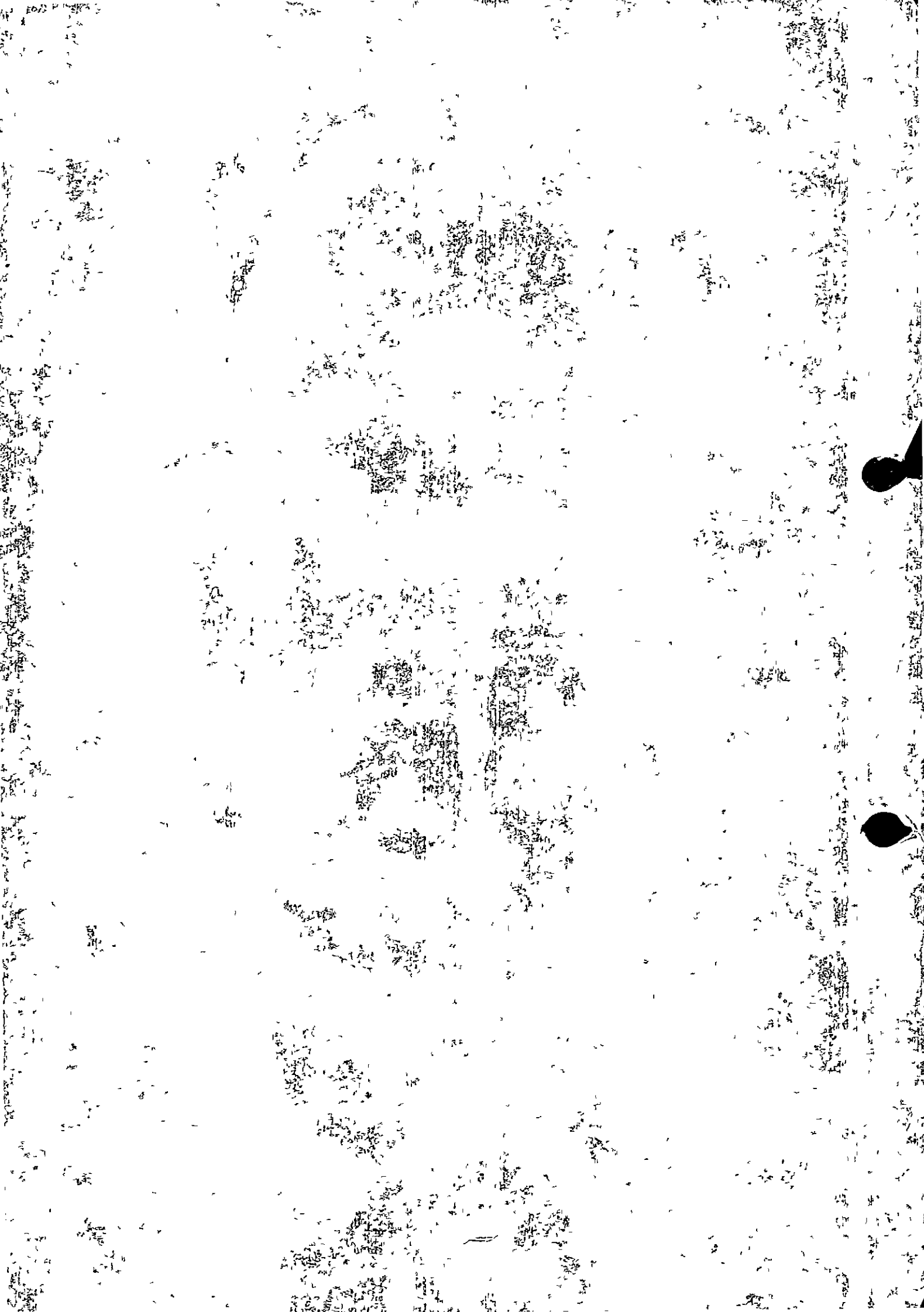


CHAPTER

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OXYGEN

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OXYGEN SYSTEMS - DESCRIPTION AND OPERATION

1. General

A. The oxygen systems provide storage of high pressure gaseous oxygen and its distribution under low pressure to the crew, passengers, and cargo personnel. High pressure oxygen is stored in oxygen cylinder assemblies. Oxygen pressure is reduced by suitable means in each system. Distribution is accomplished through aluminum or stainless steel tubing.

B. Separate oxygen systems are used to supply the control cabin and the passenger area.

2. Control Cabin Oxygen

A. The control cabin is supplied by the crew oxygen system. This system makes supplementary and protective oxygen available to crew members at all times. Oxygen pressure is reduced by a pressure reducing regulator and distribution takes place through diluter demand regulators and masks at each crew station. One portable oxygen cylinder is provided for emergency use.

3. Passenger Area Oxygen

A. General

(1) Oxygen is supplied to the passenger cabin areas whenever passenger cabin pressure drops to a value equivalent to 14,000 feet. Oxygen flow is initiated automatically by an automatic pressure-actuated valve, or by a valve which is actuated electrically from a switch in the control cabin. Oxygen pressure in the distribution system causes passenger service unit doors to open and oxygen masks fall. Oxygen flow to the masks is controlled by continuous flow control devices.

(2) A passenger oxygen system and a personnel accommodations oxygen system are provided. Those service units which remain operative when an airplane is converted to cargo use are served by the personnel accommodations oxygen system.

(3) Portable oxygen cylinders are provided for emergency use.

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B. Airplanes

AF	707-328 and 707-328B
SABENA	707-329
BOAC	707-436
DLH	707-430 and 707-330B
TWA	N786TW through N792TW
WAI	N373WA through N375WA
NWA	N351US through N358US
IIA	EI-AMW and EI-ANO
CAL	707-321C

- (1) The passenger oxygen system supplies all service units in the passenger area.

C. Airplanes

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

- (1) The passenger oxygen system supplies the following service units: passenger seat service units, lounge service units except the forwardmost unit, aft attendant's service unit, and lavatory service units C, D, E, and F.
- (2) The personnel accommodations oxygen system supplies oxygen to the forward attendant's service unit, lavatories A and B service units, and lounge forwardmost service unit. The latter is called the courier service unit in an airplane converted to cargo use.



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- (3) When an airplane is used in the normal passenger configuration or is used to carry passengers and cargo in any combination, both the passenger oxygen system and the personnel accommodations oxygen system should be pressurized, thus providing oxygen to all the service units in the passenger area of the airplane.
 - (4) When an airplane is converted to all cargo use, the passenger oxygen system should be depressurized by closing the passenger oxygen cylinder shutoff valves. The personnel accommodations oxygen system should remain pressurized.
 - (5) The crew and personnel accommodations oxygen systems are manifolded together. A check valve in the personnel accommodations oxygen cylinder high pressure line allows the personnel accommodations cylinder to discharge into the crew system and prevents the crew cylinders from discharging into the personnel accommodations system.
- D. The passenger and personnel accommodations oxygen systems are both operated electrically by the same switch on the pilots' overhead panel.
- E. The passenger oxygen system and crew oxygen system are both served by a dual high pressure indicator on the flight engineer's panel. The indicator has two pointers. The passenger system pointer is marked P, the crew system pointer is marked C.
- F. For equipment removed from airplanes for cargo conversion, refer to Cabin Accommodations Conversion, Chapter 25.



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OXYGEN SYSTEMS - MAINTENANCE PRACTICES

1. General

- A. Oxygen system maintenance requires special emphasis on cleanliness and quality craftsmanship. Oxygen system maintenance personnel should be thoroughly knowledgeable with the instructions and general maintenance information presented in this section.
- B. When any maintenance is being performed on the airplane, special care should be exercised to prevent contamination of the oxygen system components (equipment, tubing, or fittings).
- C. Supplemental information concerning this subject is contained in the following Boeing Process Specifications: BAC5001 Fluid Lines, Fitting and Pressure Testing, BAC5402 Oxygen Systems.

2. Equipment and Materials

- A. Oxygen system leak detection compound (Ref Chapter 13, Miscellaneous Materials)
- B. Teflon Tape - Specification MIL-T-27730, 1/4 inch wide for pipe thread sealing

3. Safety Precautions

- A. The following warning and safety precautions should be fully reviewed and carefully considered since failure to observe these instructions could result in serious injury to personnel and severe damage to the airplane and equipment. The oxygen system is for emergency use for breathing purposes and must therefore be hygienically clean to serve its purpose.

- (1) Do not permit oil, grease, flammable solvents, dust, lint, fine metal filings, or other combustible materials to come into contact with components or parts that will be exposed to pressurized oxygen

WARNING: OIL, GREASE, FLAMMABLE SOLVENTS, DUST, LINT, FINE METAL FILINGS, OR OTHER COMBUSTIBLE MATERIALS MAY IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO HIGH PRESSURE OXYGEN. THESE CONTAMINATES WHEN INSIDE THE SYSTEM COULD ALSO PRODUCE NOXIOUS OR TOXIC REACTIONS TO THE USER OR RENDER THE SYSTEM INOPERATIVE FOR ITS INTENDED USE.

- (2) Keep oxygen away from all sources of ignition (hot exhaust, sparks, flame, smoking, etc.).

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- (3) Open all oxygen valves slowly to prevent sudden pressure rise. This will minimize the possibility of fire due to resultant temperature rise. Ensure that valves are also open fully.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (a) When opening oxygen cylinder shutoff valves, do the following
- 1) Provide electrical power.
 - 2) Check that OXYGEN PRESS circuit breaker on P7 panel is closed.
 - 3) Slowly open oxygen cylinder valve to full open. Do not exceed 25 pound-inches (finger-tight). Then close valve 1/4 turn. Lockwire valve in this position when restoring the system to normal.

CAUTION IF GIVEN TORQUE IS EXCEEDED, VALVE MAY BE DAMAGED.

- 4) Immediately check that applicable pressure indicator in control cabin agrees with oxygen cylinder gage ± 50 psi
- (b) When closing oxygen cylinder valves, observe also the following precaution.
- 1) Close oxygen cylinder valve finger-tight. This is equivalent to a maximum torque of 25 pound-inches.

CAUTION IF GIVEN TORQUE IS EXCEEDED, VALVE MAY BE DAMAGED.

- (4) Deleted.
- (5) Oxygen systems maintenance personnel should ensure that hands, clothing, equipment, and tools are clean and free of petroleum products before performing maintenance or servicing the oxygen system. Tools which contact external surfaces of the oxygen system must be visually clean and free of dirt, oil, or grease. Test equipment which contacts or connects with internal portions of the oxygen system must be clean in accordance with Cleaning/Painting instructions.
- (6) Oxygen system maintenance personnel should wear clean, white, lint-free cotton gloves when handling oxygen system components and performing maintenance.
- (7) Do not allow oxygen to mix with flammable gases and/or vapors (fuel, paint, thinners, cleaning solvents, etc.).
- (8) When performing a leak detection test, only approved oxygen system leak detection materials should be used. Leak detection compound shall be wiped off with a clean cloth immediately after testing

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TEMPORARY REVISION NR. DFW 35-01

INSERT FACING TO SUBCHAPTER 35-0, PAGE 201

REASON FOR CHANGE: Maintaining Oxygen System Cleanliness.

INSTRUCTION: Insert updated page.

NOTE: The insertion of this TR has to be listed in the Record of Temporary Revisions at the beginning of Volume 1.

TCA: LX-N20199

RTCA: LX-N19997, LX-N20000

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OXYGEN SYSTEMS - MAINTENANCE PRACTICES

1. General

- A. Oxygen system maintenance requires special emphasis on cleanliness and quality craftsmanship. Oxygen system maintenance personnel should be thoroughly knowledgeable with the instructions and general maintenance information presented in this section.
- B. When any maintenance is being performed on the airplane, special care should be exercised to prevent contamination of the oxygen system components (equipment, tubing, or fittings).

WARNING USE ONLY "OXYGEN-CLEAN" COMPONENTS IN THE OXYGEN SYSTEM. IF YOU DO NOT USE "OXYGEN-CLEAN" COMPONENTS, THIS CAN CAUSE A FIRE OR AN EXPLOSION WHEN NEAR PRESSURIZED OXYGEN WHICH CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT

- C. Supplemental information concerning this subject is contained in the following Boeing Process Specification: BAC5001 Fluid Lines, Fitting and Pressure Testing, BAC5402 Oxygen System.

2. Equipment and Materials

- A. Oxygen system leak detection compound (Ref Chapter 13, Miscellaneous Materials).
- B. Teflon Tape - Specification MIL-T-27730, 1/4 inch wide for pipe thread sealing.

3. Safety Precautions

- A. The following warning and safety precautions should be fully reviewed and carefully considered since failure to observe these instructions could result in serious injury to personnel and severe damage to the airplane and equipment. The oxygen system is for emergency use for breathing purposes and must therefore be hygienically clean to serve its purpose.

- (1) Do not permit oil, grease, flammable solvents, dust, lint, fine metal filings, or other combustible materials to come into contact with components or parts that will be exposed to pressurized oxygen.

WARNING OIL, GREASE, FLAMMABLE SOLVENTS, DUST, LINT, FINE METAL FILINGS, OR OTHER COMBUSTIBLE MATERIALS MAY IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO HIGH PRESSURE OXYGEN. THESE CONTAMINATES WHEN INSIDE THE SYSTEM COULD ALSO PRODUCE NOXIOUS OR TOXIC REACTIONS TO THE USER OR RENDER THE SYSTEM INOPERATIVE FOR ITS INTENDED USE

- (2) Keep oxygen away from all sources of ignition (hot exhaust, sparks, flame, smoking, etc.).



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- (9) When oxygen system maintenance is being performed in a confined area (inside the airplane); ensure that adequate ventilation is provided to prevent a high concentration of oxygen.
- (10) Before installing a component in the oxygen system, ensure that component has been cleaned in accordance with Cleaning/Painting instructions and that all protective caps have been removed and that fittings are clean and free of contaminants, thread chips, etc.
- (11) Do not pull plumbing components into alignment with the B-nut. This could produce cracks which could result in fire and explosion. Never tighten fittings with oxygen system pressurized.

4. General Maintenance Information

- A. The following general information is peculiar in most cases to oxygen systems and should be reviewed by maintenance personnel.

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B. Oxygen System Tubing/Hose Assemblies

- (1) Tubing: Cold drawn, 1/8 hard, corrosion resistant steel tubing per Specification MIL-T-6845 is used in the high pressure area of the oxygen system on some airplanes. On other airplanes, the high pressure system utilizes annealed, corrosion resistant steel tubing per Specification MIL-T-8504 or MIL-T-8606. See Fig. 201 for fitting torque value differences and effectivity. The low pressure area uses 6061-T6 seamless aluminum alloy tubing per Specification MIL-T-7081. The oxygen system uses flareless tube fittings in both the high and low pressure areas. When facilities are available, flareless tube assemblies may be fabricated per instructions in Chapter 13, Flareless Tubing Assembly. Oxygen system tube assemblies should be cleaned per method specified in Cleaning/Painting and installed per instructions in this section and the individual component removal/installation procedures.

CAUTION: THERMAL COMPENSATOR ASSEMBLIES HAVE THE APPEARANCE OF TUBING ASSEMBLIES. TO PREVENT DAMAGE TO THERMAL COMPENSATOR ASSEMBLIES SEE 35-1-151 AND 35-2-151 FOR THEIR LOCATION AND HANDLING.

- (2) Hoses: 2-inch spacing should be maintained between oxygen hose and electrical wiring when closing or installing PSUs and diluter demand regulators. If spacing is less than 2 inches, clamp hose and wiring as necessary to prevent chafing.

CAUTION: LACK OF REQUIRED SEPARATION MAY LEAD TO CHAFING BETWEEN OXYGEN HOSE AND ELECTRICAL WIRING.

C. Pipe Thread Sealing

- (1) Pipe thread fittings may be sealed by the application of teflon tape. Apply tape to the male thread only, leaving a minimum of 1-1/2 to 2-1/2 threads uncovered at the end of the fitting. Apply one and one half turns of tape, stretching it as it wraps around the threads so that it conforms to thread contour. Ensure that there is no extrusion of thread past the end of the female fitting.

D. Leak Detection

- (1) Unless the individual leaks are large enough to be heard or felt, leaks must be located using leak detection compound. Apply the leak detection compound with a soft brush on all oxygen system connections suspected of leaking. Watch carefully for frothing, bubbling, or growing bubbles. Use mirror and light when necessary to view hidden connections. Test solution shall be wiped off with a clean cloth immediately after testing.

CAUTION: LEAK DETECTION COMPOUND SHALL NOT CONTAIN COMBUSTIBLE SUBSTANCES.

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E. Tightening Instructions

- (1) All bolts, screws, and nuts used to install components in the oxygen system should be tightened to torque values specified in Chapter 13. All tubing B-nuts, MS fittings, and hose fittings will be tightened to appropriate torque value listed in Fig. 201. When a special torque value different than those above is required for a specific installation, the torque value will be specified in the appropriate maintenance procedure.

CAUTION: NEVER TIGHTEN FITTINGS WITH OXYGEN SYSTEM PRESSURIZED.

TORQUE VALUES FOR MS FLARELESS TUBE AND HOSE FITTINGS *[1]			
TUBING		TORQUE VALUES (INCH-POUNDS) $\pm$ 5%	
SIZE	OD (INCH)	CORROSION RESISTANT STEEL TUBING, COLD DRAWN, 1/8 HARD *[3] (SPEC MIL-T-6845)	ALUMINUM TUBING (SPEC MIL-T-7081)
			CORROSION RESISTANT STEEL TUBING, ANNEALED *[2] (SPEC MIL-T-8504 OR MIL-T-8606)
-5	5/16	190	140
-6	3/8	270	170
-8	1/2	500	280
-10	5/8	700	360
-12	3/4	900	450
-16	1	1200	750

*[1] Flexible hose is used only in the low pressure system and will be tightened to the same torque values as aluminum tubing of the same size.

*[2] TCA LX-N20198
 LX-N20199
 RTCA LX-N19997
 LX-N20000

*[3] ALL EXCEPT *[2]

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5. Oxygen System Installation Practices

A. The following general maintenance practices should be complied with when performing maintenance on the oxygen system.

B. Preparation for Maintenance

- (1) Review safety precautions and determine extent of maintenance to be performed.
- (2) It is extremely important that exposure to any form of contamination be guarded against when performing maintenance on the oxygen system. Clean tools and clean white gloves should be used. Prior to performing the maintenance operation, plumbing connections should be wiped clean and dry if contamination is present. Contamination that cannot be removed with a dry cloth should be cleaned per method specified in cleaning/painting.
- (3) When maintenance is in a pressurized area of the system, the pressure should be bled off through the normal using outlet when possible. When it is not possible to do this, the plumbing connection should be loosened slightly to permit the pressure to bleed off. After the pressure has bled off, continue the disconnection.

WARNING: RESIDUAL PRESSURE IN HIGH PRESSURE LINE COULD BE AS HIGH AS 1850 PSI AND OXYGEN WOULD ESCAPE WITH SOME FORCE.

C. Performing Maintenance

- (1) When disconnecting oxygen plumbing, use a backup wrench to prevent rotation of fitting to which B-nut attaches. Rotation of fitting could damage plumbing or component.
- (2) As soon as practical after disconnecting oxygen plumbing, install clean, protective closures to open lines, fittings, or ports to prevent contamination of the system. Clean new plastic caps may be used on B-nuts and other fittings as long as they do not engage the thread. To prevent entry of plastic shreds, metal caps must be used where connector threads engage the cap.
 - (a) Plastic protective plugs and caps should not be reused.
 - (b) Protective metal caps may be reused after cleaning in accordance with cleaning/painting procedure.
 - (c) Plugs which can be jammed into tubes should not be used.
 - (d) Protective caps and plugs should be sealed in polyethylene bags and should not be opened until ready for use. After opening, the bags should be resealed immediately to prevent contamination of unused caps and plugs.

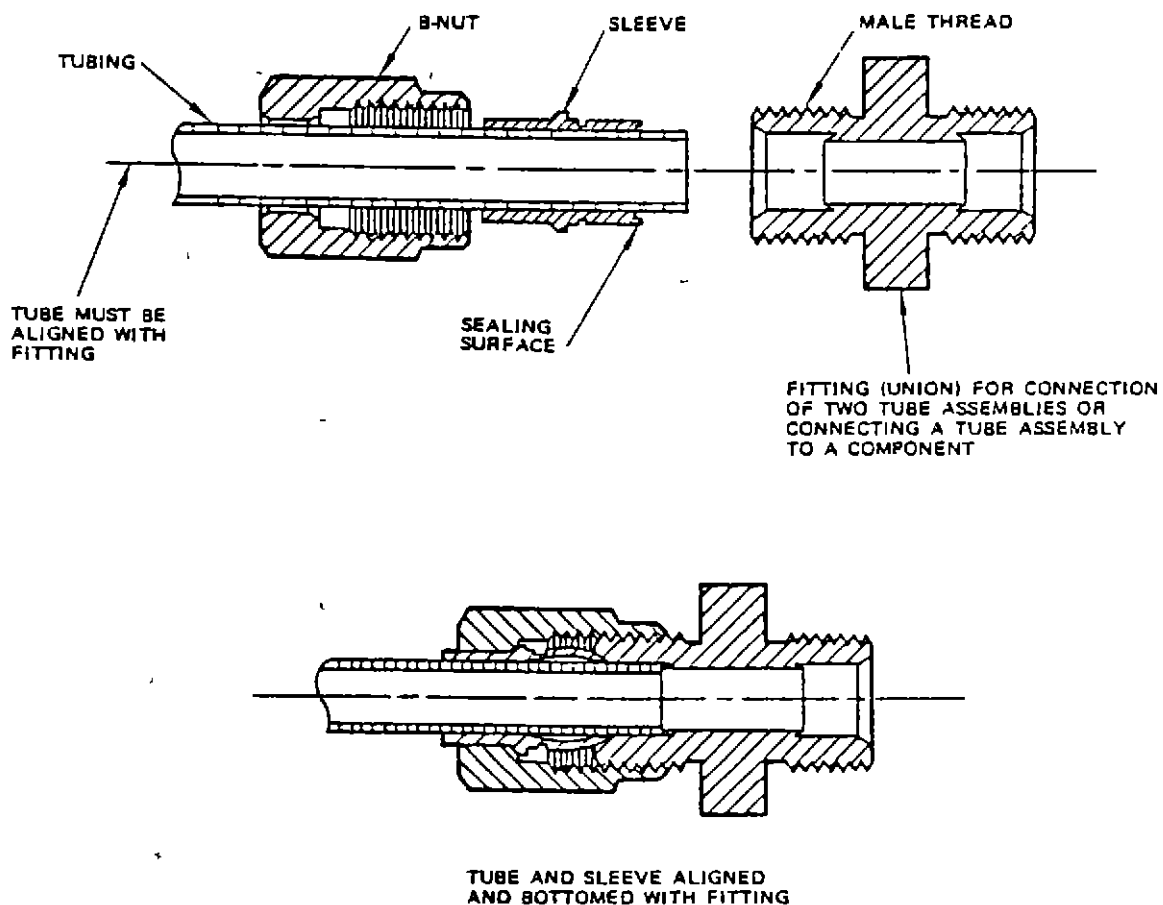
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- (3) Install only clean components, tubing, and fittings. Refer to Cleaning/Painting for approved cleaning method.
- (4) Deleted.
- (5) On installation, position tubing assembly and component; then install tubing clamps and component fasteners loosely. Tubing with properly installed sleeve must be fully bottomed and in alignment with fitting before installing B-nut (Fig. 202). Start B-nut with fingers and tighten until it bottoms against sleeve shoulder. On fitting that B-nut engages, use a backup wrench to prevent rotation of fitting and possible damage to plumbing or components. Tighten B-nut with torque indicating wrench to torque value specified in maintenance procedure or par. 4.E.
- (6) At completion of the tubing connection, a leak detection test should be performed (Ref par. 4.D.). If the connection leaks, check that specified torque values were used in tightening. If the leak persists at specified torque value, the connection should be disassembled and inspected for the cause. Defective parts must be replaced.



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Tube and Fitting Installation
Figure 202



MAINTENANCE MANUAL

TEMPORARY REVISION NR. DFW 35-02

INSERT FACING TO SUBCHAPTER 35-0, PAGE 205

REASON FOR CHANGE: Maintaining Oxygen System Cleanliness.

INSTRUCTION: Insert updated page.

NOTE: The insertion of this TR has to be listed in the Record of Temporary Revisions at the beginning of Volume 1.

TCA: LX-N20199

RTCA: LX-N19997, LX-N20000

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5 Oxygen System Installation Practices

- A. The following general maintenance practices should be complied with when performing maintenance on the oxygen system.
- B. Preparation for Maintenance
 - (1) Review safety precautions and determine extent of maintenance to be performed
 - (2) It is extremely important that exposure to any form of contamination be guarded against when performing maintenance on the oxygen system. Clean tools and clean white gloves should be used. Prior to performing the maintenance operation, plumbing connections should be wiped clean and dry if contamination is present. Contamination that cannot be removed with a dry cloth should be cleaned per method specified in cleaning/painting

NOTE: "Oxygen-clean" fittings come from a sealed package and a label for oxygen system installation. Make sure that you use only oxygen clean fittings. Some fittings used in the oxygen system are the same as fittings in other systems and are not oxygen clean. If it is necessary to clean parts, use the applicable oxygen procedures to clean the parts. This also applies to tube caps or plugs which must be as clean as the installation connections.

- (3) When maintenance is in a pressurized area of the system, the pressure should be bled off through the normal using outlet when possible. When it is not possible to do this, the plumbing connection should be loosened slightly to permit the pressure to bleed off. After the pressure has bled off, continue the disconnection.

WARNING RESIDUAL PRESSURE IN HIGH PRESSURE LINE COULD BE AS HIGH AS 1850 PSI AND OXYGEN WOULD ESCAPE WITH SCME FORCE

C. Performing Maintenance

- (1) When disconnecting oxygen plumbing, use a backup wrench to prevent rotation of fitting to which B-nut attaches. Rotation of fitting could damage plumbing or component.
- (2) As soon as practical after disconnecting oxygen plumbing, install clean, protective closures to open lines, fittings, or ports to prevent contamination of the system. Clean new plastic caps may be used on B-nuts and other fittings as long as they do not engage the thread. To prevent entry of plastic shreds, metal caps must be used where connector threads engage the cap.
 - (a) Plastic protective plugs and caps should not be reused.
 - (b) Protective metal caps may be reused after cleaning in accordance with cleaning/painting procedure.
 - (c) Plugs which can be jammed into tubes should not be used.
 - (d) Protective caps and plugs should be sealed in polyethylene bags and should not be opened until ready for use. After opening, the bags should be resealed immediately to prevent contamination of caps and plugs.

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OXYGEN SYSTEM - SERVICING

1. General

- A. Servicing the oxygen system may be accomplished by replacing depleted cylinders with fully serviced cylinders. On airplanes that have a filler port in the crew system, servicing may be accomplished using externally located oxygen ground servicing equipment. Servicing personnel should be familiar with 35-0, Maintenance Practices, information. Refer to 12-1-71 for servicing instructions and requirements.



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OXYGEN SYSTEM - CLEANING/PAINTING

1. General

- A. Cleanliness is most important in the installation and maintenance of the oxygen system. Strict cleanliness within oxygen system is important in two respects: in one, the system is used during an emergency for breathing, and secondly, oxygen supports combustion when a combustible contaminant and ignition conditions are present. Therefore, contamination within the system could provide noxious or toxic fumes to the user, prevent system components from operating properly, or produce fire and explosion. Contamination on the exterior surfaces of the oxygen system components can cause fires in the presence of leaking oxygen and ignition conditions.

NOTE: All oxygen system components shall be clean and dry when installed.

2. Cleaning Oxygen System Components

- A. Oxygen system components and plumbing installed on the airplane should be cleaned by wiping with a clean, dry, lint-free, white cotton cloth. Contamination that cannot be removed with a dry cloth should be cleaned with Freon 113. The cleaned area should then be wiped dry.

WARNING DO NOT USE CLEANING SOLVENTS OTHER THAN FREON 113. FIRE MAY RESULT.

SPECIFICATION	USED PRODUCT	SAB. CODE N°
FREON 113	ARKLONE P or FREON TF	0321025

- B. Components on the airplane that cannot be cleaned by the above instructions must be removed from the airplane and cleaned as follows. Components such as valves, regulators, and cylinder assemblies must be disassembled and cleaned per the component manufacturer's overhaul manual. Thermal compensators are cleaned per 35-1-151 and 35-2-151. Tubing and fittings should be cleaned by the vapor degreasing system for oxygen components. See Boeing 707 Overhaul Manual.

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- C. After cleaning, purge and dry with nitrogen per Specification BB-N-411, type I, Class 1, Grade A, or air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 PPM total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F and 760 mm Mercury.
- D. If components are not to be installed in airplane immediately, they should be stored. See Boeing 707 Overhaul Manual for storage instructions.

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FLIGHT CREW OXYGEN SYSTEM - DESCRIPTION AND OPERATION

1. General (See figures 1 and 2.)

- A The flight crew oxygen system delivers supplemental and protective breathing oxygen to five crewmembers through individual diluter demand regulators. The system consists of one or two oxygen cylinder assemblies, a shutoff valve, a pressure reducing regulator, pressure gages, oxygen distribution lines and the overboard discharge line, five diluter demand regulators, and oxygen masks.
- B The oxygen cylinder assembly includes a pressure relief valve connected to an overboard discharge line to provide protection against excessive pressure. High pressure oxygen is converted to low pressure oxygen in the pressure reducing regulator. The flow of low pressure oxygen to each individual mask is controlled by the diluter demand regulator.
- C - portable oxygen cylinder assembly with a capacity of 11 cu ft (310 liters) of free oxygen is available for emergency use.
- D On airplanes with the personnel accommodations oxygen system, the personnel accommodations bottle can discharge into the flight crew oxygen system to supplement the crew system oxygen capacity. A check valve prevents the flight crew oxygen from discharging into the personnel accommodations system.

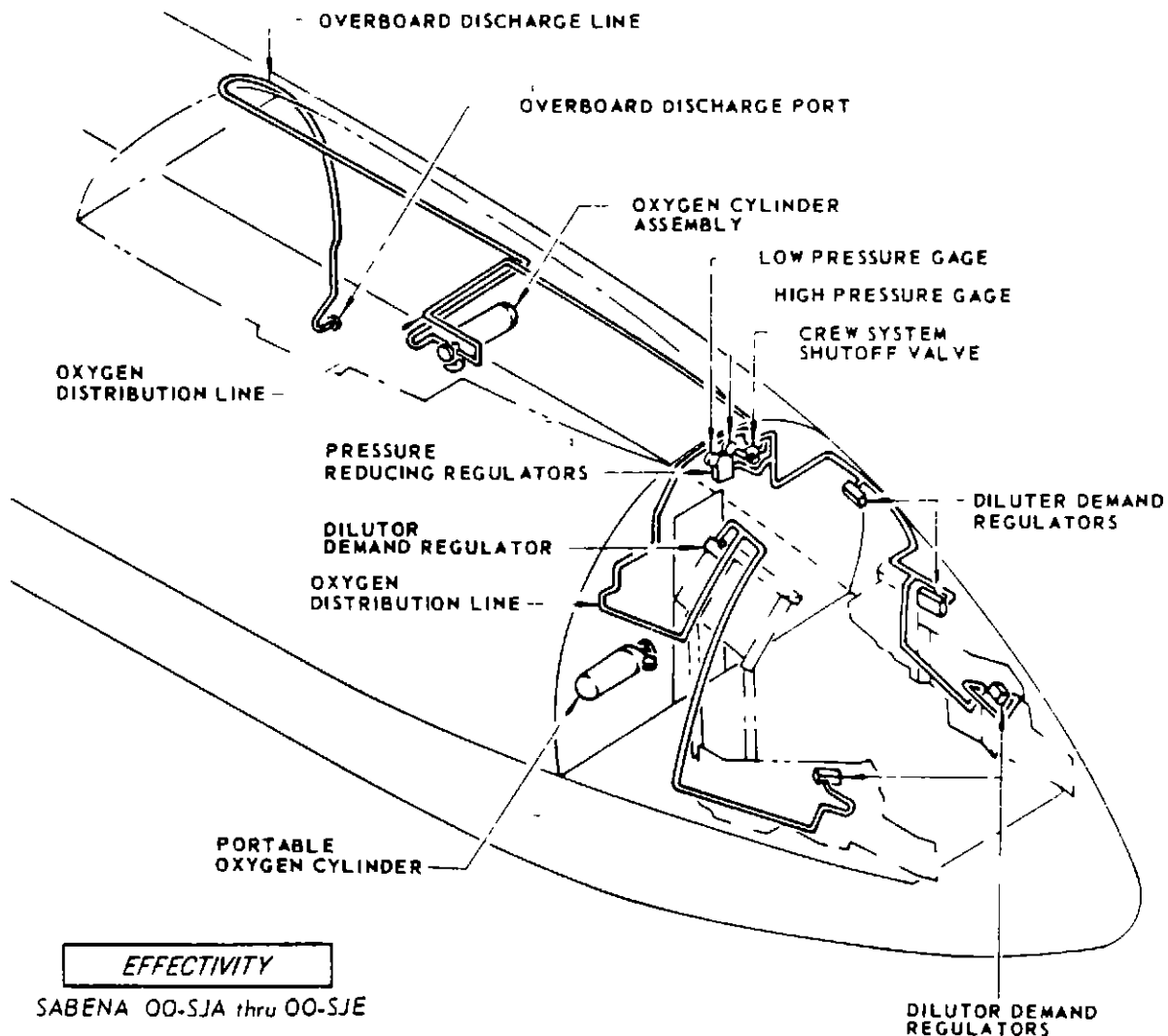
2. Oxygen Cylinder Assembly

- A The oxygen cylinder assembly consists of an oxygen cylinder, shutoff valve and a pressure gage (0 to 2000 psi). The shutoff valve is a slow-opening manual valve screwed into the cylinder. The valve is provided with two outlets. One outlet, connected to an overboard discharge line, is sealed with a bronze safety disc which bursts at 2650 to 2950 psi. The other outlet is connected to the high pressure side of the system. Cylinders are charged to 1850 psi at 70°F. Capacity is expressed in cu ft of standard oxygen.
- B On airplanes OO-SJA thru OO-SJE, one cylinder with a capacity of 65 cu ft (1840 liters) is in the forward lowered ceiling.
- C On airplanes OO-SJF and OO-SJG, one cylinder with a capacity of 114 cu ft (3230 liters) is in the forward cargo compartment.
- D On Turboprop airplanes two cylinders with a capacity of 114 cu ft each are installed in the forward cargo compartment.

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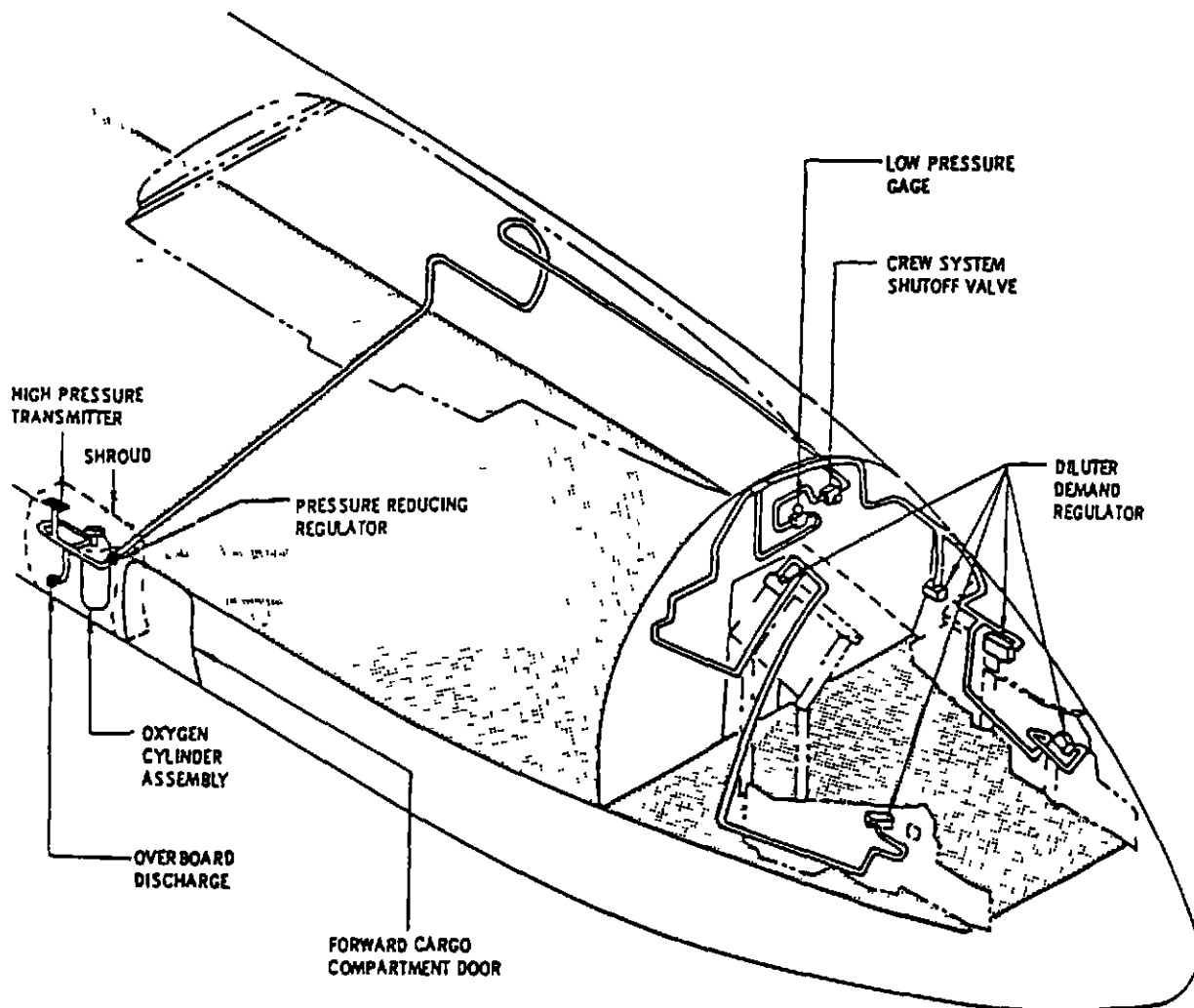
3. Crew Oxygen Snutoff Valve

- A. The crew oxygen shutoff valve is a slow opening manual snutoff valve. It is used to shut off high pressure oxygen. This valve is located in the control cabin above the entrance door.
- B. On airplanes OO-SJA through OO-SJE during the first five turns the valve remains seated, and oxygen bleeds through an orifice in the spindle, slowly pressurizing the downstream tubing. After the fifth turn the valve unseats, allowing full flow. If the orifice becomes blocked, full flow will occur into an unpressurized system, causing rapid compression and heating, creating a fire hazard.



