assembly to test stand BELL JAR BOTTOM COUPLING (C-1).

3. Attach non-metallic tubing over relief valve assembly (24).

4. Attach other end of non-metallic tubing to test stand 0-150 lpm FLOWMETER connection (NIP-4).

5. Ensure test stand DIFFERENTIAL PRESSURE SHUT-OFF valve (V-8) is closed.

6. Open TEST PRESSURE GAGE-TO-BELL JAR valve (V-2).

7. Turn test stand FLOWMETER SELECTOR valve (V-1) to 0-150 lpm FLOWMETER Connection position (NIP-4).



Increase pressure slowly. Any rapid surge in pressure could damage test stand FLOWMETER INDICATOR gage (PG-2).

8. Slowly open test stand OXYGEN SUPPLY valve (V-6) while observing FLOWMETER INDICATOR gage (PG-2) for any erratic movement.

9. Observe open pressure of relief valve as indicated on TEST PRESSURE gage (PG-1) and record reading on Performance Test Sheet. Pressure reading shall be 120 to 140 psig.

10. Slowly increase pressure by opening the OXYGEN SUPPLY valve (V-6) until a 100 lpm flow is indicated on the FLOWMETER INDICATOR gage (PG-2).

11. Observe reading on the TEST PRESSURE gage (PG-1) and record on the Performance Test Sheet. Reading shall not exceed 140 psig.

12. Close test stand OXYGEN SUPPLY valve (V-6).

13. Open SYSTEM BLEED valve (V-5) until 110 psig is indicated on the TEST PRESSURE gage (PG-1).

14. Disconnect non-metallic tubing from 0-150 lpm FLOWMETER connection (NIP-4).

15. Turn FLOWMETER SELECTOR valve (V-1) to 0-0.25 lpm FLOWMETER connection (NIP-1).



Attach non-metallic tubing to FLOWMETER connection (NIP-1) slowly. Excessive relief valve leakage could damage FLOWMETER INDICATOR gage (PG-2).

16. Slowly attach non-metallic tubing (P/N 9561-D47 or equivalent) to 0-0.25 lpm FLOWMETER connection (NIP-1) while observing FLOWMETER INDICATOR gage (PG-2) for erratic movement.

17. Observe relief valve leakage reading on FLOWMETER INDICATOR gage (PG-2) and record on Performance Test Sheet. (Leakage shall not exceed .01 lpm.)

18. Disconnect non-metallic tubing from 0-0.25 lpm FLOWMETER connection (NIP-1).

19. Open SYSTEM BLEED valve (V-5) and bleed pressure from test stand.

20. Disconnect pressure reducer assembly outlet from BELL JAR BOTTOM COUPLING (C-1).

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21. Remove non-metallic tubing from relief valve (24).

22. Secure all test valves.

23. If relief valve test readings are not within tolerance, refer to [table 8-7](#), Troubleshooting (Relief Valve Test).

24. Proceed to E-2C Emergency Oxygen System purge.

**8-39. EMERGENCY OXYGEN SYSTEM PURGE.**  
To purge the E-2C Emergency Oxygen System, proceed as follows:

**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

**Support Equipment Required**

Quantity	Description	Reference Number
1	Adapter, Filler	T186C100-1 (CAGE 30941)



Use only oil-free nitrogen, Type 1, Class 1, Grade B for purging LOX converters.

Purging unit model A/M26M-3 has two specially designed 3500 psig nitrogen cylinders. Do not substitute these cylinders with other nitrogen cylinders such as NAN cart cylinders.

While operating purging unit A/M26M-3, protective gloves must be worn by operator. Discharge fittings and hoses can reach temperatures that will cause burns if grasped with bare hands.

**NOTE**

Personnel operating purging unit model A/M26M-3 should be thoroughly familiar with all valves and controls. Prior to operating refer to appropriate support equipment manual. Personnel operating purging unit model A/M26M-3 shall be licensed in accordance with OPNAVINST 4790.2 Series.

**Table 8-7. Troubleshooting (Relief Valve Test)**

Trouble	Probable Cause	Remedy
Excessive leakage.	Relief valve out of adjustment or damaged.	If adjustable, adjust relief valve or replace.
Relief valve vent before 120 psig.	Relief valve out of adjustment.	If adjustable, turn spring retainer clockwise or replace.
Relief valve vent after 140 psig.	Relief valve out of adjustment.	If adjustable, turn spring retainer counterclockwise or replace.
Relief valve fails to vent 100 lpm at 140 psig.	Relief valve out of adjustment.	If adjustable, adjust relief valve to open closer to lower open pressure or replace.

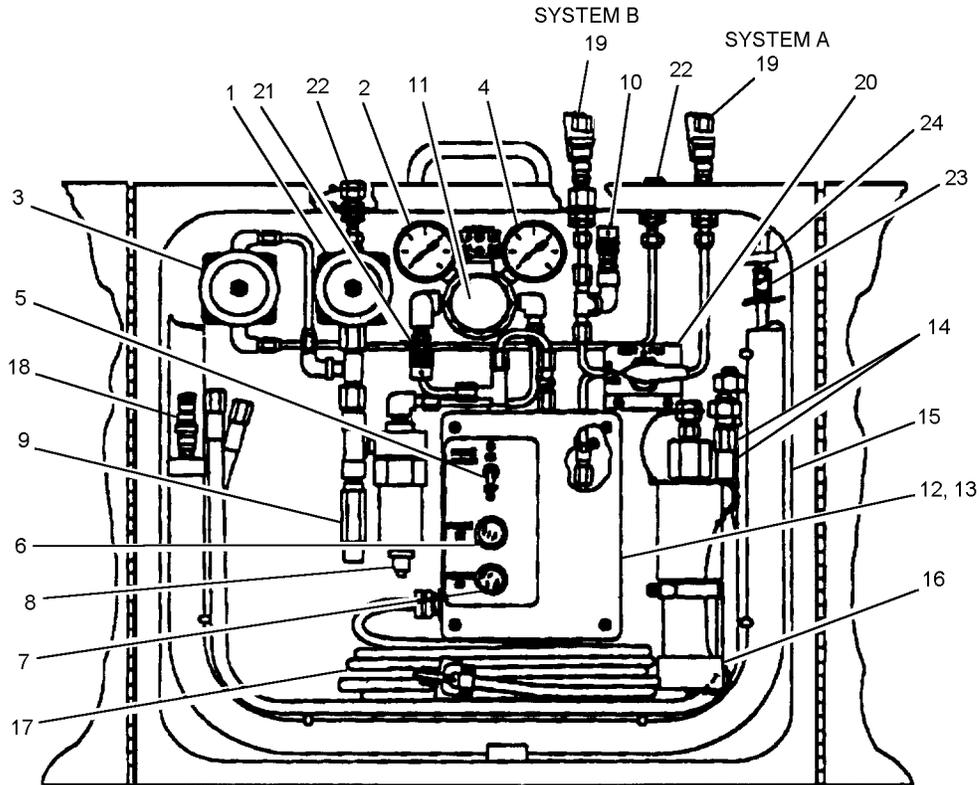
**NOTE**

Index numbers in parentheses for the E-2C Emergency Oxygen System refer to [figure 8-13](#).

Index numbers in parentheses for purging unit model A/M26M-3 refer to [figure 8-6](#).

The E-2C Emergency Oxygen System shall be purged during each calendar inspection, when contamination is suspected, or when the system has been empty for more than two hours.

