CHAPTER 5

MINIATURE OXYGEN BREATHING REGULATORS

TYPE CRU-79/P

Section 5-1. Description

5-1. GENERAL.

5-2. Miniature Oxygen Breathing Regulator, Model 29267-A1 is manufactured by Litton Life Support, formerly Bendix Aviation Corp. (CAGE 99251) and Model 3260024-0101 is manufactured by Litton Life Support, formerly Clifton Precision (CAGE 99251) (figure 5-1). Model 900-002-025-05 is manufactured by Robertshaw Controls Co. (CAGE 00543) and Sabre Industries (CAGE 27045 figure 5-2). Model F2700-200C is manufactured by Carleton Technology Inc., formerly Aro Corp. (CAGE 97413) (figure 5-3). Model 900-002-025-07 is manufactured by Sabre Industries (CAGE 27045) (figure 5-4). They are designed to regulate 100% oxygen to the aircrewmember during flight. Table 5-1 contains the leading particulars for the regulators.

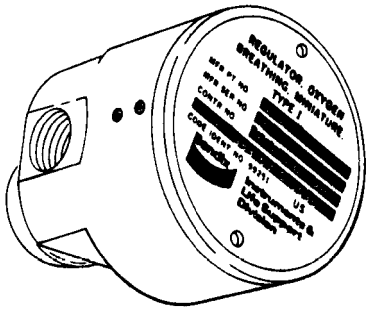

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Figure 5-1. Miniature Oxygen Breathing Regulator, Model 29267-A1/3260024-0101

Table 5-1. Leading Particulars

Recommended Inlet Pressure . . .	40 to 120 psig
Flow	0 to 100 lpm
Operating Altitude Range	0 to 50,000 feet
Operating Temperature Range . .	-65°F to +160°F
Weight	5.0 ounces max

WARNING

At no time shall operational altitude exceed 50,000 feet.

5-3. The miniature regulator reduces and regulates supply oxygen pressure for breathing of 100 percent oxygen. The safety-pressure feature automatically maintains a positive pressure in the mask of 0.50 to 2.5 inches of water at all altitudes up to and including 30,000 feet. The pressure-breathing feature maintains a positive pressure in the mask of up to 20.0 inches of water at altitudes between 34,000 and 50,000 feet, with the positive pressure increasing in proportion to the altitude. Miniature regulators can be used routinely up to approximately 45,000 feet. However, due to human limitations, miniature regulators shall not be used above 50,000 feet except for very short periods.

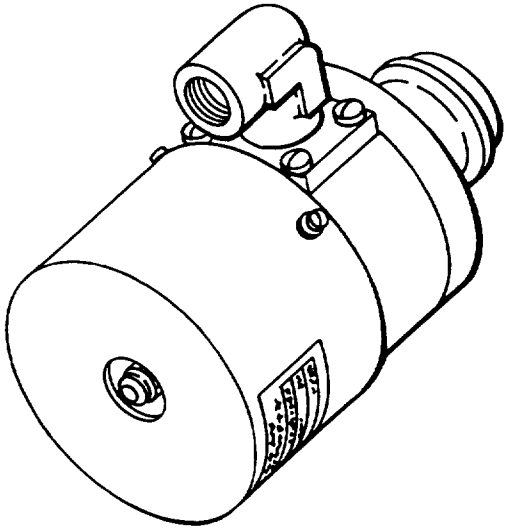

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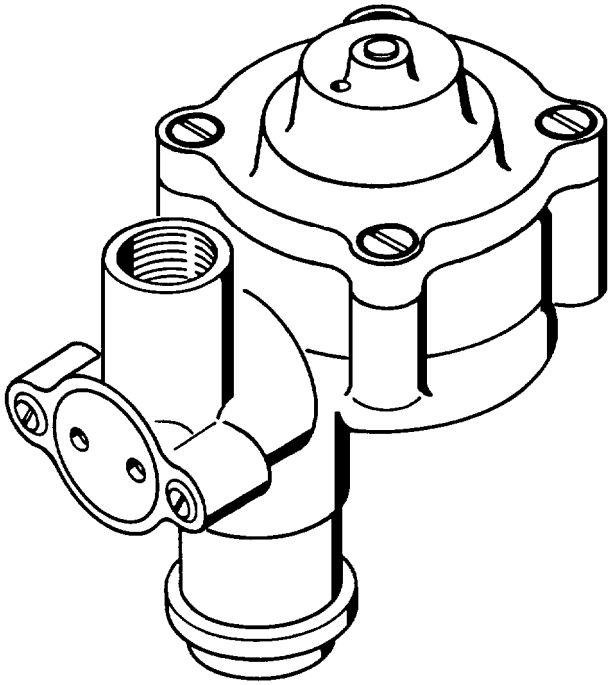
Figure 5-2. Miniature Oxygen Breathing Regulator, Model 900-002-025-05