Flight Crew Oxygen System Component Location
Figure 1 (Sheet 1)

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EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

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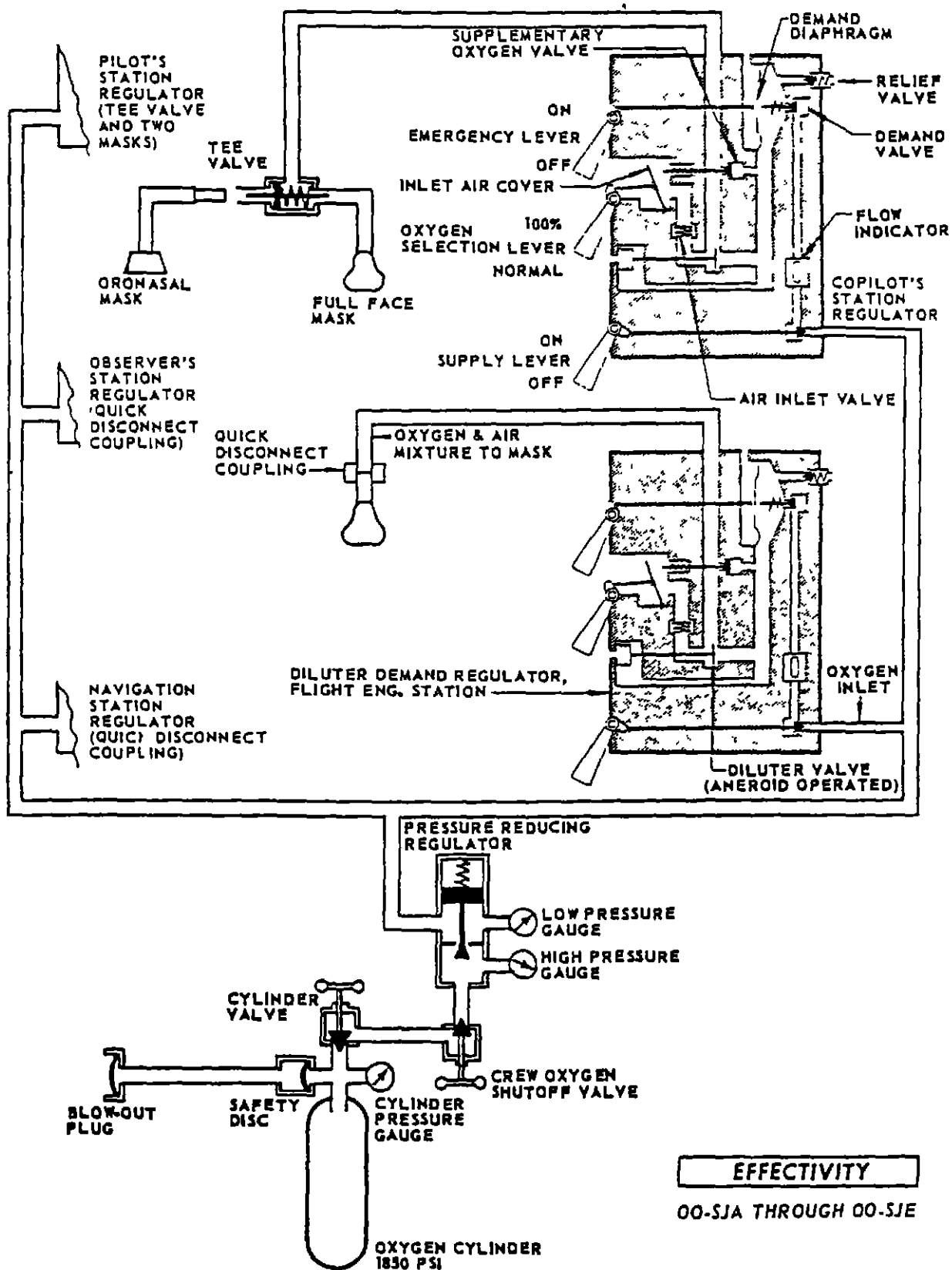
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Flight Crew Oxygen System Location Diagram
 Figure 1 (Sheet 2 of 2)

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EFFECTIVITY
00-SJA THROUGH 00-SJE

Crew Oxygen System Schematic
Figure 2 (Sheet 1 of 2)

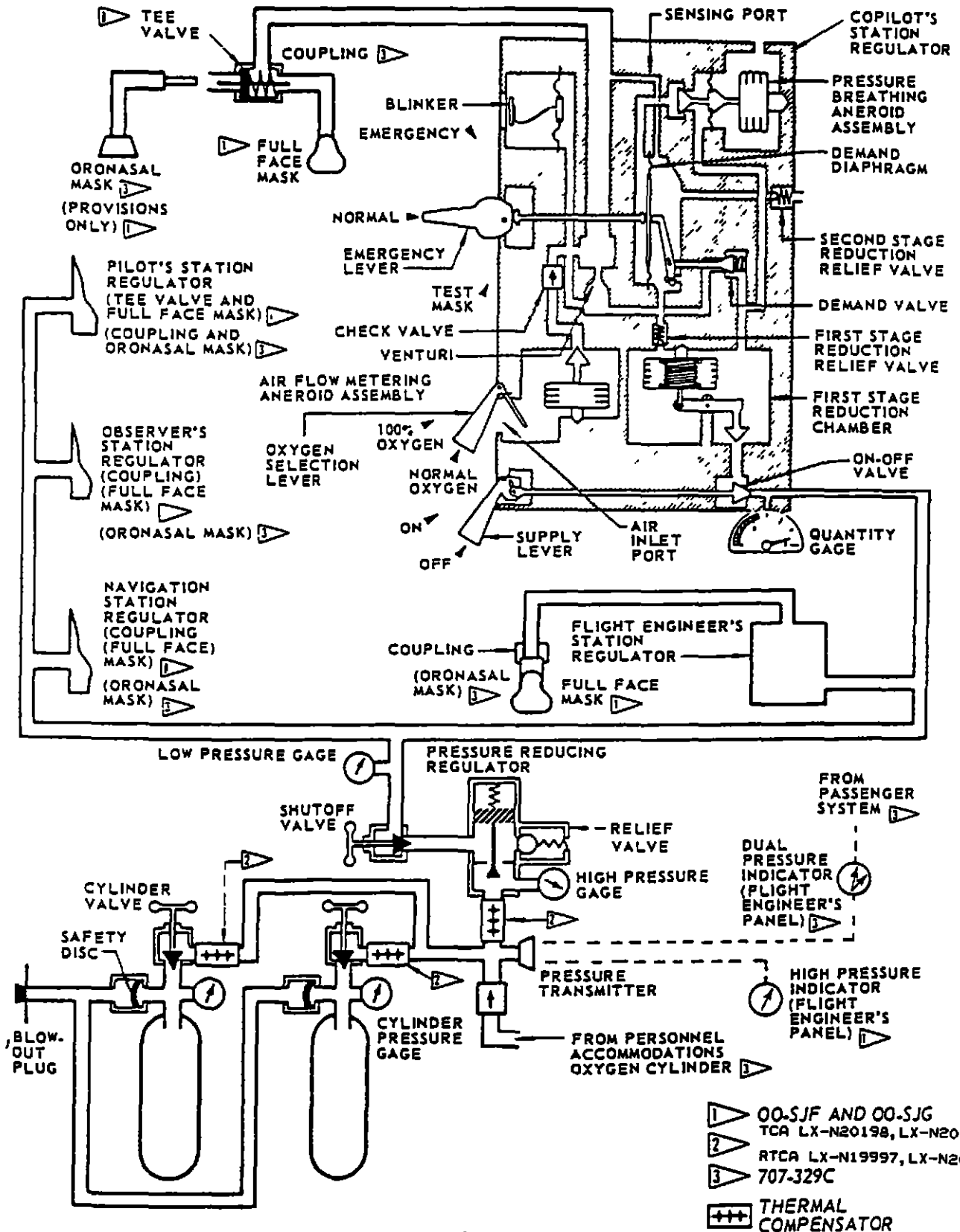
EFFECTIVITY

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TCA LX-N20198, LX-N20199.

RTCA LX-N19997, LX-N20000.

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LAB. 707/518
Crew Oxygen System Schematic Diagram
Figure 2 (Sheet 2)

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4. Pressure Reducing Regulator (Airplanes 00-SJA through 00-SJE)

- A. The pressure reducing regulator reduces cylinder oxygen pressure, to the regulator outlet pressure of 75 to 50 psi. A pressure relief valve set to 100 to 110 psi is provided in the outlet port of the regulator for protection of the low pressure section of the system. The relief valve discharges into the control cabin. The regulator is equipped with two pressure gauges: one with 0 to 2000 psi range for high pressure indication, and the other with 0 to 160 psi range for low pressure indication.
- B. The pressure reducing regulator is located in the control cabin above the entrance door, close to the crew shutoff valve.

5. Pressure Reducing Regulator

- A. The pressure reducing regulator reduces cylinder oxygen pressure to the regulator outlet pressure of 150 to 50 psi. A pressure relief valve, set to 165 to 200 psi, is provided in the outlet port of the regulator for protection of the low pressure section of the system. The relief valve discharges into the cylinder shroud. The regulator is equipped with a 0-2000 psi high pressure gage.
- B. The pressure reducing regulator is located above the oxygen cylinders in the forward cargo compartment.

6. Oxygen Distribution Line and Overboard Discharge Line

- A. The oxygen distribution line has a high pressure section, upstream of the pressure reducing regulator, and a low pressure section downstream from the regulator. In airplanes 00-SJA through 00-SJF the high pressure section is made of stainless steel, the low pressure section of aluminum. In airplanes 00-SJG and on, the line is stainless steel upstream of the crew oxygen shutoff valve, and aluminum downstream from the valve.
- B. The overboard discharge line connects the oxygen cylinder relief valve with the overboard discharge port. Part of this line is made of stainless steel tubing, and part of aluminum tubing. The discharge port is sealed against rain and dirt by a plastic plug which will blow out at 500 psi.

7. Low Pressure Gage TCA LX-N20198, LX-N20199. RTCA LX-N19997, LX-N20000.

- A. The crew system low pressure gage is a direct reading 0-200 psig gage. It is located within the control cabin, above the entry door.

8. Diluter Demand Regulator (Airplanes 00-SJA thru 00-SJE) (See figure 2.)

- A. The diluter demand regulator controls oxygen flow to the masks to provide the correct air/oxygen ratio for inhalation. The regulator has automatic and manual controls. Automatic controls (demand valve and



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altitude compensation) increase the oxygen content of the inhaled air as cabin altitude increases.

- B Three manual controls are provided. A "SUPPLY ON-OFF" lever is used to open or close the oxygen supply valve. An "OXYGEN NORMAL - 100%" lever is used for selecting the air/oxygen mixture or oxygen only. The "EMERGENCY ON-OFF" lever is used to obtain oxygen under pressure. With this lever in the "ON" position, the demand valve is blocked and pure oxygen flows to the mask under a pressure of 1-1/2 to 4 inches of water.
 - C. An illuminated, bobbin type flow indicator gives a visual indication when oxygen flows through the regulator to the mask.
 - D. The diluter demand regulator is mounted at each flight crew station. The regulator face is arranged as an edge-lighted control panel.
- 9 Diluter Demand Regulator TCA LX-N20198, LX-N20199. RTCA LX-N19997, LX-N20000.
- A. A diluter demand regulator is mounted at each flight crew station. (See figure 2.) Each regulator face displays two indicating devices: a flow indicator and a pressure gage. The flow indicator consists of a blinker which signals oxygen flow through the regulator to the mask. The pressure gage indicates the approximate quantity of oxygen in the system.
 - B The regulator face also displays three manual control levers. A supply lever ("SUPPLY ON-OFF") is used to open or close the oxygen supply valve. An emergency lever ("EMERGENCY-NORMAL-TEST MASK") is used to obtain oxygen under pressure. An oxygen selection lever ("100% OXYGEN-NORMAL OXYGEN") is used for selecting the air/oxygen mixture or oxygen only.
 - C Operation of the regulator is as follows:
 - (1) With the supply lever in the "ON" position, the oxygen selection lever in the "NORMAL OXYGEN" position, and the emergency lever in the "NORMAL" position, oxygen enters the regulator inlet. The pressure of the incoming oxygen is reduced and maintained at approximately 50 psig in the first stage reduction chamber. This pressure reduction is accomplished by a valve actuated by the first stage reduction aneroid assembly and located downstream of the ON-OFF valve. From the first stage reduction chamber the oxygen goes to the demand valve. When there is sufficient differential pressure across the demand diaphragm, the demand valve opens to supply oxygen to the mask. This pressure differential exists during the user's inhalation cycle. After passing through the demand valve the oxygen flows through a venturi assembly. Here the oxygen is mixed with air that enters through the air inlet port. As oxygen flows through the demand valve and the venturi assembly, its pressure is further reduced so that it is supplied to the mask at 0.15 psig approximately.



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- (2) The addition of air may be cut off by turning the oxygen selection lever to "100% OXYGEN." When this lever is in "NORMAL OXYGEN," air enters through the air inlet port and the required amount is added to the oxygen to form the correct air/oxygen mixture. The air flow metering aneroid assembly provides the correct amount of air for the mixture at every altitude. This aneroid automatically provides 100% oxygen at altitudes of over 32,000 feet.
- (3) In order to provide automatic pressure breathing at altitudes above 30,000 feet approximately, the regulator incorporates a pressure breathing aneroid assembly. This device exerts force on a diaphragm and opens a valve allowing oxygen to flow to the demand diaphragm chamber. The demand diaphragm is thus pressure loaded, and acts on the demand valve, building up positive pressure at the regulator outlet.
- (4) Positive pressure at the regulator outlet may be obtained by operating the emergency lever to "EMERGENCY." This mechanically loads the demand diaphragm to provide positive outlet pressure of 2-4 inches of water. This lever has a "TEST MASK" position which provides outlet pressure of 11 inches of water for test purposes.

10 Crew Oxygen Masks

- A. Two types of oxygen masks are provided: full face and oronasal. The full face mask covers the nose, mouth and eyes, and provides protection against smoke. The oronasal mask covers nose and mouth only and is equipped with a microphone.

- B. For mask distribution, see figure 2.

11. Portable Oxygen Cylinder Assembly (Protective)

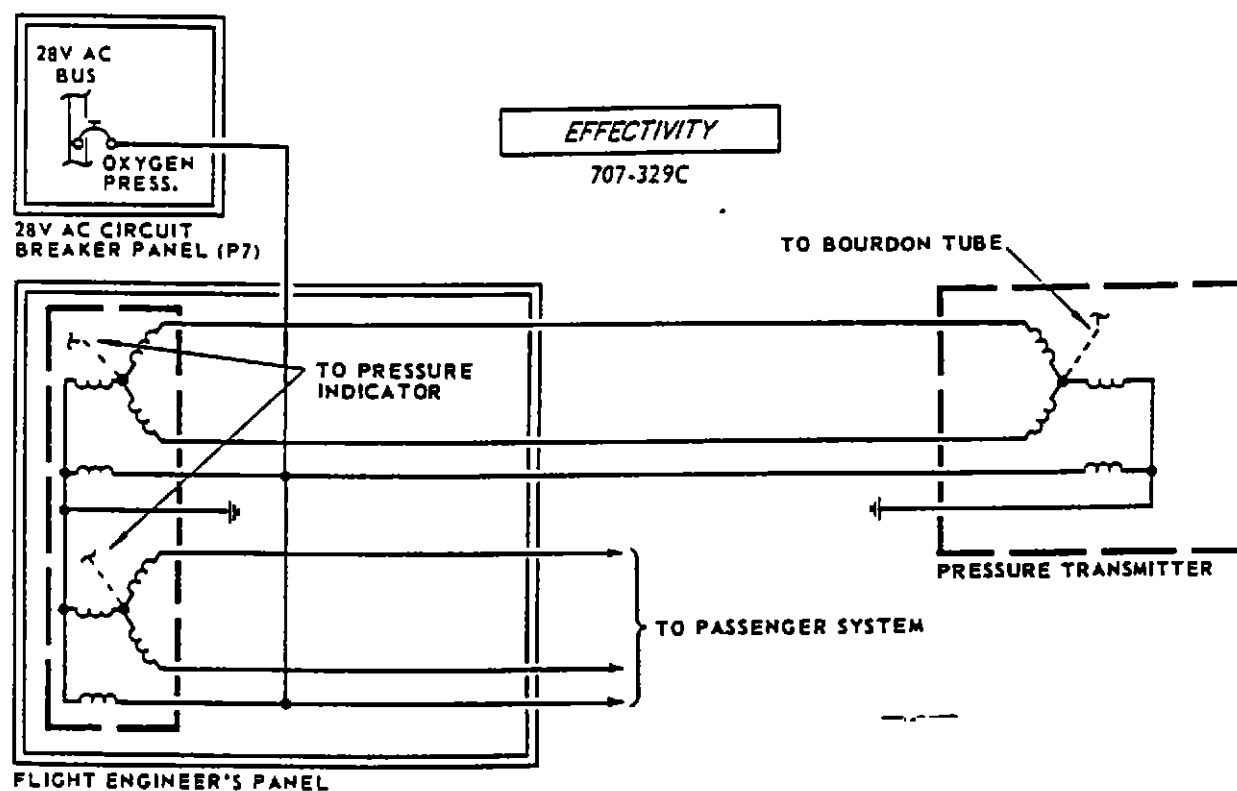
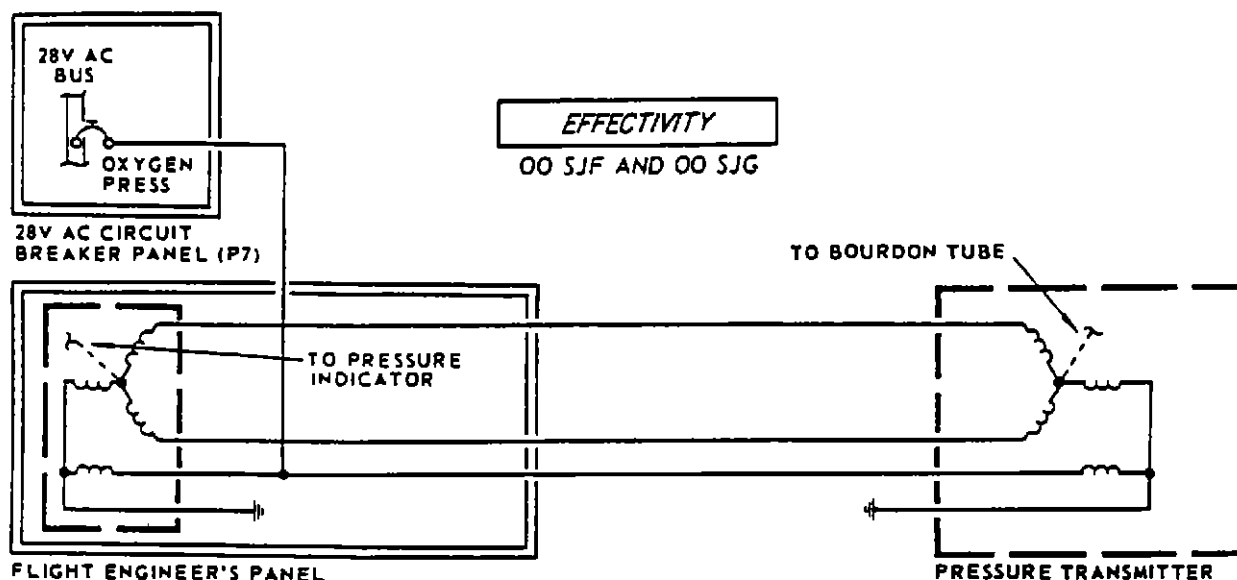
- A. The portable oxygen cylinder assembly provides dual-purpose emergency oxygen breathing equipment with a capacity of 11 cu ft (310 liters) of free oxygen at 1800 psi and 70°F. The assembly consists of an oxygen cylinder, a regulator, and a full face demand type mask. The regulator, screwed into the cylinder, includes a shutoff valve, a pressure reducing mechanism, a demand type regulator, a pressure gauge, a safety plug, a charging valve, and a constant flow outlet. The regulator provides a constant flow of 3 liters of oxygen per minute through the constant flow outlet. The mask is connected to the regulator outlet by a flexible tubing.
- B. One portable oxygen cylinder assembly is located in the control cabin on the rear bulkhead. Two portable oxygen cylinder assemblies are stored in the passenger cabin.

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12. External Filling Provision

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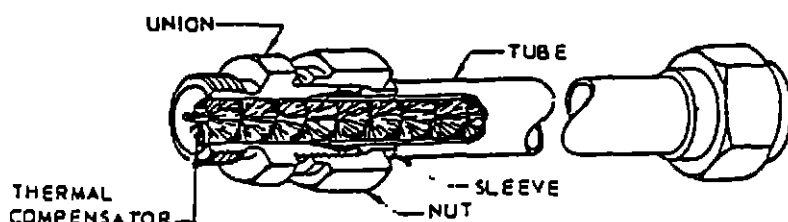
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13. Crew Oxygen System Pressure Transmitter and Indicator

- A. A remote pressure indication is provided by a selsyn. (See figure 3.) One of the selsyn motors is assembled with a bourdon tube to form the pressure transmitter, which is installed in the high pressure oxygen line. The bourdon tube directly actuates the motor. The other motor drives the pointer of a high pressure indicator (0 to 2500 psig) on the flight engineer's panel.
- B. The pressure transmitter is upstream of the crew oxygen pressure reducing regulator and is mounted adjacent to the oxygen cylinders in the forward cargo compartment.
- C. On 707-329C airplanes, the pressure indicator is dual. One pointer, marked "C," indicates crew system pressure. The other, marked "P," indicates passenger system pressure.

14. Thermal Compensators

- A. Thermal compensator assemblies are installed at various places in the system. (See figure 2.) Each acts as a heat sink and tends to prevent excessive temperature buildup when the tubing is being pressurized.
- B. A thermal compensator assembly consists of a brush-like wire element, approximately 5 inches long, inserted into a stainless steel tube. (See figure 4.) Each assembly is attached directly to an oxygen system component. The wire element fits tightly into the tube and is located in the end of the compensator assembly that attaches to the component.
- C. There are two types of thermal compensator assemblies.
 - (1) The compensator assembly on the oxygen cylinder has a standard oxygen bottle fitting that attaches to the cylinder. The downstream end has a standard flareless tube connection. This compensator assembly can be handled as any flareless tube assembly.
 - (2) The compensator assembly on any other component, such as a shutoff valve, or regulator, is attached to the component by means of a corrosion resistant steel union. The wire element extends through the union, making it necessary to observe special precautions when removing or installing the assembly. The upstream end of the compensator assembly has a standard flareless tube connection.



Thermal Compensator Assembly
Figure 4

EFFECTIVITY	
TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

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FLIGHT CREW OXYGEN SYSTEM - TROUBLE SHOOTING

1. General

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. During the trouble shooting procedure, open all oxygen valves slowly to prevent sudden pressure rises.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- C. The flight crew oxygen system is capable of holding pressure almost indefinitely under conditions of no use with the cylinder shutoff valve and crew oxygen shutoff valve open and the supply valve of each diluter demand regulator OFF.
- D. Apparent loss of pressure may be due to temperature change or leakage of the system. Oxygen cylinders are charged to 1850 psi at 70°F. Refer to the Temperature Correction Chart, figure 101 for variations.

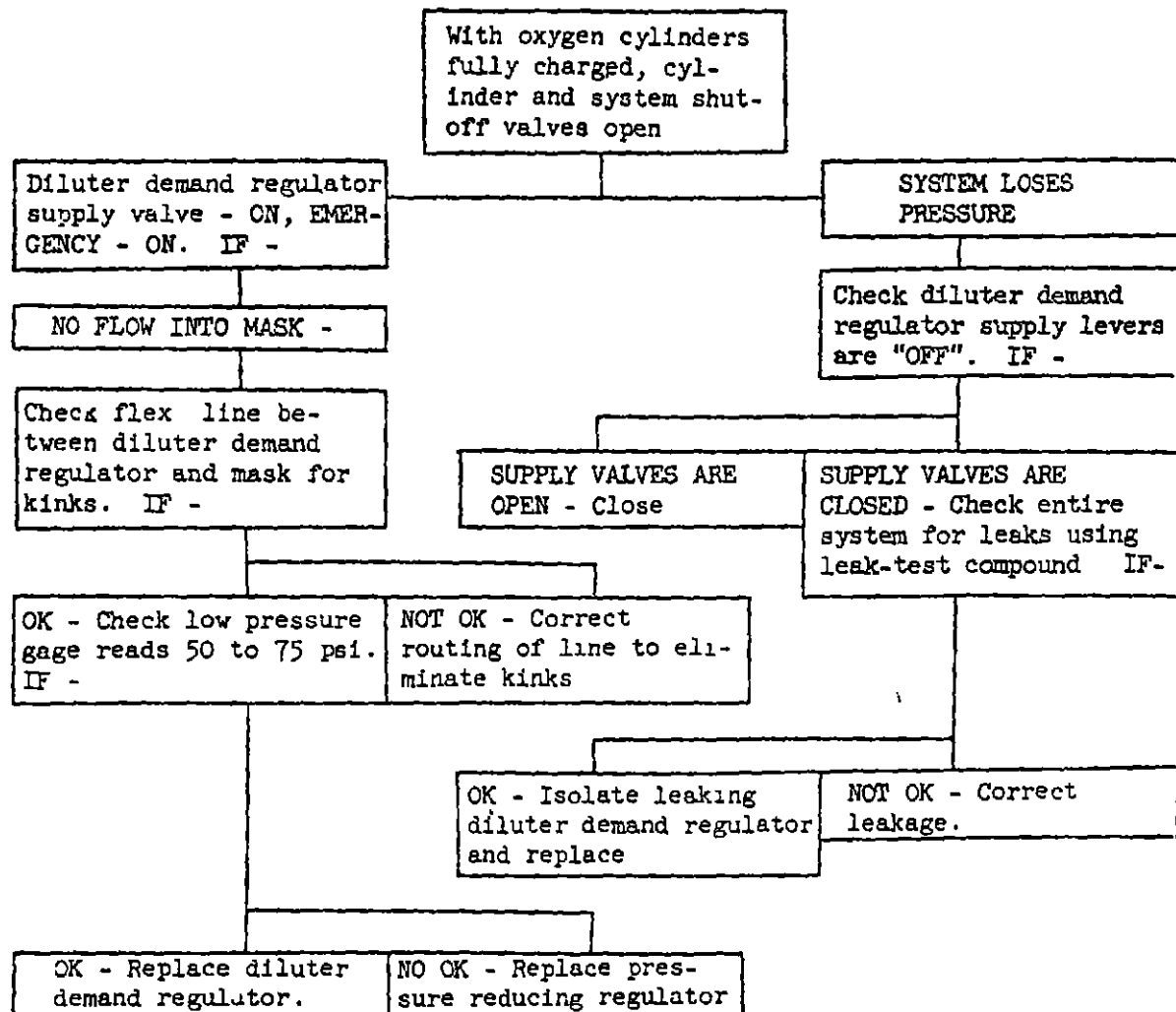
2. Equipment and Materials

- A. Oxygen system leak detection compound. Refer to Chapter 13, Miscellaneous Materials.



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3. Flight Crew Oxygen System Trouble Chart (PA, TW, BA, LH, AI, and SA Turbojet; AF F-BHSA through F-BHSQ; SN OO-SJA through OO-SJE)

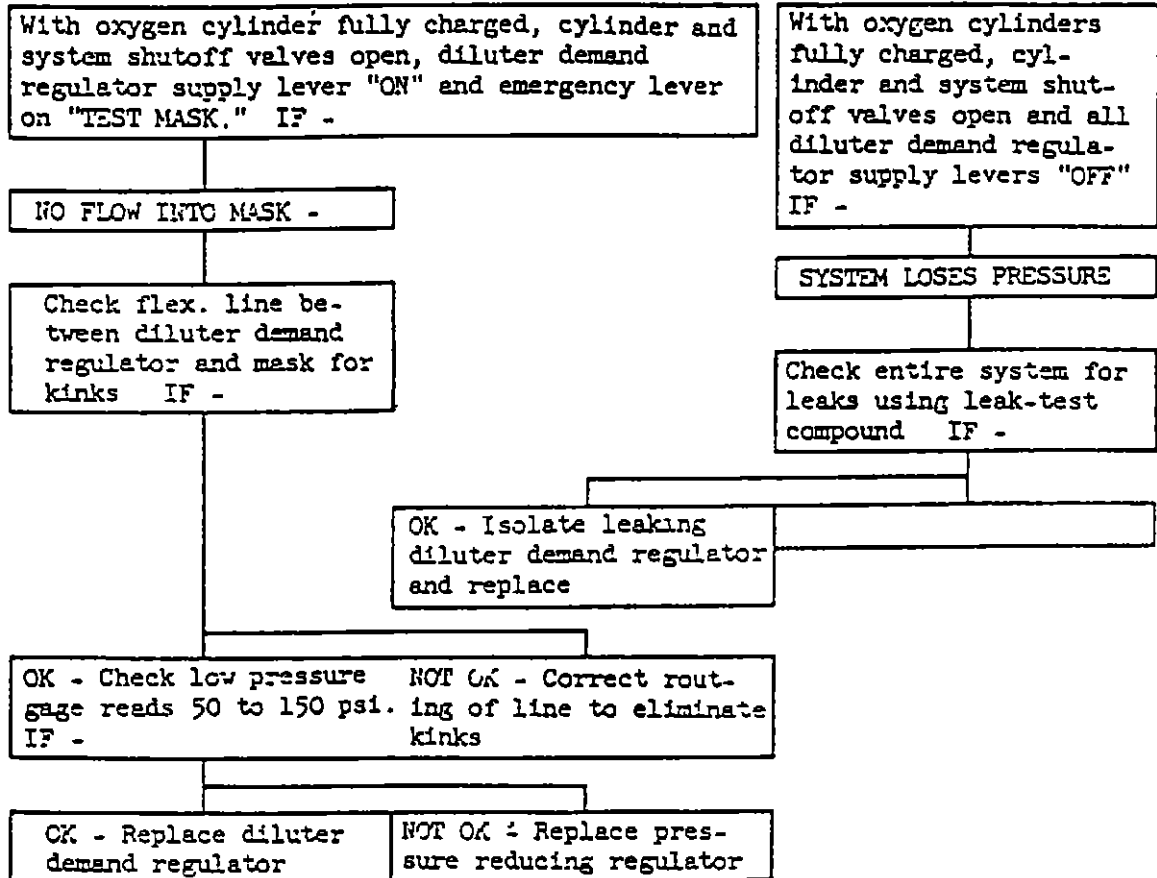




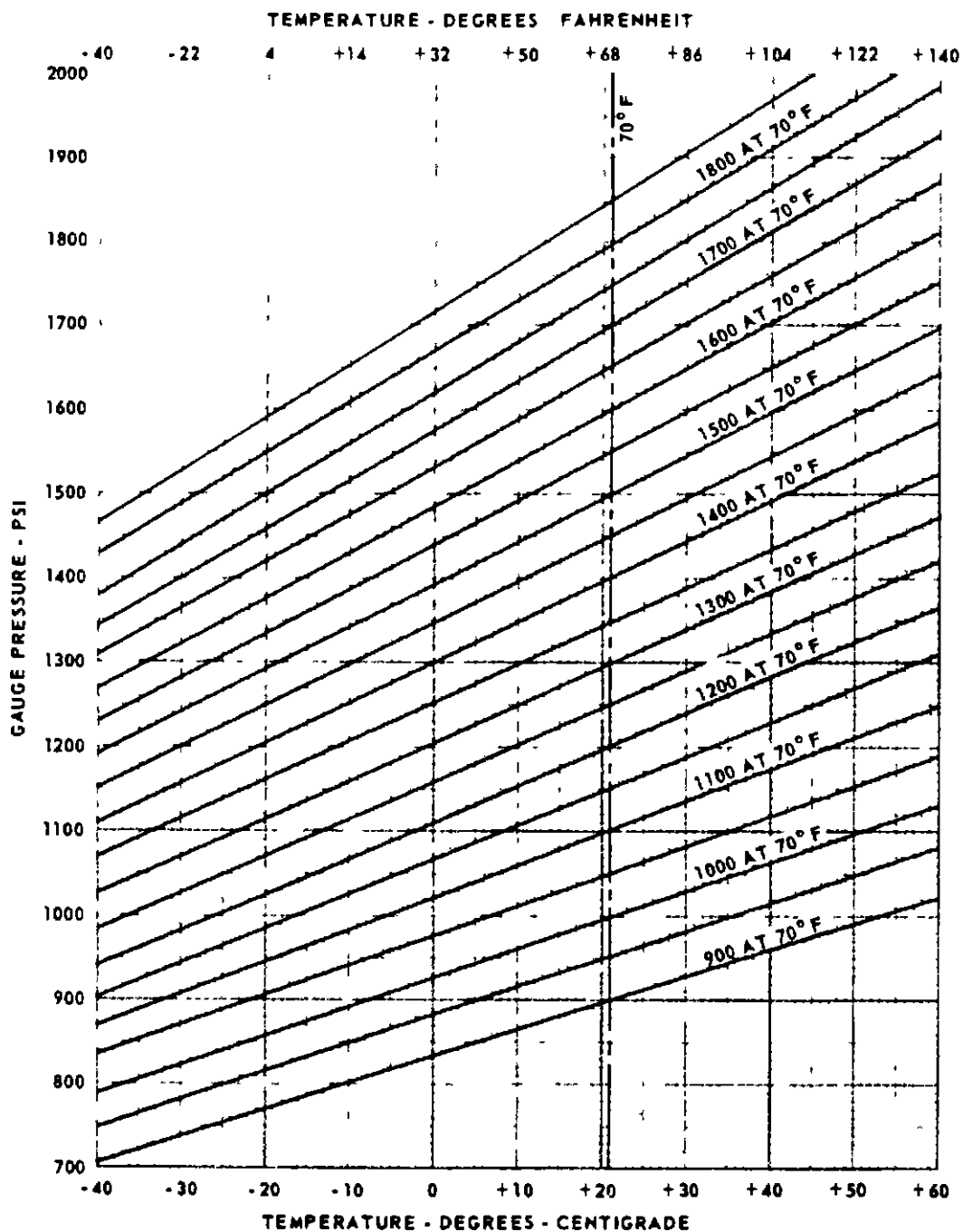
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3. Flight Crew Oxygen System Trouble Chart TCA LX-N20198, LX-N20199.

RTCA LX-N19997, LX-N20000.



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Oxygen Cylinder Pressure Temperature Correction Chart
 Figure 101

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FLIGHT CREW OXYGEN SYSTEM - MAINTENANCE PRACTICES

1. General

A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.

2. Adjustment/Test Flight Crew Oxygen System (SN 00-SJA through 00-SJE, and BA 707-436)

A. Deleted.

B. Test Crew Oxygen Cylinder Shutoff Valve

(1) Check that crew oxygen cylinder shutoff valves are open.

(2) Open crew oxygen system shutoff valve.

(a) Open valve very slowly (approximately 1/2 revolution per second) for 3.5 to 4 full revolutions.

(b) Wait 90 seconds. Check pressure reducing regulator high pressure gage indicates approximately same pressure as crew oxygen cylinder gage or gages.

(c) If pressures agree, continue to open valve slowly to fully opened position.

(d) If pressures fail to equalize in 90 seconds, valve bleed hole may be partially plugged and a longer waiting period is required before opening valve fully. Do not open valve beyond 4 turns if pressure has not equalized.

WARNING DO NOT OPEN VALVE BEYOND 4 TURNS IF PRESSURE HAS NOT EQUALIZED, TO AVOID POSSIBILITY OF SUDDEN TEMPERATURE INCREASE

(e) If waiting period exceeds 90 seconds replace valve at first convenience.

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- (3) Close crew oxygen cylinder shutoff valve.
- (4) Switch emergency and supply levers of one diluter demand regulator to ON to dump any residual pressure in lines. Observe high pressure and low pressure gages indicate zero.
- (5) Switch all diluter demand regulator levers to OFF.
- (6) Check gages during a 15-minute period. There shall be no pressure rise.

C. Test Crew Oxygen System Shutoff Valve

- (1) Close crew oxygen system shutoff valve.
- (2) Slowly open crew oxygen cylinder shutoff valves.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (3) Switch emergency and supply levers of one diluter demand regulator to ON, to dump any residual pressure in lines. Observe low pressure gage reads zero.
- (4) Return diluter demand regulator levers to OFF.
- (5) Check gages during a 15-minute period. There shall be no pressure rise.

D. Test Crew Oxygen System Leakage

- (1) Check that crew oxygen cylinder shutoff valve is open.
- (2) Open crew oxygen system shutoff valve per step 2.3.(2).
- (3) On pressure reducing regulator above control cabin door observe high pressure gage reads approximately same pressure as cylinder gage or gages, and low pressure gage reads 50 to 75 psi.
- (4) Check that all diluter demand regulator supply levers are OFF.
- (5) Close crew oxygen cylinder shutoff valve.
- (6) Close crew oxygen system shutoff valve.
- (7) Check pressure gages during a 15-minute period. There shall be no pressure drop on either gage.

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- (8) Repeat steps (5) and (6) with all diluter demand regulator supply levers in ON.
- (9) Slowly open crew oxygen cylinder shutoff valves to return system to normal. Observe warning in step C.(2).
- (10) Open crew oxygen system shutoff valve per step 1.B.(2).

E. Test Crew Oxygen System Operation

- (1) Slowly open crew oxygen cylinder shutoff valve. Observe warning in step 2.C.(2).
- (2) Open crew oxygen system shutoff valve per step 2.B.(2).
- (3) Check the following:
 - (a) Pressure reducing regulator high pressure gage above control cabin door reads approximately same pressure as cylinder gage or gages.
 - (b) Pressure reducing regulator low pressure gage above control cabin door reads 50 to 75 psi.
- (4) Move supply lever of pilot's diluter demand regulator to ON.
- (5) Move emergency lever of pilot's diluter demand regulator to ON.
- (6) Oxygen should flow through permanently installed mask.
- (7) Plug in auxiliary mask. Oxygen should flow through auxiliary mask only.
- (8) Move diluter demand regulator levers to OFF.
- (9) Repeat steps (5) and (6) at other crew stations in turn, step (7) where applicable.



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3. Adjustment/Test Flight Crew Oxygen System

On the following airplanes.

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

A. Prepare For Testing

- (1) Connect external electrical power and energize 28-volt ac bus circuit breaker panel (P7).
- (2) Check that OXYGEN PRESS circuit breaker on P7 is closed.

B. Test Crew Oxygen Cylinder Shutoff Valve

- (1) Close crew oxygen cylinder shutoff valves.
- (2) On the following airplanes.
AF
SN
LH
Cargo Convertible Airplanes, close personnel accommodations oxygen cylinder shutoff valve.
- (3) Slowly open crew oxygen system shutoff valve.
- (4) Dump any residual pressure in lines through one diluter demand regulator by setting supply lever to ON and emergency lever to TEST MASK. Observe high pressure and low pressure gages read zero.
- (5) Return emergency lever to NORMAL and supply lever to OFF.
- (6) Check gages during a 15-minute period. There shall be no pressure rise.
- (7) If pressure rises, where applicable, determine leaking valve by repeating the test with each cylinder in turn connected to the manifold and the other disconnected. On AF, SN, LH Cargo Convertible Airplanes the personnel accommodations oxygen cylinder must be disconnected also.

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C. Test System Leakage

- (1) Close crew oxygen system shutoff valve.
- (2) Slowly open all cylinder shutoff valves closed in 2.B.(1) above.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (3) Move supply lever to ON and emergency lever to TEST MASK on regulator to dump residual pressure in lines. Observe low pressure gage reads zero.
- (4) Set emergency lever to NORMAL and supply lever to OFF.
- (5) Check gages during a 15-minute period. There shall be no pressure rise.

D. Test Crew Oxygen System Leakage

- (1) Slowly open all crew oxygen cylinder shutoff valves. Refer to warning in step C.(2) above.
- (2) Slowly open crew oxygen system shutoff valve.
- (3) Check that reading of high pressure gage is approximately equal to reading of cylinder gage or gages, and low pressure gage reads 50 to 168 psi.
- (4) Check that all diluter demand regulator supply levers are OFF.
- (5) Close same oxygen cylinder shutoff valves closed in step 2.B.(1) and 2 B.(2).
- (6) Close crew oxygen system shutoff valve.
- (7) Check pressure gages during a 15-minute period. There shall be no pressure drop on either gage.
- (8) Repeat steps (7) and (8) with all diluter demand regulator supply levers in ON position.
- (9) Slowly open oxygen cylinder shutoff valves closed in steps 2.D.(5). Refer to warning in step 2.C.(2) above.
- (10) Slowly open crew oxygen system shutoff valve.

E. Test Crew Oxygen System Operation

- (1) Slowly open all crew oxygen cylinder shutoff valves. Refer to warning in step 2.C.(2) above.
- (2) On AF, SABENA, BOAC, DLH cargo convertible airplanes close personnel accommodations oxygen cylinder shutoff valve.
- (3) Slowly open crew oxygen system shutoff valve.
- (4) Check the following:
 - (a) Pressure reducing regulator high pressure gage in forward cargo compartment reads approximately same pressure as cylinder gage or gages.
 - (b) Pressure reducing regulator low pressure gage above control cabin door reads 50 to 168 psig.
 - (c) High pressure gage on flight engineer's upper instrument panel reads approximately same pressure as cylinder gage or gages.
- (5) Move supply lever of pilot's diluter demand regulator to "ON" position.
- (6) Move emergency lever of pilot's diluter demand regulator to "TEST MASK" position.
- (7) Oxygen should flow through permanently installed mask.
- (8) Plug in auxiliary mask where applicable. Oxygen should flow through auxiliary mask only.
- (9) Move regulator supply lever to "OFF" and emergency lever to "NORMAL."
- (10) Repeat steps (5) through (9), step (8) as applicable, at other crew stations in turn.
- (11) Slowly open valve closed in step E.(2) above to return system to normal. Refer to warning in step C.(2) above.