1. Pull manual oxygen release assembly (40) to ensure emergency oxygen system is depleted of all oxygen.
2. Remove two supply lines (14) from purge unit cabinet. Connect one end of each supply line (14) to nitrogen supply cylinders and the other end to the supply inlet connection (22) of purge unit.
3. Remove insulated hose (15) from purge unit cabinet. Connect quick disconnect (18) of insulated hose (15) to system (A) quick disconnect (19) of purge unit.
4. Connect filler adapter to B-nut (23) of insulated hose (15).
5. Turn purge unit 3-way valve (20) to system (A) position.
6. Ensure power switch (5) is OFF.
7. Remove power cable (17) from purge unit cabinet and plug into 110 volt outlet.
8. Open both nitrogen supply cylinder valves.
9. Open hand shutoff valve (1) and (3). High pressure gage (4) will indicate nitrogen supply cylinder pressure.
10. Connect filler adapter and insulated hose (15) to filler valve (29) of E-2C emergency oxygen system.
11. Turn power switch (5) to ON position. Power on light (6) should illuminate.
12. Turn pressure regulator (11) clockwise until 120 psig is indicated on low pressure gage (2).
13. Observe heater on light (7). When light cycles from on to off the purging unit is ready for use.
14. Reset pressure reducer assembly toggle (38) and allow E-2C Emergency Oxygen System cylinders (11) to fill to 120 psig.
15. Pull E-2C Emergency Oxygen System manual release (40) to deplete system of pressure.
16. Reset pressure reducer assembly toggle (38).
17. Repeat [steps 14, 15, and 16](#) two more times.
18. Pull E-2C Emergency Oxygen System manual release (40) and allow heated nitrogen to free flow for 10 minutes.
19. When purging is complete, turn purge unit power switch (5) to OFF.
20. Close nitrogen supply cylinder valves.
21. Observe low pressure gage (2) and high pressure gage (4) until they indicate 0 psig. Back out counter-clockwise on pressure regulator (11).
22. Close hand shutoff valves (1) and (2).
23. Disconnect filler adapter and insulated hose (15) from filler valve (29) of E-2C emergency oxygen.
24. Disconnect insulated hose (15) from purging unit system (A) quick disconnect (19).
25. Stow all lines and accessories and secure from purging.
26. Ensure all purge gas (nitrogen) has been depleted from the Emergency Oxygen System.
27. Reset pressure reducer assembly toggle (38).
28. Immediately charge the Emergency Oxygen System with aviator's breathing oxygen in accordance with [paragraph 8-34](#).



Description	Function
1. Hand Shutoff Valve	Controls Supply Gas Flow
2. Low Pressure Gage	Indicates Delivery Gas Pressure (0-200 PSIG)
3. Hand Shutoff Valve	Controls Supply Gas Flow
4. High Pressure Gage	Indicates Supply Gas Pressure (0-4000 PSIG)
5. Power Switch	Master On/Off Switch/Circuit Breaker
6. Power On Light	Indicates Master Switch is On and Set is Operational
7. Heater On Light	Indicates Operation of Heater
8. Priority Valve	Stops Gas Flow When Supply Gas Pressure Falls Below 200 PSIG
9. Relief Valve	Relieves Supply Pressure Exceeding 3750 PSIG
10. Low Pressure Relief Valve	Relieves Service Line Supply Pressure Exceeding 705 PSIG
11. Pressure Regulator Assembly	Regulates Pressure to 0-200 PSIG
12. Temperature Control Switch (Under Plate)	Cycles Off and On to Control Exit Gas
13. High Temperature Shutdown (Under Plate)	Shuts Off Heater when Heater Block Temperature Reaches 285°F
14. Supply Line	Connects Supply Cylinders to Housing Assembly
15. Insulated Hose Assembly	Connects Housing Assembly
16. Filler Valve	Connects Insulated Hose Assembly to Converter
17. Power Cable	Connects Unit to Electrical Power
18. Quick Disconnect	Connects Insulated Hose to 19 System A or B
19. Quick Disconnect	Connection for Insulated Hose to 19 System A or B
20. 3-Way Valve	Selects A or B Outlet Ports
21. High Pressure Relief Valve	Relieves Service Line Supply Pressure Exceeding 1355 PSIG
22. Supply Pressure Inlet	Connects Supply Line 14 to Purge Unit
23. B-Nut	Connects Insulated Hose to Filler Valve 16 or Adapter (Not Shown)
24. Adapter	Connects Insulated Hose to P-3 Aircraft Filler Port

Figure 8-6. A/M26M-3 Purging Unit

008006

**8-40. CRU-79/P OXYGEN REGULATOR INSTALLATION.** To install the CRU-79/P oxygen regulator (5, [figure 8-13](#)) on the pressure reducer housing (1), proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Tape, Anti-seize	MIL-T-27730
2	Strap, Tie Down	MS3367-1-0



Do not overtighten elbow/nipple (1) and adapter (3) when attaching these connecting parts to pressure reducer (12) and CRU-79/P regulator (6).

1. Apply two turns of anti-seize tape to tapered pipe threads of elbow (1) and screw elbow (1) into pressure reducer housing (12). Ensure elbow (1) is positioned as shown in [figure 8-4](#).

2. Attach one end of high pressure hose (2) to the nipple end of elbow (1).

3. Apply two turns of anti-seize tape to tapered pipe threads of adapter (3). Screw adapter (3) into elbow (5) and secure in place with seal nut (4).

4. Connect inlet of CRU-79/P Oxygen Regulator to high pressure hose (2).

**NOTE**

Ensure cable tie is securely fastened to prevent low pressure hose from coming loose.

5. Connect low pressure hose (8) to outlet of CRU-79/P Oxygen Regulator (6) and secure in place with cable tie (7).

6. Connect adapter (10) to end of low pressure hose (8) and secure with cable tie (7).

7. Attach attachment loop and regulator pocket to CRU-79/P Oxygen Regulator (6).

8. The activity performing the bench test shall annotate a serviceable condition label with station/ship identification and date of bench test and affix label in a visible place on either oxygen supply cylinder (11).

**8-41. DISASSEMBLY.**

8-42. Disassemble the E-2C Emergency Oxygen System only to the extent necessary to perform required authorized maintenance. [Figure 8-7](#) illustrates the Emergency Oxygen Pressure Reducer Tool Set. Disassemble the system as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Adapter, Torque	T216C903-11
1	Pressure Reducer Tool Set	T216D900-3 (CAGE 30941)
1	Retaining Ring Pliers	S0100 (CAGE 79136)
1	Retaining Ring Pliers	SL0100 (CAGE 79136)
1	Tool, Seat Removal	T216B906-11
1	Tool, Jaw Guide	T216C915-11
1	Tool, Plunger Jaw	T216C913-11
1	Tool, Toggle Jaw	T269C911-11
1	Tool, Removal, Spring Pin	T216B905-1
2	Wrench, Spanner	T216B907-11