005003

Figure 5-3. Miniature Oxygen Breathing Regulator, Model F2700-200C

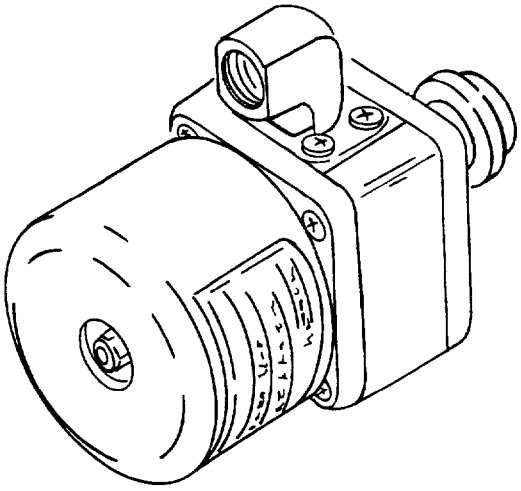


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Figure 5-4. Miniature Oxygen Breathing Regulator, Model 900-002-025-07

5-4. CONFIGURATION.

5-5. Miniature regulators are designed for use with the MBU-14 Series oxygen mask as part of the oxygen system in all aircraft requiring 100% oxygen chest mounted regulators. Refer to NAVAIR 13-1-6.7-3 for personal configurations of the MBU-14 Series oxygen masks.

Section 5-2. Modifications

5-6. GENERAL.

5-7. There are no modifications to the Type CRU-79/P regulators required/authorized at this time.

Section 5-3. Performance Test Sheet Preparation

5-8. GENERAL.

5-9. Preparation of the Oxygen Regulator Performance Test Sheet utilized during bench tests requires that through the use of various graphs, actual flows provided in this section be converted to indicated flows. Flows are stated in liters per minute (lpm) and are not measurable by the manometers used in oxygen regulator test stands. The flows must be converted to inches of water pressure (inH_2O), the form of measurement which can be read on the test stand manometers. Zero lpm flows do not require conversion, as 0 lpm = 0 inH_2O.

NOTE

The various graphs supplied with each Oxygen System Components Test Stand, Model 1172AS100 or 1316AS100 are used in converting flows. The graphs supplied are not interchangeable between test stands. The regulators deliver 100 percent oxygen at all times. Therefore only the nitrogen (N_2) line on the Output Graph for the specified altitude will be used.

5-10. The Performance Test Sheet will be prepared as shown in figure 5-5. The Performance Test Sheet is a sample only, but may be reproduced for local use.

5-11. The following tests require conversion of flow from actual lpm to indicated inH_2O:

1. Safety Pressure Test.
2. Pressure Breathing Test.

5-12. REGULATOR PERFORMANCE TESTS.

5-13. SAFETY PRESSURE TEST. To convert the 100 lpm flow, proceed as follows:

1. Using the Sea Level Output Graph, locate the 100 lpm line on the bottom of the graph, and trace the line up to where it intersects the N_2 line.
2. Trace the line from the point of intersection across the graph to the left hand column to determine inH_2O.
3. Enter this figure in the appropriate block of the 100 lpm column on the Performance Test Sheet.

REGULATOR PERFORMANCE TEST SHEET

MINIATURE OXYGEN BREATHING REGULATORS
TYPE CRU-79/P

DATE _____ TYPE _____ SERIAL NO. _____

TEST STAND SERIAL NO. _____ TEST STAND OPERATOR: _____ CDI _____

1. OVERLOAD TEST: (MODELS 29267-A1, 3260024-0101, AND F2700-200C ONLY) 25 INH_2O (1.85 INHg) HOLD FOR 2 MINUTES. NO DAMAGE TO REGULATOR ALLOWED
   A. MODEL 29267-A1/3260024-0101 ALLOWABLE LEAKAGE 600 CCM: _____
   B. MODEL F2700-200C ALLOWABLE LEAKAGE 1750 CCM: _____
2. BODY LEAKAGE TEST (MODELS 900-002-025-05 AND 900-002-025-07 ONLY) 10 INH_2O NO LEAKAGE ALLOWED: _____
3. DEMAND VALVE LEAKAGE TEST: 110 PSIG INLET PRESSURE. OUTLET PRESSURE NOT TO EXCEED 2.50 INH_2O IN 5 MINUTES _____
4. SAFETY PRESSURE TEST: READING MUST BE BETWEEN 0.50 AND 2.50 INH_2O

ALTITUDE (FEET)	INLET PRESS (PSIG)	0 LPM FLOW (INH_2O)	READING	100 LPM FLOW (INH_2O)	READING
SEA LEVEL	40	0			
SEA LEVEL	80	0			
30,000	40	0			
30,000	80	0			

5. PRESSURE BREATHING TEST: (MODELS F2700-200C, 29267-A1, 3260024-0101, AND 900-002-025-05 ONLY)

ALTITUDE (FEET)	INLET PRESS (PSIG)	0 LPM FLOW (INH_2O)	READING	100 LPM FLOW (INH_2O)	READING	OUTLET PRESSURE (INH_2O)	
						MIN	MAX
34,000	80	0				1.0	3.7
40,000	80	0				8.0	10.5
45,000	80	0				13.0	16.0
50,000	80	0				16.0	20.0

Figure 5-5. Regulator Performance Test Sheet (Sheet 1 of 2)