F. Determine whether there is any further need for electrical power on airplane. If not, remove external power.



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PRESSURE REDUCING REGULATOR - MAINTENANCE PRACTICES

EFFECTIVITY

TCA LX-N20198, LX-N20199.

RTCA LX-N19997, LX-N20000.

1. Removal/Installation Pressure Reducing Regulator

A. Equipment and Materials

- (1) Thread Compound - MIL-T-5542B
- (2) Leak-Test Compound - MIL-L-25567A, Type I

B. Remove Regulator

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen equipment access door in forward cargo compartment.
- (3) Close crew oxygen cylinder shutoff valves. On Cargo Convertible Airplanes close crew and personnel accommodations oxygen cylinder shutoff valves.
- (4) On airplanes with thermal compensators proceed as follows. (See figure 201 for effectivity.)
 - (a) Disconnect B-nut at upstream end of compensator assembly.

NOTE: Residual pressure in high pressure line is 1800 psi and oxygen will escape with some force.
 - (b) Disconnect regulator at outlet.
 - (c) Remove regulator and compensator assembly attached together.
 - (d) Using wrench on union flats rather than on B-nut, disconnect regulator from compensator assembly. Refer to 35-1-151, Thermal Compensators - Maintenance Practices.
- (5) On airplanes without thermal compensators disconnect inlet and outlet lines, remove mounting nuts, and remove regulator.
- (6) Cap open connections.



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C. Install Regulator

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) If nuts are not dry-lube type, apply thread compound, sparingly and evenly, to first three male threads of each fitting. Exert care to keep fitting ends clean.

CAUTION COMPOUND ON FITTING ENDS MAY CONTAMINATE SYSTEM.

- (3) On airplanes with thermal compensators attach regulator to compensator assembly. (See figure 201 for effectivity.) Use wrench on union flats rather than on B-nut. Refer to 35-1-151, Thermal Compensators Maintenance Practices.
- (4) On airplanes without thermal compensators install inlet fitting on regulator.
- (5) Install regulator outlet fitting, mounting nuts, and washer.

NOTE: Ensure that outlet connection extends through hole in beam so that regulator body is outboard of beam and pressure gage reads right side up through window in side of shroud.

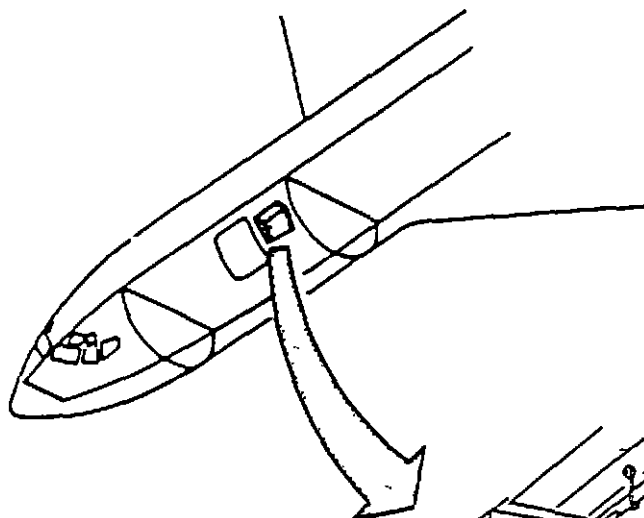
- (6) Restore line connections.
- (7) Slowly open cylinder shutoff valves closed in step B(2) above.

WARNING. VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY ARISE.

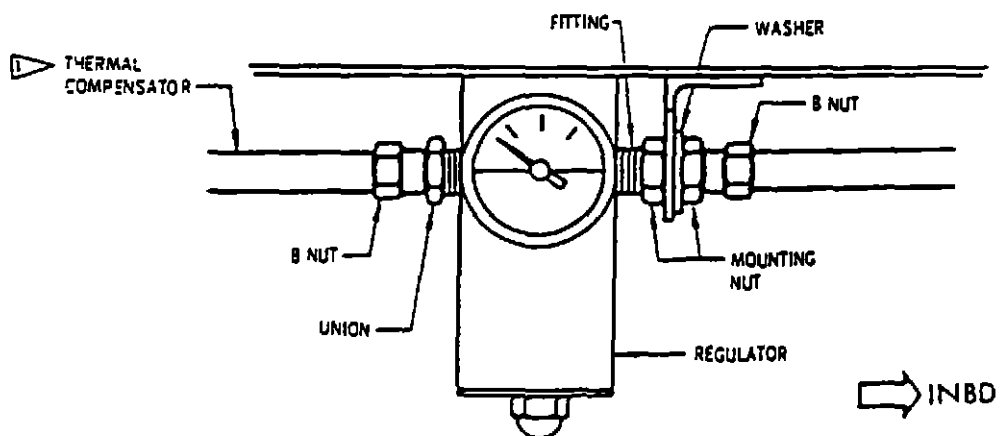
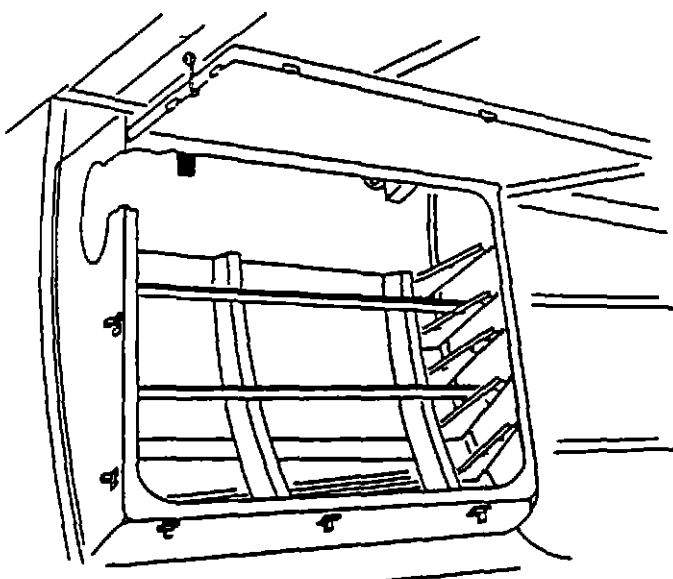
- (8) Observe high pressure gage on regulator and low pressure gage above door in crew compartment to ensure that entire system is pressurized.
- (9) Check for leaks using leak-test compound.
- (10) Test system operation. Refer to 35-1-0, Flight Crew Oxygen System - Maintenance Practices.
- (11) Close oxygen equipment access door.

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▷ TWA TCA LX-N20198
LX-N20199
RTCA LX-N19997
LX-N20000



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Pressure Reducing Regulator Installation
Figure 201

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DILUTER DEMAND REGULATOR - MAINTENANCE PRACTICES

1. Removal/Installation Diluter Demand Regulator

A. General

- (1) There are two different procedures for either removing or installing the diluter demand regulator depending on whether the inlet supply line is a rigid tube or a flexible hose. Effectivities of both types of installation are given below.
- (2) The rigid inlet connection is effective for all regulators in airplanes OO-SJA thru OO-SJE, and the flight engineer's station regulator in airplanes OO-SJA thru OO-SJG.
- (3) The flexible inlet connection is effective for all regulators except the flight engineer's in airplanes OO-SJF thru OO-SJG, and for all regulators in airplanes TCA LX-N20198, LX-N20199. RTCA LX-N19997, LX-N20000.

B. Equipment and Materials

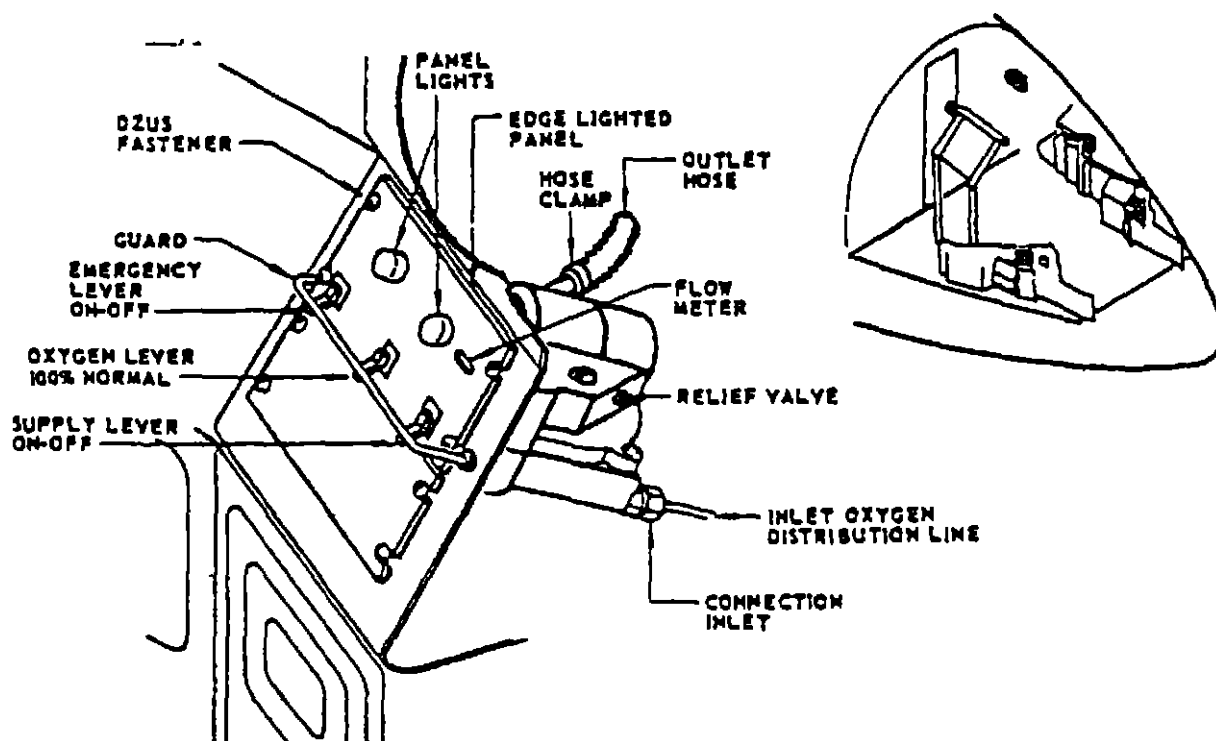
- (1) Bonding meter capable of measuring in a range of at least 0.01 to 0.0001 ohm
- (2) Oxygen system leak detection compound (Ref Chapter 13, Miscellaneous Materials)

C. Remove Regulator (Regulators with Rigid Inlet Line)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Close crew oxygen shutoff valve
- (3) Check proper light control switch in off position.
- (4) Oper corresponding circuit breaker.
- (5) To gain access to inlet connection, remove adjacent equipment as follows:
 - (a) At pilot's or copilot's station remove side trim panel (Ref Chapter 25, Control Cabin Lining).
 - (b) At observer's station remove two auxiliary panels below regulator.

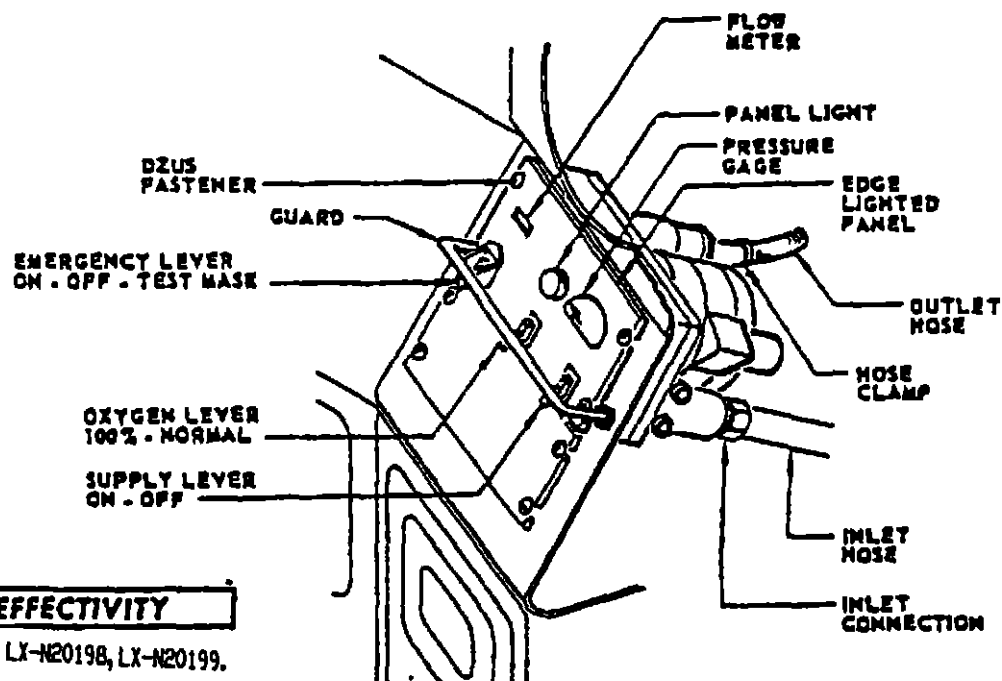
NOTE: Panels are attached by dzus fasteners.

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EFFECTIVITY

AF F-BHSA THROUGH F-BHSQ
SABENA OO-SJA THROUGH OO-SJE



EFFECTIVITY

TCA LX-N20198, LX-N20199.

RTCA LX-N19997, LX-N20000.

Diluter Demand Regulator Installation (Typical)
Figure 201



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- (c) At flight engineer's station remove oxygen hose cover on top of engineer's auxiliary panel.
- (d) At navigator's station in AF airplanes gain access to inlet connection directly at bottom of navigator's equipment rack. In SN airplanes remove two auxiliary panels below regulator.
- (6) Loosen flareless nut at inlet connection to free regulator from distribution line.
- (7) Remove guard as required.
- (8) Release dzus fasteners and displace regulator from position (Fig. 201).
- (9) Disconnect and cap outlet line and connection. Cap inlet line.
- (10) Disconnect electrical connections at terminal strip.

D. Remove Regulator (Regulators with Flexible Inlet Hose)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Close crew oxygen shutoff valve.
- (3) Check proper light control switch in off position.
- (4) Open corresponding circuit breaker.
- (5) Release dzus fasteners and displace regulator from position.
- (6) Disconnect and cap lines and connections.
- (7) Disconnect electrical connections at terminal strip.

E. Install Regulator (Regulators with Rigid Inlet Line)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.

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- (2) Remove caps and connect outlet line. (Do not reuse the clamp on the breathing hose unless it is in good condition.)

- (3) Restore electrical connections.

- (a) Install terminal lugs on regulator wiring.
- (b) Connect lugs to terminal strip. Ensure that airplane power wire is connected to regulator power wire (red) and that airplane ground wire is connected to regulator ground wire (black or white with black tracer as applicable).

CAUTION: IF WIRES ARE CROSS-CONNECTED DAMAGE TO REGULATOR AND/OR INLET HOSE MAY RESULT.

- (4) Position regulator, connect inlet line loosely and secure dzus fasteners. Tighten inlet connection.
- (5) Open crew oxygen shutoff valve to pressurize system. Check gages. On AF airplanes F-BHSA thru F-BHSQ and SN airplanes OO-SJA thru OO-SJE proceed as follows:

- (a) Open valve very slowly (approximately 1/2 revolution per second) for 3.5 to 4 turns.
- (b) Wait 90 seconds. Check that pressure reducing regulator high pressure gage indicates same pressure as crew oxygen cylinders.
- (c) If pressures agree, continue to open valve slowly to fully opened position.
- (d) If pressure fails to equalize in 90 seconds, valve bleed hole may be partially plugged and a longer waiting period is required before opening valve fully. Do not open valve beyond 4 turns if pressure has not equalized.

WARNING: DO NOT OPEN VALVE BEYOND FOUR TURNS IF PRESSURE HAS NOT EQUALIZED TO AVOID POSSIBILITY OF SUDDEN TEMPERATURE INCREASE.

- (e) If waiting period exceeds 90 seconds, replace valve.
- (6) Check for leaks using leak detection compound.

NOTE: Remove adjacent panels or trim as necessary (Ref Chapter 33, Lighted Plates). Use mirrors if necessary.



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- (7) Replace guard where applicable.
- (8) Replace adjacent panels or trim as necessary.
- (9) Check oxygen regulator for proper grounding using bonding meter. Maximum resistance between regulator front plate and airframe must be 0.001 ohm or less.
- (10) Close circuit breaker.

F. Install Regulator (Regulators with Flexible Inlet Line)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Remove caps and connect outlet line. (Do not reuse the clamp on the breathing hose unless it is in good condition.)
- (3) Restore electrical connections (Ref step E.(3) above).
- (4) Connect inlet line, position regulator, and secure dzus fasteners.
- (5) Slowly open crew oxygen shutoff valve to pressurize system.
- (6) Check for leaks using leak detection compound.

NOTE: Remove adjacent panels or trim as necessary (Ref Chapter 33, Edge-Lighted Plates). Use mirrors if necessary.

- (7) Replace guard where applicable.
- (8) Replace adjacent panels or trim as necessary.
- (9) Check for proper grounding of regulator (Ref step E.(9) above).
- (10) Close circuit breaker.

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CREW OXYGEN SHUTOFF VALVE - MAINTENANCE PRACTICES

1. Removal/Installation Crew Oxygen Shutoff Valve (See figure 201.)

A. Equipment and Materials

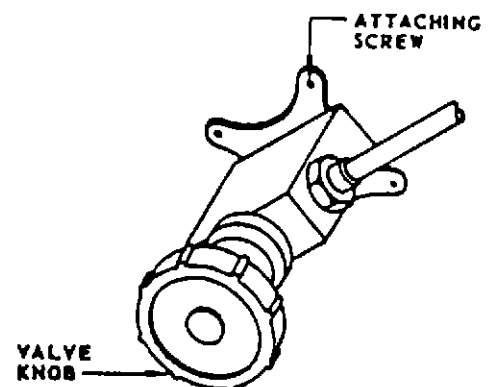
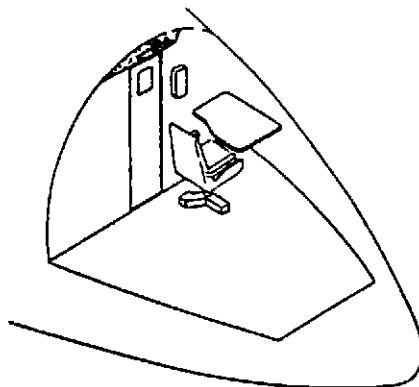
- (1) Leak-Test Compound - MIL-L-25567A, Type I
- (2) Thread Compound - MIL-T-5542B

B. Remove Shutoff Valve

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open crew oxygen cylinder stowage door.
- (3) Close crew oxygen cylinder shutoff valve. On turbofan airplanes close all crew and personnel accommodations oxygen systems shutoff valves.
- (4) Remove crew oxygen shutoff valve knob.
- (5) Remove ceiling trim panel.
- (6) Disconnect and cap inlet and outlet lines and connections.
- (7) Remove attaching screws and remove shutoff valve.

C. Install Shutoff Valve

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.



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Crew Oxygen Shutoff Valve Installation
Figure 201

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(2) Remove valve knob.

- (a) If nuts are not dry-lube type, remove caps from inlet and outlet fittings, and apply thread compound per MIL-T-5542B, sparingly and evenly, to first three male threads of each fitting. Exert care to keep fitting ends clean.

CAUTION: COMPOUND ON FITTING ENDS MAY CONTAMINATE SYSTEM.

(3) Position shutoff valve and install attaching screws.

(4) Connect inlet and outlet lines.

(5) Slowly open crew oxygen cylinder shutoff valve. On Turbofan airplanes slowly open all crew and personnel accommodations oxygen cylinders shutoff valves.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURE RISE MAY OCCUR.

(6) Close cylinder stowage door.

(7) Observe pressure gage to be sure system is pressurized.

(8) Open system shutoff valve.

(a) On airplanes OO-SJA thru OO-SJE, proceed as follows:

- 1) Open valve very slowly (approximately 1/2 revolution per second) for 3.5 to 4 turns.
- 2) Wait 90 seconds. Check pressure reducing regulator high pressure gage indicates same pressure as crew oxygen cylinders.
- 3) If pressures agree, continue to open valve slowly to fully opened position.
- 4) If pressure fails to equalize in 90 seconds, valve bleed hole may be partially plugged and a longer waiting period is required before opening valve fully. Do not open valve beyond 4 turns if pressure has not equalized.

WARNING: DO NOT OPEN VALVE BEYOND FOUR TURNS IF PRESSURE HAS NOT EQUALIZED TO AVOID POSSIBILITY OF SUDDEN TEMPERATURE INCREASE.

5) If waiting period exceeds 90 seconds, replace valve.

(9) Check for leaks using leak-test compound.

(10) Install ceiling trim panel.

(11) Install valve knob.

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CREW OXYGEN CYLINDER ASSEMBLIES - REMOVAL/INSTALLATION

EFFECTIVITY

All except
AF F-BHSA thru F-BHSQ
AI VT-DJI thru VT-DMN
SN OO-SJA thru OO-SJE
RG PP-VJA and PP-VJB

1. General

- A. The oxygen cylinders are located on the right side of the forward cargo compartment. Access to the cylinders is through the oxygen equipment shroud door.

2. Equipment and Materials

- A. Oxygen Leak Detection Compound, Specification MIL-L-25567

3. Remove Cylinder Assembly (See figure 401)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. In the forward cargo compartment, open oxygen equipment shroud door and secure it in the open position
- C. Close all oxygen cylinder shutoff valves hand tight.
- D. Disconnect overboard discharge line coupling nut from cylinder.
- E. Slowly loosen high pressure line coupling nut at cylinder to bleed system pressure, then disconnect

WARNING RESIDUAL PRESSURE MAY EXIST IN LINES AND ESCAPE WITH SOME FORCE

CAUTION - DISCONNECT HIGH PRESSURE LINE CYLINDER COUPLING NUT, NOT B NUT AT FLARELESS TUBE CONNECTION

- F. Release clamps and remove cylinder assembly
- G. Install protective caps at cylinder ports and open lines to prevent contamination of system



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4. Install Cylinder Assembly (See Figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Ensure that hydrostatic test date on replacement oxygen cylinder has not expired and that cylinder is in good condition.

- C. Remove any lockwire or cotter pin which may be used to secure cap on fully charged oxygen cylinder. Slowly unscrew cap from cylinder and allow any trapped gas to bleed off before final disengagement of threads.

WARNING: FULL CYLINDER PRESSURE MAY EXIST INSIDE PRESSURE TYPE CAP. CAP MAY BE BLOWN OFF WITH SOME FORCE IF UNSCREWED TOO RAPIDLY TO ALLOW FOR VENTING OF TRAPPED GAS.

NOTE: Pressure type caps are used on oxygen cylinders having metal seats in the shutoff valves and are usually retained to cylinder with a short length of chain. Do not cut or detach chain after removal of cap.

- D. Place cylinder assembly in mounting position.

- E. Connect high pressure oxygen line and overboard discharge line to cylinder ports. Ensure tight connections.

WARNING: NO OIL, LUBRICANT OR GASKETS SHALL BE USED IN MAKING THESE CONNECTIONS.

- F. Connect cylinder quick release clamps.

- G. Slowly open oxygen cylinder valve individually to full open.

WARNING: VALVE MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURE MAY RESULT.

- H. Check that no leakage exists at cylinder connections using leak detection compound. Leak detection compound shall be wiped off with a clean cloth immediately after testing.

- I. Check that system pressure is within required range.

- J. If installed cylinder has a pressure type cap retained by a length of chain, secure cap from excess movement with lockwire.

- K. Close access door.

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4 Install Cylinder Assembly (See Figure 401)

A Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices

B Make sure it has not been more than three years since the oxygen cylinder had its last hydrostatic test

NOTE The last hydrostatic test date will be stamped on the neck of the oxygen cylinder

C Remove any lockwire or cotter pin which may be used to secure cap on fully charged oxygen cylinder. Slowly unscrew cap from cylinder and allow any trapped gas to bleed off before final disengagement of threads

WARNING FULL CYLINDER PRESSURE MAY EXIST INSIDE PRESSURE TYPE CAP. CAP MAY BE BLOWN OFF WITH SOME FORCE IF UNSCREWED TOO RAPIDLY TO ALLOW FOR VENTING OF TRAPPED GAS

NOTE Pressure type caps are used on oxygen cylinders having metal seats in the shutoff valves and are usually retained to cylinder with a short length of chain. Do not cut or detach chain after removal of cap

D Place cylinder assembly in mounting position

E Connect high pressure oxygen line and overboard discharge line to cylinder ports. Ensure tight connections

WARNING NO OIL, LUBRICANT OR GASKETS SHALL BE USED IN MAKING THESE CONNECTIONS

F Connect cylinder quick release clamps

G Slowly open oxygen cylinder valve individually to full open

WARNING VALVE MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURE MAY RESULT

H Check that no leakage exists at cylinder connections using leak detection compound. Leak detection compound shall be wiped off with a clean cloth immediately after testing

I Check that system pressure is within required range

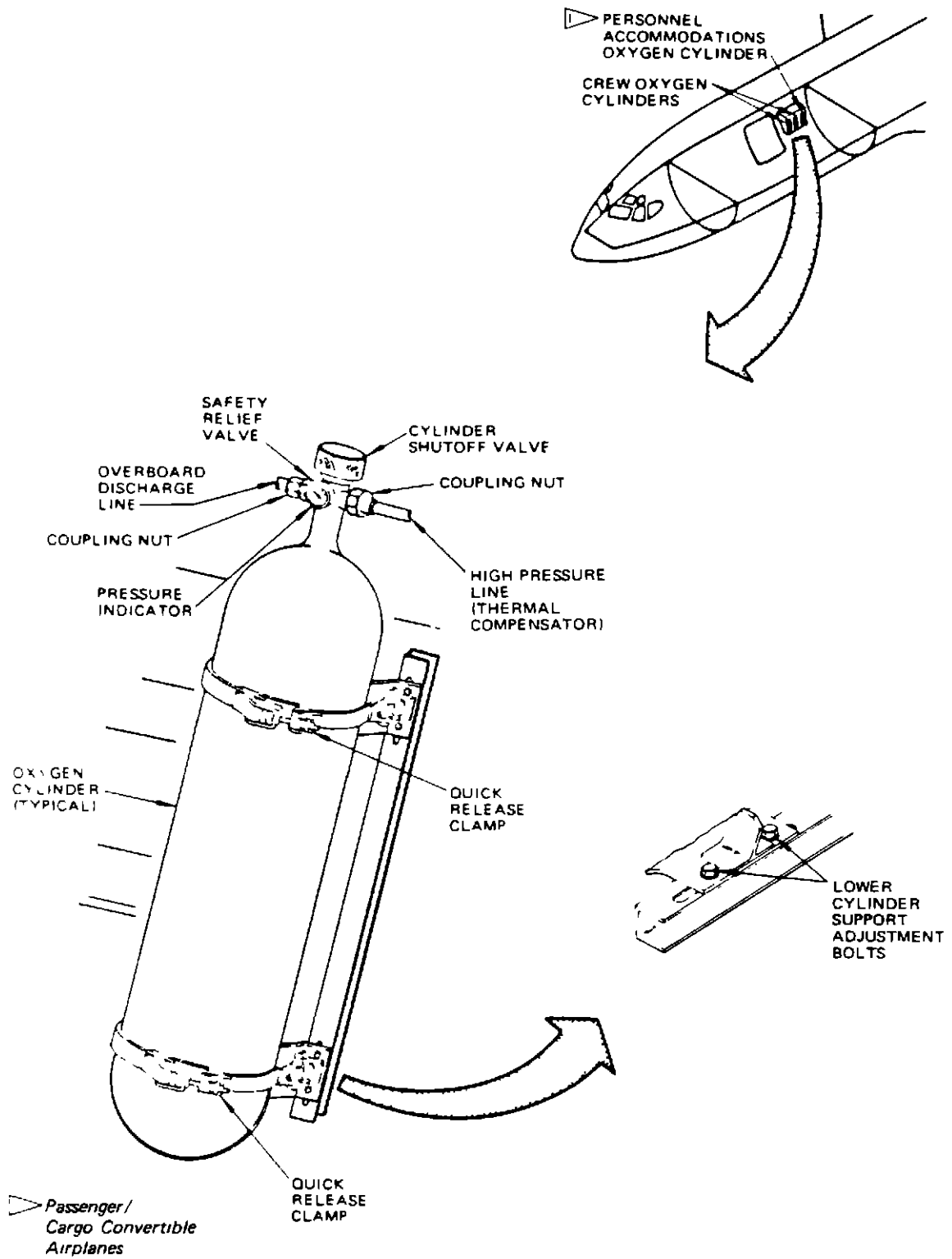
J If installed cylinder has a pressure type cap retained by a length of chain, secure cap from excess movement with lockwire

K Close access door

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Crew Oxygen Cylinder Installation
 Figure 401



PRESSURE TRANSMITTER - MAINTENANCE PRACTICES

1. Removal/Installation Pressure Transmitter

A. Equipment and Materials

- (1) Thread Compound - MIL-T-5542B
- (2) Leak-Test Compound - MIL-L-25567A, Type I

B. Remove Transmitter

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Pull OXYGEN PRESSURE circuit breaker on 28 VOLT AC BUS circuit breaker panel (P7).
- (3) Open oxygen cylinder access door.
- (4) Close crew oxygen cylinder shutoff valve. On Turbofan Airplanes close all crew and personnel oxygen cylinder shutoff valves.
- (5) Disconnect transmitter electrical connector. (See figure 201.)
- (6) Disconnect and cap line and connection.
- (7) Remove attachment screws and remove transmitter.

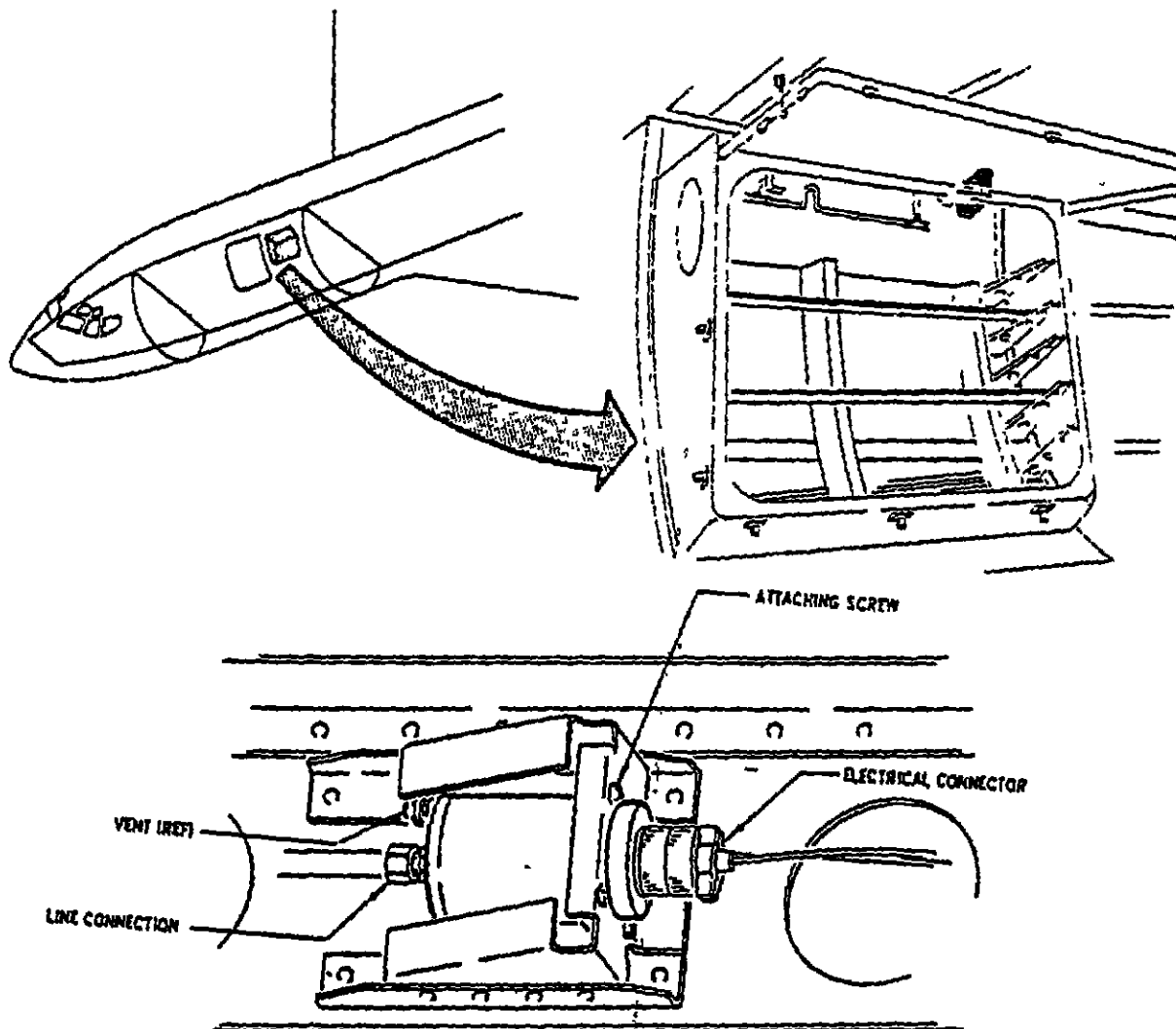
C. Install Transmitter

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) If nuts are not dry-lube type, remove caps from regulator inlet and outlet fittings, and apply thread compound, sparingly and evenly, to first three male threads of each fitting. Exert care to keep fitting ends clean.

CAUTION: COMPOUND ON FITTING ENDS MAY CONTAMINATE SYSTEM.

- (3) Position transmitter and install attachment screws.
- (4) Remove caps and connect line.

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TR 35-115
 Crew Oxygen System Pressure Transmitter Installation
 Figure 201



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- (5) Connect electrical connector.
- (6) Connect external electrical power and energize 28 VOLT AC BUS circuit breaker panel (P7)
- (7) Check that OXYGEN PRESSURE circuit breaker is closed.
- (8) Slowly open cylinder shutoff valves closed in step B.(4).

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURE RISE MAY OCCUR.

- (9) Check system for correct pressure. Refer to temperature correction chart, 35-1-0, figure 101, for recommended gage pressure at the given ambient temperature.
- (10) Check for leakage using leak-test compound.
- (11) Close access door.
- (12) Determine whether there is any further need for electrical power on airplane. If not, remove external power.

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CREW OXYGEN LOW PRESSURE GAGE - MAINTENANCE PRACTICES

1. Removal/Installation Crew Oxygen Low Pressure Gage (See figure 201.)

A. Equipment and Materials

- (1) Thread Compound - MIL-T-5542B
- (2) Leak-Test Compound - MIL-L-25567A, Type I

B. Remove Gage

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Close crew oxygen shutoff valve.
- (3) Remove crew oxygen shutoff valve knob.
- (4) Remove ceiling trim panel.
- (5) Disconnect and cap inlet and outlet lines and connections.
- (6) Remove mounting screws and remove gage.

C. Install Gage

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Apply thread compound sparingly and evenly to male thread only.
CAUTION: NO LUBRICANT SHALL BE ALLOWED ON FITTING ENDS.
- (3) Position gage and install mounting screws.
- (4) Remove caps and connect inlet and outlet lines.
- (5) Open shutoff valve but do not install knob.
- (6) Observe pressure gage to ensure it is functioning properly.

NOTE: Gage should read between 50 and 168 psi.

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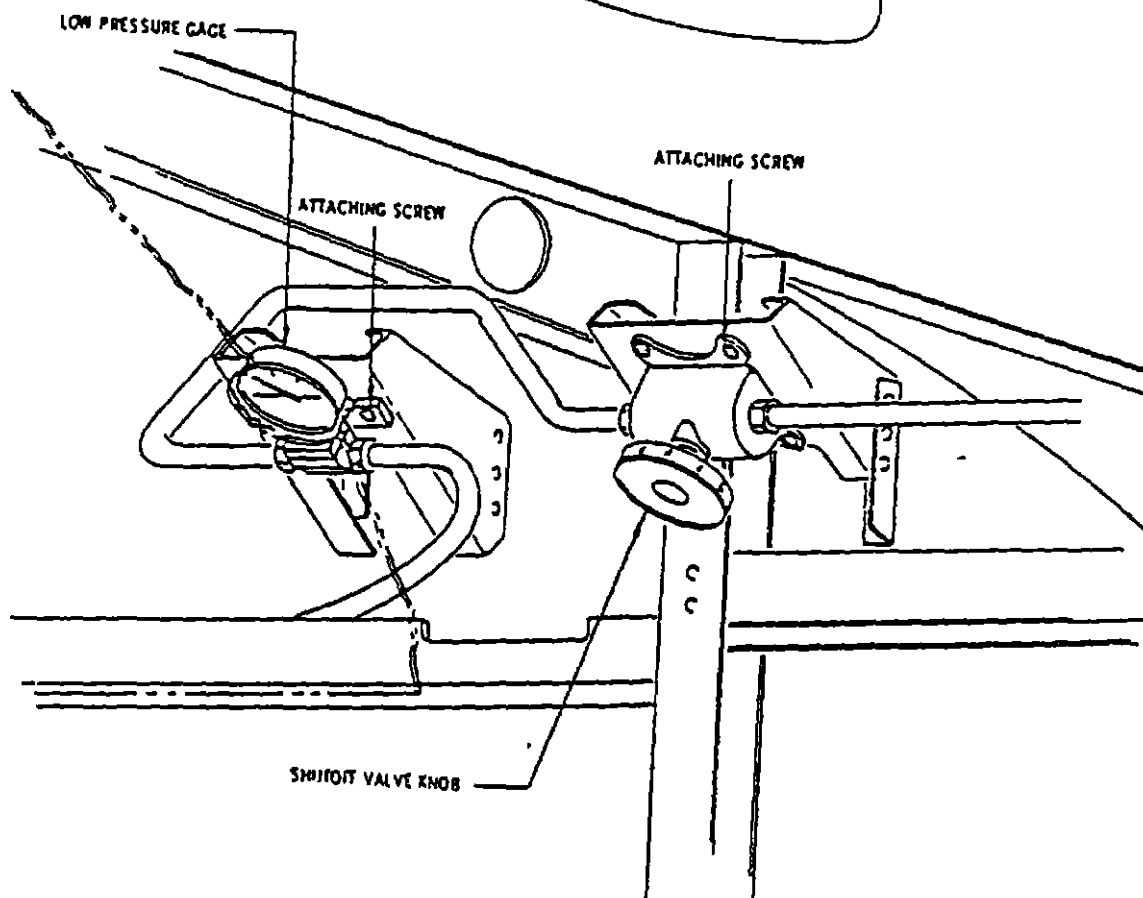
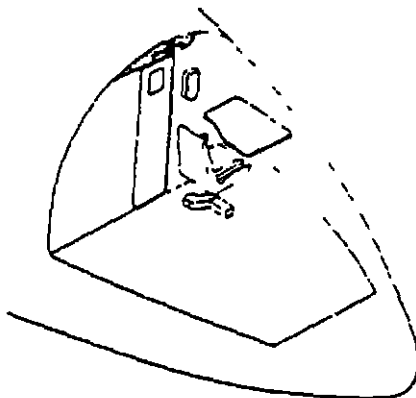
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- (7) Check for leaks using leak test compound.
- (8) Install ceiling trim panel.
- (9) Install valve knob.



TR 35-129
Pressure Gage and Shutoff Valve Installation
Figure 201



THERMAL COMPENSATOR ASSEMBLY - REMOVAL/INSTALLATION

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. General

- A. On Passenger/Cargo Convertible Airplanes, these instructions cover thermal compensator assemblies in the crew and personnel accommodations oxygen systems. (See figure 401.)
- B. During removal, installation and cleaning the compensator assemblies are not disassembled.