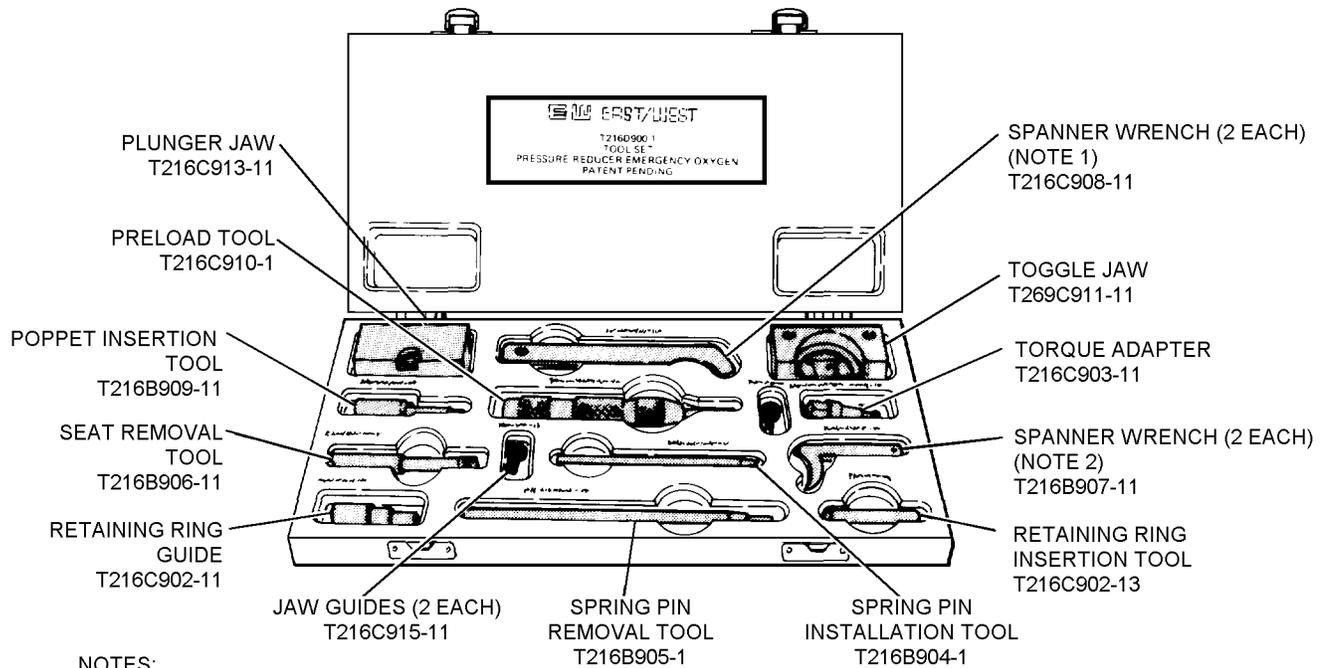
Ensure that clothing, equipment, and work area are clean and free of dust/dirt, grease, oil, fuels, hydraulic fluids, or other combustible materials or hydrocarbons. Fire and/or explosion may result if even slight traces of these materials come in contact with oxygen under pressure.

**NOTE**

Maintenance personnel shall thoroughly familiarize themselves with each step before performing that step.

1. Remove hose assembly (9, [figure 8-13](#)) from CRU-79/P oxygen regulator (5) by removing tie down strap (8) and disengaging hose from regulator.

2. Disconnect high pressure hose (2) from elbow (6) and remove elbow (6) from pressure reducer housing (1).



NOTES:

- 1 USED WHEN PRESSURE REDUCER IS REMOVED FROM SURVIVAL KIT.
- 2 USED WHEN PRESSURE REDUCER IS INSTALLED IN SURVIVAL KIT.

008007

**Figure 8-7. Emergency Oxygen Pressure Reducer Tool Set**

3. Disconnect high pressure hose (2) from straight pipe tube adapter (3).

4. Remove self-locking nut (55), loosen loop clamp (54), and disengage manual release assembly (40) from its secured position.

5. Back off captive screws (52), loosen clamps (53) sufficiently to separate the emergency oxygen system from bracket assembly (51).

6. Remove oxygen supply cylinders (11) from pressure reducer housing (1) and plug the open ports in pressure housing using O-ring (MS28778-03) and plug (P/N EW61001) to prevent contaminants from entering.

7. Remove pressure gage (49).

8. Remove toggle shield (31) by removing nut (33) and screw (32).

9. Using two spanner wrenches remove complete adjusting assembly (34 thru 45) by unscrewing locking (42) and adjusting cap (41).

**NOTE**

Do not disassemble the adjusting assembly unless replacement of parts is necessary. See [step 16](#) for disassembly of the adjusting assembly.

10. Use retaining ring pliers (P/N SL0100) to remove retaining ring (46).

11. Remove piston (47) and O-ring (48) from pressure reducer housing (1) by gently prying upward with retaining ring pliers (P/N SL0100).

12. Remove relief valve assembly (24) and O-ring (25) from pressure reducer housing (1).

13. Remove screw (27), cap assembly (28), retaining bracket (30), and filler valve assembly (29).

14. Remove three plugs (14) and O-rings (15).

15. Remove the pressure reducer assembly as follows:

**NOTE**

Retaining ring (16), filter (17) and poppet guide (18) normally separate from pressure reducer housing (1) with retainer (21).

- a. Using torque adapter, remove retainer (21) from pressure reducer housing (1).
- b. Remove poppet spring (19), poppet (20), and backup ring stop (22).



When using seat removal tool to remove seat (23), use care not to damage pressure reducer housing (1).

- c. Insert seat removal tool.
- d. Rotate seat removal tool until seat (23) is loosened from pressure housing sealing groove.
- e. Using retaining ring pliers (P/N S0100), remove retaining ring (16) from retainer (21).
- f. Remove filter (17) and poppet guide (18) from retainer (21).

**NOTE**

Do not perform step 16 unless replacement of defective components is necessary.

16. To disassemble the manual release and adjusting assembly, proceed as follows:

- a. Remove swaged ball end of manual release assembly (40) from toggle (38) by removing cotter pin (34).
- b. Rotate toggle (38) to down (on) position.
- c. Install jaw guides (two) in toggle jaw.



Be careful not to damage cable and swaged ball when performing step d.

- d. Position adjusting assembly in the toggle and plunger jaws and place in a bench vise (figure 8-8); tighten vise to relieve tension on spring (44).
- e. Using spring pin removal tool remove spring pin (37) from toggle (39).

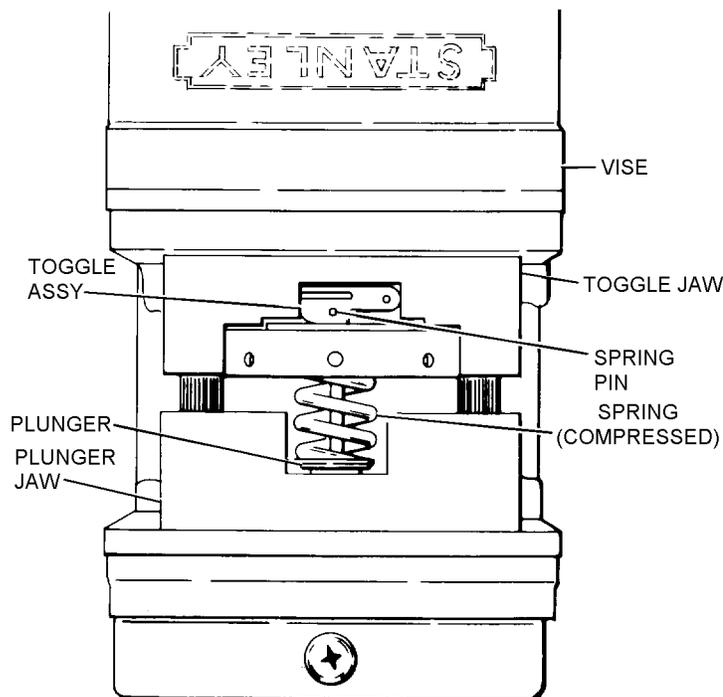


Figure 8-8. Spring Pin Removal

008008



Adjusting assembly is under spring tension. When loosening the vise, hold toggle and plunger jaws to prevent loss of parts.

f. Release vise pressure, remove adjusting assembly, and disassemble toggle (38), spacer (39), manual release assembly (40), adjusting cap (41), piston guide (43), spring (44), and plunger (45).

17. Remove nipples (12) and O-rings (13) from pressure reducer housing (1).

**8-43. CLEANING.**

8-44. To clean the E-2C Emergency Oxygen Assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Brush, Soft Bristle	—
As Required	Cloth, Lint-free, Type II	MIL-C-85043
1	Wash Bottle	MS36070A
As Required	Bag, Plastic	MIL-B-117
As Required	Nitrogen, Oil-free, Water Pumped, Type I, Class I, Grade B	Fed Spec BB-N-411



Do not use oil, or any material containing oil, in conjunction with oxygen. Oil, even in minute quantity, coming in contact with oxygen can cause explosion or fire. Dust, lint, and fine metal particles are also dangerous contaminants.

1. Clean all metallic parts in accordance with procedures outlined in [Chapter 4](#) of this manual. Blow dry using oil-free nitrogen.