6. PRESSURE BREATHING TEST: (MODEL 900-002-025-07 ONLY.)

ALTITUDE (FEET)	INLET PRESS (PSIG)	0 LPM FLOW (INH_2O)	READING	100 LPM FLOW (INH_2O)	READING	OUTLET PRESSURE (INH_2O)	
						MIN	MAX
35,000	80	0				0.5	30.0
40,000	80	0				5.0	9.5
45,000	80	0				10.5	15.5
50,000	80	0				14.0	20.0

7. REGULATOR OXYGEN PURGE: APPLY 90 PSIG, AVIATORS BREATHING OXYGEN AND FLOW 1 TO 3 MINUTES. ■

Figure 5-5. Regulator Performance Test Sheet (Sheet 2 of 2)

NOTE

For test stands provided with only one Output Graph for all altitudes, use appropriate altitude N_2 line.

4. Convert the 100 lpm flow for 30,000 feet using applicable altitude Output Graph N_2 line and same procedures as in steps 1 through 3.

5-14. PRESSURE BREATHING TEST. To convert the 100 lpm flows, proceed as follows:

1. Using the 34,000-foot Output Graph (35,000-foot graph for model 900-002-025-07 only), locate the 100 lpm line on the bottom of the graph and trace the line up to where it intersects the N_2 line.

2. Trace the line from the point of intersection across the graph to the left-hand column, and determine inH_2O.

3. Enter this figure in the appropriate block of the 100 lpm column on the Performance Test Sheet.

NOTE

For test stands provided with only one Output Graph for all altitudes, use appropriate altitude N_2 line.

4. Repeat steps 1 through 3 for 40,000, 45,000 and 50,000 foot 100 lpm flows.

Section 5-4. Maintenance

5-15. GENERAL.

5-16. Maintenance of the Miniature Oxygen Regulator Type CRU-79/P is limited to inspection, testing, adjustment of the pressure breathing aneroid, and tightening of loose screws. Ensure that anti-seize tape (MIL-T-27730) is used on pipe threads. This section contains only the procedural steps necessary to meet these requirements.

NOTE

Upon completion of any maintenance action (e.g. inspection, adjustment, modification, etc.) make necessary entries on appropriate forms in accordance with OPNAVINST 4790.2 Series.

Prior to disposing of Type CRU-79/P Oxygen Regulators, remove pressure breathing aneroid, breathing diaphragm, and all screws. Retain all serviceable removed parts, for limited repair action to CRU-79/P Oxygen Regulators, under the guidelines established in OPNAVINST 4790.2 Series.

5-17. If the regulator fails any inspection or testing requirements, it shall be disposed of in accordance with local directives and replaced with a ready for issue (RFI) component.

5-18. The regulator shall remain in service as long as it continues to function correctly and does not require other than authorized adjustment.

5-19. 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.

5-20. INSPECTION.

5-21. DAILY/PREFLIGHT INSPECTIONS. The Daily/Preflight Inspection is a Visual Inspection performed by the aircrewmember to whom the regulator is passed, daily or prior to each flight. To perform the inspection, visually inspect the following:

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 may result when even slight traces of combustible material come in contact with oxygen under pressure.

1. Inlet and outlet connections for security of attachment. Ensure that all clamps, locknuts, fittings and screws are tight.

2. Regulator body for dents, scratches, corrosion, condition of nameplate, cracks, or any other damage.

3. Perform a functional test in accordance with paragraph 5-23, steps 2, 3, and 4.

5-22. If discrepancies are found or suspected, the regulator shall be taken to the Aviator's Equipment Branch for the required corrective maintenance action.

NOTE

All equipment forwarded from the Organizational Level maintenance to the Intermediate Level shall be accompanied by the appropriate forms in accordance with OPNAVINST 4790.2 Series. The test stand operator and CDI shall sign the Performance Test Sheet, and the original or a copy shall be forwarded to the organizational custodian. Upon completion of the bench test and/or Calendar Inspection, the organizational custodian shall retain the appropriate forms in accordance with OPNAVINST 4790.2 Series.

5-23. SPECIAL INSPECTIONS. Special Inspections are required at specified intervals in addition to the Daily/Preflight or Calendar Inspections. The interval for miniature oxygen regulators is 30 days. This inspection consists of a Visual Inspection and a Functional Test, both performed by personnel of the Aviator's Equipment Branch. To perform the Special Inspection, proceed as follows:

Materials Required

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

1. Visually inspect the regulator in accordance with paragraph 5-21.

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.

2. Perform the Functional Test by attaching the miniature regulator, delivery tube and mask assembly to a suitable oxygen supply source. Use regulator-to-seat kit hose for attachment.

3. Turn supply source on. There should be a flow of oxygen through the mask.

NOTE

Resistance during exhalation is due to positive pressure feature of the regulator.

4. Don mask and breathe. There should be a slight resistance on exhalation.

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

5-24. CALENDAR INSPECTION.

5-25. The Calendar Inspection shall be performed on all miniature regulators upon issue prior to being installed in an inservice personal oxygen configuration, and shall be performed on all miniature regulators in service at least every 90 days.

5-26. The Calendar Inspection consists of a Visual Inspection and a Bench Test. All work shall be performed in a clean, dust-free and oil-free area.