2. Removal/Installation of Thermal Compensator Assemblies Installed on Oxygen Cylinders

A. Equipment and Materials

- (1) Oxygen system leak detection compound. Refer to Chapter 13, Miscellaneous Materials.

B. Remove Thermal Compensator Assembly

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Close all crew oxygen cylinder shutoff valves. On airplanes with personnel accommodations oxygen system, close all crew and personnel accommodations oxygen cylinder shutoff valves.
- (3) Disconnect connector coupling at cylinder end of thermal compensator assembly. (See detail A, figure 401.)

CAUTION: DAMAGE TO THERMAL COMPENSATOR WIRE BRISTLES AND JAMMING OF COMPENSATOR IN CONNECTOR COUPLING MAY RESULT IF SEPARATION IS MADE BETWEEN CONNECTOR COUPLING AND B-NUT.

NOTE: Do not loosen the small B-nut next to connector coupling.

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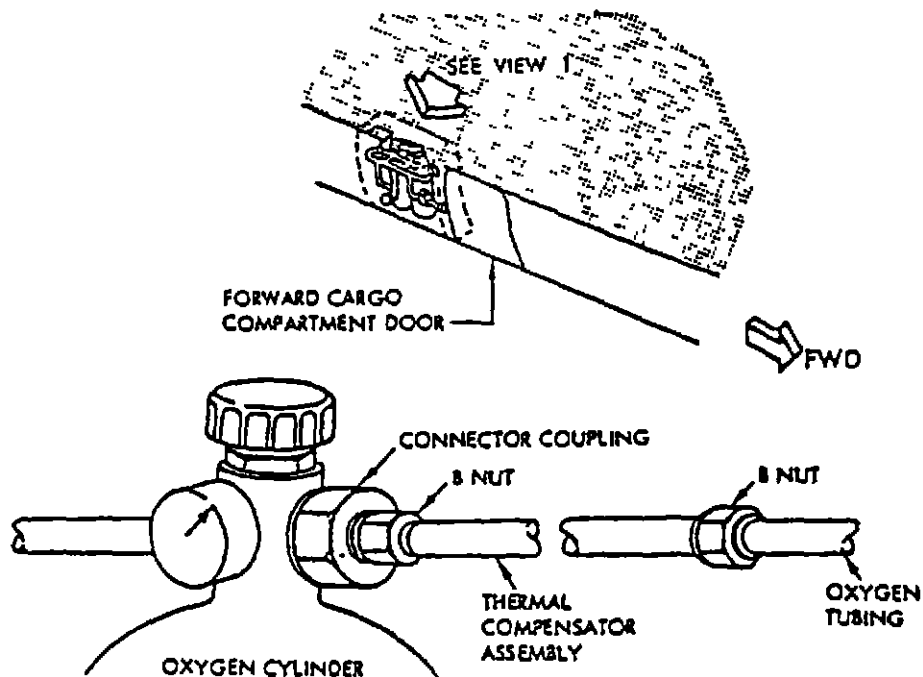
- (4) Disconnect B-nut at tube end of thermal compensator assembly.
- (5) Remove thermal compensator assembly.

C. Install Thermal Compensator Assembly

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Replace thermal compensator.
Optional: clean existing compensator. Refer to Thermal Compensator Assembly - Cleaning/Painting.
- (3) Position assembly.
- (4) Loosely connect connector coupling. Refer to NOTE and CAUTION on step 2.B.(3) above.
- (5) Loosely connect B-nut at tube end of thermal compensator assembly.
- (6) Tighten connections.
- (7) Slowly open cylinder shutoff valves closed in step 2.B.(2).

CAUTION. VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (8) Check for leaks using leak-test compound.



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DETAIL A

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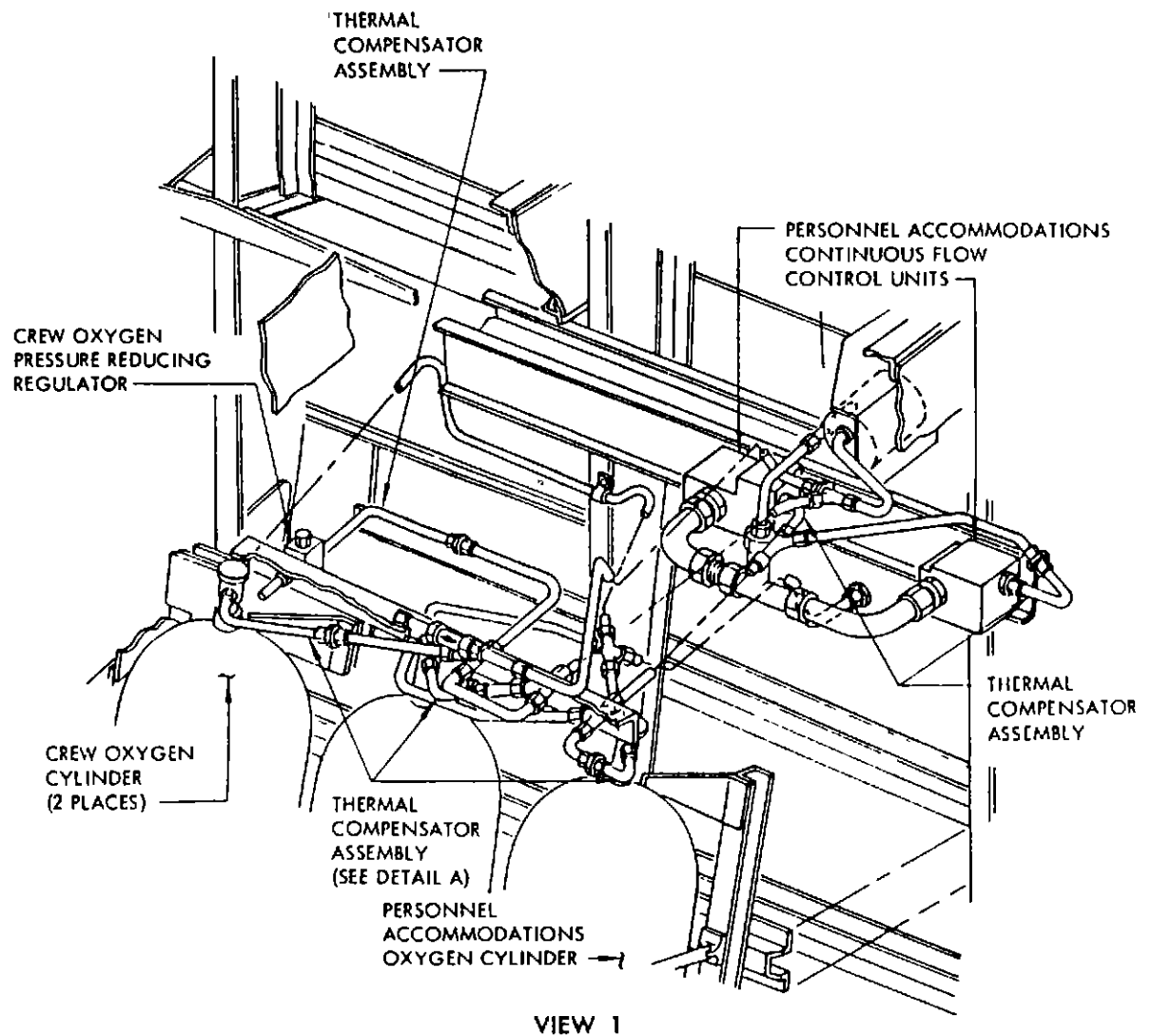
Crew and Personnel Accommodations Thermal Compensators Installation 10

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Figure 401 (Sheet 1)

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Crew and Personnel Accommodations
Thermal Compensators Installation
Figure 401 (Sheet 2)

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3. Removal/Installation of Thermal Compensator Assemblies Installed on Other Components

A. General

- (1) Thermal compensator assemblies consist of the tube, thermal compensator and the union into which some of the compensator bristles extend.

CAUTION: ROTATION OF THE COMPENSATOR WITHIN THE UNION MUST BE HELD TO THE ABSOLUTE MINIMUM AS ROTATION MAY DAMAGE THE WIRE BRISTLES, THUS REDUCING THE COMPENSATOR EFFICIENCY, AND MAY CAUSE LEAKS. REPLACE THE COMPENSATOR ASSEMBLY IF THE COMPENSATOR AND UNION HAVE HAD ANY LONGITUDINAL MOTION OR IF THE COMPENSATOR AND UNION CAN BE READILY ROTATED BY HAND.

B. Remove Thermal Compensator Assembly

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Remove component and compensator assembly as a unit. (See figure 401.) Refer to specific component removal/installation instructions.
- (3) Using wrench on union flats rather than B-nut, remove compensator assembly from component.

NOTE: Do not loosen compensator assembly B-nut when removing union from component.

C. Install Thermal Compensator Assembly

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Replace thermal compensator.
Optional: clean existing compensator. Refer to Thermal Compensator Assembly - Cleaning/Painting.
- (3) Install compensator assembly on component, using a wrench on union flats to tighten assembly. (See figure 401.)
- (4) Install component and compensator assembly as a unit into the oxygen system. Refer to specific component removal/installation instructions.
- (5) If it is necessary to rotate compensator assembly to align tubing connections, loosen compensator assembly B-nut and rotate as required. Refer to CAUTION on step 3.A.(1) above.

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THERMAL COMPENSATOR ASSEMBLY - ADJUSTMENT/TEST

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. Equipment and Materials

A. Air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 ppm total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F. and 760 mm mercury

B. Flowmeter with a range of 0 to 1200 liters per minute

2. Test Thermal Compensator Assembly (Flow Test)

A. Check that pressure drop does not exceed 200 psi with a flow rate of 1000 liters per minute of air at standard conditions.



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THERMAL COMPENSATOR ASSEMBLY - CLEANING/PAINTING

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. Equipment and Materials

- A. Nitrogen per Specification BB-N-411, Type 1, Class I, Grade A
- B. Air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 ppm total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F. and 760 mm mercury

2. Clean Thermal Compensator Assembly

- A. Clean by ultrasonic cleaning or by vapor degreasing process.

CAUTION. IN NO CASE SHOULD THE THERMAL COMPENSATOR (WIRE BRUSH) BE SEPARATED FROM THE ASSEMBLY. REPLACE ASSEMBLY IF COMPENSATOR AND UNION HAVE HAD ANY LONGITUDINAL MOTION, OR IF COMPENSATOR AND UNION CAN BE READILY ROTATED BY HAND.

- B. After cleaning purge and dry with nitrogen or air.
- C. Perform flow test. Refer to Thermal Compensator Assembly Adjustment/Test.

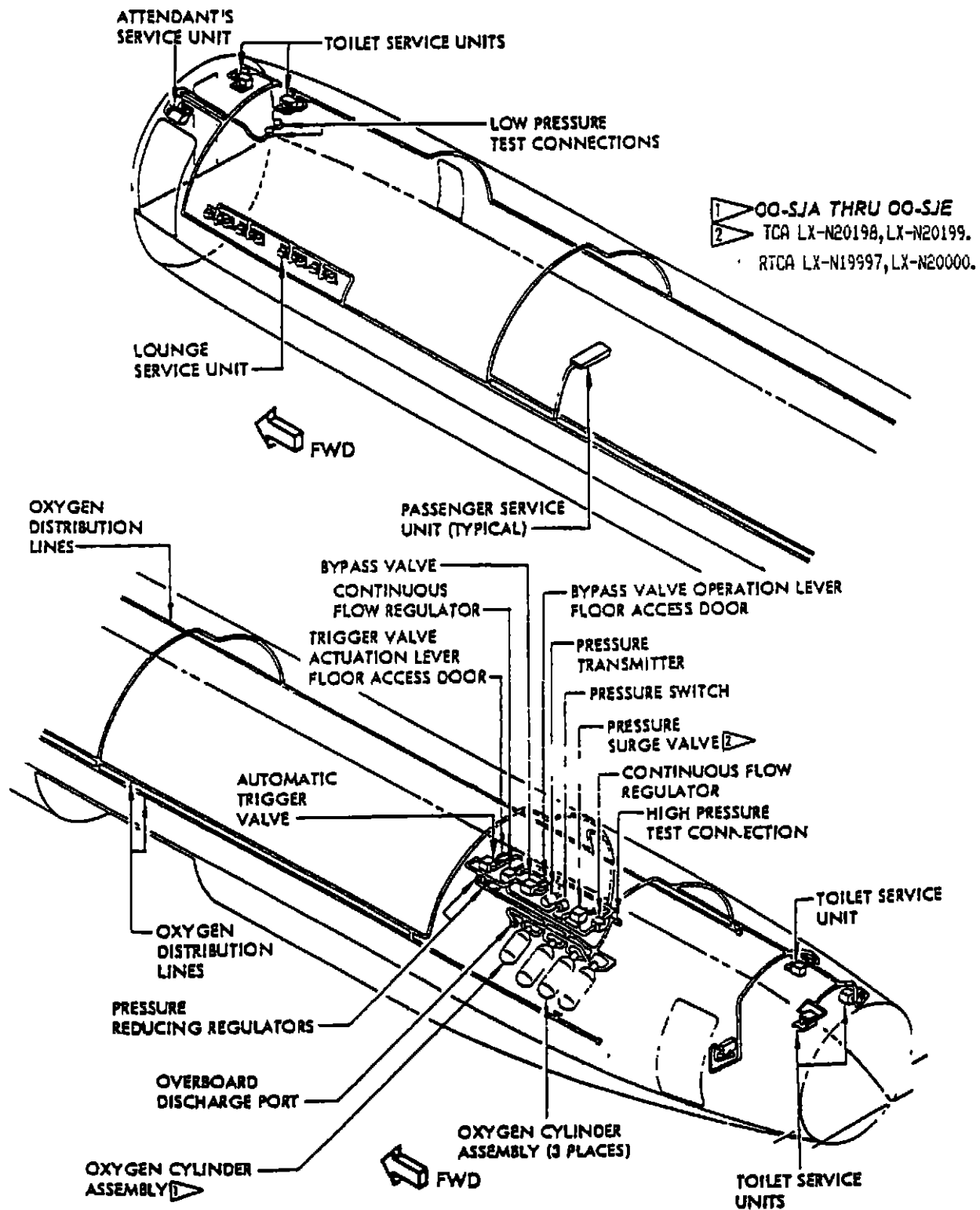


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PASSENGER OXYGEN SYSTEM - DESCRIPTION AND OPERATION

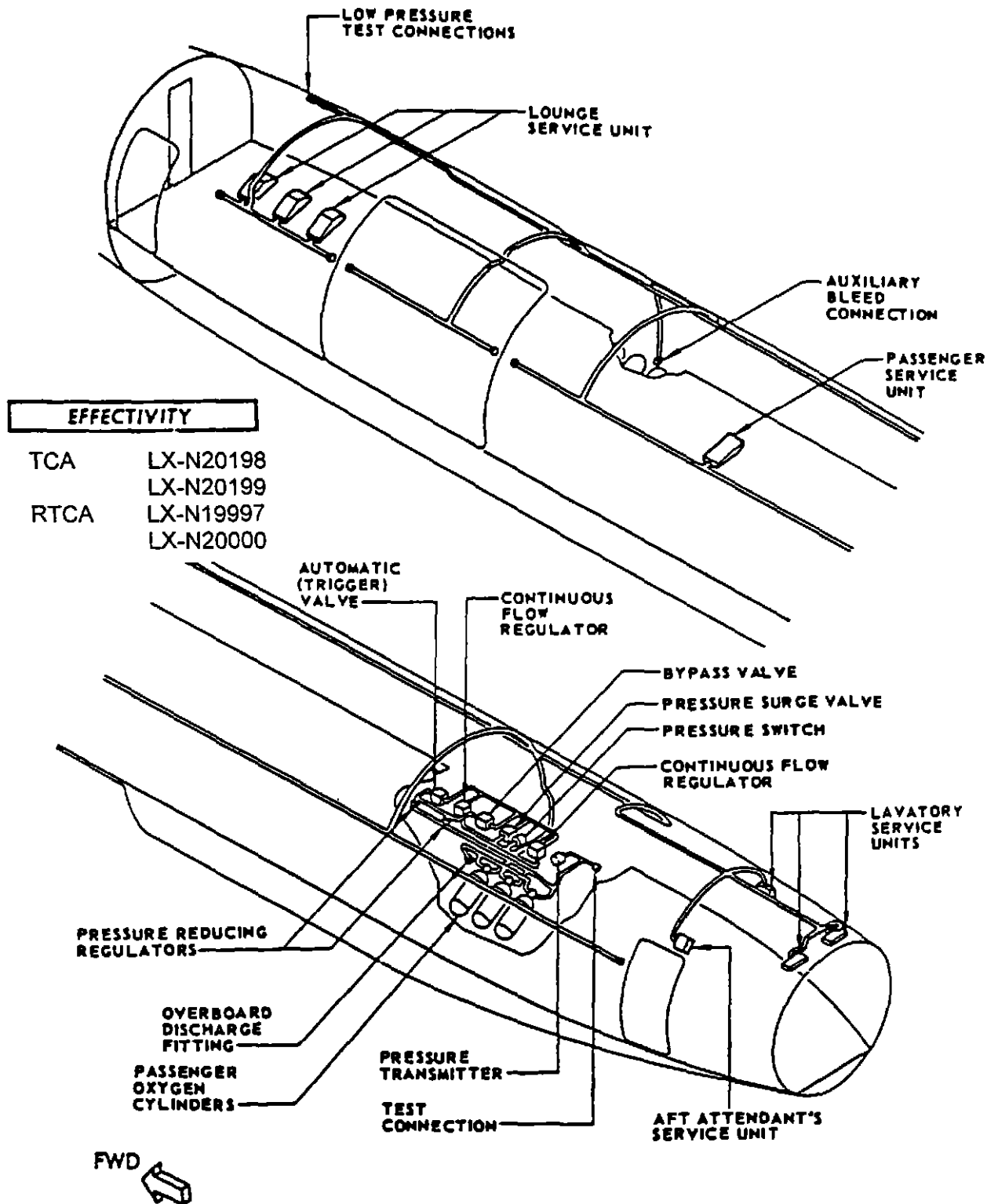
1 General (See figures 1 and 2)

- A. The passenger oxygen system supplies oxygen automatically to each passenger and cabin attendant's station when cabin altitude rises above 14,000 feet. The system consists of oxygen cylinder assemblies, pressure and flow controls, oxygen distribution lines, pressure indicators, and oxygen masks stowed in passenger service units. Operation of the system is initiated automatically by a pressure sensitive valve, which continually senses cabin pressure, or manually through a solenoid bypass valve.
- B. On TCA LX-N20198, LX-N20199 TCA LX-N19997, 1 X-N20000. The capacity is 342 cubic feet (9685 liters) of free oxygen. During operation of the system, high pressure oxygen flows through pressure regulators and flow regulators to oxygen masks stowed in the passenger service units. Oxygen pressure at the service units operates latches which release the stowed masks and allow them to drop 6 to 8 inches to be within easy reach of each passenger. By pulling the mask downward, the passenger turns a valve control lever, attached to the oxygen mask hose by a spring clip, and thus opens the passenger mask shutoff valve. This allows oxygen to flow through the mask.
- C. Each oxygen cylinder is equipped with a slow opening cylinder valve provided with a safety discharge outlet which is sealed by a safety disc. The safety disc breaks to discharge the cylinder if cylinder pressure exceeds a safe limit. All safety discharge outlets are connected to a common overboard discharge line.
- D. The pressure and flow controls are mainly automatic. Two pressure reducing regulators reduce the cylinder pressure to 450 to 350 psi. An automatic valve opens at 14,000 feet cabin altitude and admits oxygen to two continuous flow regulators, and, on airplanes 00-SJF and on, to a surge valve. The automatic valve can be bypassed by a manually controlled solenoid bypass valve if the automatic valve fails, or if oxygen is required at lower cabin altitudes. Two continuous flow regulators maintain a steady flow of low pressure oxygen to the service units and passenger masks. Test connections are provided in both high and low pressure sections of the system.
- E. Cylinder pressure is shown by a pressure indicator, which receives signals from a remote pressure transmitter. Cylinder pressure gives an indication of quantity of oxygen available. Warning lights at the pilots' and attendants' stations illuminate when the oxygen system is in use. The lights are controlled by a pressure switch in the low pressure distribution line. (See figure 3.)



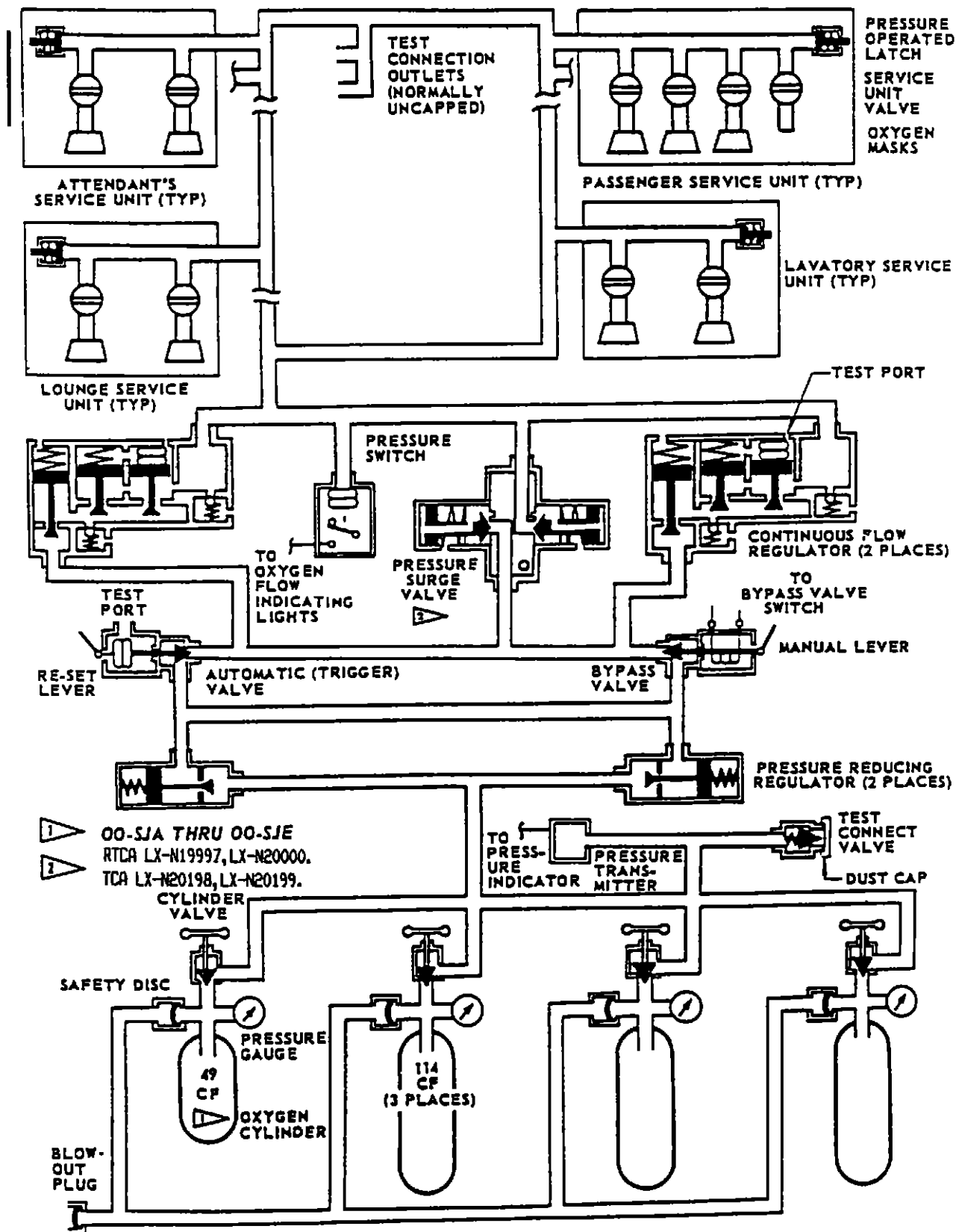
Passenger Oxygen Components Location Diagram
Figure 1 (Sheet 1)

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Dec 15/64

Passenger Oxygen System Schematic Diagram
Figure 2 (Sheet 2)

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2 Oxygen Cylinder Assemblies

- A. Three oxygen cylinder assemblies are provided, charged to 1850 psi, and with a capacity of 114 cu ft of free oxygen each. On airplanes OO-SJA through OO-SJE, a fourth assembly, with a capacity of 49 cu ft of free oxygen, also is provided. Each assembly consists of an oxygen cylinder, a cylinder shutoff valve and a cylinder pressure gauge (0 to 2000 psi). The shutoff valve is a slow opening manual valve screwed into the cylinders. Each valve is provided with two outlets. One outlet, connected to a common overboard discharge line, is sealed with a bronze safety disc which bursts at 2650 to 2950 psi. The other outlet is connected to a common line, which is connected to the pressure reducing regulators.
- B. The oxygen cylinder assemblies are located in a fiberglass plastic box with a flap door, just aft of the aft cargo compartment door.

3 Pressure Reducing Regulator

- A. Two parallel connected pressure reducing regulators are installed in the system. They reduce the cylinder pressure to 450 to 350 psi, providing medium pressure to the flow regulators in the system.
- B. The pressure reducing regulators are located in the aft cargo compartment, above the oxygen cylinder assemblies.

4 Automatic Valve (Trigger Valve)

- A. The automatic valve is operated by cabin air pressure. It opens automatically when the cabin altitude rises above 14,000 feet (about 8.5 psia). When the valve has opened, it will stay open until manually closed by a lever on the valve. This valve initiates operation of the passenger oxygen system by admitting medium pressure oxygen to two continuous flow regulators. An open port, connecting the automatic valve to the cabin atmosphere, also serves as a test port for checking the system.
- B. The automatic valve is located in the aft cargo compartment, above the oxygen cylinder assemblies, and is accessible from the passenger cabin through a small access door at the right side floor edge.

5 By-pass Valve

- A. The by-pass valve is a solenoid operated shutoff valve, controlled by a switch on the pilots' overhead panel. This valve also can be operated manually. Its purpose is to start the flow of oxygen should the automatic valve fail, or if oxygen is required at lower cabin altitudes. The by-pass valve remains open until closed manually by a lever on the valve. This valve is similar in appearance to the automatic valve. The valve solenoid is operated by 28 volts dc, taken from T-R bus No. 4 on circuit breaker panel (P5).

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- B. The bypass valve is located in the aft cargo compartment above the oxygen cylinder assemblies, and is accessible from the passenger cabin through a small access door at the right side floor edge.

6. Continuous Flow Regulator

- A. Two identical, parallel connected continuous flow regulators control the inflow of medium pressure oxygen to provide a correct flow of low pressure oxygen to the service units and passenger masks. The regulators are controlled by cabin pressure and the pressure at the regulator outlet. An open port connecting the regulator with the cabin atmosphere also serves as a test port for checking the system. A pressure relief valve protects the low pressure side of the passenger oxygen system against an excessive pressure. This valve is included in the outlet port of the regulator and discharges into the cabin.
- B. The two continuous flow regulators are located in the aft cargo compartment above the oxygen cylinder assemblies.

7. Oxygen Distribution Line and Overboard Discharge Line

- A. The oxygen distribution line has a high pressure and a low pressure section. The high pressure section, between the oxygen cylinder assemblies and the continuous flow regulators, is made of stainless steel tubing. The low pressure section, downstream of the regulators, is made of aluminum alloy tubing.
- B. The oxygen distribution line includes outlets as follows:
- (1) A test outlet in the high pressure side of the system is located in the aft cargo compartment, above the oxygen cylinder assemblies. It incorporates a check valve and is covered by a dust cap. This outlet is used for connecting a portable pressure source for functional and leak testing of the system.
 - (2) Two test/vent outlets in the low pressure side of the system are located in the forward lowered ceiling. They consist of bayonet connections suitable for a low pressure gage and a low pressure source. Each connection incorporates a bleed hole to vent the system and prevent building up of high pressures which could be caused by oxygen leaking through regulators or valves. They are located in the lowered ceiling at the forward end of the life raft compartment, and they are accessible through a hinged door.
- (a) On turbofan airplanes an auxiliary vent connection in the low pressure line is located on the upper end of the crew oxygen cylinder compartment shroud in the forward cargo compartment, inside the shroud, facing inboard. A cap is attached to structure inside the shroud.

CAUTION: THESE CONNECTIONS SHOULD BE UNCAPPED AT ALL TIMES EXCEPT WHEN TESTING THE LOW PRESSURE TUBING FOR LEAKAGE.

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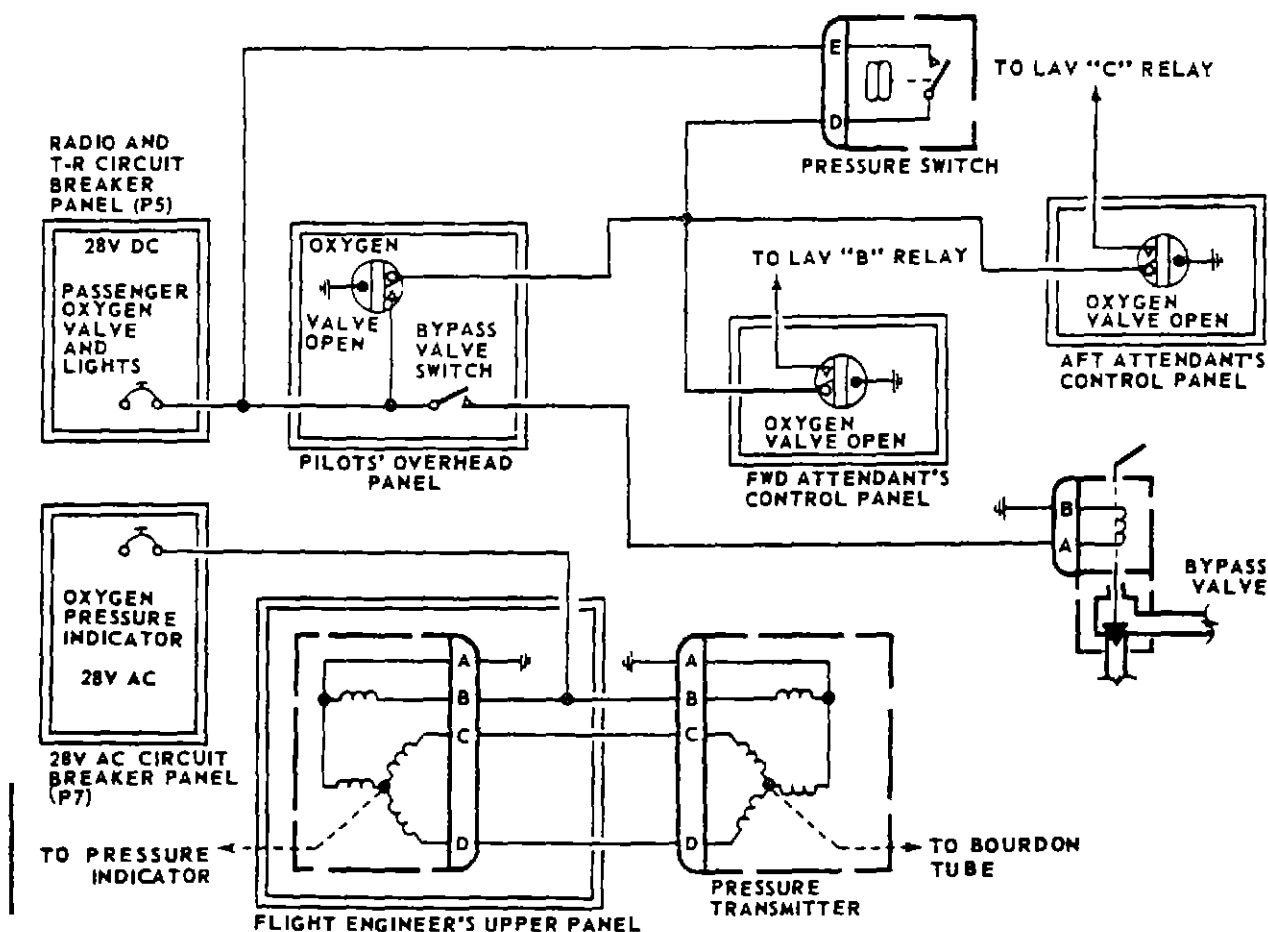
C. The overboard discharge line, made of stainless steel tubing, connects the oxygen cylinder safety discharge outlets with the overboard discharge port. The discharge port is sealed against rain and dirt by a plastic plug which will blow out at 500 psi.

D. Deleted

8. Passenger Oxygen Pressure Indicator and Transmitter

A. A remote pressure indication is provided by a selsyn. (See figure 3.) One of the selsyn motors is assembled with a bourdon tube to form the pressure transmitter, which is installed in the high pressure oxygen line. The bourdon tube directly actuates the motor. The other motor drives the pointer of a high pressure indicator (0 to 2500 psig) on the flight engineer's panel.

B. The pressure transmitter is connected to the high pressure oxygen distribution line and is mounted adjacent to the bypass valve in the passenger oxygen cylinder's box in the aft cargo compartment.



Passenger Oxygen System Circuits
Figure 3



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9. Pressure Switch

- A. The pressure switch is a pressure-actuated, normally open switch, installed in the low pressure section of the distribution line. The switch closes when pressure exists in the low pressure section, and illuminates warning lights on the pilot's overhead panel and on each cabin attendant's control panel to indicate that the passenger oxygen system is in use.
- B. The pressure switch is located in the aft cargo compartment above the oxygen cylinder assemblies.

10. Service Units

- A. All types of service units contain stowage space for the oxygen masks, the mechanism for automatic release of masks, and oxygen distribution and shutoff equipment. Refer to Chapter 25 for a description of each service unit.
- B. Oxygen is supplied to each passenger cabin service unit through a flexible hose, connecting oxygen distribution line outlets with the distribution manifold in the service unit. The other types of service units are generally connected directly to the distribution lines. The flexible hose is made of Tygon tubing covered with nylon braid. The masks are connected to the manifolds and distribution fittings with flexible Tygon tubing.
 - (1) On cargo convertible airplanes, the flexible hoses are connected to the oxygen distribution line by quick-disconnect fittings throughout the length of both sidewalls, with the exception of the forward lounge. In the area of the cargo door, the flexible hoses are installed across the door hinge.

CAUTION: WHEN INSTALLING A PASSENGER SERVICE UNIT OR MOVING A HATRACK FROM THE STOWED TO THE NORMAL POSITION, THE FLEXIBLE SUPPLY HOSES MUST BE UNDERNEATH THE OUTBOARD HATRACK SUPPORT AND NOT KINKED, PINCHED, OR TWISTED. COIL EXCESS HOSE INTO ONE SINGLE, UNKINKED LOOP BEFORE ATTACHING TO MANIFOLD. LOOP SHOULD HAVE CROSSOVER ON TOP SO THAT IT IS FORCED DOWN NORMALLY WITHOUT THE USE OF CLAMPS.



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11. Pressure Operated Latch

A. Lavatory, Attendants', and Lounge Service Unit Pressure Operated Latch.

- (1) The pressure operated latch retains the door which holds oxygen masks in a stowed position in each service unit. The latch is actuated and releases the masks when pressure in the low pressure oxygen distribution lines is applied. The latch can be operated manually to open the mask stowage door for servicing or inspection, or if the automatic control fails.
- (2) The latch is mounted inside each service unit and is connected to the distribution manifold or fitting by flexible tubing.