2. Clean all silicone rubber parts using distilled water and blow dry using oil-free nitrogen.

3. After cleaning, all surfaces shall be examined for cleanliness. Should further contamination be found, re-clean in accordance with [steps 1](#) and [2](#).

4. Cleaned parts shall be sealed in plastic bags for storage. Bag all complete assemblies that are not immediately returned to service.

**8-45. INSPECTION OF DISASSEMBLED PARTS.**

8-46. Inspect disassembled component parts in accordance with [table 8-8](#).

**8-47. REPAIR.**

8-48. Repair of the E-2C Emergency Oxygen System is limited to the replacement of defective parts.

**Table 8-8. Inspection of Disassembled Components**

Note: Index numbers in this table refer to <a href="#">figure 8-13</a> .		
REPLACE ALL PARTS THAT DO NOT PASS INSPECTION		
Nomenclature	Figure and Index Number	Inspect For
Pressure Reducer Housing	-1	Stripped threads, corrosion, and other obvious damage.
High Pressure Hose	-2	Fraying, contamination, and good condition.
Screws	-3, -27 and -32	Stripped threads, rounded hexagon flats, stripped screw heads, corrosion, and other damage.
Plug	-14 and -26	
Nuts	-33, -25 and -36	
Washers	-4	Damage and corrosion.

Table 8-8. Inspection of Disassembled Components (Cont)

Nomenclature	Figure and Index Number	Inspect For
Nipple/Elbow and Nipple Union	-6 and -12	Blocked drill hole, stripped threads, and corrosion damage.
Clamps and Clamp Covers	-7 and -8	Broken teeth, damage, and corrosion.
Hose Assembly	-9	Cuts, tears, bends, damage, and contamination.
Adapter Assembly	-10	Broken J blocks, corrosion, dents, and other damage.
Oxygen Cylinders	-11	Legibility of marking, proof test marking, corrosion, dents, stripped threads, other damage.
Retaining Rings	-16 and -46	Corrosion, bends, good condition.
Springs	-19 and -44	Bends, cracks, corrosion, and condition.
Filter	-17	Corrosion and condition.
Poppet Guide, Poppet and Backup Ring Stop	-18, -20 and -22	Nicks, burrs, bends, cracks, corrosion, good condition.
Seat	-23	Tears and condition.
Relief Valve	-24	Stripped threads, corrosion, good condition.
Cap Assembly	-28	Attachment security of chain, stripped threads, corrosion, dents, good condition.
Filler Valve	-29	Stripped threads, nicks, burrs, dents, corrosion, good condition.
Retaining Bracket	-30	Rounded hexagon flat, corrosion, good condition.
Toggle Shield	-31	Dents, bends, corrosion, good condition.
Toggle and Spacer	-38 and -39	Dents, bends, corrosion, good condition.
Manual Release Assembly	-40	Broken cable strands, housing dents, bends, burrs, security attachment of swaged ball and green ball, corrosion, stripped threads, good condition.
Adjusting Cap and Lock Ring	-41 and -42	Stripped threads, dents, bends, corrosion, nicks, burrs, good condition.
Piston Guide and Plunger	-43 and -45	Nicks, burrs, bends, dents, corrosion, good condition.
Piston	-47	Holes, dents, corrosion, other obvious damage.
Pressure Gage	-49	Legibility of markings, stripped threads, corrosion, good condition.
Name Plate	-50	Legibility or markings, good condition.

**8-49. ASSEMBLY.**

8-50. To assemble the E-2C Emergency Oxygen System, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Krytox 240 AZ	MIL-G-27617 (CAGE 81349)
As Required	Tape, Anti-seize	MIL-T-27730
As Required	Leak Detection Compound, Type 1	MIL-L-25567

Support Equipment Required

Quantity	Description	Reference Number
1	Adapter, Torque	T216C903-11
1	Pliers, Retaining Ring	S0100 (CAGE 79136)
1	Pliers, Retaining Ring	SL0100 (CAGE 79136)
1	Pressure Reducer Tool Set	T216D900-3 (CAGE 30941)
1	Tool, Jaw Guide	T216C915-11
1	Tool, Plunger Jaw	T216C913-11
1	Tool, Toggle Jaw	T269C911-11
1	Tool, Installation, Spring Pin	T216B904-1
1	Tool, Insertion, Poppet	T216B909-11
1	Tool, Guide, Retaining Ring	T216C902-11
1	Wrench, Spanner	T216C902-13
1	Torque Wrench 0-150 in-lb	TE-6FUA (CAGE 55729) or equivalent

1. Assemble the manual release and adjusting assembly using the following procedures:

- a. Install jaw guides into toggle jaw.
- b. Place toggle jaw and plunger jaw in a bench vise (figure 8-9).
- c. Loosely assemble plunger (45, figure 8-13), spring (44), piston guide (43), adjusting cap (41),

spaced assembly (39), and toggle (38), and position assembled parts in toggle jaw and plunger jaw.



Be careful not to apply too much vise pressure and cause damage to assembled parts.

d. Apply vise pressure to compress spring (44) and align spring pin (37) holes in toggle (38) and plunger (45) (figure 8-9).

e. Insert spring pin (37) into aligned holes in toggle (38) and plunger (45) using spring pin installation tool. Insert spring pin as far as installation tool will permit. Remove installation tool and gently drive the spring pin the rest of the way in to firmly seat in toggle (38) using a drift pin.

f. Slowly open vise jaws and ensure the adjusting assembly is properly secured before removing the assembly from the toggle and plunger jaws.

g. Rotate toggle (38) to the up (off) position.

h. Attach manual release assembly (40) to spacer (39) and secure with nuts (35) and (36).

i. Insert cable and swaged ball end of manual release assembly (40) in toggle (38) and secure with cotter pin (34).

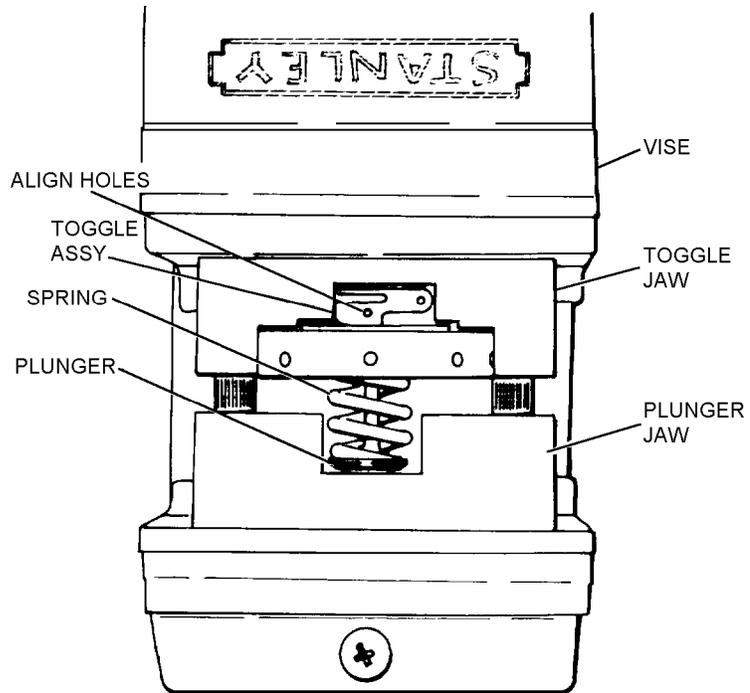
2. Position retainer (21) on a clean surface with threaded portion down. Place backup ring stop (22) on the retainer with grooved surface facing up (figure 8-10).

3. Place seat (23, figure 8-13) on top of backup ring stop (22) ensuring proper alignment within retainer groove (figure 8-11). Press firmly on seat with finger so seat is retained in place.