5-27. Visual Inspection. To visually inspect the miniature regulator, 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

1. Disconnect the communication connectors.

2. Loosen hose clamp securing regulator outlet to mask delivery hose; and remove regulator from hose. Retain hose clamp.

3. Loosen locknut and remove regulator-to-seat kit hose from regulator inlet.

4. Inspect regulator inlet and outlet for foreign objects, dirt, corrosion, dents, cracks and other damage.

5. Carefully remove inlet filter screen and flush clean with water. Blow-dry screen with water pumped nitrogen and reinstall in regulator inlet.

6. Inspect regulator body for dents, cracks, corrosion, condition of nameplate, security of screws and fittings, and for other obvious damage.

5-28. Miniature regulators failing the Visual Inspection or the Bench Test (paragraph 5-29) shall be disposed of in accordance with local directives.

5-29. BENCH TEST.

WARNING

Because of possible vacuum pump explosion, only water-pumped nitrogen, Type I, Class 1, Grade B (Fed Spec BB-N-411) shall be used in testing oxygen regulators.

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

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.

5-30. 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. Utilize Performance Test Sheet when performing bench test (figure 5-5).

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 Hose Assembly listed in NAVAIR 17-15BC-21, WP031 00, Figure 1 or Figure 2 is attached to N_2 Input Connection (18) or Tee Connection (28) in altitude chamber as applicable for the oxygen regulator being tested. Remove hose assembly not being used and cap connection (18) or (28) when not in use. For regulators requiring inlet pressures greater than 175 psig, the High Pressure Hose Assembly in NAVAIR 17-15BC-21, WP031 00, Figure 1 shall be used.

5-31. OVERLOAD TEST. (Models 29267-A1, 3260024-0101, and F2700-200C only.) To perform the Overload Test, 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	Oxygen System Components Test Stand	1172AS100 or 1316AS100

1. Cap the regulator inlet and attach regulator outlet to the short hose attached to piezometer (26) in the chamber. Ensure all test stand valves are in the secured position, then open the N_2 supply cylinder valve.

NOTE

Ensure regulator outlet and piezometer (26) are one inch apart.

2. Using hose supplied with test stand, connect LOW PRESS. connection (19) to REF. TAP connection (21) in the chamber.

3. Ensure FLOW SELECTOR valve (M) is in REGULATOR position.

4. Adjust LOW PRESS. REGULATOR (N) so that REGULATED LOW PRESS gage (11) indicates 70 psig.

NOTE

When the in-system leakage rotameters are used, an inlet pressure of 70 psig will normally be used, as this is the pressure used to calibrate the rotameters.

5. Place PRESS. SELECTOR valve (D) in the Hg position.

6. Slowly open LEAKAGE CONTROL valve (E) until 1.85 inHg is indicated on Hg manometer (5). Maintain 1.85 inHg for two minutes.

7. If no leakage is indicated on HIGH RANGE LEAKAGE rotameter (B), turn LEAKAGE SELECTOR valve (F) to LOW RANGE position and check for leakage on LOW RANGE LEAKAGE rotameter (7). Maximum allowable leakage shall be no more than the allowable leakage for each model shown on the performance test sheet.

8. If leakage is excessive dispose of the regulator in accordance with local directives.

9. Close LEAKAGE CONTROL valve (E). Leave position of all other controls and connections unchanged.

5-32. BODY LEAKAGE TEST (MODELS 900-002-025-05 AND 900-002-025-07 ONLY). To perform the Body Leakage Test, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As required	Compound, Leak Detection Type 1	MIL-L-25567
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	Oxygen System Components Test Stand	1172AS100 or 1316AS100

WARNING

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.

1. Cap regulator inlet.

NOTE

This regulator does not require the use of a piezometer restrictor for bench testing.

Ensure regulator outlet and piezometer (26) are one inch apart.

2. Attach regulator outlet to the short hose attached to piezometer (26) in the chamber. Ensure all test stand valves are in the secured position, then open N_2 supply cylinder valve.

3. Adjust LOW PRESS. REGULATOR (N) so that REGULATED LOW PRESS. gage (11) indicates 70 psig.

CAUTION

Do not turn PRESS. SELECTOR valve (D) to H_2O position if pressure is indicated on Hg manometer (5). If pressure is indicated open OUTPUT valve (C) to relieve pressure.

4. Ensure FLOW SELECTOR valve (M) is in REGULATOR position. Slowly turn PRESS. SELECTOR valve (D) to H_2O position.

5. Using line supplied with test stand, connect low pressure connection (19) to REF. TAP connection (21) in the altitude chamber.

6. Slowly open leakage control valve (E) to maintain 10.0 inH_2O pressure to regulator outlet as indicated on PRESS./SUCTION manometer (4).

NOTE

Disregard leakage indicated on leakage rotameters 7 and 8 when performing step 7. This is a controlled bleed coming through an orifice in the diaphragm and exiting the regulator through the holes in the aneroid protective cover.

7. Apply leak detection compound (MIL-L-25567, Type I) to the seam joining the outlet fitting to the regulator body. There shall be no leakage.