B. Passenger Service Unit Pressure Operated Latch

- (1) The passenger service unit pressure operated latch is identical to the pressure latch in the lavatory, attendants' and lounge service units and is installed on the following airplanes
TWA N760TW thru N793TW, N8705T thru N8725T, N18701 thru N18709
AF F-BHSA thru F-BLCD
SABENA OO-SJA thru OO-SJJ
BOAC G-APFB thru G-ASZG
DLH D-ABOB thru D-ABUE
AII VT-DJI thru VT-DSI
VARIG 707-441
SAA ZS-CKC thru ZS-DYL
EL AL 4X-ATA thru 4X-ATR
NWA N351US thru N366US
TAP CS-TBA
- (2) On remainder of airplanes, refer to Pressure Latch-Valve-Manifold Assembly

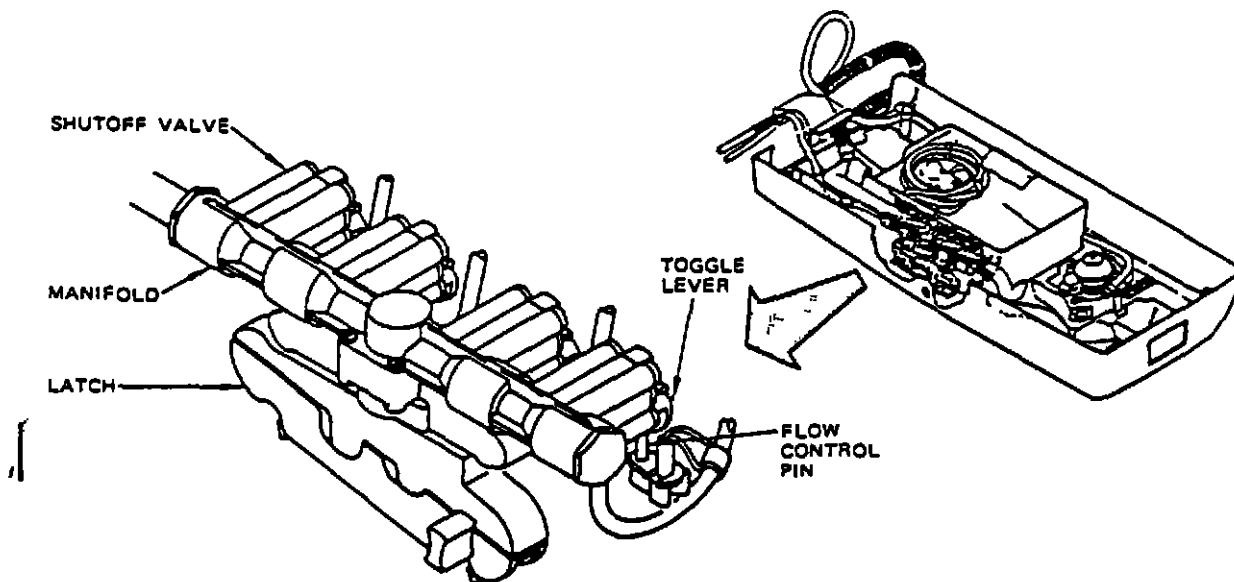


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12. Pressure Latch-Valve-Manifold Assembly (Passenger Service Unit)

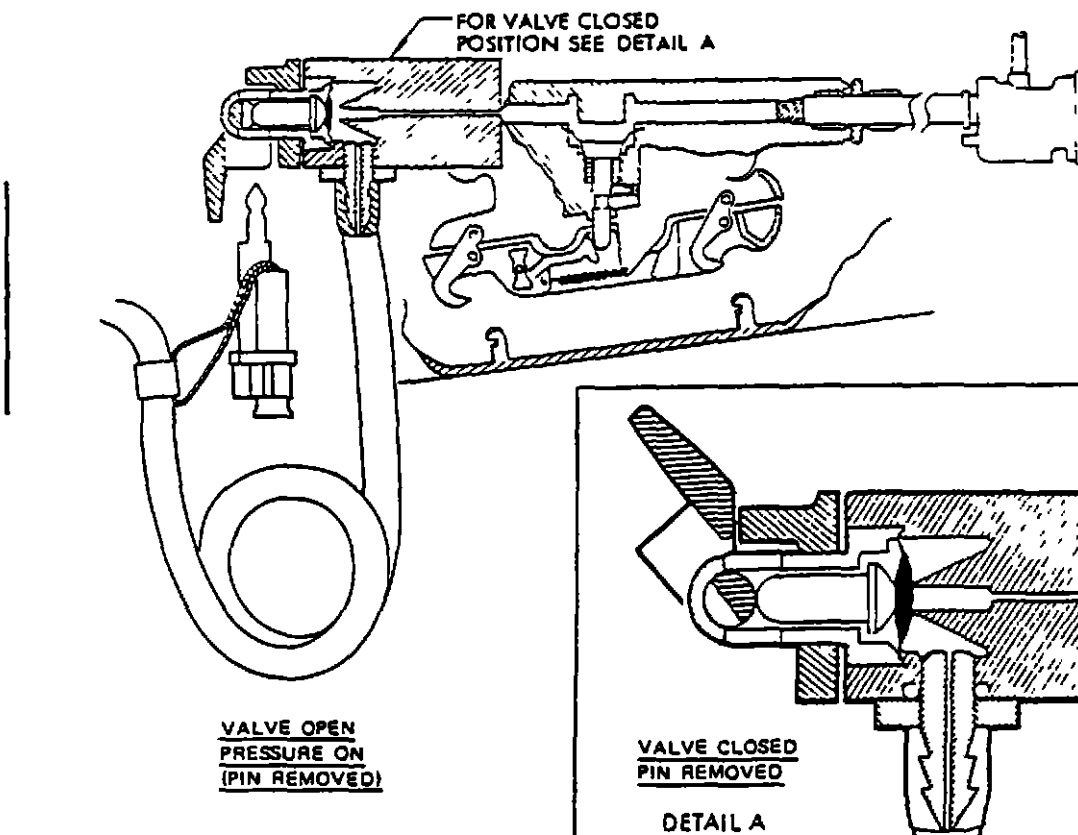
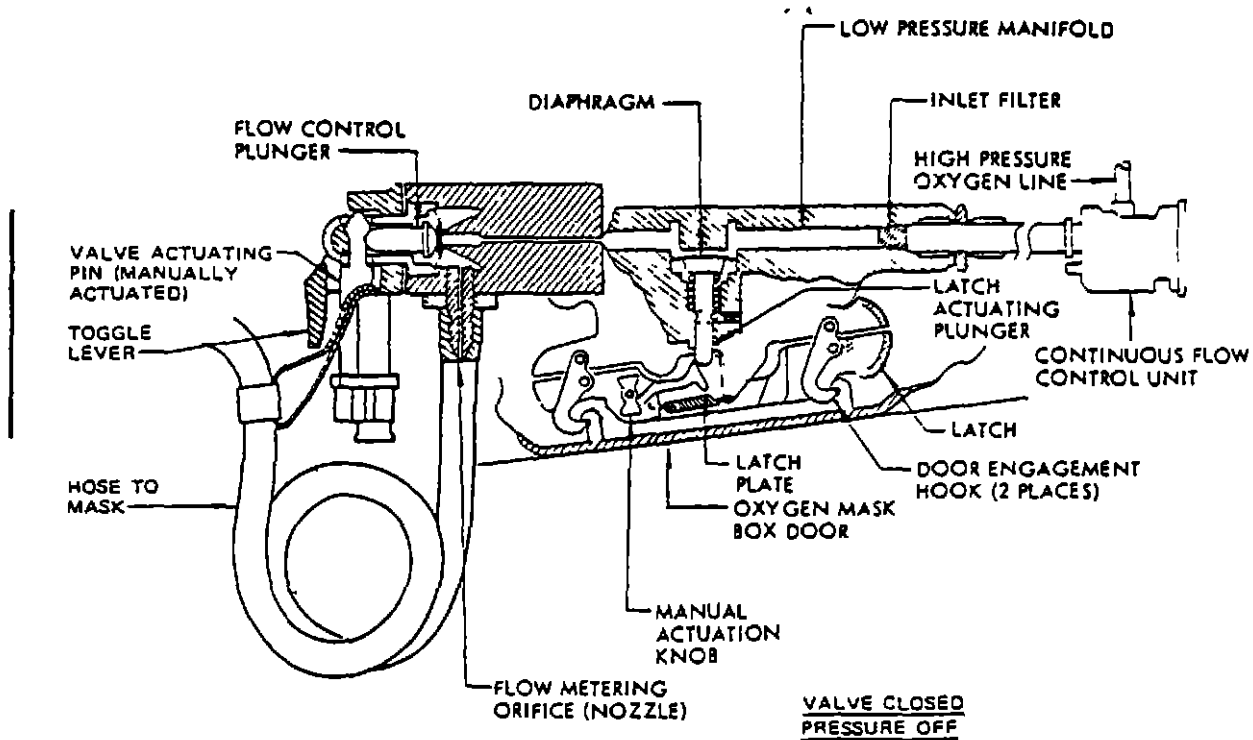
TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

4. The pressure latch-valve-manifold assembly retains the oxygen mask box door which holds oxygen masks in a stowed (installed) position in each service unit. (See figure 4.) The assembly is actuated and releases the masks when pressure in the low pressure section of the oxygen distribution line rises to approximately 20 psig. The assembly can be operated manually to open the oxygen mask box door for maintenance or inspection, by removing a plug button on the side of the PSU, introducing a pencil or similar tool through the uncovered hole, and pushing inboard a knob on the latch. The latch will swing, permitting the door to drop open. The assembly is mounted inside the service unit and is connected to the distribution manifold by flexible tubing. Each assembly has four outlet valves to which masks may be attached.



PRESSURE LATCH-VALVE-MANIFOLD ASSEMBLY

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Pressure Latch-Valve-Manifold Assembly
Figure 4 (Sheet 2)

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14. Passenger Service Unit Outlet Valve

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

- A. The passenger service unit outlet valve allows oxygen flow to the masks.
Refer to Pressure Latch-Valve-Manifold Assembly.

15. Passenger and Attendants Oxygen Masks

- A. The oxygen mask is an oronasal type mask, covering mouth and nose only.
It consists of a cuplike flexible facepiece with three valves, an oxygen reservoir bag, and a retaining strap. The mask can be put on using only one hand. The reservoir bag fills with pure oxygen during exhalation and delivers oxygen through a check valve during inhalation. An air inlet valve in the facepiece admits cabin air on inhalation, if breathing demand exceeds the amount of oxygen supplied to the mask. A clear plastic hose connects the mask to the service unit valve outlet.

B. and C. deleted.



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- B. A spring maintains the latch plate in the closed position. The latch may be manually opened or automatically opened by oxygen pressure. (See figure 4.) For automatic operation, oxygen enters the assembly at the inlet port and forces a latch actuating plunger against the latch plate. The latch plate is thus moved to the open position. When pressure is relieved, the latch plate automatically returns.
- C. Each oxygen mask is connected to its outlet valve by flexible tubing, and at a set distance along the tubing a valve actuating pin is attached by a short length of cord. The valve actuating pin is inserted into the outlet valve serving its mask, and maintains the valve in the closed position. Withdrawal of the pin will cause the outlet valve to open. (See figure 4.) The outlet valve may be closed either by reinsertion of the valve actuation pin or by means of a toggle type lever integral with the valve.

13. Service Unit Shutoff Valve

A. Lavatory, Attendants', and Lounge Service Unit Shutoff Valve

- (1) The service unit shutoff valve is a rotary valve provided with a spring clip on the valve control lever. The mask hose is attached to the lever by means of a short piece of plastic tubing, and a cord, fixed to the hose. The valve opens and admits oxygen to the mask only when the mask is pulled down. Once opened, the valve remains open until manually closed. The valve incorporates a flow restricting orifice.
- (2) The service unit valve is installed at each oxygen mask connecting point in service units. The valve inlet is connected to the distribution manifold by bolts, or to the distribution line by tubing connectors. The valve is fixed by two screws.

B. Passenger Service Unit Shutoff Valve

- (1) The passenger service unit shutoff valve is identical to the shutoff valve in the lavatory, attendants' and lounge service units, and is installed on the following airplanes

PAA	N714PA thru N799PA	SAA	ZS-CKC thru ZS-DYL
	N401PA thru N418PA	EL AL	4X-ATA thru 4X-ATR
TWA	N760TW thru N793TW	WAI	N373WA thru N376WA;
	N8705T thru N8725T;		N786TW thru N792TW
	N18701 thru N18709	NWA	N351US thru N366US
AF	F-BHSA thru F-BLCD	IAL	EI-AMW thru EI-ANV
SABENA	OO-SJA thru OO-SJJ	QANTAS	VH-EEN thru VH-EBS
BOAC	G-APFB thru G-ASZG	CAL	N17321 thru N17324
DLH	D-ABOB thru D-ABUE	TAP	CS-TEA
ALL	VT-DJI thru VT-DSI	QA	SX-DEA
VARIG	707-441	FEL	N322F and N323F

- (2) On remainder of airplanes, refer to Pressure Latch-Valve-Manifold Assembly.



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16. Pressure Surge Valve

- A. The pressure surge valve bypasses the flow regulator. This valve admits oxygen directly into the low pressure section of the system for 7 to 15 seconds after the automatic trigger valve or solenoid bypass valve opens. The pressure impulse in the low pressure system is utilized for operation of the pressure latches. When the pressure surge valve closes, oxygen flows through the flow regulators only. The valve is normally open and resets automatically to the open position when inlet pressure diminishes.
- B. The surge valve incorporates a pressure reducer, which limits the valve outlet pressure to 70 psig. The valve is in the aft cargo compartment, above the oxygen cylinder assemblies.

17. Portable Oxygen Cylinder Assembly (First Aid)

- A. The portable oxygen assemblies are distributed throughout the passenger cabin in the hatracks. The portable oxygen cylinder assembly provides oxygen breathing equipment for first aid use and has a capacity of 11 cu. ft. (310 liters) of free oxygen at 1800 psi and 70°F. The assembly consists of an oxygen cylinder, a regulator, a mask, and a sling. The regulator, screwed into the cylinder, includes a shutoff valve, pressure reducing mechanism, pressure gage, safety plug, charging valve, an outlet assembly which provides 2 LPM constant flow, and an outlet assembly which provides 4 LPM constant flow.
- B. On airplanes OO-SJA through OO-SJG, six oxygen cylinders are supplied.
- C. On airplanes TCA LX-N20198, LX-N20199, RTCA LX-N19997, LX-N20000, four oxygen cylinders are supplied.

18. Thermal Compensator Assemblies

- A. Thermal compensator assemblies are installed at various places in the system. (See figure 2.) For a detailed description of thermal compensators refer to 35-1-0.

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19. Operation

- A. The passenger oxygen system becomes operative when the cabin pressure is equivalent to an altitude of 14,000 feet, the automatic trigger valve, which continuously senses cabin altitude, opens automatically and thus starts the flow of oxygen. Should the automatic trigger valve fail the system can be actuated by a switch on pilot's overhead panel, which opens the solenoid bypass valve. The bypass valve bypasses the automatic trigger valve. (See figure 2.) After the automatic trigger valve or bypass valve has opened oxygen flows from the oxygen cylinders through the two pressure reducing regulators, the automatic trigger valve or the bypass valve, the two continuous flow regulators, and the pressure surge valve on airplanes so equipped. (See figure 2.) The initial pressure admitted to the distribution lines causes the latches on the doors of all service units to open and the oxygen masks drop within the reach of the passengers. By pulling the mask downward the passenger turns a control lever on a service unit valve and thus opens the valve to allow oxygen to flow into the mask. Two outlets in forward lowered ceiling serve to bleed air from distribution lines when the system is operated. The outlets also serve as test connections. Warning lights at the pilot's and both attendants' stations illuminate when the oxygen system is in use. (See figure 3.) The lights are extinguished when the system becomes exhausted.

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PASSENGER OXYGEN SYSTEM - TROUBLE SHOOTING

1. General

- A Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B The passenger oxygen system is capable of holding pressure almost indefinitely under conditions of no use with the cylinder shutoff valves open and the automatic and bypass valves closed.
- C Apparent loss of pressure may be caused by temperature change. Oxygen cylinders are charged to 1850 psi at 70°F. Refer to the Temperature Correction Chart, figure 101, for variations.
- D Since the system is normally inactive, operating troubles may be met only in the event that cabin altitude rises above a nominal 14,000 feet in flight, or during ground test under simulated altitude conditions.

2. Equipment and Materials

- A Vacuum source capable of maintaining 25 in. hg vacuum with minimum flow of 1 cfm
- B Vacuum gage
- C Pressure gage (0 to 100 psi)
- D Leak-Test Compound - MIL-L-25567A, Type I

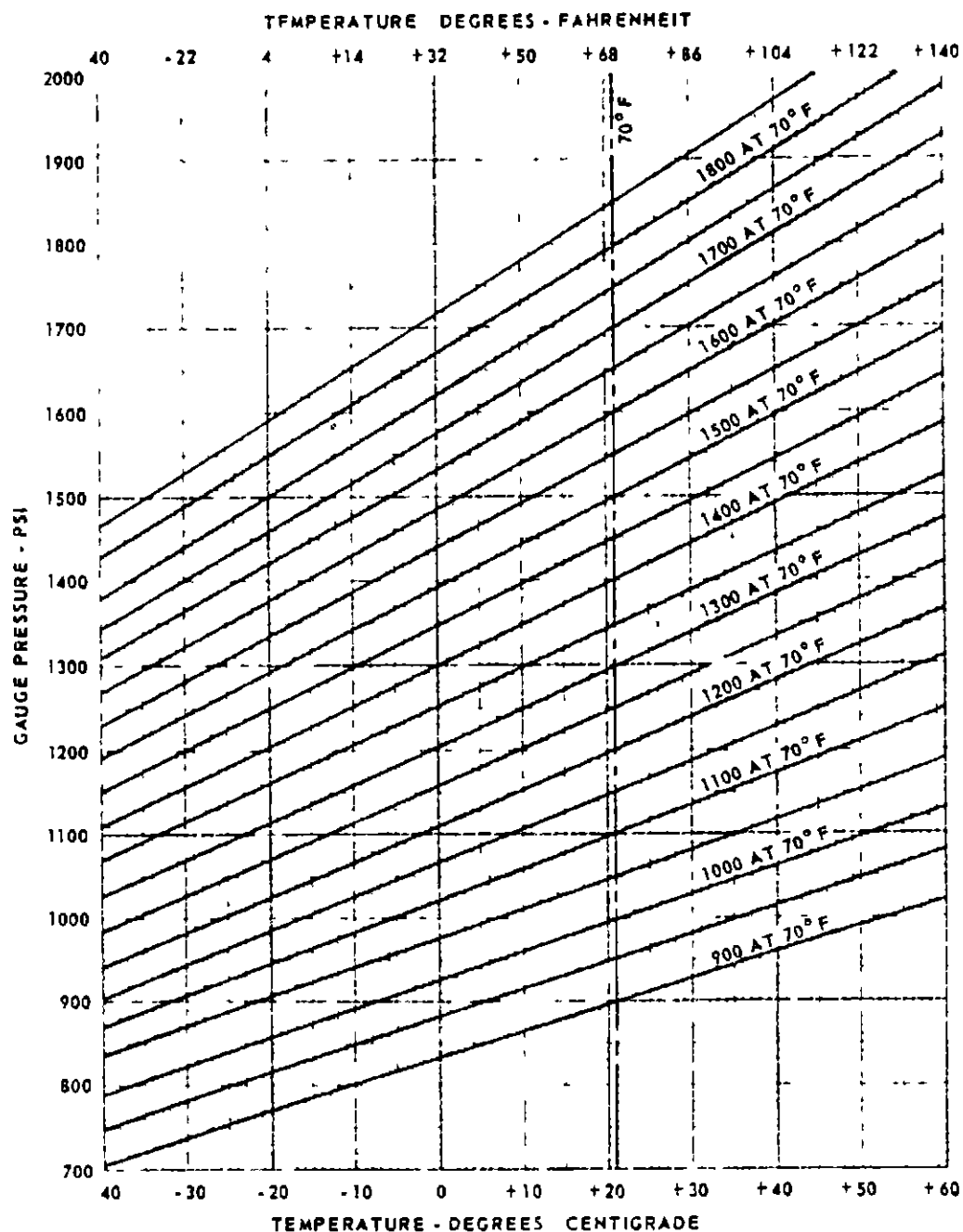
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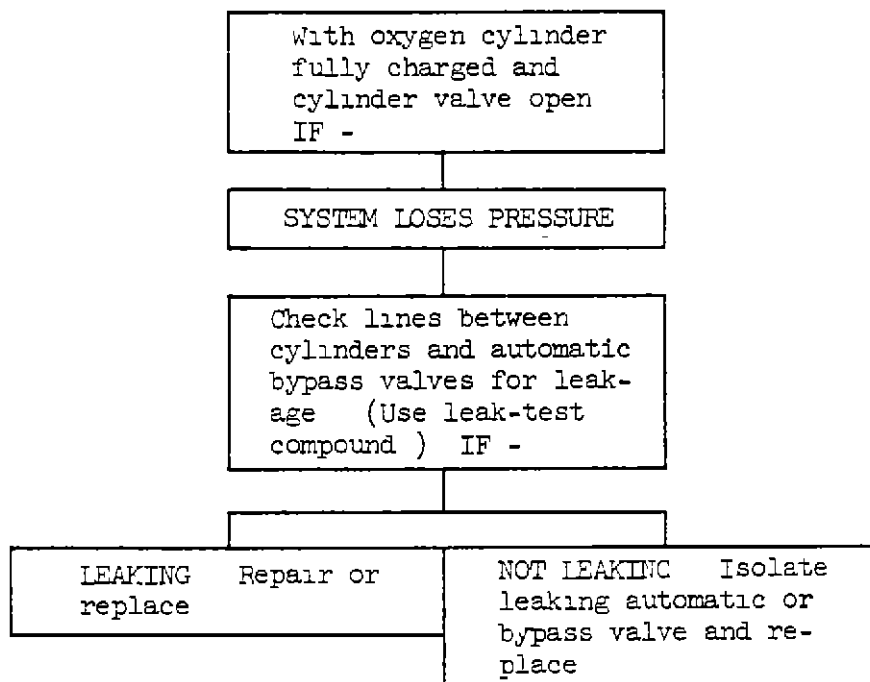


Oxygen Cylinder Pressure Temperature Correction Chart
Figure 101

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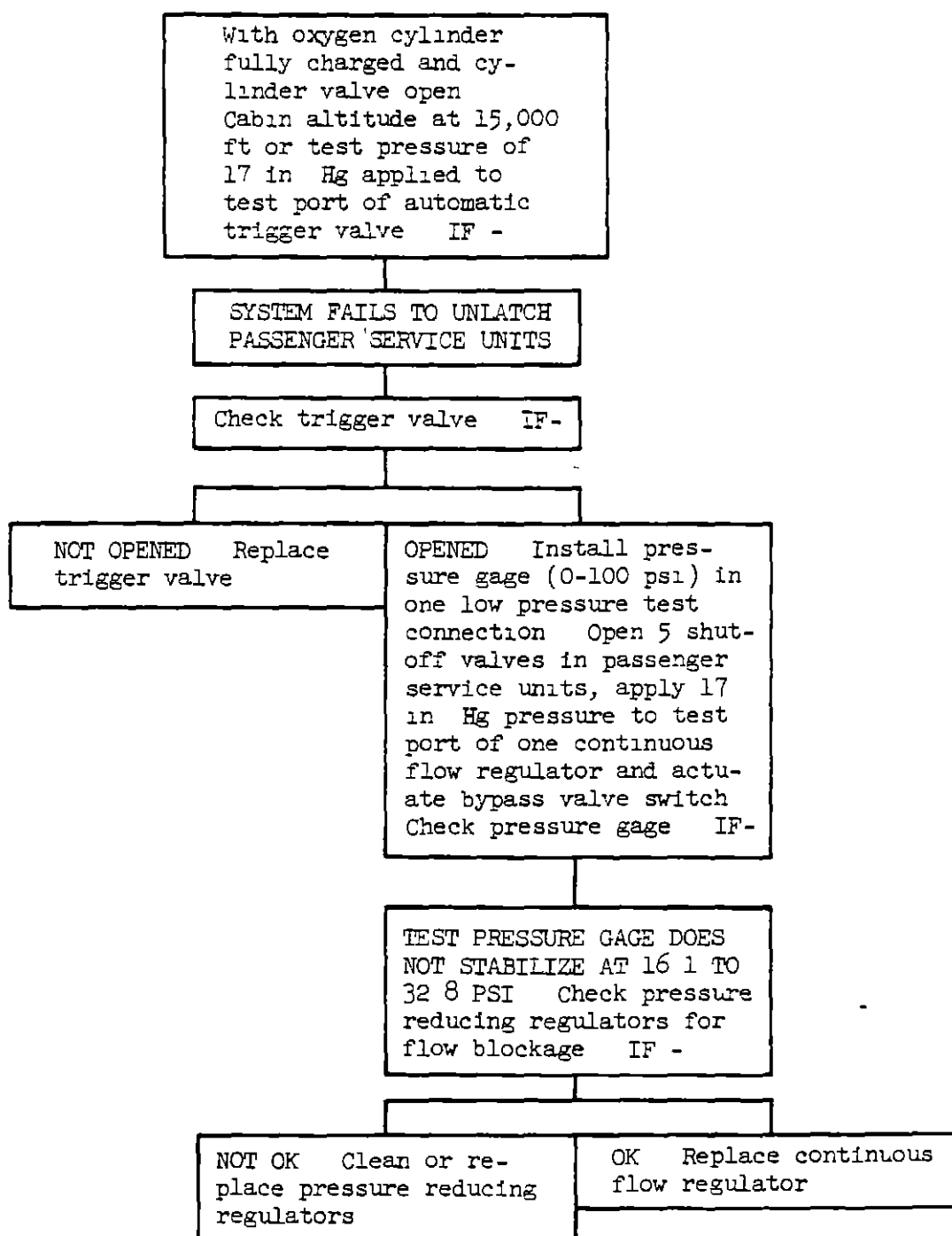
3 Passenger Oxygen System Trouble Charts

A Pressure Loss Trouble Chart

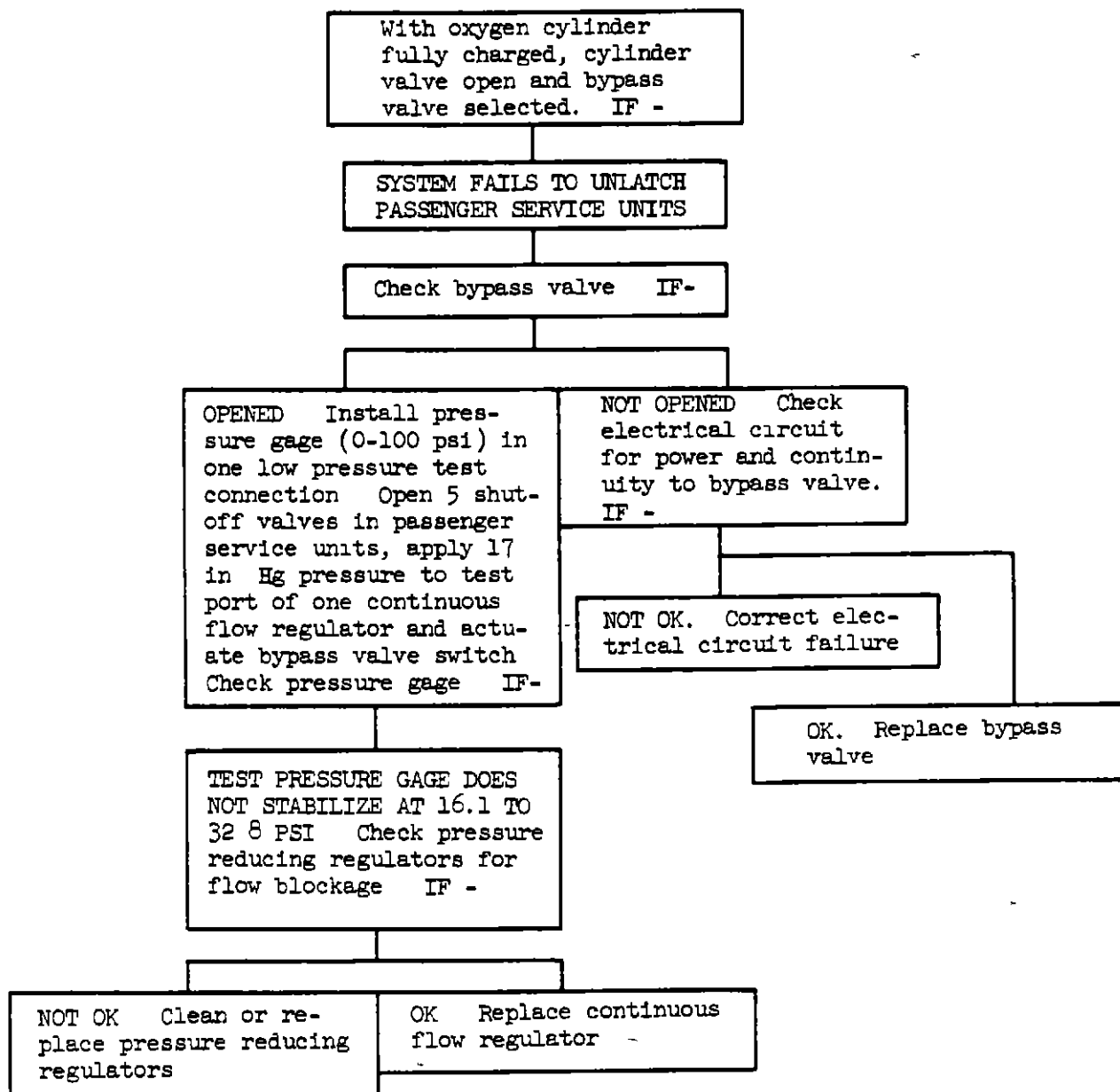


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- B Operation Trouble Charts (AF F-BHSA through F-BHSQ, SABENA OO-SJA through OO-SJE)

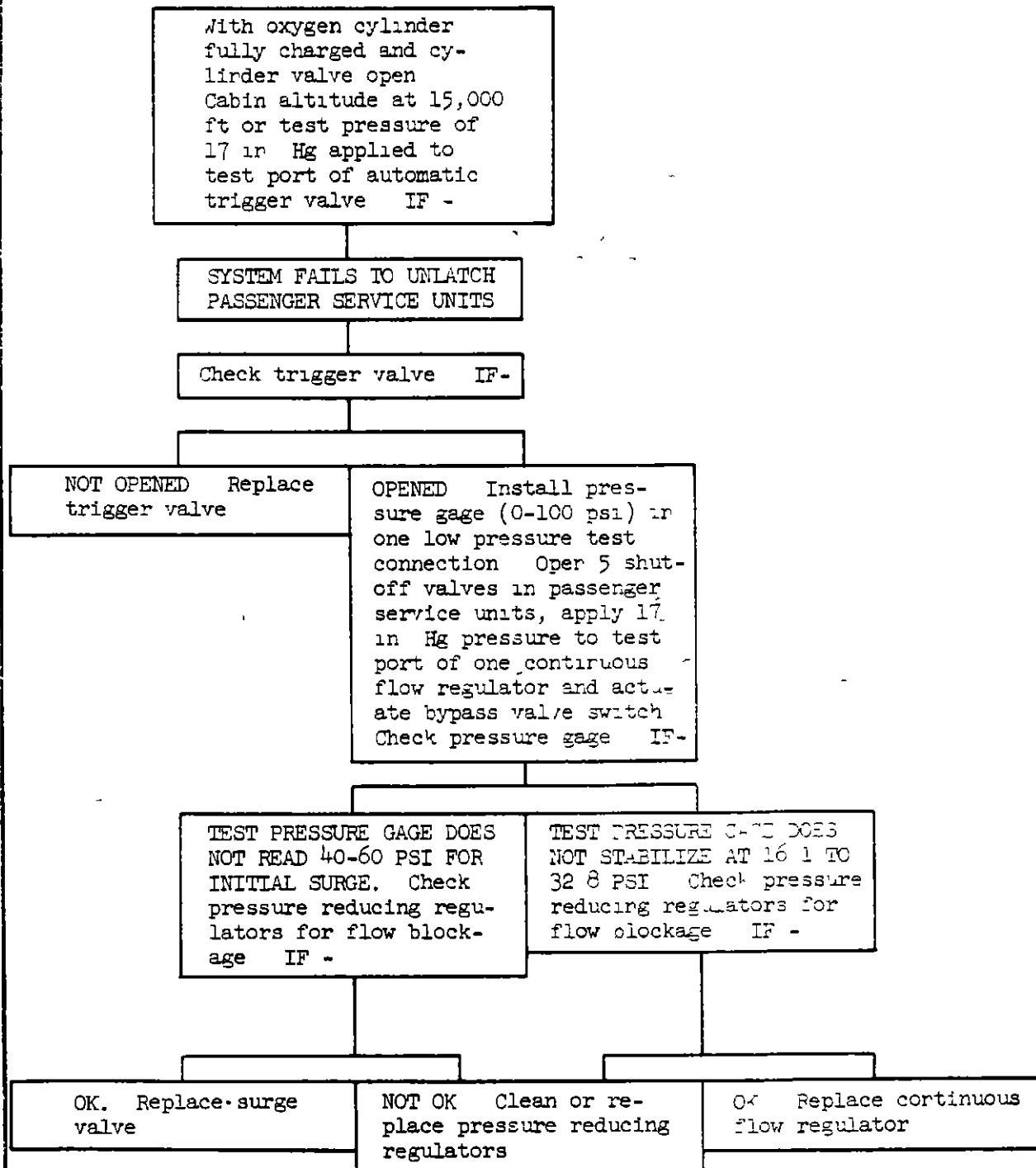


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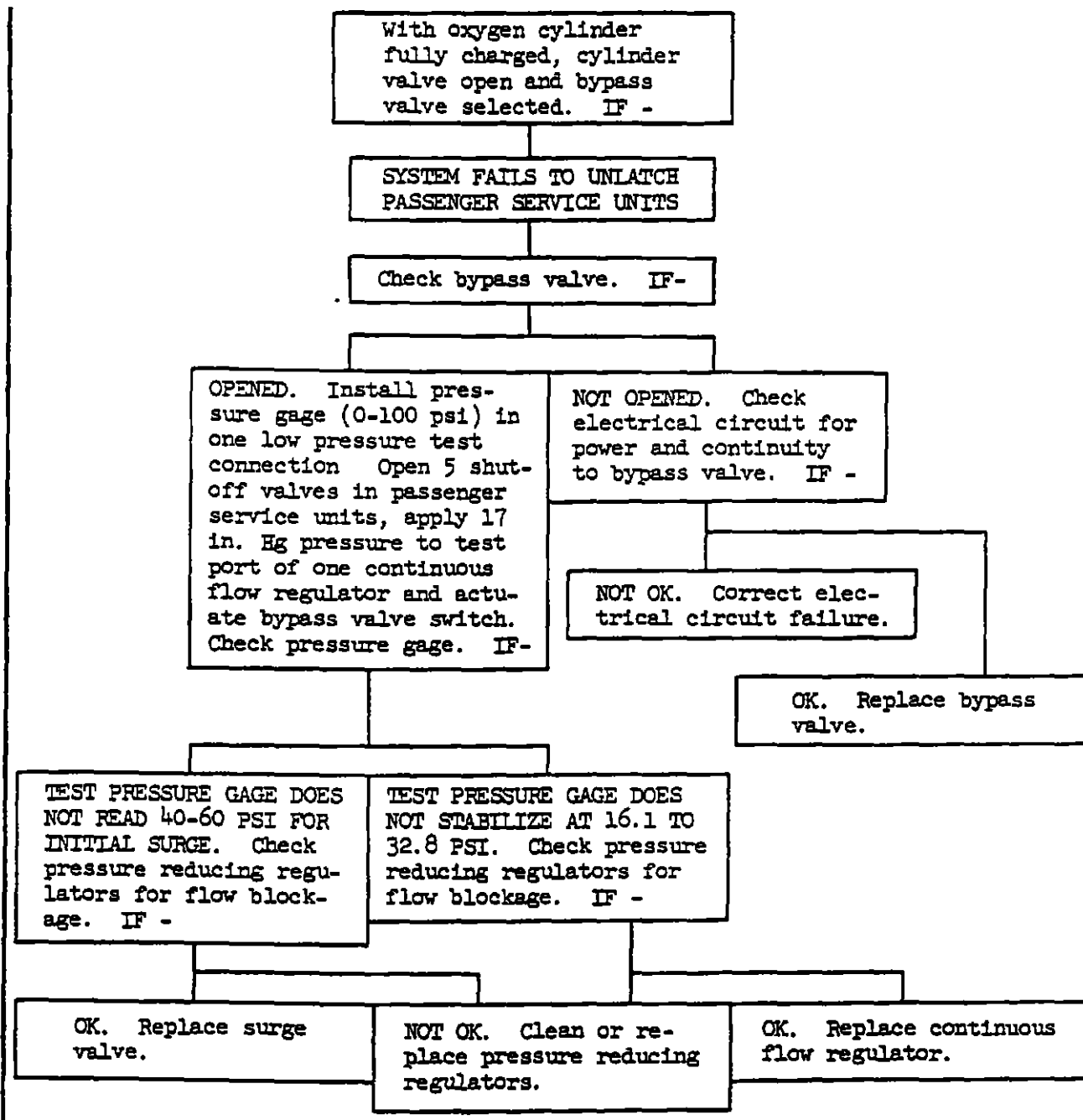


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C Operation Trouble Charts (AF F-BHSQ through F-BLCB, SABENA CO-SJF and OO-SJG)



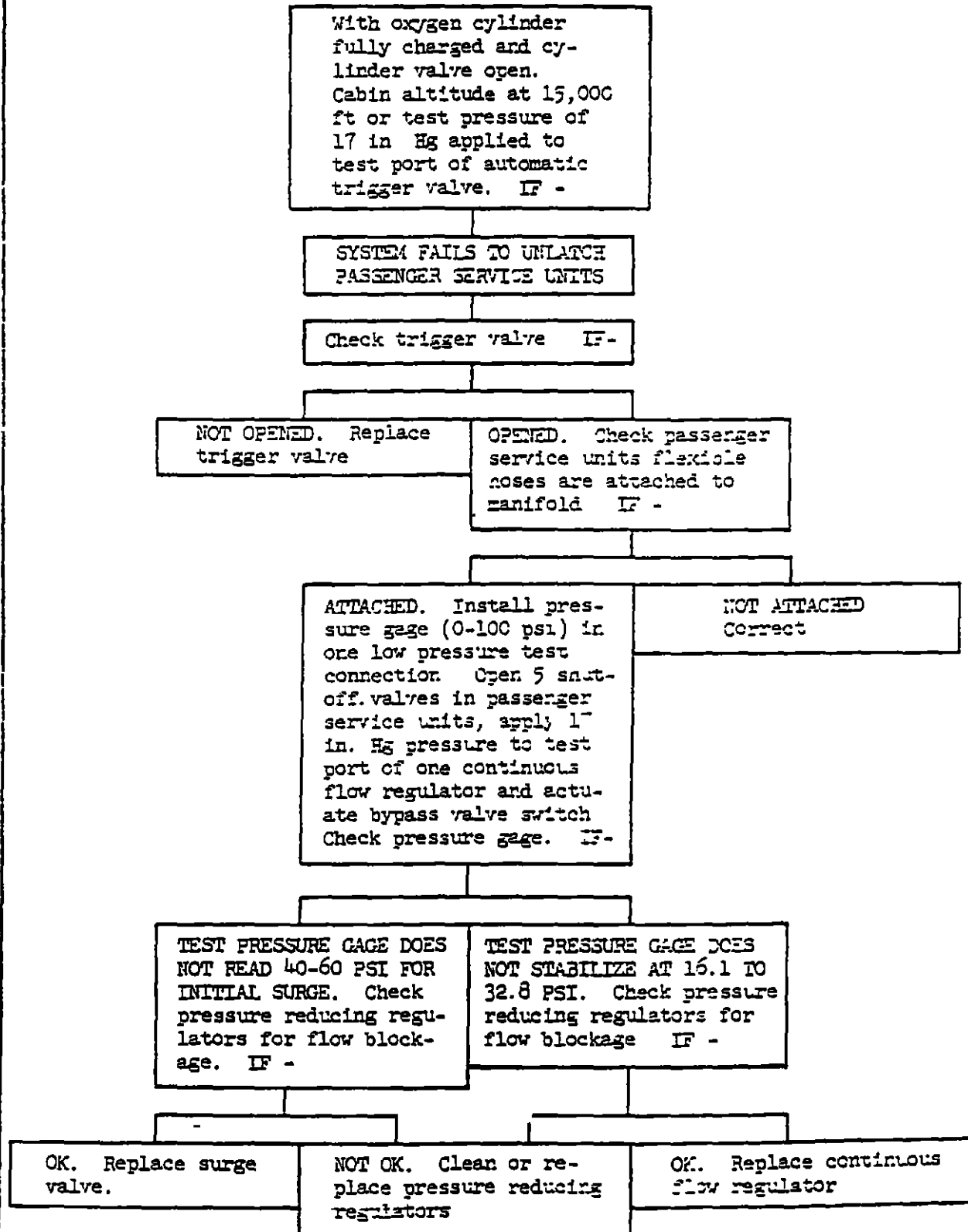
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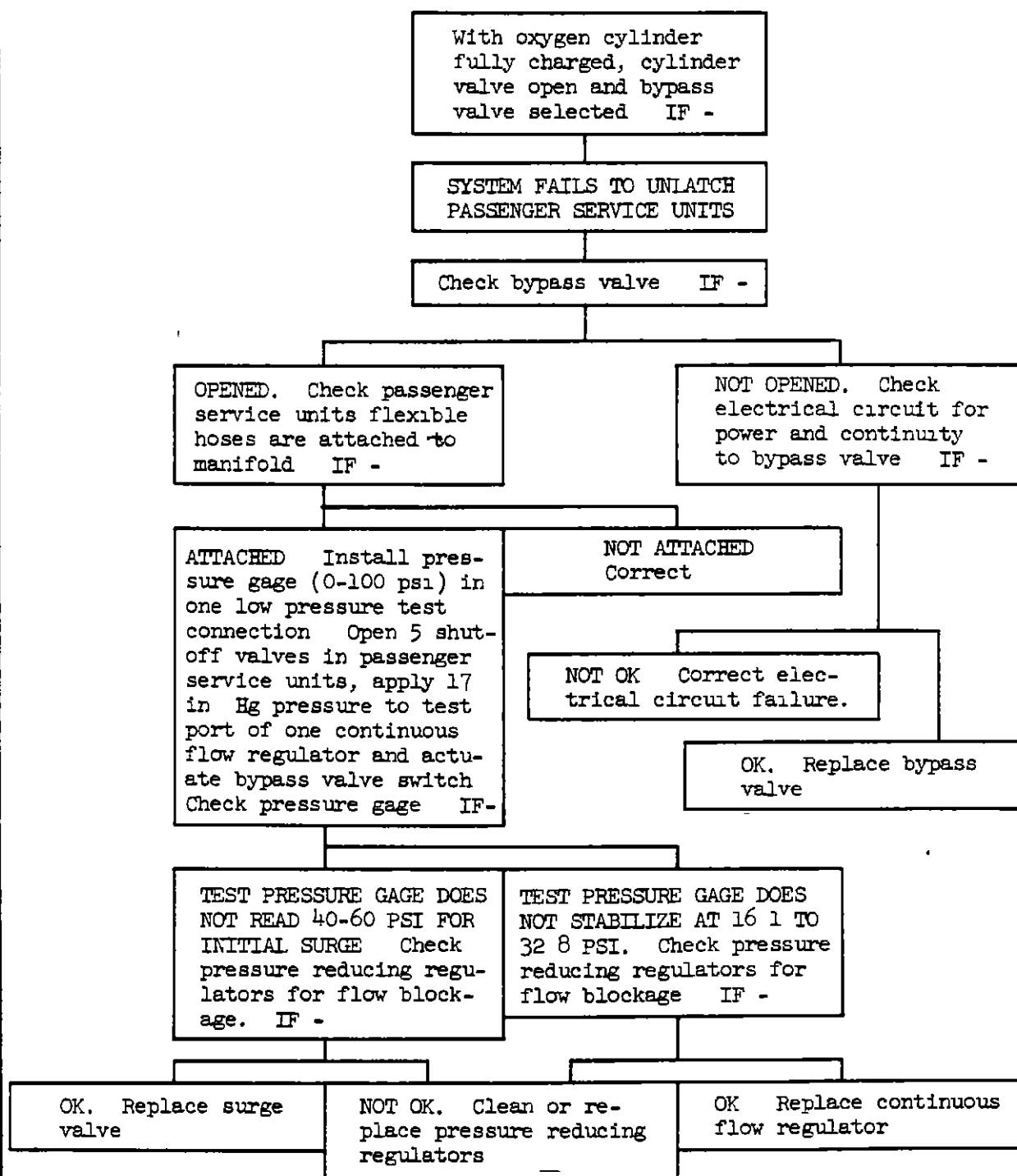


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D. Operation Trouble Charts TCA LX-N20198, LX-N20199. RTCA LX-N19997, LX-N20000.