4. Holding retainer (21) upright, with backup ring stop (22) and seat (23) in place, screw into pressure housing (1).

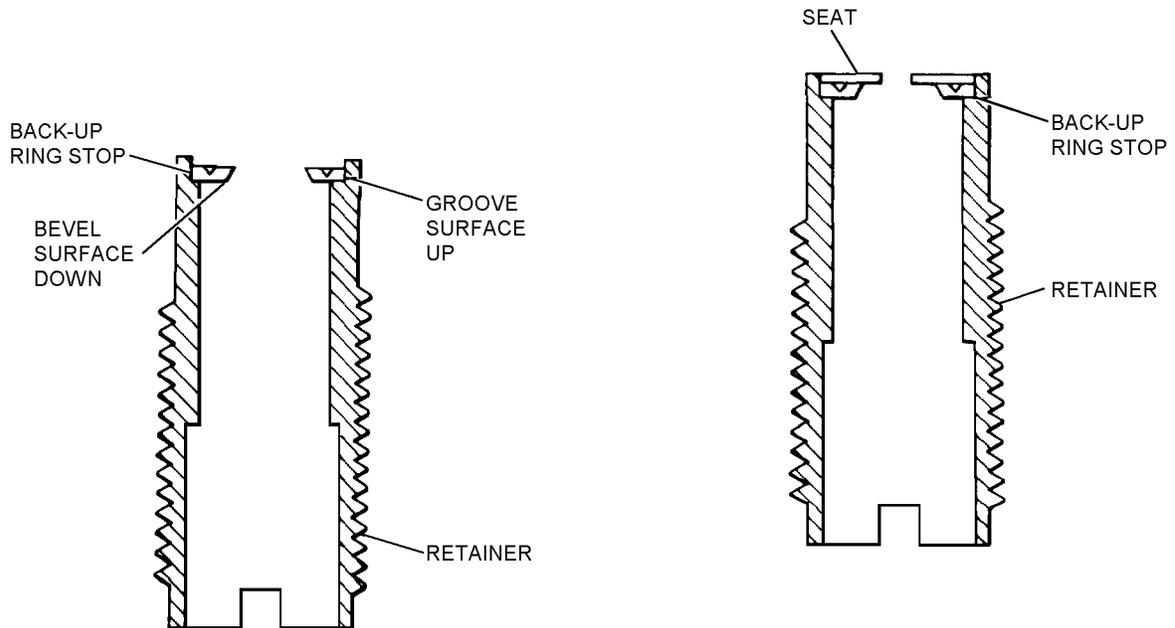
5. Using torque adapter mounted on a 3/8-inch nut driver, install retainer (21) in pressure reducer housing (11). Visually inspect through open end of retainer (21) for proper alignment of backup ring stop (22) and seat (23).

6. Torque retainer (21) to 32 to 35 in-lb using torque adapter and torque wrench.



008009

Figure 8-9. Manual Release and Adjusting Assembly Reassembly



008010

Figure 8-10. Back-up Ring Stop Installation

Figure 8-11. Seat Installation

008011

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7. Place poppet (20) in poppet insertion tool with cone-shaped end of poppet facing away from heavy end of insertion tool.

8. Press filter (17), with coarse mesh up, into poppet guide (18).

9. Press poppet guide spring (19) onto shaft of poppet guide (18) firmly to ensure seating spring on shaft.

10. Position retaining ring guide in retainer (21) so tool engages tangs of retainer.

11. Using retaining ring insertion tool, ensure poppet guide (18) and poppet spring (19) are properly positioned inside retainer (21).

12. Remove retaining ring insertion tool and retaining ring guide from retainer and pressure housing.

13. Check to ensure that when properly installed, the filter end of the poppet guide (18) extends slightly above the end of the retainer (21).

14. Using retaining ring pliers (P/N S0100), install retaining ring (16) inside tangs of retaining ring guide.

15. Insert retaining ring guide into tangs of retainer (21). Insert retaining ring insertion tool into retaining ring guide.

16. Compress poppet spring (19) and seat retaining ring (16) by pressing down on retaining ring insertion tool until flush with top of retaining ring guide.

17. Remove retaining ring guide and retaining ring insertion tool and ensure that retaining ring (16) is properly seated in groove.

18. Install O-ring (48) on piston (47) and lubricate O-ring (47) with Krytox 240 AZ.

19. Insert piston (47) with O-ring (48) into pressure reducer housing (1) and secure with retaining ring (46) using retaining ring pliers (P/N SL0100).

20. Install lock ring (42), then manual release and adjusting assembly (40) on pressure reducer housing (1).

21. Apply teflon tape to threads of pressure gage (49) and install pressure gage on pressure reducer housing (1).

22. Apply Krytox 240 AZ to O-rings (15) in three places and install O-rings on plugs (14) in three places.

23. Install plugs (14) with O-rings (15) in pressure reducer housing (1) in three places.

24. Apply Krytox 240 AZ on O-ring (25) and install O-ring on relief valve (24).

25. Install relief valve (24) with O-ring (25) on pressure reducer housing (1).

26. Apply teflon tape to threads of filler valve (29).

27. Install filler valve (29) in pressure reducer housing (1).

28. Place retaining bracket (30) over filler valve (29) ensuring that retaining bracket is fitted over the hexagon flats of the filler valve.

29. Secure retaining bracket (30) and filler cap assembly (28) security chain to pressure housing using screw (27).

30. Apply teflon tape to threads of plug (26) and install plug in pressure reducer housing (1).

### 8-51. POST ASSEMBLY ADJUSTMENT AND LEAKAGE TEST OF PRESSURE REDUCER ASSEMBLY.

8-52. Post assembly adjustment and leakage test shall be performed using oxygen system components test stand models 1172AS100 or 1316AS100. Refer to test stand ground support equipment manual (NAVAIR 17-15BC-21) for identification of the controls and indicators referred to during test procedures.

#### 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	Leak Detection Compound, Type 1	MIL-L-25567
As Required	Tape, Anti-seize	MIL-T-27730
As Required	Krytox 240 AZ	MIL-G-27617 (CAGE 81349) NIIN 01-007-4384
2	Strap, Tie Down	MS3367-1-0

Support Equipment Required

Quantity	Description	Reference Number
1	Adapter, Filler	T186C100-1 (CAGE 30941)
1	Pressure Reducer Tool Set	T216D900-3 (CAGE 30941)
1	Regulator, Pressure	283028-0001 (CAGE 99657) NIIN 01-101-8827 or equivalent
1	Wrench, Spanner	T216C902-13

8-53. To perform the Post Assembly Adjustment and Leak Test, proceed as follows:

**NOTE**

Due to the complexity of each of the test stands, 1172AS100 and 1316AS100, it is essential that the operator become thoroughly familiar with the test stand to be used prior to performing bench tests.

1. Using the vent flow graph supplied with the test stand in use, convert a 100 lpm flow to inches of water.

**WARNING**

Because of the possibility of vacuum pump explosion, only water-pumped nitrogen, Type I, Class I, Grade B shall be used.

Oxygen test stands and purging equipment shall use nitrogen only from gray cylinders marked NITROGEN OIL-FREE in white letters with two 3-inch wide black bands marking the tops. Do not use 3500 psig nitrogen cylinders. These cylinders cannot be certified contaminant free.

**NOTE**

Nitrogen supply cylinders used in testing oxygen components contain a maximum of 1800 psig. For tests requiring 1800 psig, use highest available pressure, but in no case shall this pressure be less than 500 psig.

2. Connect pressure regulator to nitrogen supply and connect filler adapter to the pressure regulator.

3. Cap oxygen supply cylinder ports of pressure reducer housing (1, [figure 8-13](#)) with plug (P/N EW61001) and O-ring (MS28778-03) in two places.

**NOTE**

Adjusting cap (41) must be screwed clockwise all the way down and lock ring (42) must be loose.

4. Connect filler adapter to filler valve assembly (29).

5. Ensure all test stand valves are properly secured, then connect outlet port of pressure reducer assembly (1) to the nitrogen (N<sub>2</sub>) input connection (18) of test the stand.