8. If leakage is indicated, dispose of the regulator in accordance with local directives.

9. Close leakage control valve (E) and disconnect line from low pressure connection (19) and REF. TAP and connection (21).

5-33. DEMAND VALVE LEAKAGE TEST. To perform the Demand Valve Leakage Test, 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	Oxygen System Components Test Stand	1172AS100 or 1316AS100

WARNING

Never block the outlet of the miniature regulator while a pressure is applied to the inlet. This will seriously damage the regulator.

NOTE

If high reading is encountered during this test, make sure pressure breathing aneroid is not screwed into regulator housing too far before disposing of the regulator. Turn pressure breathing aneroid counterclockwise out of regulator housing and recheck readings.

1. Disconnect hose from LOW PRESS. connection (19) and REF. TAP connection (21) in altitude chamber.

2. Uncap regulator inlet and connect regulator inlet to N_2 INPUT connection (18) in altitude chamber.

3. Place PRESS. SELECTOR valve (D) in Hg position.

4. Turn vacuum pump on.

5. Turn INLET PRESS. ON/OFF valve (L) to ON slowly.

6. Using LOW PRESS. REGULATOR (N), apply 110 psig to idle regulator inlet. Pressure will be indicated on N_2 INPUT PRESS. gage (27).

7. Open OUTPUT valve (C) to draw a flow through regulator, then close valve (C).

8. Place PRESS. SELECTOR valve (D) inH2O position.

9. Observe PRESS./SUCTION manometer (4) for five minutes. Pressure must not exceed 2.5 inH_2O. After the five minute period, read manometer (4) and enter reading in appropriate block on Performance Test Sheet.

10. If leakage is excessive dispose of regulator in accordance with local directives.

11. Leave position of all controls and connections unchanged.

5-34. SAFETY PRESSURE TEST. To perform the Safety Pressure Test, 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	Oxygen System Components Test Stand	1172AS100 or 1316AS100

NOTE

If high reading is encountered during this test, make sure pressure breathing aneroid is not screwed into regulator housing too far before disposing of the regulator. Refer to pressure breathing troubleshooting table 5-2, figure 5-7 (Model 29267-A1), figure 5-8 (Model 3260024-0101), figure 5-9 (Model F2700- 200C), figure 5-10 (Model 900-002-025-05), and figure 5-11 (Model 900-002-025-07) for adjustment of the pressure breathing aneroids.

To slow down ascents in altitude chamber during the following tests, install a restrictor in the BYPASS port (BP). Restrictor can be fabricated locally by drilling a 1/4 inch hole in center of a plug made to fit the bypass opening. When ascending to altitude open and maintain an output flow of 3.0 inH_2O.

Open flutter dampener valve (J) 1/4 turn. When ascending to altitude, open and maintain an output flow of 3.0 inH_2O.

1. Adjust LOW PRESS. REGULATOR (N) to 40 psig as indicated on N_2 INPUT PRESS. gage (27).

CAUTION

Open FLUTTER DAMPENER valve (J) 1/4 turn. If regulator causes fluid in PRESS./SUCTION manometer (4) to flutter, open FLUTTER DAMPENER valve (J) slowly until flutter is eliminated. If at altitude descend to sea level prior to opening valve (J) as PRESS./SUCTION manometer can be easily overloaded. When ascending to altitude maintain an output flow of 3.0 inH_2O.

NOTE

When increasing flows, inlet pressure must be adjusted to maintain correct inlet pressure on N_2 INPUT PRESS. GAGE (27).

2. With OUTPUT valve (C) closed, read PRESS./SUCTION manometer (4) and enter reading in appropriate block on Performance Test Sheet.

3. Adjust OUTPUT valve (C) to the equivalent of 100 lpm as indicated on OUTPUT manometer (1). Read safety pressure as indicated on PRESS./SUCTION manometer (4) and enter this figure on Performance Test Sheet. Safety pressure shall be not less than 0.50 nor greater than 2.5 inH_2O for all flows.

4. Adjust LOW PRESS. REGULATOR (N) to 80 psig as indicated on N_2 INPUT PRESS. gage (27).

5. Repeat steps 2 and 3.

6. Close altitude chamber door.

7. Ensure REF. PRESS SELECTOR valve (O) is in ALT. position.

NOTE

A 3.0 inH_2O flow must be drawn with OUTPUT valve (C). OPEN FLUTTER DAMPENER valve (J) 1/4 turn.

If altitude chamber is inadvertently taken above test altitudes, open chamber bleed valve (K) slowly and descend to desired altitude. Close valve (K).

8. Using VACUUM CONTROL valve (B) ascend to 30,000 feet as indicated on LOW RANGE ALTM. (13).

9. Repeat steps 1 through 5.

NOTE

If low safety pressure is encountered, dispose of the regulator in accordance with local directives.

If high safety pressure is encountered at 30,000 feet, before disposing of the regulator, ensure that pressure breathing has not cut-in before 34,000 feet giving a false indication of high safety pressure.