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PASSENGER OXYGEN SYSTEM - MAINTENANCE PRACTICES

1 Adjustment/Test Passenger Oxygen System

A. General

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) The oxygen system is tested by simulating altitudes by reducing pressure at test ports of automatic trigger valve and continuous flow regulators. Compensation for ambient pressure at sea level is included in this test.

B Equipment and Materials

- (1) Portable test cylinder filled with air or nitrogen at 75 $\pm$ 5 psi (use nitrogen per Specification BB-N-411, Type 1, Class I, Grade A, or air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 ppm total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F. and 760 mm mercury)
- (2) Portable test cylinder filled with oxygen at 75 $\pm$ 5 psi (use oxygen per Specification MIL-O-27210, Type I)
- (3) Vacuum source capable of maintaining 25 in. hg vacuum with minimum flow of 1 cfm (use manifold pressure tester)
- (4) Vacuum gage
- (5) Pressure gage (0 to 100 psi)
- (6) Pressure gage (0 to 10 psi)
- (7) Flexible tubing and fittings are required
- (8) Oxygen system leak detection compound (Ref 13-1-5)
- (9) Pressure reducer with constant 70 psi output pressure suitable for coupling to air or nitrogen pressure source (see (1) above) as needed
- (10) Pressure regulator (0 to 10 psi)

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C. Prepare System for Testing

- (1) Close PASS. OXY VALVE & LTS circuit breaker on radio and T-P circuit breaker panel (F5).
- (2) Energize T-P bus No. 4.
- (3) Close OXYGEN PRESS. circuit breaker on 28-volt ac bus circuit breaker panel (F7).
- (4) Close all cylinder shutoff valves.
- (5) Connect portable test cylinder to high pressure test connection.
- (6) Disconnect oxygen line just ahead of balloon test connections in forward lowered ceiling and install pressure gage (0 to 100 psi) to one end of oxygen line. Cap other end.

D. Test Passenger Oxygen System (SN 00-SJA thru 00-SJE)

- (1) Connect vacuum source to test port of automatic (trigger) valve.
- (2) Connect vacuum to test port of one continuous flow regulator.
- (3) Disconnect outlet of one pressure reducing regulator from line and cap outlet and line. (Optional remove one length of pipe just upstream of regulator inlet or upstream of thermal compensator as applicable.) Cap open connections.

WARNING RESIDUAL PRESSURE IN HIGH PRESSURE LINE COULD BE AS HIGH AS 1850 PSI AND OXYGEN WOULD ESCAPE WITH SOME FORCE.

- (4) Open portable test cylinder valve.
- (5) Reduce pressure at test ports to 16.95-17.72 in. Hg absolute.
- (6) Observe that automatic valve manual lever has moved to OPEN.
- (7) Reduce pressure at test ports to 15.40 in. Hg absolute.
- (8) Observe that all passenger, cabin attendants', and lavator service unit doors have unlatched to release masks. No oxygen should flow into masks.



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- (9) Observe that test pressure gage reads 19 to 37 psi.
- (10) Observe that warning lights at pilot's overhead panel and at each attendant's panel have illuminated.
- (11) Remove vacuum from test ports.
- (12) Reset automatic valve as follows:
 - (a) Push reset button until it is stopped, then release.
 - (b) Move manual lever to CLOSED position.
- (13) Check that test pressure gage reads zero.
- (14) Refer to step D.(2). Connect vacuum source to test port of other continuous flow regulator.
- (15) Reverse step D.(3) by reconnecting the disconnected pressure reducing regulator to line and disconnecting the other one.
- (16) Manually open automatic valve lever to OPEN.
- (17) Check that test pressure gage reads 19 to 37 psi.
- (18) Reset automatic valve per steps D.(12) and D.(13) above.
- (19) Open bypass valve by operating passenger oxygen switch on flight engineer's panel.
- (20) Check that bypass valve lever has moved to OPEN position.
- (21) Check that test pressure gage reads 19 to 37 psi.
- (22) Decrease pressure at test ports to 5.54 in. Hg absolute.
- (23) Check that test pressure gage reads 36 to 85.3 psi.
- (24) Pull down on at least 10 masks located at random. Oxygen should flow into masks when valve arm is rotated against OPEN stop. Close valves.
- (25) Reset bypass valve identically as automatic valve. Refer to steps D.(12) and D.(13) above.
- (26) Close portable test cylinder valve and remove portable test cylinder.

- (27) Disconnect gage from test connection and restore low pressure test connections to normal use.

NOTE: If low pressure tubing leakage test is going to be performed next gage may be left in place.

- (28) Remove vacuum from test port.

CAUTION: MAKE CERTAIN THAT ALL TEST PORTS ON AUTOMATIC (TRIGGER) VALVE AND ON BOTH CONTINUOUS FLOW REGULATORS ARE OPEN.

- (29) Reconnect disconnected pressure reducing regulator to line.

- (30) Slightly open passenger oxygen cylinder shutoff valves and allow cylinder pressures to equalize slowly. Open all shutoff valves completely.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (31) Check for leaks using leak detection compound.

- (32) Install oxygen masks. Refer to appropriate maintenance practices section.

E. Test Passenger Oxygen System TCA LX-N20198, LX-N20199. RTCA LX-N19997, LX-N20000.

- (1) Repeat steps D.(1), D.(2), D.(3), D.(4), D.(5) and D.(6).
- (2) Observe that all passenger, cabin attendants, and lavatory service unit doors have unlatched to release masks. No oxygen should flow into masks.
- (3) Reduce pressure at test ports to 12.1 in. Hg absolute.
- (4) Observe that test pressure gage reads 7.5 to 24.8 psi.
- (5) Observe that warning lights at pilot's overhead panel and at each attendant's panel have illuminated.
- (6) Remove vacuum from test ports.
- (7) Reset automatic valve as follows:
 - (a) Push reset button until it is stopped, then release.
 - (b) Move manual lever to CLOSED position.
- (8) Check that test pressure gage reads zero.

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- (9) Refer to step D.(2). Disconnect vacuum source from test port of one continuous flow regulator and connect it to test port of other continuous flow regulator.
- (10) Refer to step D.(3). Reconnect disconnected pressure reducing regulator to line and disconnect the other one.
- (11) Reduce pressure at test ports to 12.1 in. Hg absolute.
- (12) Manually move automatic valve lever to OPEN.
- (13) Check that test pressure gage reads 7.5 to 24.8 psig.
- (14) Reset automatic valve per steps E(7).
- (15) Open bypass valve by operating passenger oxygen switch on pilot's overhead panel P5.
- (16) Check that bypass valve lever has moved to OPEN position.
- (17) Check that test pressure gage reads 7.5 to 24.8 psig.
- (18) Decrease pressure at test port to 5.54 inches Hg absolute.
- (19) Check that test pressure gage reads 34.8 to 53.3 psig.
- (20) Pull down on at least 10 masks located at random.
 - (a) On airplanes with rotary shutoff valves oxygen should flow into each mask when valve arm is rotated against OPEN stop.
 - (b) On airplanes with pressure latch-valve-manifold assembly oxygen should flow into each mask when flow control pin is removed.
- (21) Close valves or install flow control pins.
- (22) Reset bypass valve identically as automatic valve. Refer to steps E(9) and E(10) above.
- (23) Close portable test cylinder valve and remove portable test cylinder
- (24) Disconnect gage from test connection and restore low pressure test connections to normal use.

NOTE: If low pressure tubing leakage test is going to be performed next, gage may be left in place.



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- (25) Remove vacuum from test port.

CAUTION: MAKE CERTAIN THAT ALL TEST PORTS ON AUTOMATIC (TRIGGER) VALVE AND ON BOTH CONTINUOUS FLOW REGULATORS ARE OPEN.

- (26) Reconnect disconnected pressure reducing regulator to line.

- (27) Slightly open passenger oxygen cylinder shutoff valves and allow cylinder pressures to equalize slowly. Open all shutoff valves completely.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (28) Check for leaks using leak detection compound.

- (29) Install oxygen masks. Refer to appropriate maintenance practices section.

F. TEST PASSENGER OXYGEN SYSTEM LOW PRESSURE LEAKAGE

NOTE: This test should be made with passenger service units disconnected.

- (1) Close passenger oxygen cylinder shutoff valves.
- (2) In forward lowered ceiling, connect air source or portable test cylinder to one low pressure test connection.
- (3) Connect a 0 - 100 psig gage to other low pressure test connection.
- (4) On passenger airplanes, cap all passenger service units supply line connections. On cargo convertible airplanes cap auxiliary bleed connection.
- (5) Slowly apply regulated pressure from pressure source.
- (6) Allow pressure in tubing to stabilize at 35 to 70 psig and close pressure source shutoff valve.
- (7) Observe test pressure gage. Maximum pressure drop shall not exceed 10% after a five minute period.
- (8) Remove pressure source and pressure gage.
- (9) On cargo convertible airplanes uncap auxiliary bleed connection.
- (10) On passenger airplanes leave passenger service units supply line connections capped until installation of passenger service units.



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G. Check Passenger Oxygen System Low Pressure Tubing For Open Connections.

NOTE: This check should be done after any passenger service units have been relocated or removed. On cargo convertible airplanes check is limited to point (1) and (2). On passenger airplanes either point (1) and (2) or point (2), (3), (4), (5) and (6) will be applied.

- (1) Visually double-check all passenger service units connections.
- (2) Check all oxygen valves in passenger service units are closed.
- (3) In forward lowered ceiling, connect a 0 - 10psig pressure gage to one low pressure test connection. Connect air source or portable test cylinder to other low pressure test connection.
- (4) Slowly open air source or test cylinder shutoff valve.
- (5) Impossibility to stabilize pressure at 4 psig discloses one or more open connections.
- (6) Disconnect pressure source and pressure gage from low pressure test connections.

H. Test Passenger Oxygen System Low Pressure Tubing and Passenger Service Units Leakage.

NOTE: This test should be made if passenger service units have not been relocated or removed.

- (1) In forward lowered ceiling, connect pressure gage (0 to 10 psig) to one low pressure test connection. Connect air source or portable test cylinder to other low pressure test connection. On cargo convertible airplanes cap auxiliary bleed connection.
- (2) Check all oxygen valves in passenger service units are closed.
- (3) Slowly open air source or test cylinder shutoff valve.
- (4) Close air source or test cylinder shutoff valve when gage reads a pressure of 4 psig maximum. The maximum pressure drop on pressure gage shall not exceed 1.5 psi after 1 minute period.
- (5) Disconnect pressure gage and air source or portable testing cylinder from low pressure test connections. On cargo convertible airplanes uncap auxiliary bleed connection.

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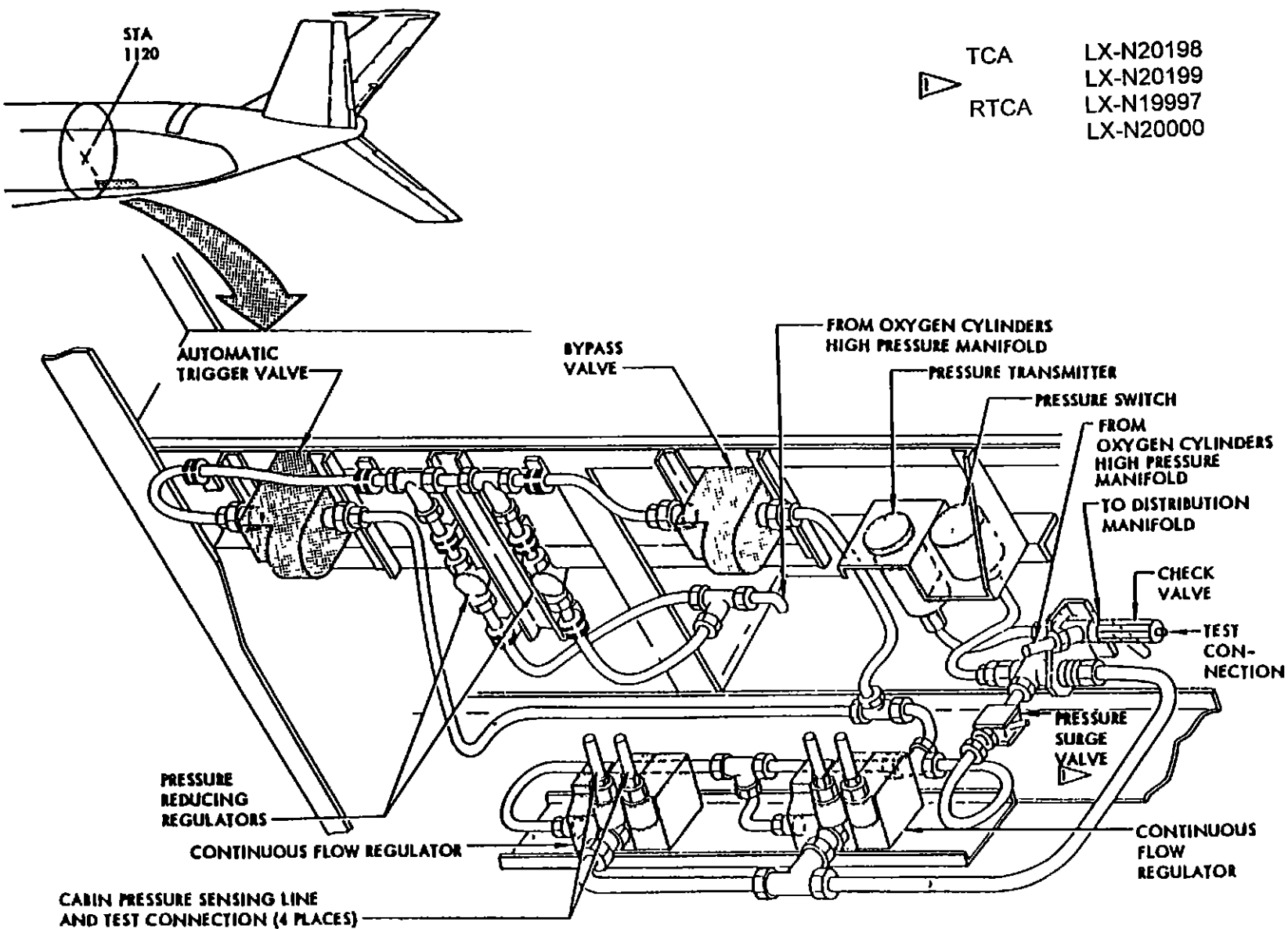
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LX-N19997
LX-N20000

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Passenger Oxygen System Controls
Figure 201

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I. Test Passenger Oxygen Masks For Flow

- (1) Close all passenger oxygen cylinder shutoff valves.
- (2) If bayonet fitting adapters are not available, disconnect system plumbing from bayonet test/vent connections in forward lowered ceiling.
 - (a) Plug or cap end of plumbing on low pressure system side of test test/vent connection.
 - (b) Cover two test/vent connections with plastic caps.

NOTE: Openings must be plugged, capped, or covered to prevent contamination during test.

- (3) Connect air or nitrogen supply coupled to a shutoff valve coupled to a pressure regulator to one bayonet test/vent connection or to disconnected system plumbing.
- (4) Connect pressure gage (0 to 10 psi) to other test/vent connection or to disconnected system plumbing.
- (5) On Passenger/Cargo Convertible Airplanes, cap auxiliary bleed connection(s) in oxygen cylinder shroud in forward cargo compartment.
- (6) Set pressure regulator to $5.25 + 0.50/-0.00$ psig.
- (7) Open external source shutoff valve.
- (8) Allow pressure in tubing to stabilize at $5.25 + 0.50/-0.00$ psig.
 - (a) If pressure regulator is unable to maintain required pressure, test tubing for leakage per step H above.
- (9) Select at random a number of service units equal to 10% of total number of service units in passenger oxygen system but not less than six service units, whichever is greater.
 - (a) Manually open oxygen mask compartment door allowing masks to fall freely.
 - (b) On each mask in turn:
 - 1) Pull down on oxygen mask.
 - 2) On airplanes with rotary shutoff valves, check for flow into each mask when valve arm is rotated against OPEN stop.
 - 3) On airplanes with pressure latch-valve-manifold assembly, check for flow into each mask when flow control pin is removed.
 - 4) Close valves or install flow control pins.



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- (c) If any mask being tested in step (b) fails to show flow, repeat steps (a) and (b) for all service units.
- (d) Install oxygen masks. Refer to appropriate maintenance practices section.
- (10) Close external source shutoff valve.
- (11) Disconnect external pressure source, shutoff valve, and pressure regulator.
- (12) Disconnect test pressure gage.
- (13) If bayonet fittings were not used:
 - (a) Remove two caps from test/vent connections.
 - (b) Remove plug or cap from end of disconnected plumbing on low pressure side of test/vent connection.
 - (c) Reconnect test/vent connection to system plumbing.
- (14) On Passenger/Cargo Convertible Airplanes, uncap auxiliary bleed connection(s).
- (15) Open all passenger oxygen cylinder valves.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.



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CONTINUOUS FLOW REGULATORS - REMOVAL/INSTALLATION

1. General

- A. The two continuous flow regulators are located in the aft cargo compartment above the oxygen cylinders. Access to the regulators is through the oxygen equipment shroud door.

2. Equipment and Materials

- A. Oxygen System Leak Detection Compound, Specification MIL-L-25567

3. Remove Regulator (See figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Open oxygen equipment shroud door in aft cargo compartment and secure door in open position.
- C. Close all passenger cylinder shutoff valves.
- D. Disconnect all lines from regulator.
- E. Remove regulator attaching bolts.
- F. Cap or plug all lines and regulator ports.

4. Install Regulator (See figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Remove caps or plugs from all lines and regulator ports.
- C. Position regulator and loosely connect inlet, test, and sensing lines.
- D. Install regulator attaching bolts loosely.
- E. Tighten connections for inlet, test, and sensing lines.
- F. Tighten regulator attaching bolts.



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G. Open one passenger cylinder shutoff valve.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

H. Manually open bypass valve to pressurize inlet connection. Check system pressure gage to ensure system is pressurized.

I. Check for leaks using leak detection compound.

J. Manually close bypass valve.

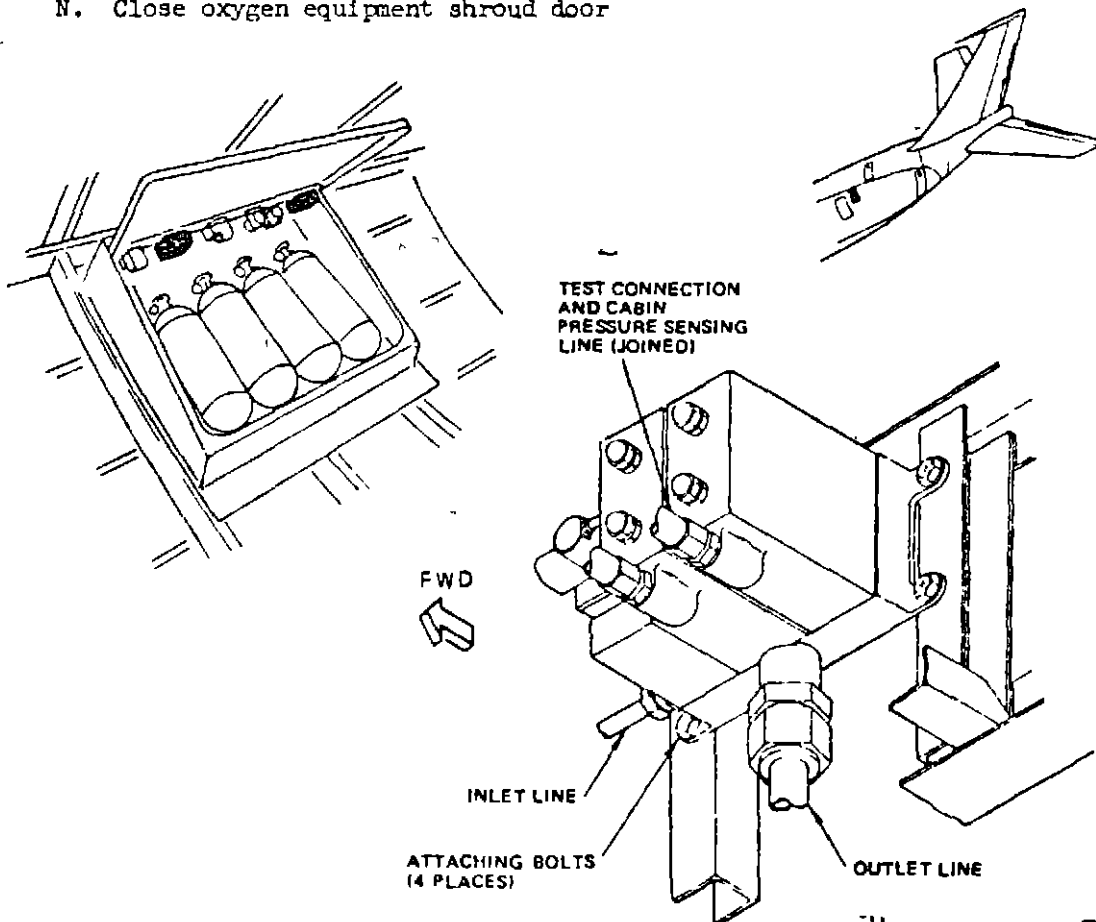
K. Connect outlet line and tighten.

L. Test Passenger Oxygen System. Refer to 35-2-0, Passenger Oxygen System - Maintenance Practices.

M. Open remaining passenger cylinder shutoff valves.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

N. Close oxygen equipment shroud door



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Passenger Oxygen System Continuous Flow Regulators Installation

Figure 401

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AUTOMATIC TRIGGER VALVE - MAINTENANCE PRACTICES

1. Removal/Installation Automatic Trigger Valve

A. Equipment and Materials

- (1) Thread Compound - MIL-T-5542B
- (2) Leak-Test Compound - MIL-L-25567A, Type I

B. Remove Automatic Trigger Valve

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) In the aft cargo compartment, open oxygen equipment shroud door and secure it by hooks.
- (3) Close all cylinder shutoff valves.
- (4) On airplanes with thermal compensators proceed as follows. (See figure 201 for effectivity.)
 - (a) Disconnect B-nut at upstream end of compensator assembly.
 - (b) Disconnect valve at outlet.

NOTE When disconnecting B-nut or union from valve avoid rotation of connector.

CAUTION CONNECTOR MUST NOT BE ROTATED TO PREVENT DISTURBING VALVE ADJUSTMENT.

- (c) Remove mounting screws.
- (d) Remove valve and compensator assembly attached together.
- (e) Using wrench on union flats rather than on B-nut, disconnect valve from compensator assembly. Refer to 35-2-151, Thermal Compensator Maintenance Practices. Refer to NOTE and CAUTION on step (3)(b) above.
- (5) On airplanes without thermal compensators disconnect inlet and outlet lines, remove mounting screws, and remove valve. Refer to NOTE and CAUTION on step (3)(b) above.
- (6) Cap open connections.



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C. Install Automatic Trigger Valve

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) If nuts are not dry-lube type, apply thread compound, sparingly and evenly, to first three male threads of each fitting. Exert care to keep fitting ends clean.

CAUTION. COMPOUND ON FITTING ENDS MAY CONTAMINATE SYSTEM.

- (3) On airplanes with thermal compensators attach valve to compensator assembly. Use wrench on union flats rather than on B-nut. (See figure 201 for effectivity.) Refer to 35-2-151, Thermal Compensators Maintenance Practices.

NOTE When connecting union to valve avoid rotation of connector.

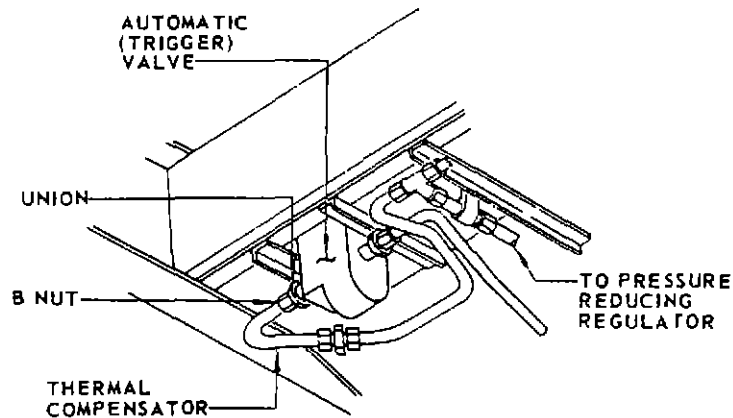
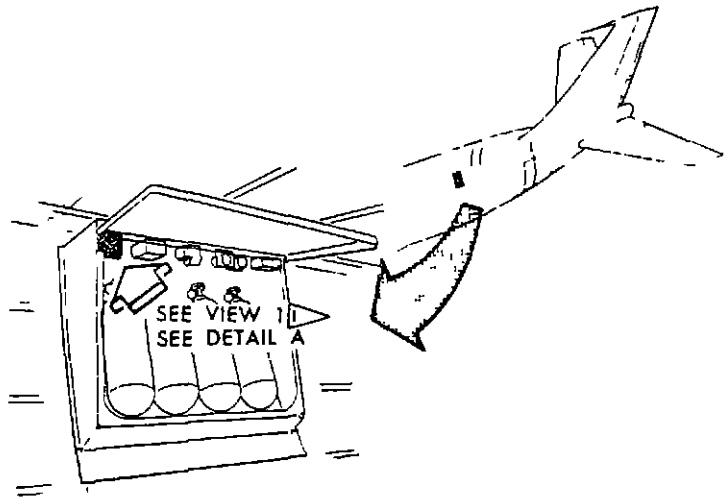
CAUTION. CONNECTOR MUST NOT BE ROTATED TO AVOID DISTURBING VALVE ADJUSTMENT.

- (4) Position valve and loosely install mounting screws.
- (5) Restore line connections and tighten attaching screws. Refer to NOTE and CAUTION on step C.(2) above.
- (6) Slowly open all cylinder shutoff valves.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

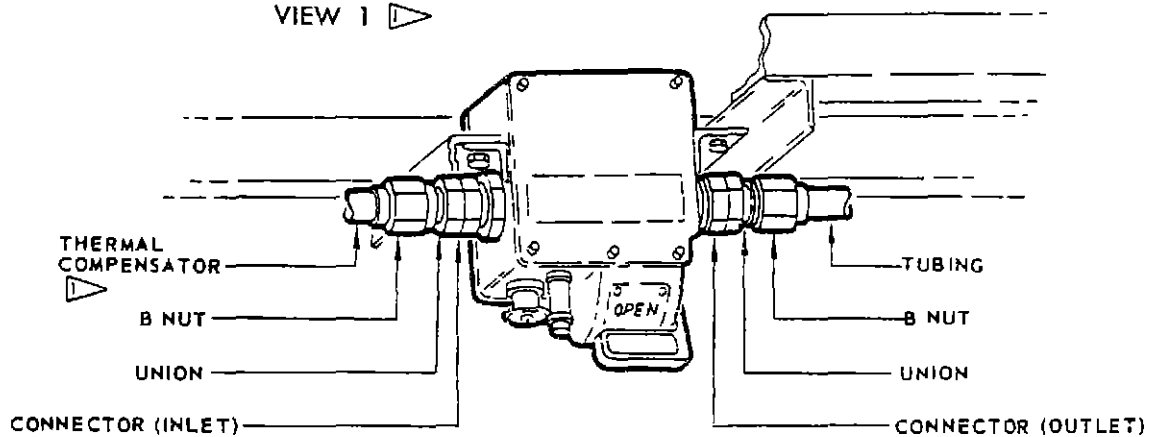
CAUTION MAKE SURE ALL CYLINDER SHUTOFF VALVES ARE OPEN.

- (7) Observe pressure gage to be sure high pressure system is pressurized.
- (8) Check for leaks using leak detection compound.
- (9) Test passenger oxygen system Refer to 35-2-0, Passenger Oxygen System - Maintenance Practices
- (10) Unhook and close oxygen equipment shroud door.



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QANTAS VH-ESR AND ON
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DETAIL A



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BYPASS VALVE - MAINTENANCE PRACTICES

1. Removal/Installation Bypass Valve

A. Equipment and Materials

- (1) Thread Compound - MIL-T-5542B
- (2) Leak-Test Compound - MIL-L-25567A, Type I

B. Remove Bypass Valve

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open PASS OXY VALVE & LTS circuit breaker on radio and T-R circuit breaker panel (P5).
- (3) In the aft cargo compartment, open oxygen equipment shroud door and secure it by hooks.
- (4) Close all cylinder shutoff valves.
- (5) Disconnect electrical connector.
- (6) On airplanes with thermal compensators proceed as follows. (See figure 201 for effectivity)
 - (a) Disconnect B-nut at upstream end of compensator assembly.
 - (b) Disconnect valve at outlet.

NOTE When disconnect B-nut or union from valve avoid rotation of connector.

CAUTION CONNECTOR MUST NOT BE ROTATED TO PREVENT DISTURBING VALVE ADJUSTMENT.

- (c) Remove attaching screws.
- (d) Remove valve and compensator assembly attached together.
- (e) Using wrench on union flats rather than on B-nut, disconnect valve from compensator assembly. Refer to 35-2-151, Thermal Compensators Maintenance Practices Refer to note and caution on step (5)(b) above.
- (7) On airplanes without thermal compensators disconnect inlet and outlet lines, remove mounting screws, and remove valve. Refer to note and caution on step (5)(b) above.
- (8) Cap open connections.



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C. Install Bypass Valve

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) If nuts are not dry-lube type, apply thread compound, sparingly and evenly, to first three male threads of each fitting. Exert care to keep fitting ends clean.

CAUTION COMPOUND ON FITTING ENDS MAY CONTAMINATE SYSTEM.

- (3) On airplanes with thermal compensators attach valve to compensator assembly. Use wrench on union flats rather than on B-nut. (See figure 201 for effectivity) Refer to 35-2-151, Thermal Compensators Maintenance Practices

NOTE When connecting union to valve avoid rotation of connector.

CAUTION CONNECTOR MUST NOT BE ROTATED TO PREVENT DISTURBING VALVE ADJUSTMENT.

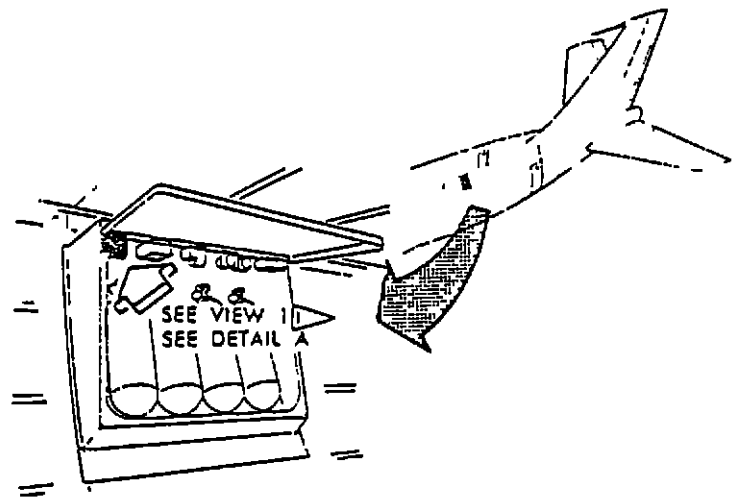
- (4) Position valve and loosely install mounting screws
- (5) Restore line connections and tighten mounting screws. Refer to note and caution on step C.(2) above
- (6) Connect electrical connector.
- (7) Slowly open all cylinder shutoff valves.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT

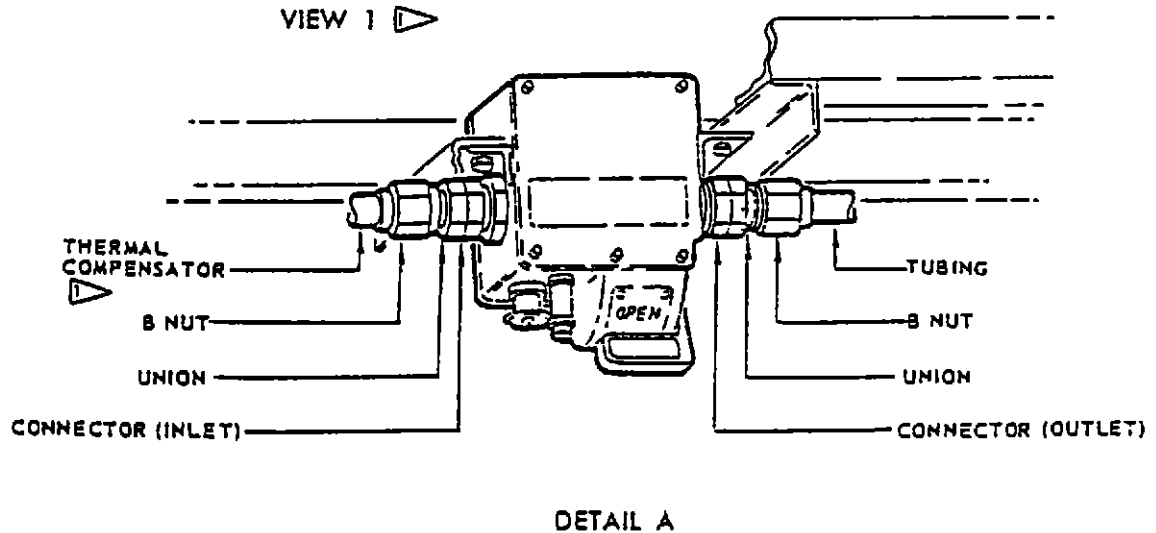
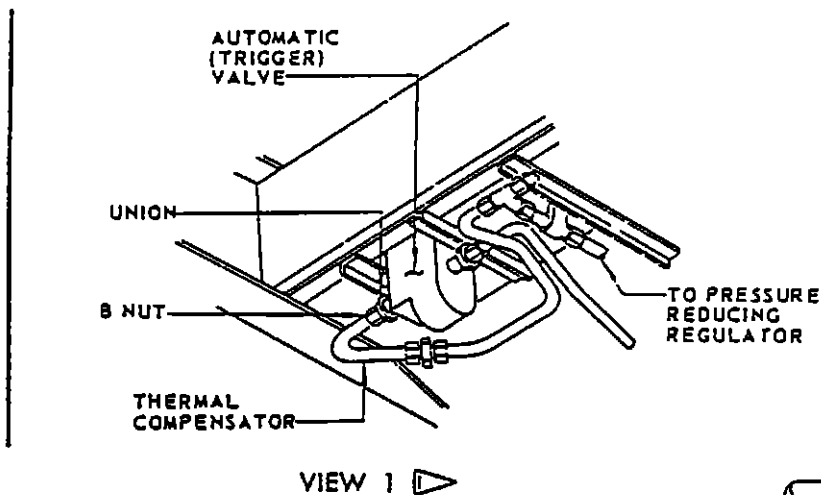
CAUTION MAKE SURE ALL CYLINDER SHUTOFF VALVES ARE OPEN.

- (8) Observe pressure gage to ensure high pressure system is pressurized.
- (9) Check for leaks, using leak-test compound.
- (10) Test passenger oxygen system. Refer to 35-2-0, Passenger Oxygen System - Maintenance Practices.
- (11) Unhook and close oxygen equipment shroud door.
- (12) Close circuit breaker.

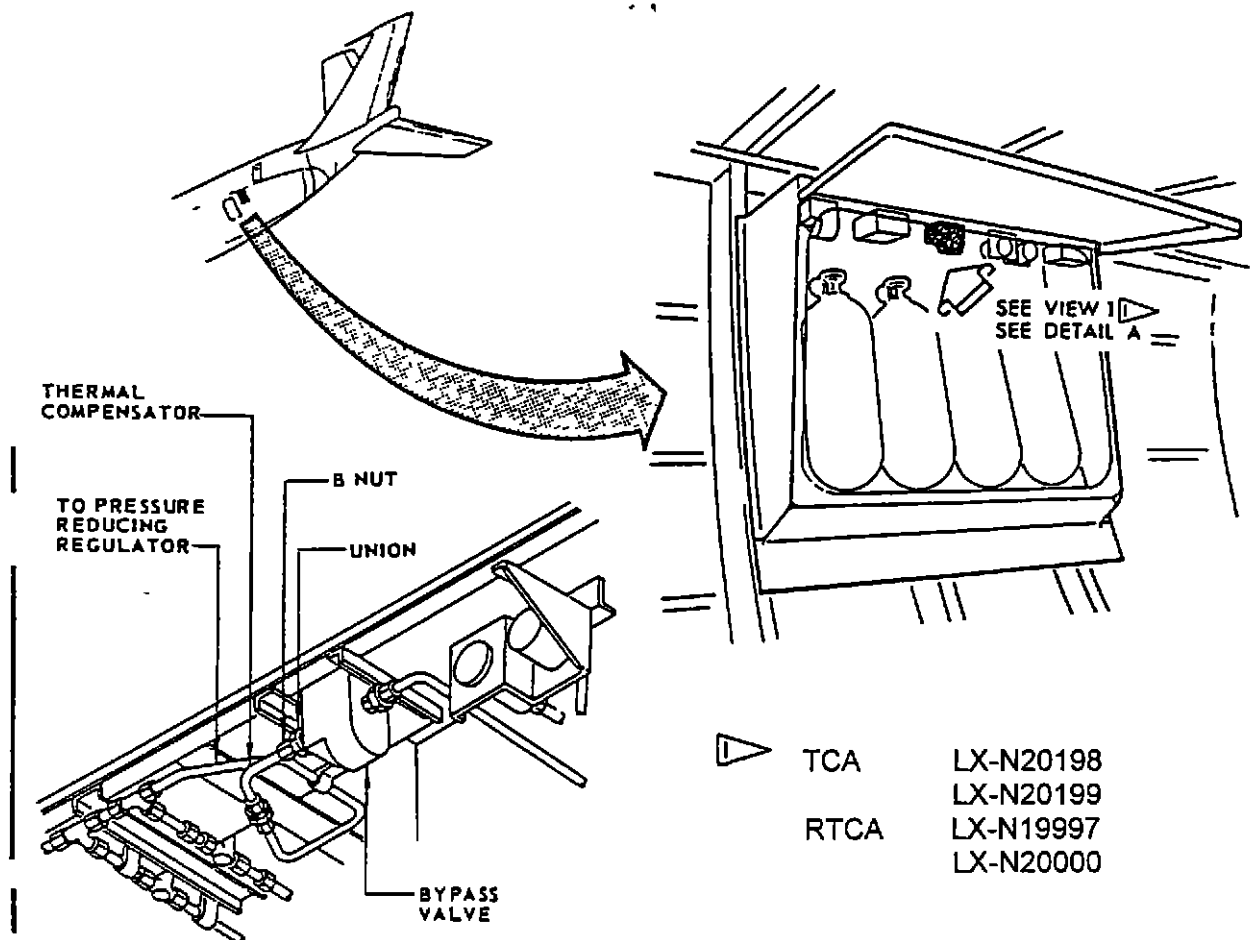
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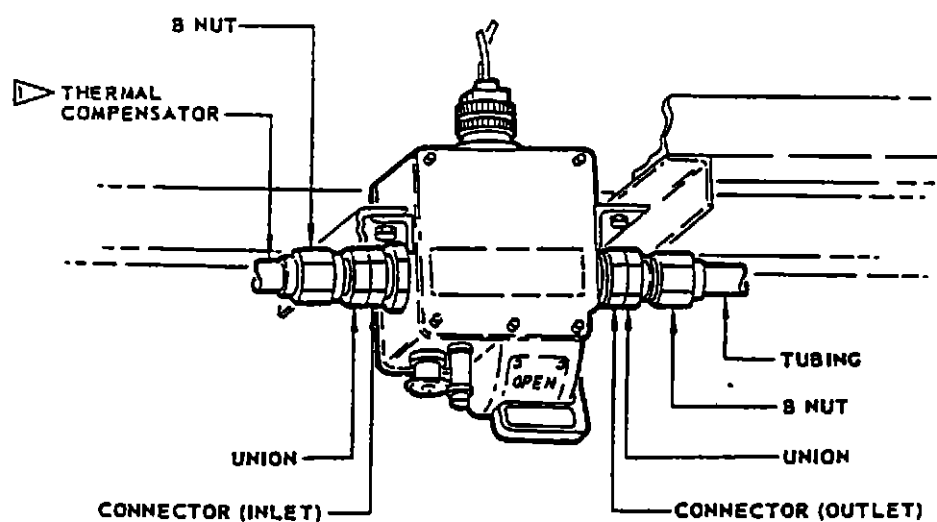
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VIEW 1 ▷



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LOUNGE SERVICE UNIT PRESSURE LATCH - MAINTENANCE PRACTICES

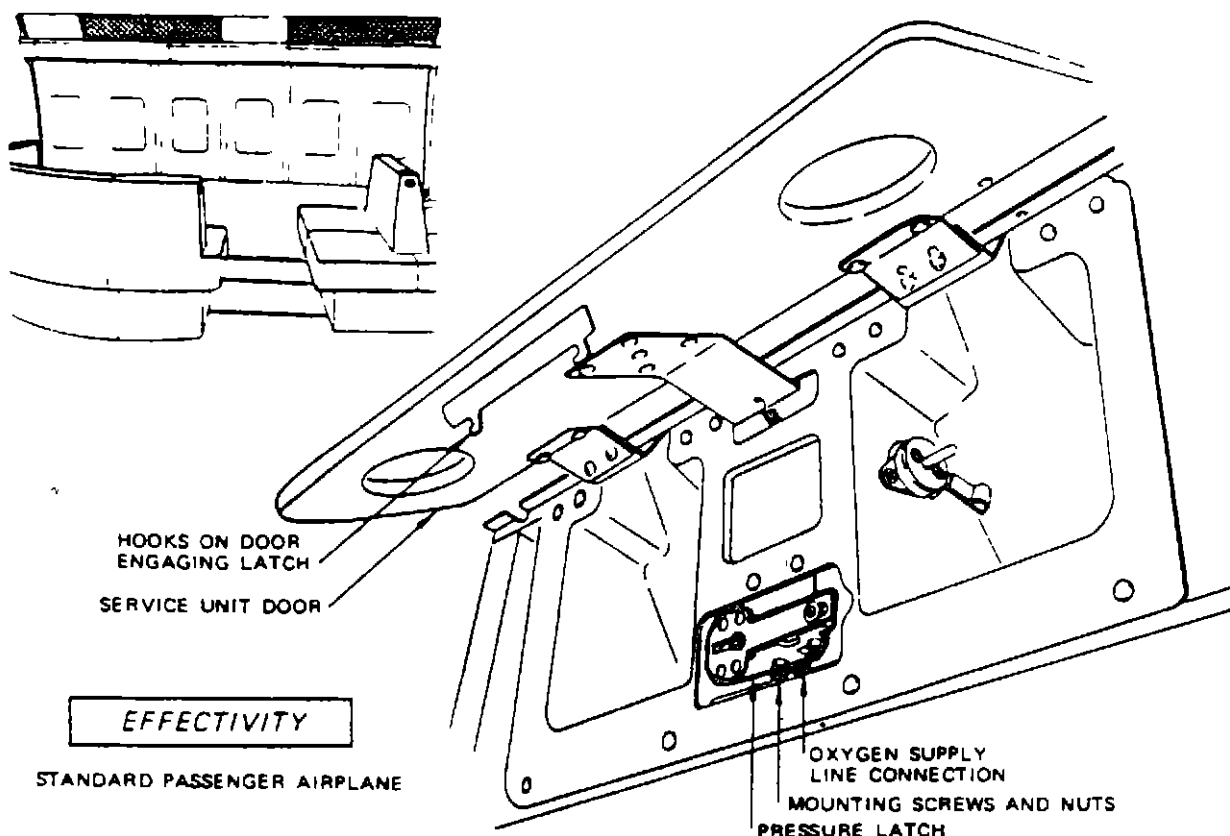
1. Removal/Installation Lounge Service Unit Pressure Latch (Standard Passenger Airplanes)

A. Remove Pressure Latch (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment
- (3) Close all passenger oxygen cylinder shutoff valves.
- (4) Manually, open mask compartment door.