6. Turn inlet pressure ON/OFF valve (L) of the test stand to the ON position.

7. For Model 1172AS100 and 1316AS100 test stands only: Turn flow selector valve (M) to simulator position.

8. Ensure toggle (38) of pressure reducer assembly is in the up (off) position.

9. Using regulated nitrogen supply source, slowly apply 250 psig to pressure reducer assembly.

10. Observe test stand nitrogen input pressure gage (27) to ensure that there shall be no leakage indicated. If leakage is indicated, refer to [table 8-9](#) for malfunction troubleshooting and remedies.

**WARNING**

Prior to usage, inspect condition of leak detection compound. If compound is not clear and free of suspended material/sediment, it is considered contaminated and shall be disposed of. Compound having peculiar odors such as acetate or alcohol is considered contaminated and shall be disposed of.

Use leak detection compound sparingly to avoid penetration and contamination of the oxygen system.

11. Using leak detection compound, ensure that there is no leakage around three plugs (13, [figure 8-13](#)), plug (26), filler valve (29), and pressure gage (49). If any leakage is detected, refer to [table 8-9](#) for malfunction troubleshooting and remedies.

**Table 8-9. Troubleshooting (Post Assembly Adjustment and Leakage Test)**

Trouble	Probable Cause	Remedy
Pressure reducer outlet port leaks when in off position.	Poppet assembly leaking.	Replace seat, poppet.
Leak around pressure gage.	Loose installation or stripped threads.	Tighten or replace pressure gage.
Leak around plugs.	Bad O-ring, loose plug, stripped threads.	Replace O-ring, tighten or replace plug.
Leak around filler valve.	Loose valve or stripped threads.	Tighten or replace valve.

**NOTE**

Nitrogen supply cylinders used in testing oxygen components contain a maximum pressure of 1800 psig. For tests requiring 1800 psig, use highest pressure available, but in no case shall this pressure be less than 500 psig.

12. Using regulated nitrogen supply source, slowly increase pressure to pressure reducer assembly (1) to 1800 psig.

13. Repeat [steps 10](#) and [11](#) above.

14. Actuate manual release assembly (40, [figure 8-13](#)). Observe nitrogen input pressure gage (27) on test stand to ensure that pressure indication is 45 to 80 psig. If the nitrogen input pressure gage does not indicate 45 to 85 psig, perform [steps a](#) or [b](#) below, as applicable.

**NOTE**

When performing steps a and b, pressure reducer assembly toggle (38) must be in the up (off) position before making adjustment and in the down (on) position to check adjustment.

a. If indicated pressure is below 45 psig, use spanner wrench to turn adjusting cap (41) clockwise until 70 psig is indicated on the test stand nitrogen input pressure gage (27). Upon completion of adjustment, tighten lock ring (42).

b. If indicated pressure is above 80 psig, use spanner wrench to turn adjusting cap (41) counter clockwise until 70 psig is indicated on the test stand nitrogen input pressure gage (27). Repeat as necessary. Upon completion of adjustment, tighten lock ring (42).

15. Open vent pressure valve (H) on test stand until 100 lpm flow is indicated on vent flow manometer (3). Nitrogen input pressure gage shall indicate 45 to

80 psig. If the nitrogen input pressure gage does not indicate 45 to 80 psig, perform [step 14a](#) or [14b](#) above, as necessary.

16. Vent pressure regulator until regulated nitrogen supply source to pressure reducer assembly (1) is 250 psig.

17. With 100 lpm flow still indicated on test stand vent flow manometer (3), nitrogen input pressure gage (27) shall indicate 45 to 80 psig. If the input pressure gage does not indicate 45 to 80 psig, perform [step 14a](#) or [14b](#), above as necessary.

18. Close test stand vent pressure valve (H). Nitrogen input pressure gage (27) shall indicate 45 to 80 psig. If 45 to 80 psig is not indicated perform [step 14a](#) or [14b](#), as necessary.

19. Secure regulated nitrogen supply source to pressure reducer assembly (1). Open system bleed valve(s) and bleed pressure from the test stand.

20. Secure all test stand valves and disconnect pressure reducer assembly (1) from regulated nitrogen supply source and test stand.

21. Remove plugs (P/N EW61001) and O-rings (MS28778-03) (two places) from oxygen supply cylinder ports of pressure reducer housing (1).

22. Apply Krytox 240 AZ to O-rings (13) and install O-rings on nipple unions (12).

23. Apply anti-seize tape to threads on opposite end (cylinder end) of nipple unions (12).

24. Install O-ring side of nipple union (12) in supply cylinder ports of pressure housing (1).

25. Install oxygen supply cylinders (11) on nipple unions (12).

26. Position pressure reducer assembly, with oxygen supply cylinders (11, [figure 8-13](#)) attached, in bracket assembly (51).

27. Ensure bottom of cylinders (11) extends 5/16 inch below bracket assembly (51) and heads of screws (52) are positioned 1/2 inch from edge of bracket assembly (51) (figure 8-12).

28. Tighten screws (52) to secure unit in bracket assembly.

29. Stow manual release assembly (40) in clamp (54) and secure with screw (56) and locknut (55).

30. Perform bench test on complete assembled E-2C emergency oxygen system in accordance with paragraph 8-31.

37. Screw high pressure hose (2) and adapter (3) onto elbow (7) and tighten seal nut (3).

38. Attach small diameter end of low pressure hose (9) to CRU-79/P oxygen regulator (5) outlet and secure tightly with strap tie (8) or clamp (8).

39. Attach hook fastener attachment loop (57) around low pressure hose (9).

40. Attach adapter (10) to low pressure hose (9) and secure tightly with strap tie (8) or clamp (8).

**NOTE**

Elbow (6), CRU-79/P regulator (5), and hose (9) will be installed on the E-2C emergency oxygen system at the completion of bench test.

31. Apply antiseize tape to tapered pipe threads of elbow (6) and install elbow (6) into pressure reducing housing (1) at approximately 45 degree angle.

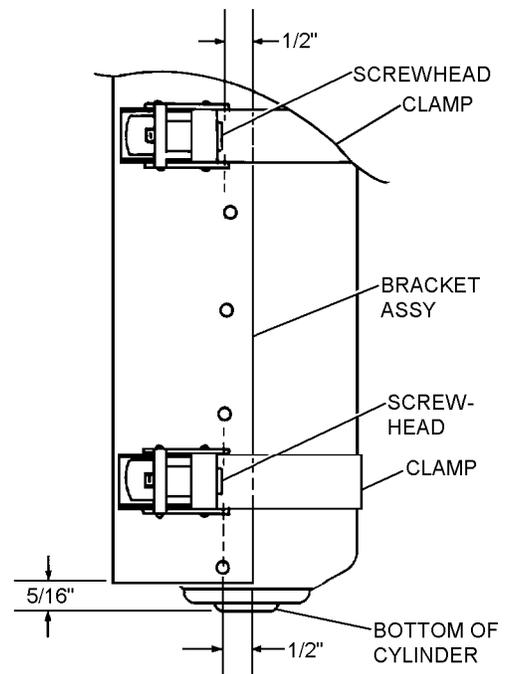
32. Screw high pressure hose (2) on to elbow (6).

33. Screw seal nut (4) onto tapered pipe thread end of adapter (3), then apply antiseize tape to tapered pipe threads of adapter (3).

34. Screw nipple end of adapter (3) onto high pressure hose (2).

35. Screw seal nut (4) onto tapered pipe threads of elbow (7), then apply antiseize tape to tapered pipe threads of adapter (7).

36. Screw adapter (7) into CRU-79/P oxygen regulator (5) with female end centered facing up towards top of regulator (5). Tighten seal nut (4) down on regulator (5).