10. Leave position of all controls and connections unchanged, and continue to pressure breathing test.

5-35. PRESSURE BREATHING TEST. To perform the Pressure Breathing Test, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As required	Acetone	O-A-51
As required	Glyptal	1201B (CAGE 24452)
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	Oxygen System Components Test Stand	1172AS100 or 1316AS100

NOTE

If problems are encountered during this test refer to pressure breathing troubleshooting table 5-2, figure 5-7 (Model 29267-A1), figure 5-8 (Model 3260024-0101), figure 5-9 (Model F2700-200C), figure 5-10 (Model 900-002-025-05) and figure 5-11 (Model 900-002-025-07) for adjustment of the pressure breathing aneroid.

1. Open OUTPUT valve (C) and draw a flow of 3.0 inH_2O through regulator. Using VACUUM CONTROL valve (B) ascend to 34,000 feet (35,000 feet for model 900-002-025-07 only) as indicated on LOW RANGE ALTM. (13).

2. Using LOW PRESS. REGULATOR (N), adjust inlet pressure to 80 psig. Close OUTPUT valve (C).

3. Read PRESS./SUCTION manometer (4). Reading shall be between 1.0 and 3.7 inH_2O (0.5 and 3.0 inH_2O for model 900-002-025-07 only). Enter reading in appropriate block of Performance Test Sheet.

4. Adjust OUTPUT valve (C) to a flow of 100 lpm, and read PRESS./SUCTION manometer (4). Reading shall be between 1.0 and 3.7 inH_2O (0.5 and 3.0 inH_2O for model 900-002-025-07 only). Enter reading in appropriate block of Performance Test Sheet.

5. Increase altitude to 40,000 feet using VACUUM CONTROL valve (B). Altitude will be indicated on HIGH RANGE ALTM. (12).

6. Repeat steps 2 through 5. Readings on PRESS./SUCTION manometer (4) at 40,000 feet shall be between 8.0 and 10.5 inH_2O (5.0 and 9.5 inH_2O for model 900-002-025-07 only).

7. Increase altitude to 45,000 feet using VACUUM CONTROL valve (B). Altitude will be indicated on HIGH RANGE ALTM. (12).

8. Repeat steps 2 through 5. Reading on PRESS. SUCTION manometer (4) at 45,000 feet shall be between 13.0 and 16.0 inH_2O (10.5 and 15.5 inH_2O for model 900-002-025-07 only).

9. Increase altitude to 50,000 feet using VACUUM CONTROL valve (B). Altitude will be indicated on HIGH RANGE ALTM. (12).

10. Repeat steps 2 through 5. Readings on PRESS./SUCTION manometer (4) at 50,000 feet shall be between 16.0 and 20.0 inH_2O (14.0 and 20.0 inH_2O for model 900-002-025-07 only).

11. If malfunctions were noted, locate probable cause using troubleshooting chart, table 5-2. To adjust the pressure breathing aneroid refer to the applicable step, steps 16, 17, 18, or 19 for model of regulator being tested. If unable to adjust pressure breathing aneroid within tolerance, dispose of the regulator in accordance with local directives.

Table 5-2. Troubleshooting (Pressure Breathing Test)

Trouble	Probable Cause	Remedy
Pressure breathing too high at 34,000 feet (35,000 feet for model 900-002-025-07 only).	Aneroid assembly too far into regulator housing.	Adjust aneroid assembly counterclockwise.
Pressure breathing too low at 34,000 feet (35,000 feet for model 900-002-025-07 only).	Aneroid assembly too far out of regulator housing.	Adjust aneroid assembly clockwise.
Pressure breathing cannot be adjusted within limits.	Defective or damaged aneroid assembly.	Replace regulator with RFI component.

12. After completion of Pressure Breathing Test, leave OUTPUT valve (C) slightly open. Open CHAMBER BLEED valve (K) and return chamber to sea level.

13. Open chamber door and close valve (C). Turn off vacuum pump.

14. Turn INLET PRESS. ON/OFF valve (L) to OFF, and remove regulator from test stand.

15. Close N_2 supply cylinder valve and, using LOW PRESS. REGULATOR (N) and SYSTEM BLEED valve (S), relieve all pressure in the test stand. Secure all test stand valves.

16. (Model 29267-A1 Only) Prior to aneroid adjustment, remove Glyptal paint from aneroid lockscrew (figure 5-7) by applying a small amount of acetone to the aneroid lockscrew. Loosen the aneroid lockscrew using a 0.035-inch Allen wrench and adjust the aneroid assembly using retaining ring pliers in accordance with pressure breathing test troubleshooting table 5-2. When adjustment is complete tighten aneroid lockscrew and apply Glyptal to the aneroid lockscrew.

17. (Model 3260024-0101 Only) Prior to aneroid adjustment, loosen aneroid lockscrew locknut using a 3/16 inch socket wrench. Loosen the aneroid lockscrew using a 0.035-inch Allen wrench (figure 5-8). Adjust the aneroid assembly using retaining ring pliers in accordance with Pressure Breathing Test Troubleshooting table 5-2. When adjustment is complete tighten aneroid lockscrew and aneroid lockscrew locknut and apply Glyptal tamper dot to aneroid lockscrew locknut.

18. (Model F2700-200C only) using a Bristol wrench adjust the aneroid assembly (figure 5-9) in accordance with Pressure Breathing Test Troubleshooting table 5-2.