NOTE If desired hold masks in stowed position.

- (5) Protect oxygen masks and tubing by taping them clear of operations to follow.



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Lounge Service Unit Pressure Latch Installation

Figure 201

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- (6) Gain access through opening above latch and disconnect oxygen supply line to latch. Cap or plug open connections.
- (7) Unfasten mounting screws and self-locking nuts and remove latch.

B. Install Pressure Latch (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Install latch with mounting screws and self-locking nuts, but do not tighten.
- (3) Check alignment and engagement of latch with hooks on door and tighten nuts when a satisfactory adjustment is reached.
- (4) Connect oxygen supply line to latch.
- (5) Install oxygen masks. Refer to appropriate maintenance practices section.
- (6) Actuate latch manually and check that there is no binding.

NOTE Masks may be retained by loosely fastening door.

- (7) Actuate latch manually and slowly press door closed until latch clicks into engagement.
- (8) Slowly open all cylinder shutoff valves.

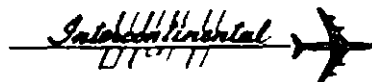
WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (9) Close oxygen cylinder shroud door.

2. Removal/Installation Lounge Service Unit Pressure Latch (Passenger/Cargo Convertible Airplanes)

A. Remove Pressure Latch

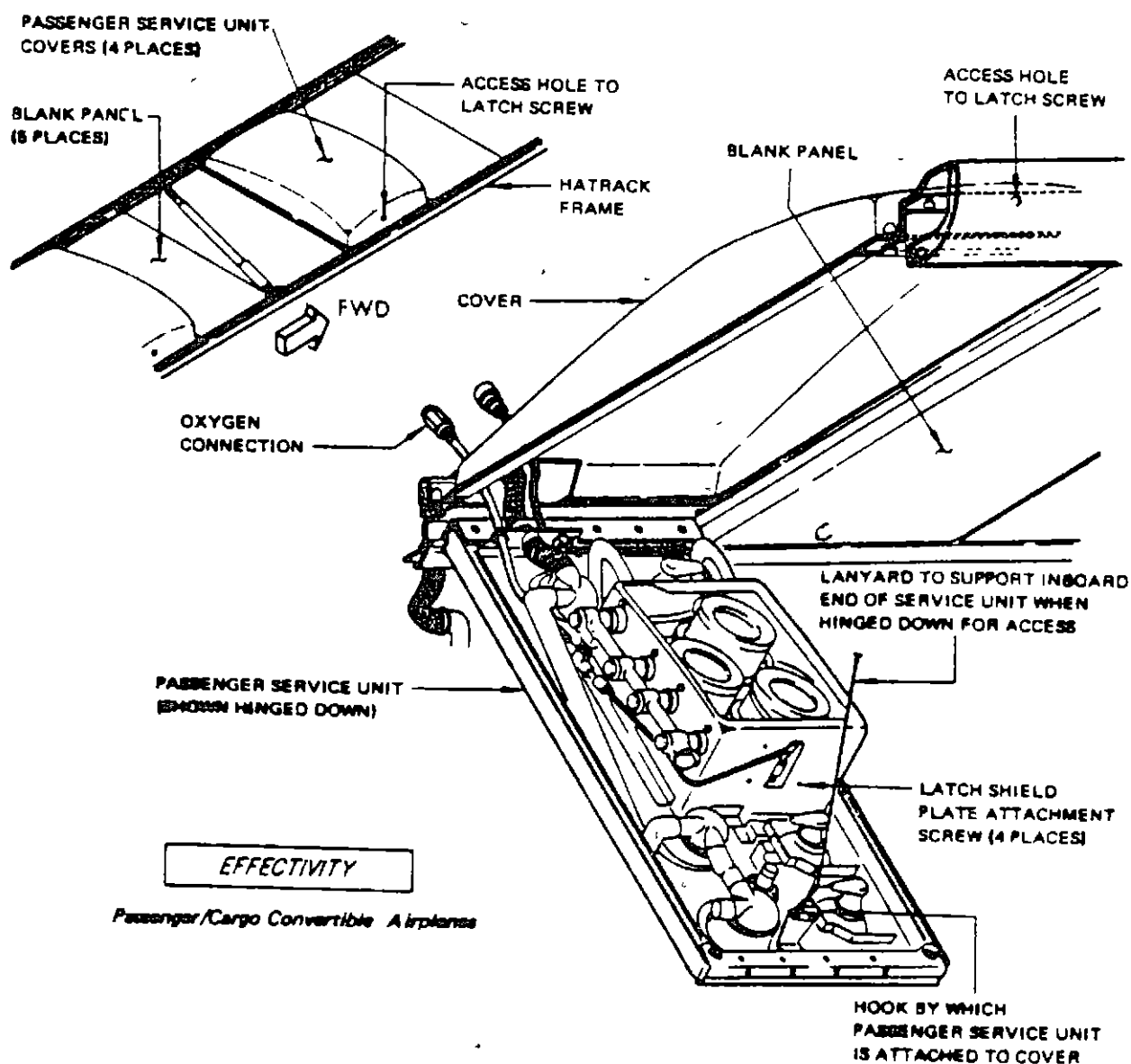
- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.



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- (2) For removal of the pressure latch in the passenger oxygen system (Ref 35-2-0, D&O):
 - (a) Open oxygen cylinder shroud in aft cargo compartment.
 - (b) Close all passenger oxygen cylinder shutoff valves.
 - (3) For removal of the pressure latch in the personnel accommodations oxygen system (Ref 35-4-0, D&O):
 - (a) Open oxygen cylinder shroud in forward cargo compartment.
 - (b) Close personnel accommodations oxygen cylinder valve.
 - (4) Manually open oxygen mask compartment door.
 - (5) Protect oxygen masks and tubing by taping them clear of operations to follow.
 - (6) Lower service unit.
 - (a) Rotate latch screw counterclockwise as far as possible, lift service unit to disengage latch and lower inboard end of unit to extent permitted by lanyard
- NOTE. The latch screw is accessible through a hole in the inboard end of the cover.
- Before lowering service unit the hatrack must be in its down position (Ref Chapter 25, Hatracks - Maintenance Practices)
- (7) Obtain access to latch by removing latch shield plate inside mask compartment.
 - (8) Disconnect oxygen supply line to latch. Cap or plug open connections.
 - (9) Remove nuts, bolts, latch, and spacer.

MAINTENANCE MANUAL

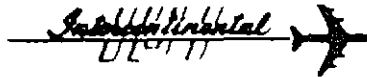


EFFECTIVITY

Passenger/Cargo Convertible Airplanes

T.R. 35-331
Lounge Service Unit
Figure 202

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Feb 15/75



MAINTENANCE MANUAL

B. Install Pressure Latch (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position spacer.
- (3) Install latch with bolts and nuts but do not tighten.
- (4) Check alignment and engagement of latch with hooks on door and tighten nuts when a satisfactory adjustment is reached.
- (5) Install latch shield plate with screws and nuts.
- (6) Connect oxygen supply line to latch.
- (7) Install masks. Refer to appropriate maintenance practices section.
- (8) Raise inboard end of service unit and hold while rotating latch screw clockwise as far as possible to lock unit to cover.
- (9) Actuate latch manually and check that there is no binding.

NOTE. Masks may be retained by loosely fastening door.

- (10) Manually actuate latch and slowly press door upward until both engage.
- (11) Slowly open all cylinder shutoff valves closed in steps B.(2) and/or B.(3) above.

WARNING. VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT

- (12) Close oxygen cylinder shroud door.

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LAVATORY SERVICE UNIT PRESSURE LATCH - MAINTENANCE PRACTICES

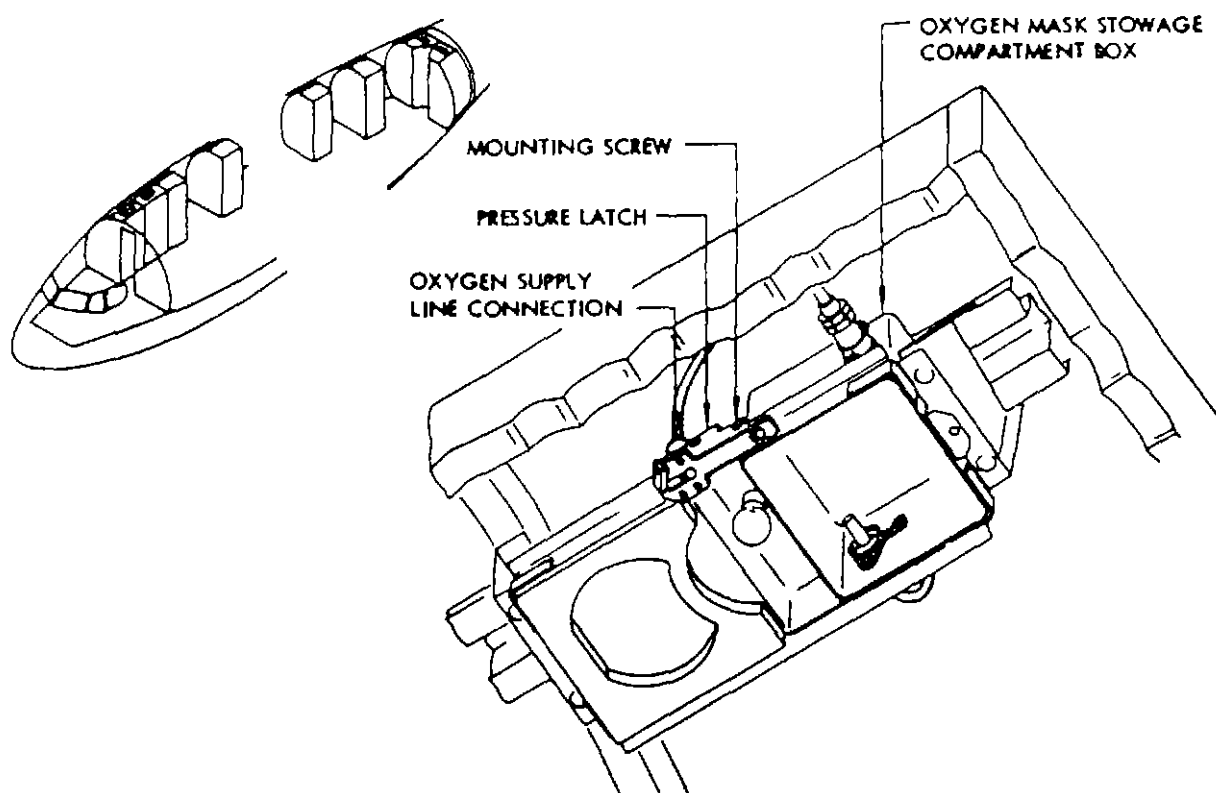
1. General

A. These instructions cover pressure latches in the passenger and personnel accommodations oxygen systems. Instructions are typical for all lavatories except lavatory E on cargo convertible airplanes, which is covered separately.

2. Removal/Installation Lavatory Service Unit Pressure Latch (Typical)

A. Remove Pressure Latch (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) For removal of the pressure latch in the passenger oxygen system (Ref 35-2-0, D & O)
 - (a) Open oxygen cylinder shroud in aft cargo compartment.
 - (b) Close all passenger oxygen cylinder shutoff valves.



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Lavatory Pressure Latch Installation (Typical)

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Figure 201

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- (3) For removal of the pressure latch in the personnel accommodations oxygen system (Ref 35-4-0, D & O).
 - (a) Open oxygen cylinder shroud in forward cargo compartment.
 - (b) Close personnel accommodations oxygen cylinder valve.
- (4) Remove ceiling as necessary for access to latch (Ref Chapter 25).
- (5) Manually open lavatory oxygen mask compartment door.
- (6) Protect oxygen masks and tubing by taping them clear of operations to follow.
- (7) Disconnect oxygen supply line to latch. Plug or cap open connections.
- (8) Unfasten mounting screws and nuts. Remove washers or spacers where necessary.
- (9) Remove pressure latch.

B. Install Pressure Latch (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
 - (2) Install latch with mounting screws and nuts. Install washers or spacers where necessary. Do not tighten nuts.
 - (3) Check alignment and engagement of latch with hooks on door and tighten nuts when a satisfactory adjustment is reached.
 - (4) Connect oxygen supply line to latch.
 - (5) Install masks. Refer to appropriate maintenance practices section.
 - (6) Install ceiling (Ref Chapter 25).
 - (7) Actuate latch manually and check that there is no binding
- NOTE. Masks may be retained by loosely fastening door.
- (8) Slowly press door upward until latch clicks into engagement.



MAINTENANCE MANUAL

- (9) Slowly open all cylinder shutoff valves closed in steps A.(2) and/or A.(3) above.

WARNING. VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (10) Close oxygen cylinder shroud door.

3. Removal/Installation Lavatory "E" Service Unit Pressure Latch (Cargo Convertible Airplanes)

A. Remove Pressure Latch (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close all passenger oxygen cylinder shutoff valves.
- (4) Remove cover plate around service unit door.

NOTE Cover plate is mounted by means of Velcro tape and can be removed by hand.

- (5) Open service unit door by sliding pin in slot.
- (6) Protect oxygen masks and tubing by taping them clear of operations to follow.
- (7) Remove sidewall lining below service unit (Ref Chapter 25).
- (8) Disengage service unit attaching screws from airplane sidewall, but do not remove screws.

NOTE Screws should be kept in place to retain washers and foam rubber spacer blocks.

- (9) Pull unit and displace from cutout in airplane sidewall.
- (10) Remove and store spacer blocks, washers, and screws.

NOTE Observe location of washers and mark if necessary to facilitate installation.

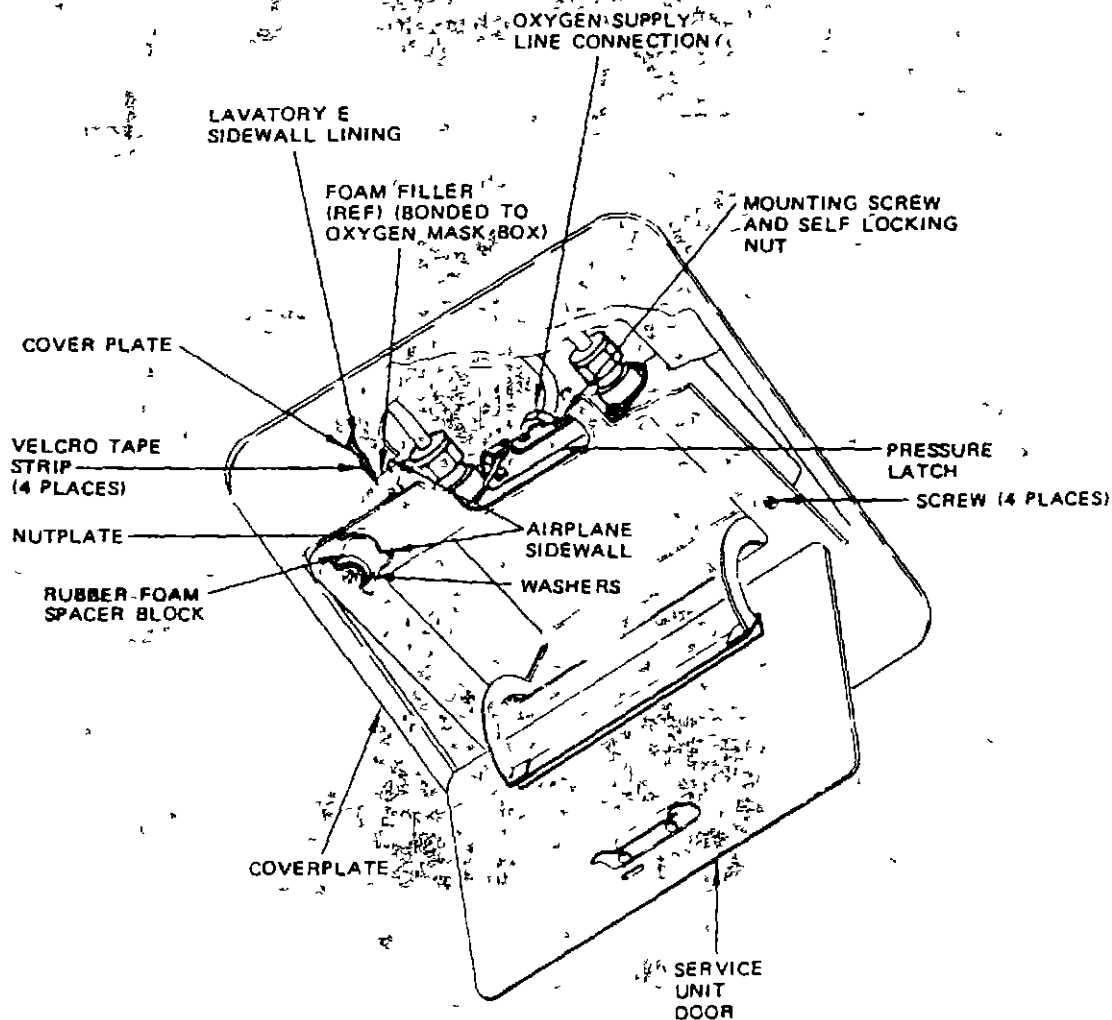
- (11) Disconnect oxygen supply line to latch. Plug or cap open connections.
- (12) Unfasten mounting bolts and self-locking nuts and remove pressure latch



MAINTENANCE MANUAL

B. Install Pressure Latch (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Install latch with bolts and self-locking nuts, but do not tighten.



EFFECTIVITY

CARGO CONVERTIBLE
AIRPLANES

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Lavatory E Pressure Latch Installation
Figure 202



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- (3) Check alignment and engagement of latch with hooks on door and tighten nuts when a satisfactory adjustment is reached.
- (4) Connect oxygen supply line to latch.
- (5) Attach service unit to airplane sidewall with screws, spacer blocks, and washers.

NOTE. Ensure that washers are correctly distributed according to previous installation.

- (6) Install masks Refer to appropriate maintenance practices section.
- (7) Replace sidewall lining below service unit.
- (8) Install cover plate.
 - (a) Center opening on cover plate around service unit door while positioning Velcro tape strips on cover plate to match tape strips on lavatory sidewall.
 - (b) Press Velcro tape strips firmly together assuring of a snug fit throughout.

- (9) Actuate latch manually and check that there is no binding.

NOTE Masks may be retained by loosely fastening door.

- (10) Slowly press door closed until latch clicks into engagement.
- (11) Slowly open all cylinder shutoff valves.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (12) Close oxygen cylinder shroud door.

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ATTENDANTS' SERVICE UNITS PRESSURE LATCH - MAINTENANCE PRACTICES

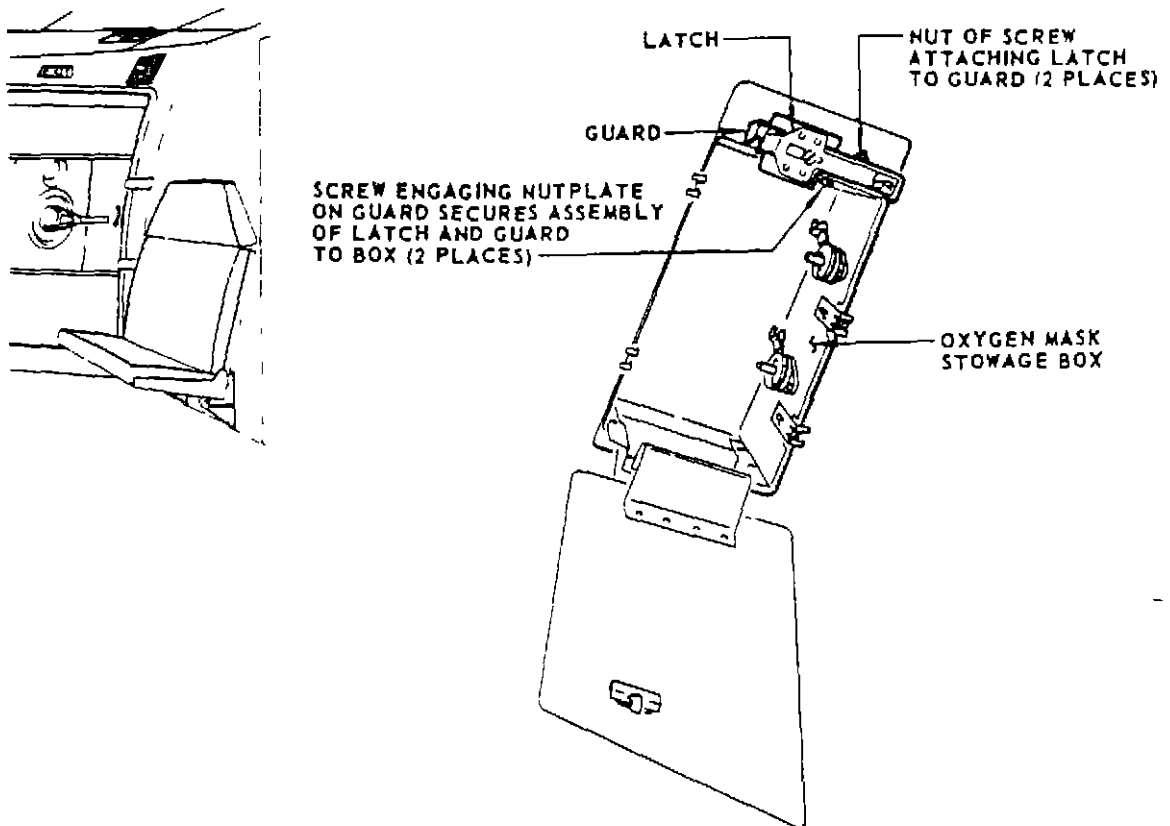
1. Removal/Installation Forward Cabin Attendants' Pressure Latch

A. General

- (1) These instructions cover pressure latches in the passenger and personnel accommodations oxygen systems.

B. Remove Pressure Latch (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) For removal of the pressure latch in the passenger oxygen system (Ref 35-2-0, D & O).
 - (a) Open oxygen cylinder shroud in aft cargo compartment.
 - (b) Close all passenger oxygen cylinder shutoff valves.



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Forward Cabin Attendants' Pressure Latch Installation
Figure 201

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- (3) For removal of the pressure latch in the personnel accommodations oxygen system (Ref 35-4-0, D & O).
 - (a) Open oxygen cylinder shroud in forward compartment.
 - (b) Close personnel accommodations oxygen cylinder valve.
- (4) Remove sidewall covering in area above forward corner of forward entry door (Ref Chapter 25).
- (5) Manually open service unit door.
- (6) Protect oxygen masks and tubing by taping them clear of operations to follow.
- (7) Disconnect oxygen supply line to latch. Cap or plug open connections.
- (8) Unfasten mounting screws and remove pressure latch complete with its guard and mounting plate.

C. Install Pressure Latch (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.

- (2) Install latch with mounting screws but do not tighten.

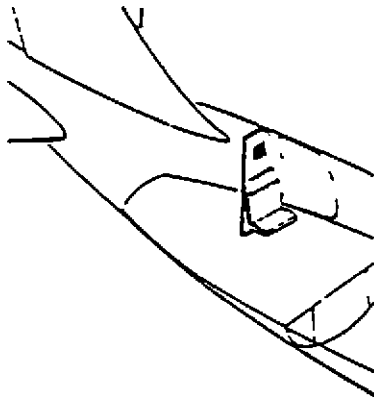
NOTE The latch is installed complete with its guard and mounting plate which has nutplates for both mounting screws.

- (3) Check alignment and engagement of latch with hooks on door and tighten latch mountings when a satisfactory adjustment is reached.
- (4) Connect oxygen supply line to latch.
- (5) Replace sidewall covering in area above forward corner of forward entry door.

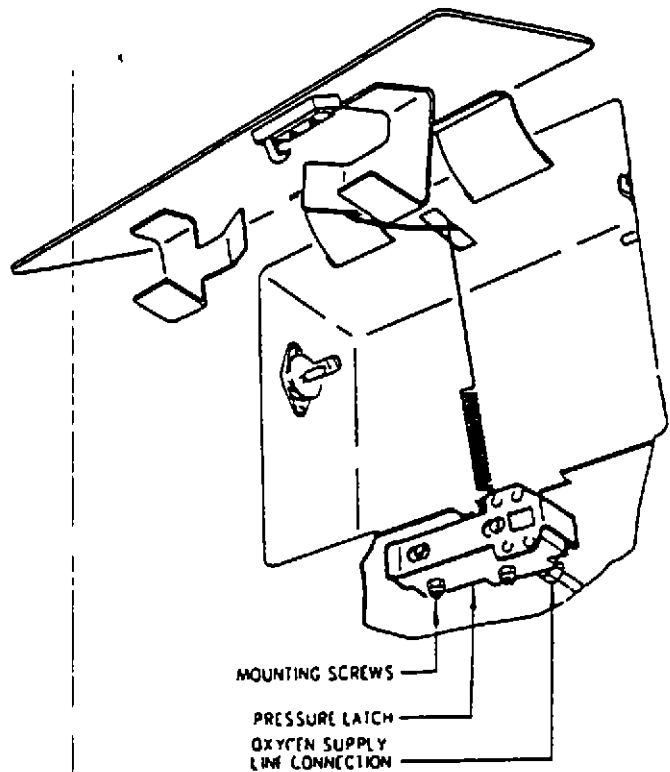
NOTE The stowage box is provided with clips to grip the cutout in the sidewall covering. The mountings of these clips, and of the whole box and the door hinge, are provided with slot adjustments to enable a snug installation of the sidewall covering to be achieved. If these adjustments are used, a final check should be made that the latch is adjusted to engage the door hooks correctly.

- (6) Install oxygen masks. Refer to appropriate maintenance practices section

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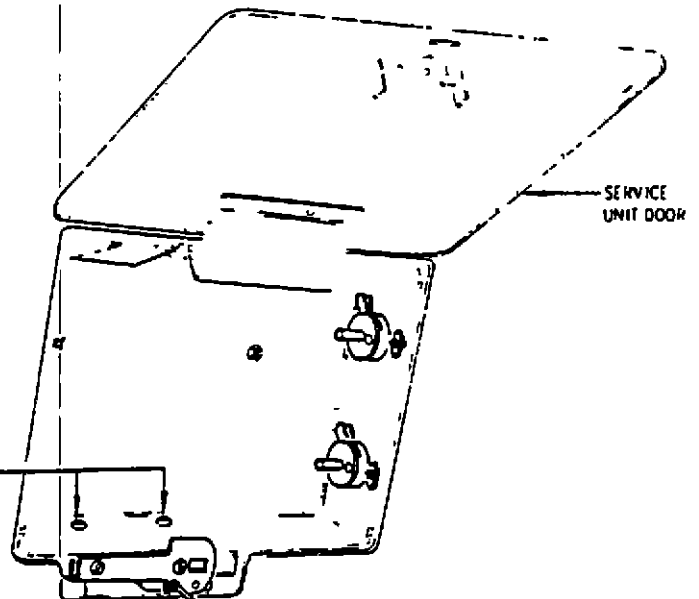
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EFFECTIVITY

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	LX-N20199
RTCA	LX-N19997
	LX-N20000

MOUNTING SCREWS

PRESSURE
LATCH



Interch *Cal*

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- (7) Actuate latch manually and check that there is no binding.

NOTE Retain masks by loosely fastening door.

- (8) Slowly press door upward until latch clicks into engagement.
- (9) Slowly open all cylinder shutoff valves closed in steps B.(2) and/or B.(3) above.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (10) Close oxygen cylinder shroud door.

2. Removal/Installation Aft Cabin Attendants' Pressure Latch

A. Remove Pressure Latch (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close all passenger oxygen cylinder shutoff valves.
- (4) On turbojet airplanes remove shelf in coat closet, unscrew and remove aft panel of partition.
- (5) Open service unit door by sliding pin in slot.
- (6) Protect oxygen masks and tubing by taping them clear of operations to follow.
- (7) Disconnect oxygen supply line to latch, and plug or cap open connections.
- (8) Unfasten mounting screws or bolts and remove pressure latch.

NOTE. On turbofan airplanes the latch is removed complete with its guard and mounting plate which has nutplates for both mounting screws.



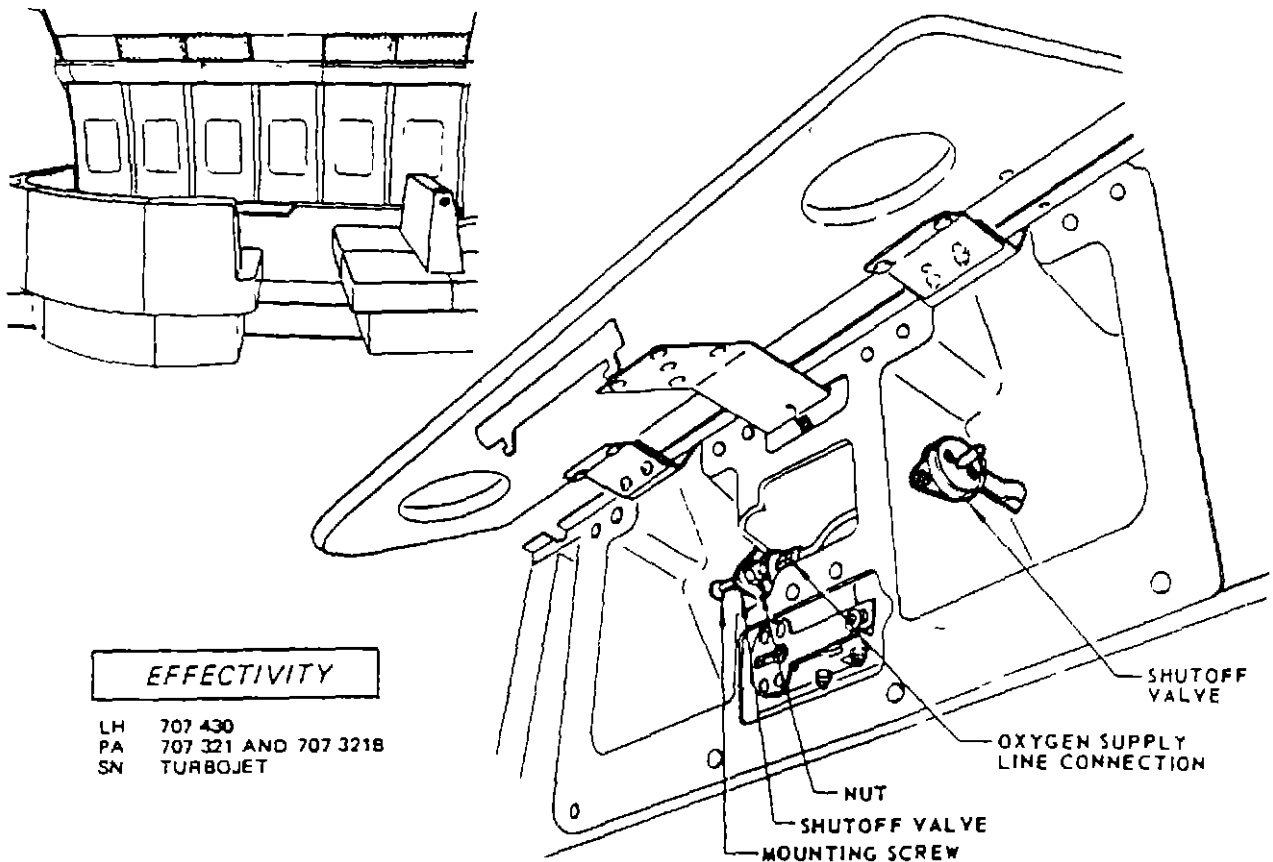
MAINTENANCE MANUAL

LOUNGE SERVICE UNIT SHUTOFF VALVE - MAINTENANCE PRACTICES

1. Removal/Installation Lounge Shutoff Valve (PAA 707-321 and 707-321B; SN Turbojet; LH 707-430)

A. Remove Shutoff Valve (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close all passenger oxygen cylinder shutoff valves.
- (4) Manually open mask compartment door.
- (5) Protect oxygen mask and tubing not to be removed by taping in stowed position.
- (6) Remove oxygen mask assembly by pulling plastic tube off valve outlet nozzle and unclipping valve actuating attachment from control lever.



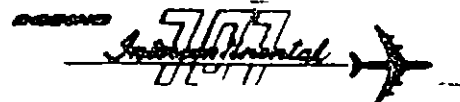
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Lounge Service Unit Shutoff Valve Installation
Figure 201

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- (7) Disconnect oxygen supply line to valve.

NOTE. Access is provided by the aperture in service unit above pressure latch.

- (8) Unscrew and remove mounting screws and nuts and remove valve.
- (9) Plug or cap open connections.

B. Install Shutoff Valve (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position shutoff valve.
- (3) Install mounting screws and nuts loosely.
- (4) Connect oxygen supply line to valve.
- (5) Tighten mounting screws and nuts.
- (6) Install tubing of oxygen mask assembly on valve outlet nozzle by pushing tube onto nozzle until tube reaches face of valve body.
- (7) Install oxygen masks. Refer to appropriate maintenance practices section.
- (8) Slowly open all cylinder shutoff valves.

WARNING. VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (9) Close oxygen cylinder shroud door.

2. Removal/Installation Lounge Shutoff Valve (Passenger/Cargo Convertible Airplanes)

A. General

- (1) These instructions cover shutoff valves in the passenger and personnel accommodations oxygen system.

B. Remove Shutoff Valve (Fig. 202)

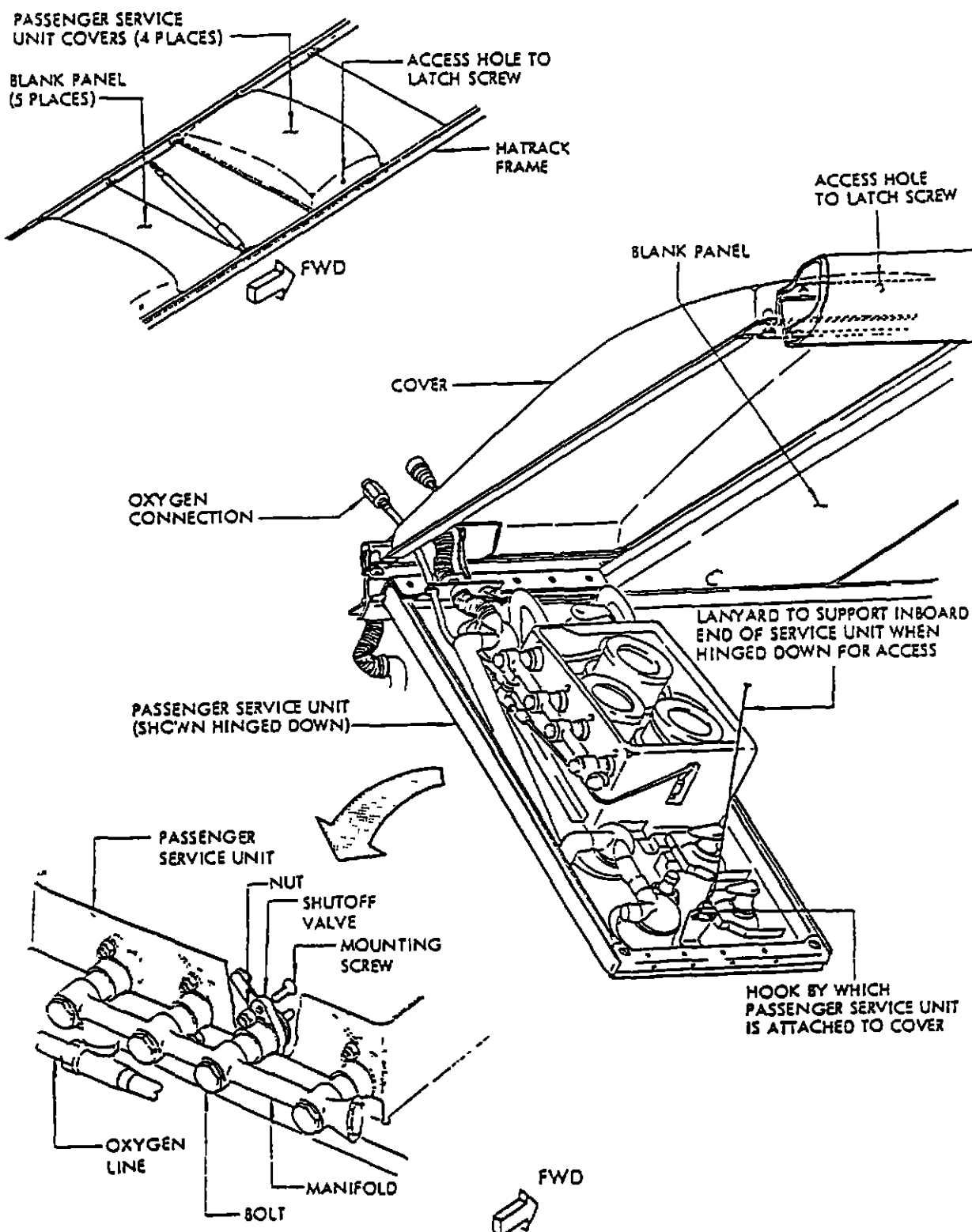
- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.