008012

**Figure 8-12. Bracket Assembly Installation Dimensions**

**Section 8-5. Illustrated Parts Breakdown**

**8-54. GENERAL.**

8-55. This section provides an illustrated parts breakdown of the assemblies and detail parts of the Emergency Oxygen System (P/Ns 269D200-3 and 269D200-5).

8-56. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.

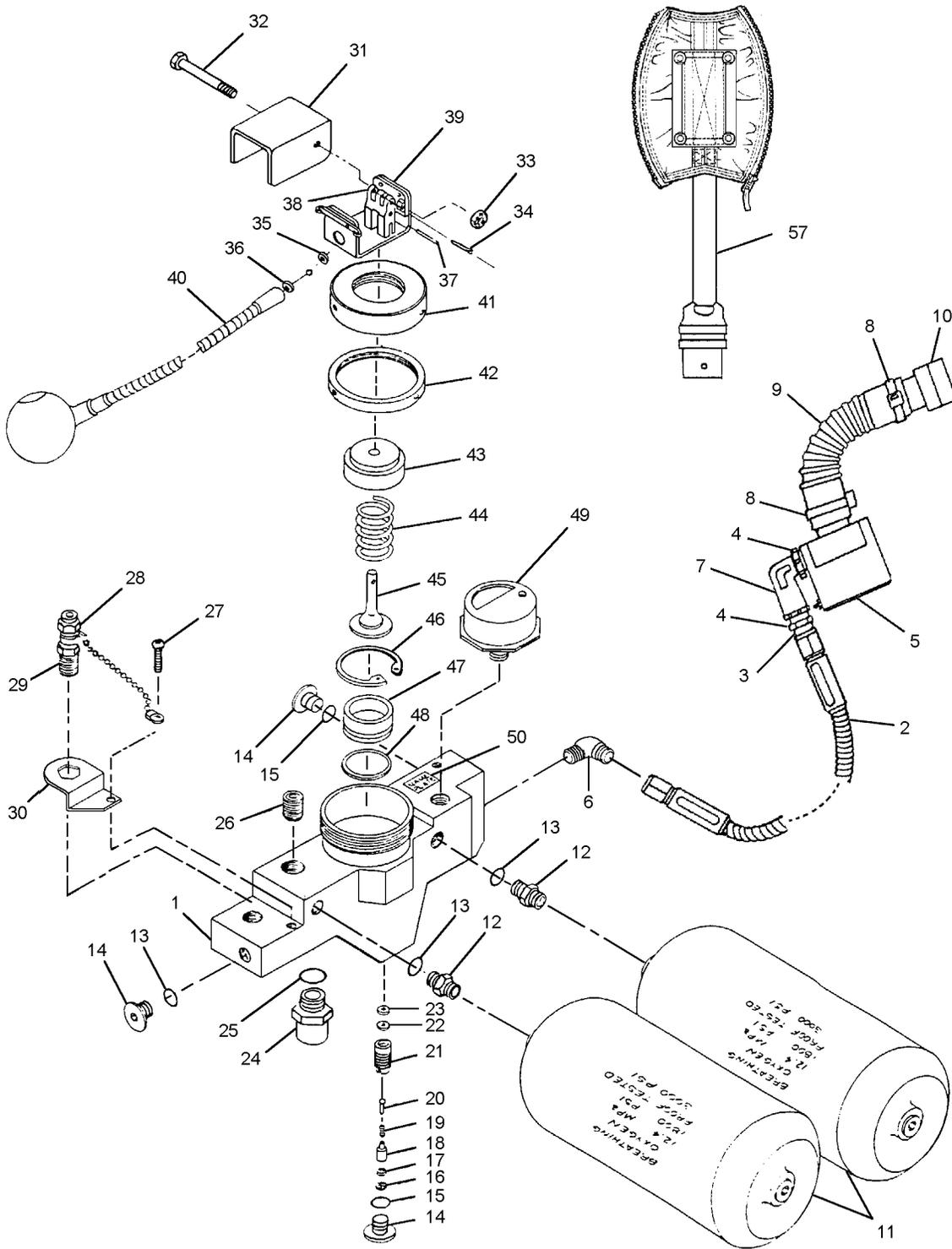
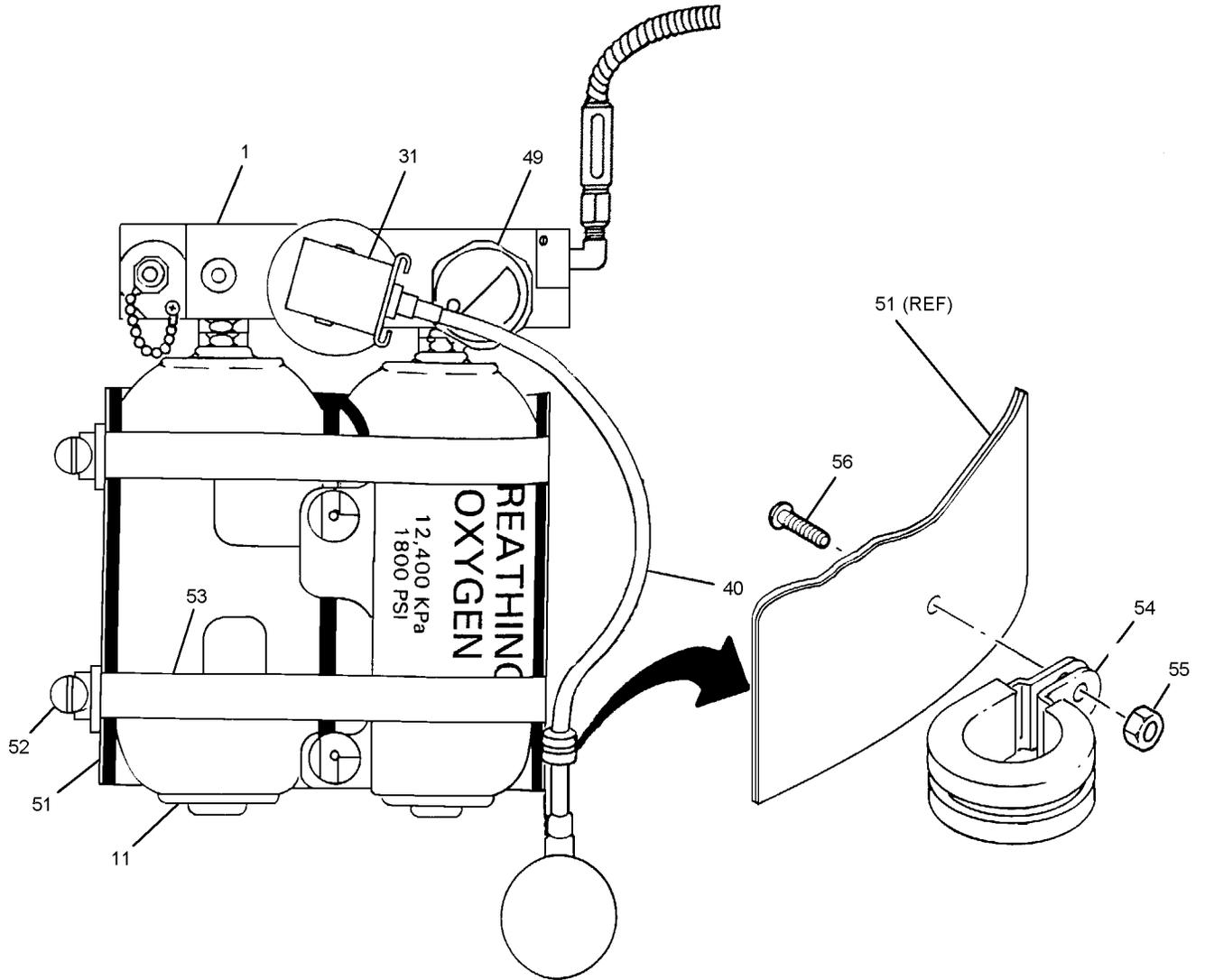