NOTE

Clockwise rotation of the aneroid assembly increases outlet pressure. Counterclockwise rotation of the aneroid assembly decreases outlet pressure. This applies to models 29267-A1 and 3260024-0101.

19. (Models 900-002-025-05/-07 only). Fit special tool (figure 5-6) on to locknut with Allen wrench seated in setscrew (figure 5-10 or 5-11, as applicable). To adjust pressure breathing outlet pressure, hold Allen wrench still and loosen locknut by turning grommet counterclockwise. Hold grommet still and rotate setscrew with Allen wrench. When adjustment is complete, hold Allen wrench still and retighten locknut by turning grommet clockwise.

5-36. REGULATOR OXYGEN PURGE. After completion of all tests, the regulator shall be purged with oxygen as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Aviator's Breathing Oxygen, Type 1	MIL-O-27210
As Required	Bag, Plastic	MIL-B-117 (CAGE 81349)

WARNING

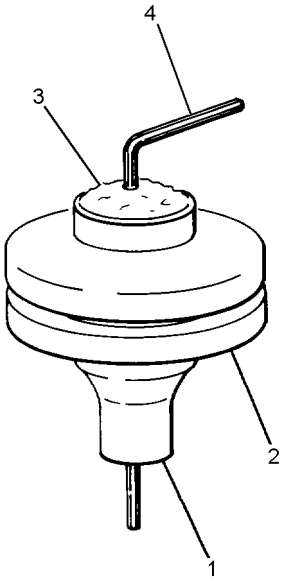
Do not use oxygen test stand to regulate the oxygen purge pressure.

1. Connect regulator inlet to a regulated source of aviator's breathing oxygen.

WARNING

Never block the outlet of the miniature regulator while pressure is applied to the inlet. This will seriously damage the regulator.

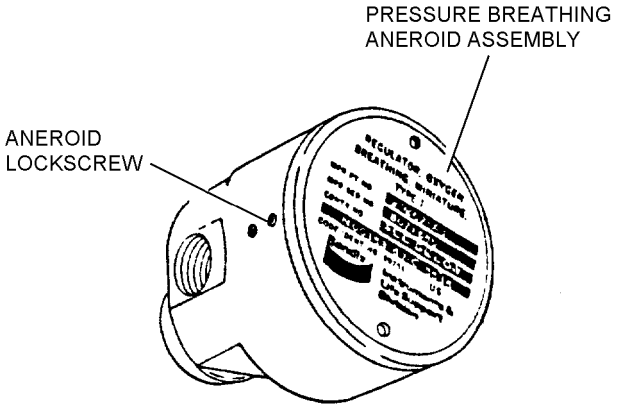
2. Apply 90 psig to regulator inlet; allow oxygen to flow 1 to 3 minutes.



ITEM NO.	DESCRIPTION	REFERENCE NUMBER	ASSEMBLY INSTRUCTIONS
1	3/16″ Socket 1/4″ drive	—	—
2	Grommet	MS35489-13 (CAGE 96906)	Insert socket into grommet
3	Silicone Adhesive	RTV102 (CAGE 01139)	Fill inside top of socket with adhesive
4	0.050-inch Allen wrench	—	Insert wrench through socket