Figure 8-13. E-2C Emergency Oxygen System Installation (Sheet 1 of 2)

00801301



(ASSEMBLED WITH BRACKET ASSEMBLY)

00801302

Figure 8-13. E-2C Emergency Oxygen System Installation (Sheet 2 of 2)

NAVAIR 13-1-6.4-1

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
8-13	269D200-3	E-2C EMERGENCY OXYGEN SYSTEM . . . . .	REF	A
	269D200-5	E-2C EMERGENCY OXYGEN SYSTEM . . . . .	REF	B
-1	269J811-11	. HOUSING, Pressure Reducer . . . . .	1	
-2	33C1204-080	. HOSE, High Pressure (28445) . . . . .	1	A
	EW65004	. HOSE, High Pressure . . . . .	1	B
-3	AN816-5D	. ADAPTER, Straight, Pipe-to-Tube . . . . .	1	
-4	B122-2P2	. SEAL NUT (00-715-2761) . . . . .	2	A
	269C321-11	. SEAL NUT . . . . .	2	B
-5	CRU-79/P	. REGULATOR, Oxygen, Model . . . . . 3260024-0101 (99251)	1	
-6	MS20822-5D	. ELBOW, Pipe-to-Tube . . . . .	1	
-7	AN914-1D	. ELBOW, Pipe . . . . .	1	
-8	MS3367-1-0	. STRAP, Tie Down . . . . .	2	
-9	HC224-12-14-4	. HOSE ASSEMBLY, Low pressure (13560) . . . . .	1	A
	EW65005	. HOSE ASSEMBLY, Low pressure . . . . .	1	B
-10	EW81002	. ADAPTER ASSEMBLY . . . . .	1	
-11	235D300-3	. OXYGEN CYLINDER ASSEMBLY . . . . .	2	
-12	266B830-11	. NIPPLE, Union . . . . .	2	
-13	MS9068-011	. O-RING . . . . .	2	
-14	EW61001	. PLUG . . . . .	3	
-15	MS28778-03	. O-RING . . . . .	3	
-16	MS16625-4025	. RING, Retaining . . . . .	1	
-17	102B19-11	. FILTER . . . . .	1	
-18	102B818-11	. GUIDE, Poppet . . . . .	1	
-19	102B814-11	. SPRING, Poppet . . . . .	1	
-20	102B817-11	. POPPET . . . . .	1	
-21	102C815-11	. RETAINER . . . . .	1	
-22	102B828-11	. STOP, Backup Ring . . . . .	1	
-23	102B816-11	. SEAT . . . . .	1	
-24	EW63004	. RELIEF VALVE . . . . .	1	
-25	MS9068-012	. O-RING . . . . .	1	
-26	MS27769-52	. PLUG . . . . .	1	
-27	MS51957-26	. SCREW . . . . .	1	
-28	269B280-1	. CAP ASSEMBLY, Filler . . . . .	1	
-29	221B380-1	. FILLER VALVE ASSEMBLY (REPL valve . . . . . core with MIL-V-8965)	1	
-30	226C870-13	. SHIELD, Toggle . . . . .	1	
-31	269D821-11	. SHIELD, Toggle . . . . . (ATTACHING PARTS)	1	
-32	MS51957-21	. SCREW . . . . .	1	
-33	EW42017	. NUT . . . . . ---*---	1	
-34	MS24665-83	. COTTER, Pin . . . . .	1	
-35	221B368-15	. NUT . . . . .	1	
-36	221B368-15	. NUT . . . . .	1	
-37	MS171435	. SPRING, Pin . . . . .	1	
-38	269C303-11	. TOGGLE . . . . .	1	
-39	269D820-11	. SPACER ASSEMBLY . . . . .	1	

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
8-13-40	269D360-3	.	RELEASE ASSEMBLY, Manual	.					1	
-41	233C829-11	.	CAP, Adjusting	.					1	
-42	233C830-11	.	LOCKRING	.					1	
-43	233C820-11	.	GUIDE, Piston	.					1	
-44	233B831-11	.	SPRING	.					1	
-45	102C824-11	.	PLUNGER	.					1	
-46	EW48001	.	RING, Retaining	.					1	
-47	102C821-11	.	PISTON	.					1	
-48	MS28775-117	.	O-RING	.					1	
-49	EW68001	.	GAGE, Pressure	.					1	
-50	269D423-11	.	NAME PLATE	.					1	
-51	123AB50526	.	BRACKET ASSEMBLY (FMSC)	.					1	
-52	NO NUMBER	.	SCREW	.					2	
-53	GC501S64	.	CLAMP, Hose	.					2	
-54	MS21919WDG4	.	CLAMP, Loop	.					1	
			(ATTACHING PARTS)							
-55	22NKTM-02	.	NUT, Self Locking	.					1	
-56	MS24694-S47	.	SCREW, Machine, Flush Head	.					1	
			---*---							
-57	—	.	HOOK FASTENER ATTACHMENT LOOP	.					1	

(Not E2)

- Notes: 1. Deleted.  
 2. Regulator Pocket is manufactured IAW NAVAIR 13-1-6.7-4. Attachment hoop is sewn to inside bottom of pocket with cross box stitch.

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code	Part Number	Figure and Index Number	SM&R Code
AN816-5D	8-13-3	PAOZZ	102B816-11	8-13-23	PAGZZ
AN914-1D	8-13-7	PAOZZ	102B817-11	8-13-20	PAGZZ
B122-2P2	8-13-4	PAOZZ	102B818-11	8-13-18	PAGZZ
CRU-79/P	8-13-5	PAGZZ	102B828-11	8-13-22	PAGZZ
EW42017	8-13-33		102C815-11	8-13-21	PAGZZ
EW48001	8-13-46		102C821-11	8-13-47	PAGZZ
EW61001	8-13-14	PAGZZ	102C824-11	8-13-45	PAGZZ
EW63004	8-13-24	PAGZZ	123AB50526	8-13-51	
EW65004	8-13-2	PAGZZ	22NKTM-02	8-13-55	PAOZZ
EW65005	8-13-9	PAGZZ	221B368-15	8-13-35	
EW68001	8-13-49	PAGZZ		8-13-36	
EW81002	8-13-10	PAGZZ	221B380-1	8-13-29	PAGGG
GC501S64	8-13-53	PAOZZ	233B831-11	8-13-44	PAGZZ
HC224-12-14-4	8-13-9	PAOZZ	233C820-11	8-13-43	PAGZZ
MS16625-4025	8-13-16	PAGZZ	233C829-11	8-13-41	PAGZZ
MS171435	8-13-37	PAOZZ	233C830-11	8-13-42	PAGZZ
MS208-5D	8-13-6	PAOZZ	235D300-3	8-13-11	PAGDD
MS21919WDG4	8-13-54	PAOZZ	266B830-11	8-13-12	PAGZZ
MS24665-83	8-13-34	PAOZZ	266C870-13	8-13-30	PAGZZ
MS24694-S47	8-13-56	PAOZZ	269B280-1	8-13-28	
MS27769-52	8-13-26		269C303-11	8-13-38	PAGZZ
MS28775-117	8-13-48	PAGZZ	269C321-11	8-13-4	PAGZZ
MS28778-03	8-13-15	PAGZZ	269D200-3	8-13	
MS3367-1-0	8-13-8	PAOZZ	269D200-5	8-13	
MS51957-21	8-13-32	PAOZZ	269D360-3	8-13-40	
MS51957-26	8-13-27	PAOZZ	269D423-11	8-13-50	
MS9068-011	8-13-13	PAOZZ	269D820-11	8-13-39	
MS9068-012	8-13-25	PAOZZ	269D821-11	8-13-31	
NO NUMBER	8-13-52		269J811-11	8-13-1	
102B19-11	8-13-17		33C1204-080	8-13-2	PAGZZ
102B814-11	8-13-19	PAGZZ			