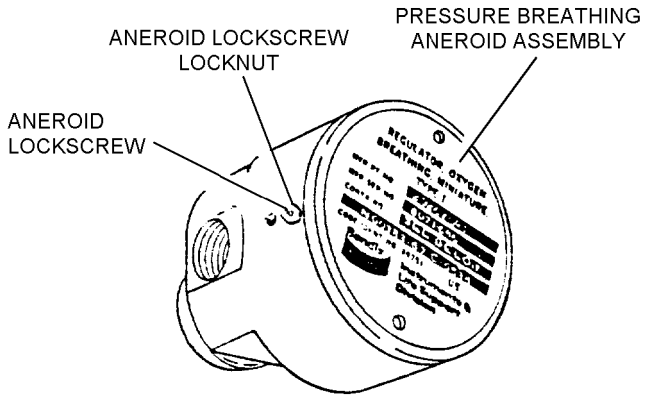
005006

Figure 5-6. Aneroid Adjustment Tool for Models 900-002-025-04/-05



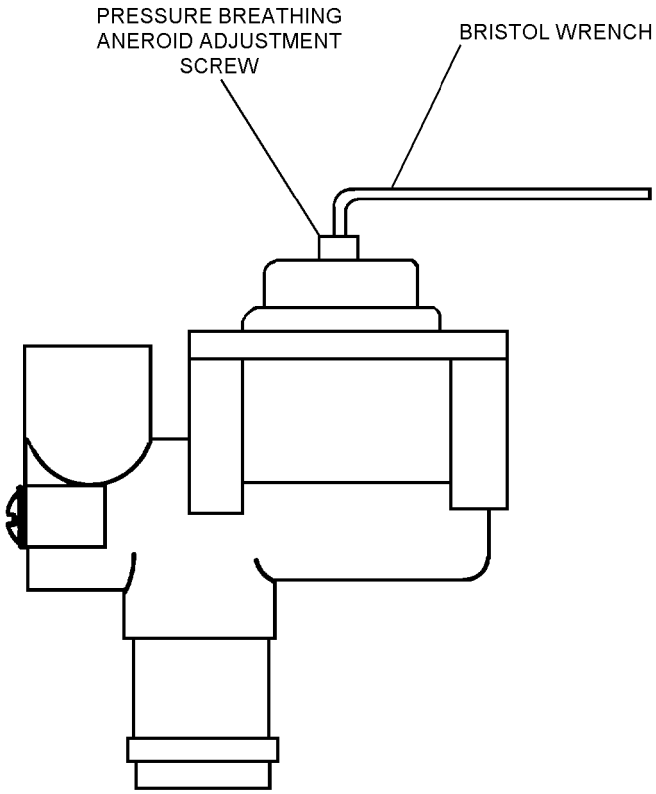
005007

Figure 5-7. Miniature Oxygen Breathing Regulator, Model 29267-A1



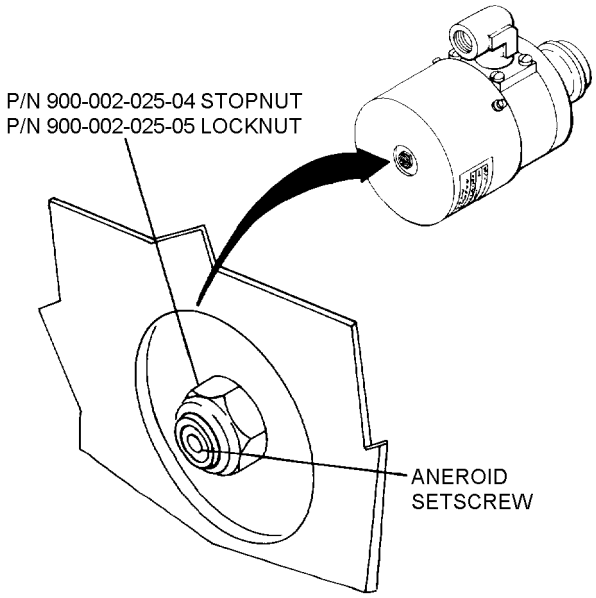
005008

Figure 5-8. Miniature Oxygen Breathing Regulator, Model 3260024-0101



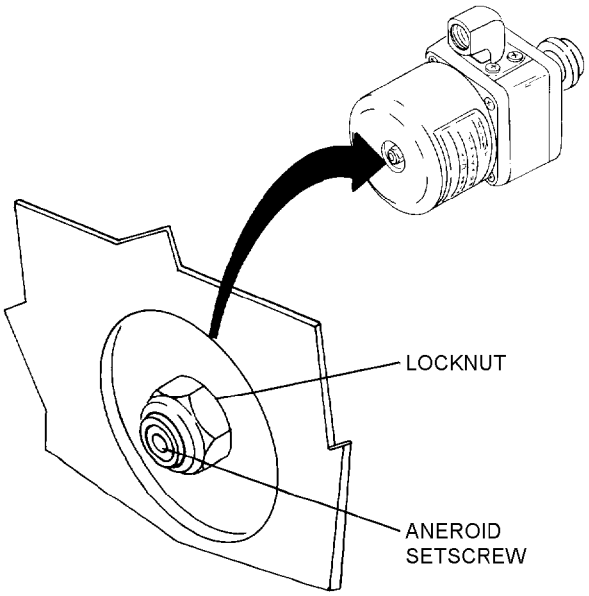
005009

Figure 5-9. Miniature Oxygen Breathing Regulator, Model F2700-200C, Pressure Breathing Aneroid Adjustment



005010

Figure 5-10. Miniature Regulator, Model 900-002-025-05, Aneroid Adjustment



005011

Figure 5-11. Miniature Regulator, Model 900-002-025-07, Aneroid Adjustment

3. Shut off oxygen source and disconnect regulator.

WARNING

Collateral duty inspectors shall make the following entry, on the appropriate form in accordance with OPNAVINST 4790.2 Series, in the local use section using red ink. WARNING: CRU-79/P, Model 900-002-025-07, (CAGE 27045) cannot be used in aircraft that have been serviced with EONS produced oxygen. Organizational Level Aircrew Life Support Equipment Division personnel shall ensure aircrew members are advised of this prior to issuing them the CRU-79/P, Model 900-002-025-07 Type Oxygen Regulator. The CRU-79/P, Model 900-002-025-07 pressure breathing schedules cannot be adjusted.

When affixing serviceable condition label to regulator, do not block pressure breathing aneroid vent holes.

NOTE

All equipment forwarded from the organizational level maintenance to the intermediate level shall be accompanied by the appropriate forms in accordance with OPNAVINST 4790.2 Series. The test stand operator and CDI shall sign the Performance Test Sheet, and the original or a copy shall be forwarded to the organizational custodian. Upon completion of the bench test and/or Calendar Inspection, the organizational custodian shall retain the appropriate forms in accordance with OPNAVINST 4790.2 Series.

4. After completion of oxygen purge, place regulator in a plastic bag for storage.