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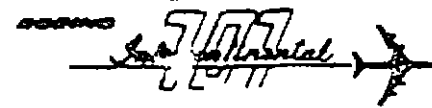


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Lounge Service Unit Shutoff Valve Installation
Figure 202

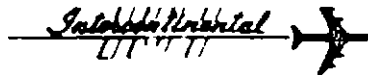
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- (2) For removal of the shutoff valve in the passenger oxygen system (Ref 35-2-0, D & O):
 - (a) Open oxygen cylinder shroud in aft cargo compartment.
 - (b) Close all passenger oxygen cylinder shutoff valves.
 - (3) For removal of the shutoff valve in the personnel accommodations oxygen system (Ref 35-4-0, D & O)
 - (a) Open oxygen cylinder shroud in forward cargo compartment.
 - (b) Close personnel accommodations oxygen cylinder valve.
 - (4) Manually open oxygen mask compartment door.
 - (5) Remove oxygen mask assembly by pulling plastic tube off valve outlet nozzle and unclipping valve actuating attachment from control lever.
 - (6) Protect remaining oxygen masks and tubing by taping them clear of operations to follow.
 - (7) Lower service unit.
 - (a) Rotate latch screw counterclockwise as far as possible, lift service unit to disengage latch and lower inboard end of unit to extent permitted by lanyard.
- NOTE The latch screw is accessible through a hole in the inboard end of the cover.
- Before lowering service unit the hatrack must be in its down position (Ref Chapter 25, Hatracks - Maintenance Practices).
- (8) If necessary, remove individual air supply duct from aft edge of oxygen mask box by releasing the clips at each end.
 - (9) Loosen mounting screws and remove bolt connecting valve to manifold.
 - (10) Unscrew and remove mounting screws and nuts and remove valve.
 - (11) Plug or cap open connections.



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C Install Shutoff Valve (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position shutoff valve, and install mounting screws and nuts loosely.
- (3) Install bolt connecting manifold to valve.
- (4) Install individual air supply duct along aft edge of oxygen mask compartment by engaging clips at each end.
- (5) Install tubing of oxygen mask assembly by pushing tube onto nozzle until tube reaches face of valve body.
- (6) Install masks. Refer to appropriate maintenance practices section.
- (7) Raise inboard end of service unit and hold while rotating latch screw clockwise as far as possible to lock unit to cover.
- (8) Slowly open all cylinder shutoff valves closed in steps B.(2) and/or B.(3) above.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (9) Close oxygen cylinder shroud door.

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LAVATORY SERVICE UNIT SHUTOFF VALVE - MAINTENANCE PRACTICES

1. General

- A. These instructions cover shutoff valves in the passenger and personnel accommodations oxygen systems. Instructions are typical for all lavatories except lavatory E on Cargo Convertible Airplanes, which is covered separately.

2. Removal/Installation Lavatory Service Unit Shutoff Valve (Typical)

A. Remove Shutoff Valve (Fig 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) For removal of the shutoff valve in the passenger oxygen system (Ref 35-2-0, D&O):
 - (a) Open oxygen cylinder shroud in aft cargo compartment.
 - (b) Close all passenger oxygen cylinder shutoff valves.
- (3) For removal of the shutoff valve in the personnel accommodations oxygen system (Ref 35-4-0, D&O).
 - (a) Open oxygen cylinder shroud in forward cargo compartment.
 - (b) Close personnel accommodations oxygen cylinder valve.
- (4) Manually open oxygen mask compartment door.
- (5) Remove oxygen mask assembly by pulling plastic tube off valve outlet nozzle and unclipping valve actuating attachment from control lever.
- (6) Protect remaining oxygen masks and tubing by taping them clear of operations to follow.

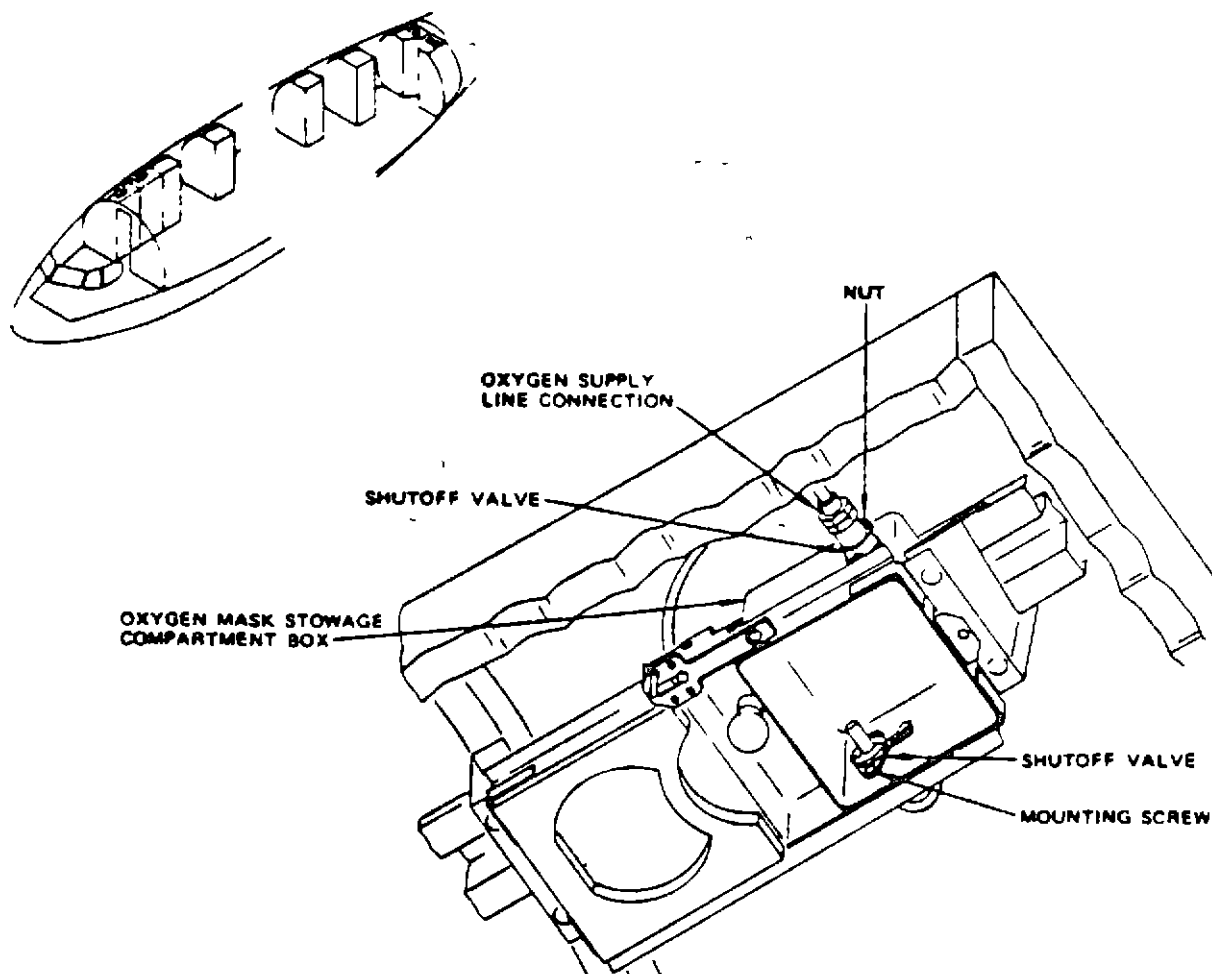
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 Lavatory Service Unit Shutoff Valve (Typical)
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- (7) Remove ceiling as needed for access to shutoff valve (Ref Chapter 25).
- (8) Disconnect oxygen supply line from valve.
- (9) Unscrew and remove mounting screws and nuts and remove valve.
- (10) Cap or plug open connections.

B. Install Shutoff Valve (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position valve, and install mounting screws and nuts loosely.
- (3) Connect oxygen supply line to valve.
- (4) Tighten mounting screws and nuts.
- (5) Install ceiling (Ref Chapter 25).
- (6) Install oxygen masks. Refer to appropriate maintenance practices section.
- (7) Slowly open all cylinder shutoff valves closed in steps A.(2) and/or A.(3) above.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (8) Close oxygen cylinder shroud door.

3. Removal/Installation Lavatory "E" Service Unit Shutoff Valve (Cargo Convertible Airplanes)

A. Remove Shutoff Valve (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close all passenger oxygen cylinder shutoff valves.

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- (4) Remove cover plate around service unit door.

NOTE: Cover plate is mounted by means of Velcro tape and can be removed by hand.

- (5) Open service unit door by sliding pin in slot.

- (6) Protect masks and tubing by taping clear of operations to follow.

- (7) Remove sidewall lining below service unit (Ref Chapter 25).

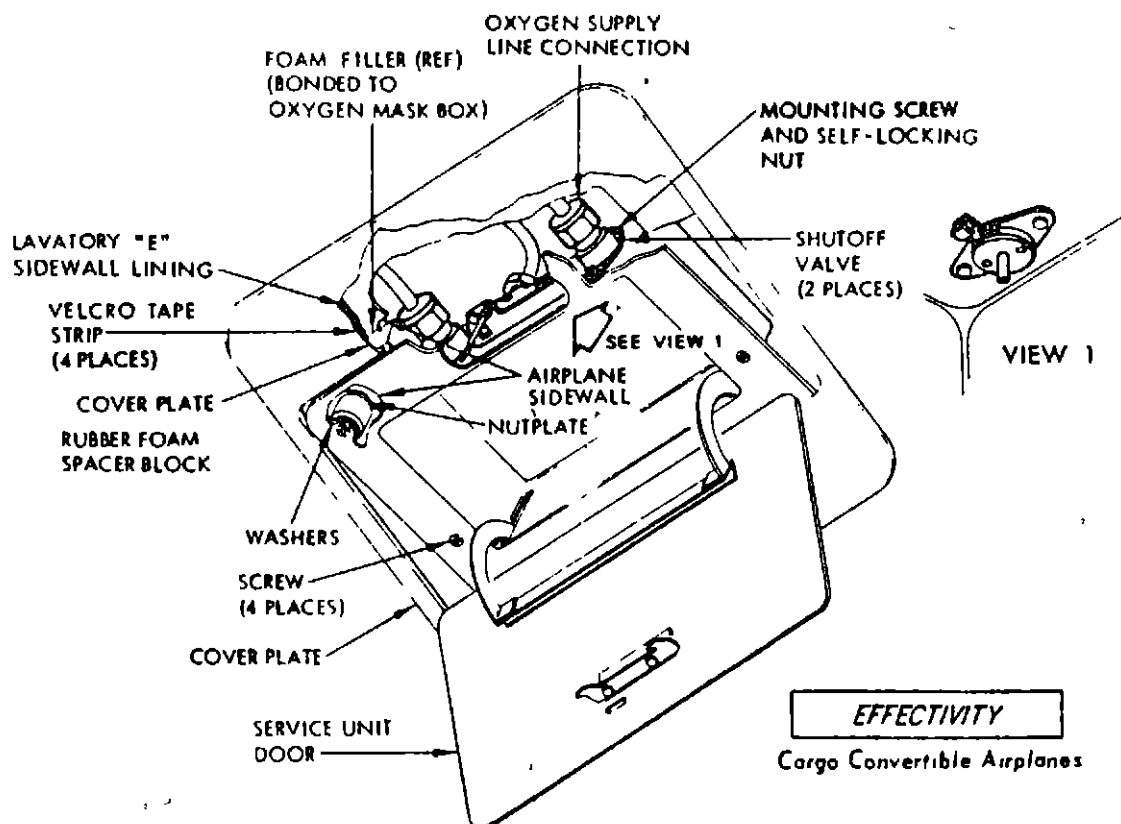
- (8) Disengage service unit attaching screws from airplane sidewall, but do not remove screws.

NOTE: Screws should be kept in place to retain washers and foam rubber spacer blocks.

- (9) Pull unit and displace from cutout in airplane sidewall.

- (10) Remove and store spacer blocks, washers, and screws.

NOTE: Observe location of washers and mark if necessary to facilitate installation.



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Lavatory E Service Unit Shutoff Valve
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- (4) Remove cover plate around service unit door.

NOTE: Cover plate is mounted by means of Velcro tape and can be removed by hand.

- (5) Open service unit door by sliding pin in slot.

- (6) Protect masks and tubing by taping clear of operations to follow.

- (7) Remove sidewall lining below service unit (Ref Chapter 25).

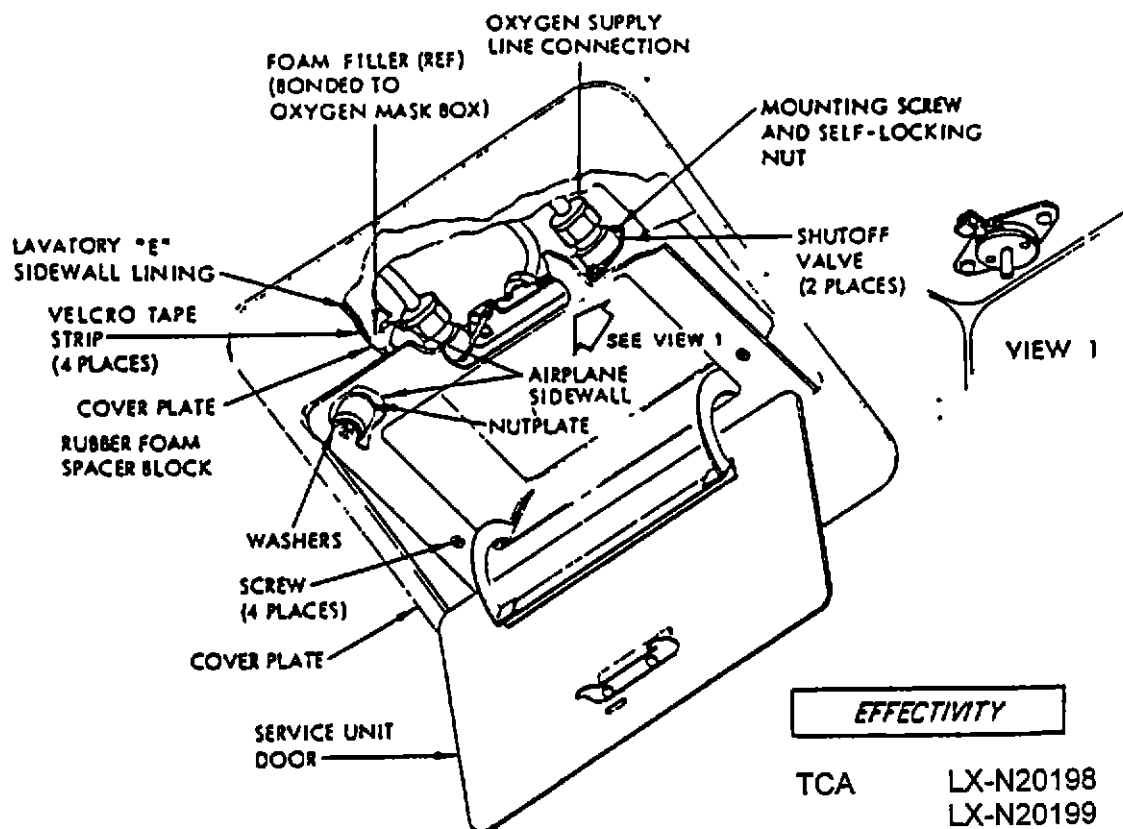
- (8) Disengage service unit attaching screws from airplane sidewall, but do not remove screws.

NOTE: Screws should be kept in place to retain washers and foam rubber spacer blocks.

- (9) Pull unit and displace from cutout in airplane sidewall.

- (10) Remove and store spacer blocks, washers, and screws.

NOTE: Observe location of washers and mark if necessary to facilitate installation.



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Lavatory E Service Unit Shutoff Valve
Figure 202



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- (7) Remove ceiling as needed for access to shutoff valve (Ref Chapter 25).
- (8) Disconnect oxygen supply line from valve.
- (9) Unscrew and remove mounting screws and nuts and remove valve.
- (10) Cap or plug open connections.

B. Install Shutoff Valve (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position valve, and install mounting screws and nuts loosely.
- (3) Connect oxygen supply line to valve.
- (4) Tighten mounting screws and nuts.
- (5) Install ceiling (Ref Chapter 25).
- (6) Install oxygen masks. Refer to appropriate maintenance practices section.
- (7) Slowly open all cylinder shutoff valves closed in steps A.(2) and/or A.(3) above.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (8) Close oxygen cylinder shroud door.

3. Removal/Installation Lavatory "E" Service Unit Shutoff Valve (Cargo Convertible Airplanes)

A. Remove Shutoff Valve (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close all passenger oxygen cylinder shutoff valves.

- (11) Remove oxygen mask assembly by pulling plastic tube off valve outlet nozzle and unclipping valve actuating attachment from control lever.
- (12) Disconnect oxygen supply line from valve. Plug or cap open connections.
- (13) Unscrew and remove mounting screws and self-locking nuts and remove shutoff valve.

B. Install Shutoff Valve (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position shutoff valve and loosely install mounting screws and self-locking nuts.
- (3) Connect oxygen supply line.
- (4) Tighten mounting screws and nuts.
- (5) Attach service unit to airplane sidewall with screws, spacer blocks, and washers.

NOTE. Ensure that washers are correctly distributed according to previous installation.

- (6) Replace sidewall lining below service unit.
- (7) Install coverplate.
 - (a) Center opening on coverplate around service unit door while positioning Velcro tape strips on coverplate to match tape strips on lavatory sidewall.
 - (b) Press Velcro tape strips firmly together assuring of a snug fit throughout.
- (8) Install oxygen masks. Refer to appropriate maintenance practices section.
- (9) Slowly open all cylinder shutoff valves.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (10) Close oxygen cylinders shroud door.

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ATTENDANTS' SERVICE UNITS SHUTOFF VALVE - MAINTENANCE PRACTICES

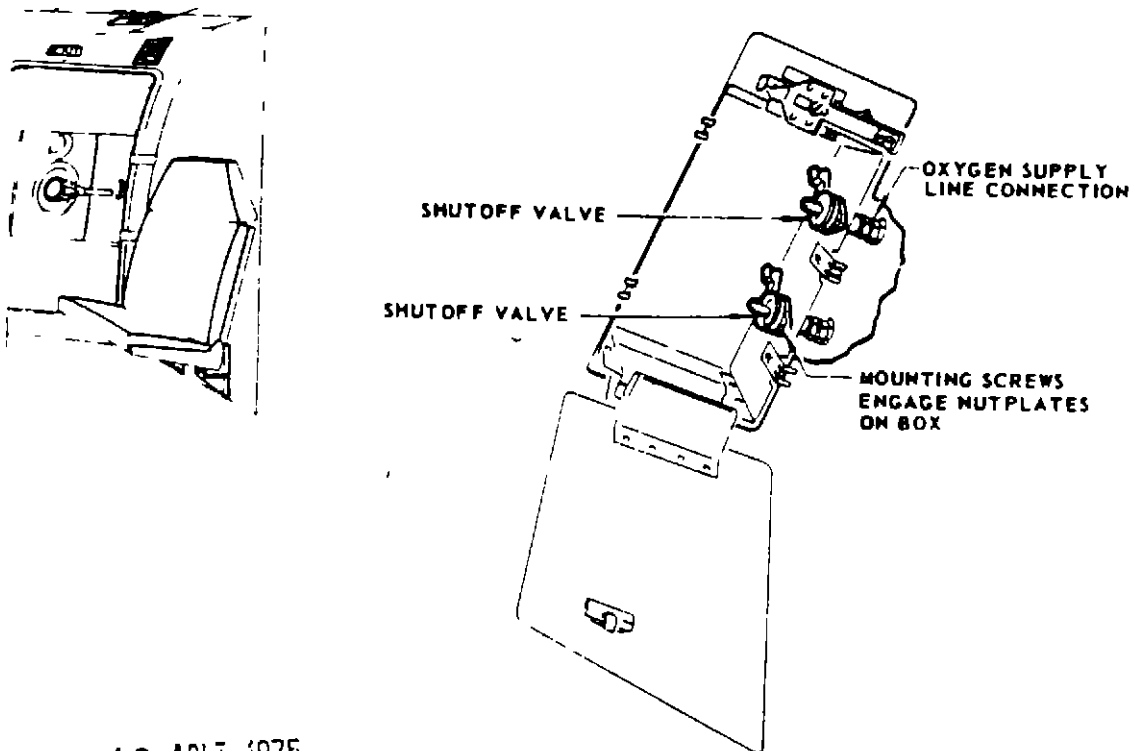
1. Removal/Installation Forward Attendants' Service Unit Shutoff Valve

A. General

- (1) These instructions cover shutoff valves in the passenger and personnel accommodations oxygen systems.

B. Remove Shutoff Valve (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) For removal of the shutoff valve in the passenger oxygen system (Ref 35-2-0, D&O):
 - (a) Open oxygen cylinder shroud in aft cargo compartment.
 - (b) Close all passenger oxygen cylinder shutoff valves.
- (3) For removal of the shutoff valve in the personnel accommodations oxygen system (Ref 35-4-0, D&O).
 - (a) Open oxygen cylinder shroud in forward cargo compartment.
 - (b) Close personnel accommodations oxygen cylinder valve.



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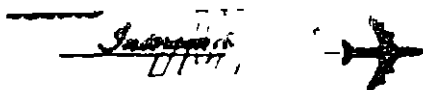
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Forward Attendants' Service Unit Shutoff Valve

Figure 201

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- (4) Manually open oxygen mask compartment door.
- (5) Remove oxygen mask assembly by pulling plastic tube off valve outlet nozzle and unclipping valve actuating attachment from control lever.
- (6) Protect remaining oxygen masks and tubing by taping them clear of operations to follow.
- (7) Remove sidewall covering in area above forward corner of forward entry door (Ref Chapter 25).
- (8) Disconnect oxygen supply line from valve.
- (9) Unscrew and remove mounting screws and remove shutoff valve.
- (10) Plug or cap open connections.

C. Install Shutoff Valve (Fig. 201)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-C, Maintenance Practices.
- (2) Position valve, and install mounting screws loosely
- (3) Connect oxygen supply, ensuring of a tight connection.
- (4) Tighten mounting screws.
- (5) Replace sidewall covering in area above forward corner of forward entry door (Ref Chapter 25).

NOTE. The stowage box is provided with clips to grip the cutout in the sidewall covering. The mounting of these clips, and of the whole box and the door hinge, are provided with slot adjustment to enable a snug installation of the sidewall covering to be achieved. If these adjustments are used, a final check should be made that the pressure latch mounting screws are adjusted in their slots so that the door hooks engage correctly.

- (6) Install tubing of oxygen mask assembly on valve outlet nozzle by pushing tube onto nozzle until tube reaches face of valve body.
- (7) Install oxygen masks. Refer to appropriate maintenance practices section.
- (8) Slowly open all cylinder shutoff valves closed in steps B.(2) and/or B.(3) above.

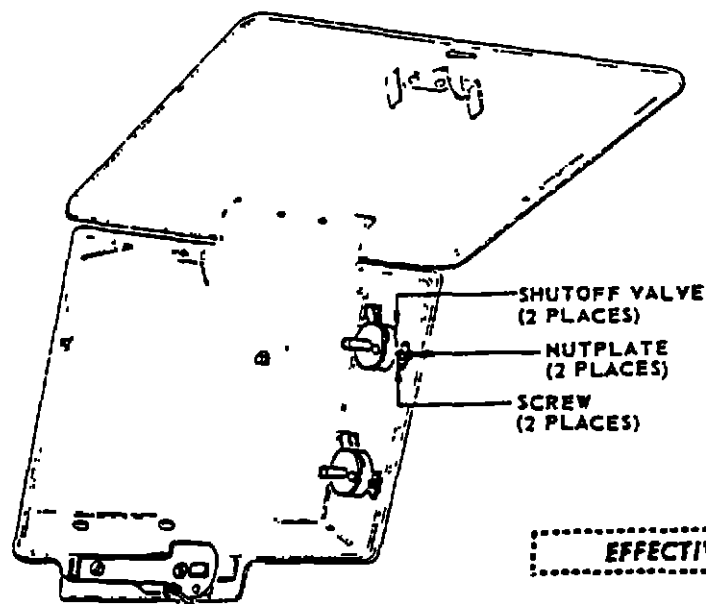
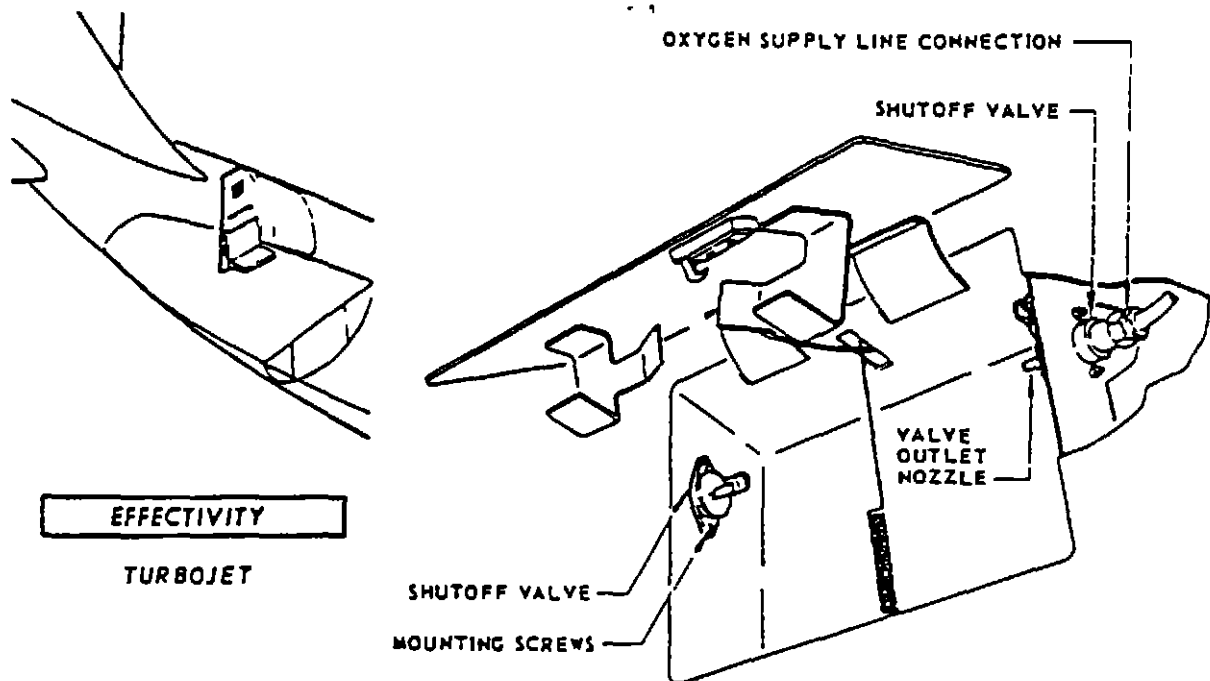
WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (9) Close oxygen cylinder shroud door.

T.R. 35-374

17 JAN 1975
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BOEING *Intercontinental*
MAINTENANCE MANUAL



EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997

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Aft Attendants Service Unit Shutoff Valve
Figure 202 (Sheet 2)

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MAINTENANCE MANUAL

2. Removal/Installation Aft Attendants' Service Unit Shutoff Valve

A. Remove Shutoff Valve (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close all passenger oxygen cylinder shutoff valves.
- (4) Manually open oxygen mask compartment door.
- (5) Remove oxygen mask assembly by pulling plastic tube off valve outlet nozzle and unclipping valve actuating attachment from control lever.
- (6) Protect remaining oxygen masks and tubing by taping clear of operations to follow.
- (7) In turbojet airplanes, remove shelf in coat closet, unscrew and remove aft panel of partition.
- (8) In turbofan airplanes, remove sidewall lining above aft corner of aft entry door (Ref Chapter 25).
- (9) Disconnect oxygen supply line from valve.
- (10) Unscrew and remove mounting screws. On turbojet airplanes remove nuts.
- (11) Remove shutoff valve.
- (12) Plug or cap open connections.

B. Install Shutoff Valve (Fig. 202)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position valve and loosely install mounting screws. On turbojet airplanes install nuts.
- (3) Connect oxygen supply line to valve.

MAINTENANCE MANUAL

- (4) Tighten mounting screws.
- (5) On turbojet airplanes, screw aft panel of coat closet partition in position, push cap trim strip onto inboard edge of partition, and install shelf in closet.
- (6) On turbofan airplanes, replace sidewall lining.
- (7) Install tubing of oxygen mask assembly on valve outlet nozzle by pushing tube onto nozzle until tube reaches face of valve body.
- (8) Install oxygen masks per 35-2-121.
- (9) Slowly open all cylinder shutoff valves.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (10) Close oxygen cylinder shroud door.

MAINTENANCE MANUAL

PRESSURE LATCH-VALVE-MANIFOLD ASSEMBLY - MAINTENANCE PRACTICES

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. General

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Equipment and Materials
 - (1) Oxygen system leak detection compound (Ref Chapter 13, Miscellaneous Materials)

2. Removal/Installation, Pressure Latch-Valve-Manifold Assembly

- A. Open oxygen cylinder shroud door in aft cargo compartment.
- B. Close all passenger oxygen cylinder shutoff valves.
- C. Obtain access to pressure latch-valve-manifold assembly (Fig. 201).
 - (1) Open call light lens, release latch, and lower passenger service unit (Ref Chapter 25, Removal/Installation).
 - (2) Open oxygen mask stowage box cover.
 - (3) Remove masks from box but do not disconnect mask hoses.
CAUTION: DO NOT TWIST, KINK, OR PINCH HOSES.
 - (4) Manually open passenger service unit oxygen mask door.
 - (5) Remove gasper air supply duct along aft edge of stowage box by pulling aft.

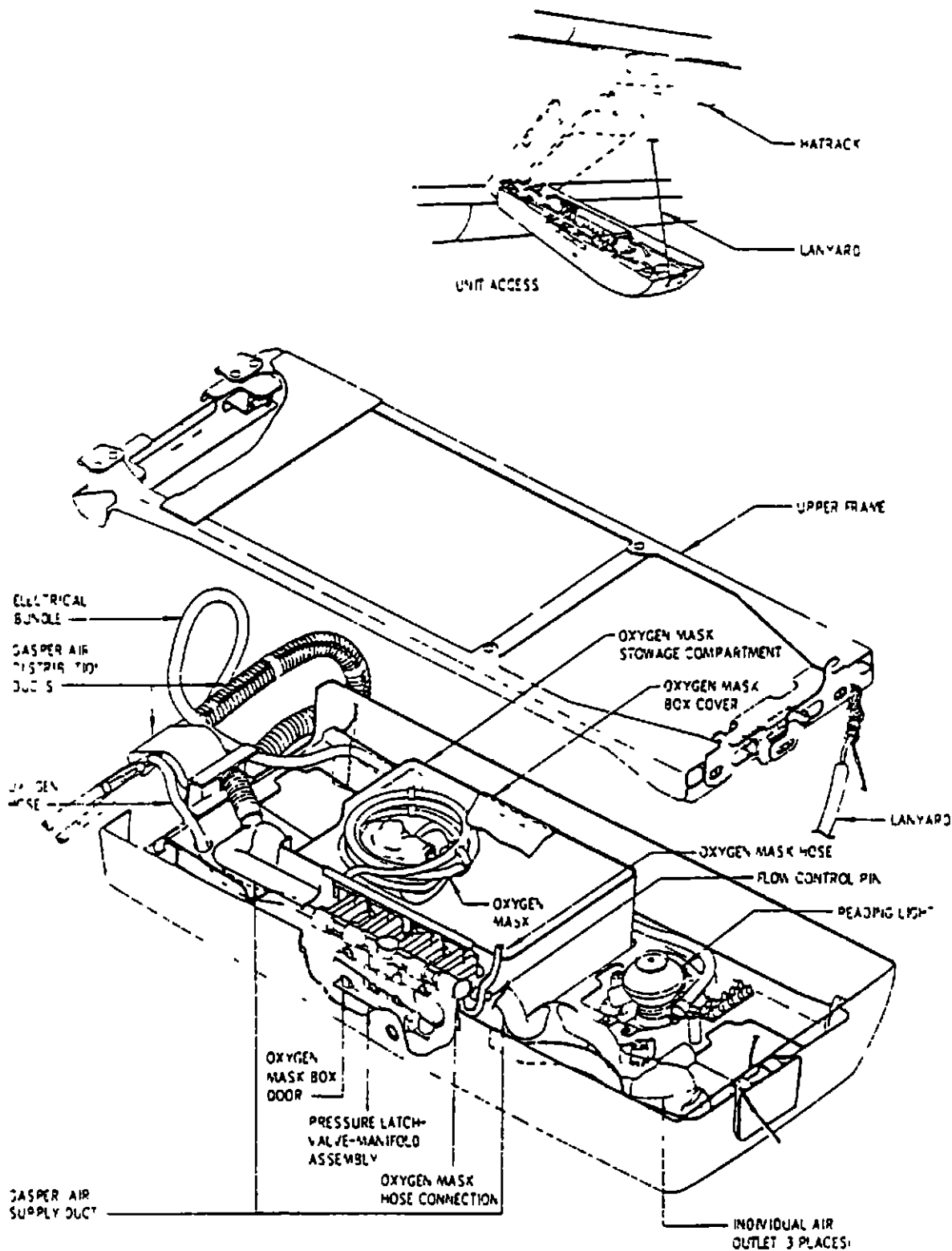
T.R. 35-386

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Nov 15/74

SN REV Jul 31/99

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BOEING *707*
Intercontinental
707
MAINTENANCE MANUAL



Pressure Latch-Valve-Manifold Installation -
Passenger Service Unit
Figure 201



MAINTENANCE MANUAL

D Remove pressure latch-valve-manifold assembly

- (1) Disconnect mask hoses from nozzle
- (2) Remove flow control pins and remove mask assemblies
- (3) Disconnect nut attaching flexible supply hose to pressure latch-valve-manifold assembly

NOTE Hold oxygen inlet fitting with a wrench when disconnecting oxygen line to prevent fitting from being loosened from manifold.

CAUTION. DO NOT TWIST, KINK, OR PINCH HOSES

- (4) From inside of oxygen mask box remove screws attaching latch-valve-manifold assembly to box.
- (5) Remove latch-valve-manifold assembly

E Install Pressure Latch-Valve-Manifold Assembly

- (1) Position latch-valve-manifold assembly on oxygen mask box and loosely install screws.
- (2) Gently close oxygen mask box door and insure it aligns properly with passenger service unit
- (3) Hold door in this position and tighten screws.

CAUTION: AVOID EXCESSIVE TIGHTENING OF SCREWS, WHICH MAY CAUSE BINDING OR STICKING OF LATCH

- (4) Check operation of door by opening and closing several times.

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MAINTENANCE MANUAL

- (5) Ensuring that toggles are in down (open) position, install low control pins (Fig. 202).
- (6) Connect flexible supply hose to latch-valve-manifold assembly.

NOTE: Hold oxygen inlet fitting with a wrench when connecting oxygen line to prevent fitting from being loosened from manifold.

- (7) Test connection for leaks using leak detection compound.
- (8) Install masks (Ref 35-2-121, 35-2-123)
- (9) Slowly open all cylinder shutoff valves.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

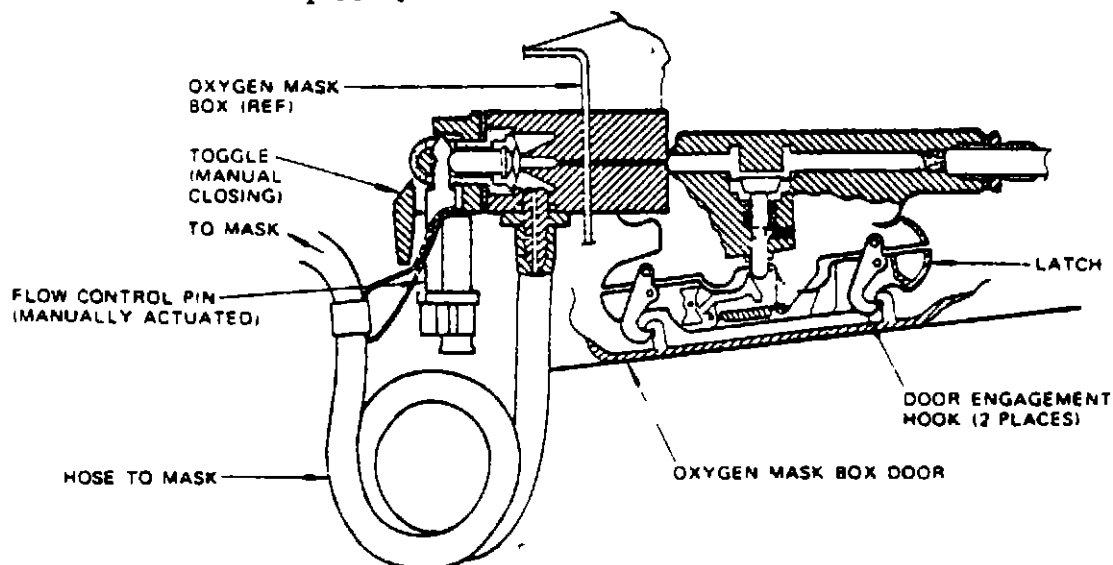
- (10) Close oxygen cylinder shroud door.
- (11) Test per par. 3.

3. Adjustment/Test Pressure Latch-Valve-Manifold Assembly

- A. After installing perform functional test per Adjustment/Test Passenger Oxygen System.

NOTE: Only one test need be made (e.g.: Test Passenger Oxygen-System operation with Manual Actuation). Secure doors of units not being tested to avoid opening. Masks of unit being tested may be retained by loosely fastening service unit door to prevent full opening.

- B. If any unit does not function properly when correctly installed, it must be removed and replaced.



T.R. 35-386
Valve Actuating Pin Installation
Figure 202

OXYGEN CYLINDER ASSEMBLIES - REMOVAL/INSTALLATION

1. General

- A The oxygen cylinders are located on the right side of the aft cargo compartment. Access to the cylinders is through the oxygen equipment shroud door

2. Equipment and Materials

- A Oxygen Leak Detection Compound, Specification MIL-L-25567

3. Remove Cylinder Assembly (See figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. In the aft cargo compartment, open oxygen equipment shroud door and secure it in the open position.
- C. Close all oxygen cylinder shutoff valves hand tight.
- D. Disconnect overboard discharge line coupling nut from cylinder.
- E. Slowly loosen high pressure line coupling nut at cylinder to bleed system pressure; then disconnect

WARNING RESIDUAL PRESSURE MAY EXIST IN LINES AND ESCAPE WITH SOME FORCE.

CAUTION: DISCONNECT HIGH PRESSURE LINE CYLINDER COUPLING NUT, NOT B NUT AT FLARELESS TUBE CONNECTION

- F. Release clamps and remove cylinder assembly.
- G.. Install protective caps at cylinder ports and open lines to prevent contamination of system.



MAINTENANCE MANUAL

4. Install Cylinder Assembly (See figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Ensure that hydrostatic test date on replacement oxygen cylinder has not expired and that cylinder is in good condition.
- C. Remove protective caps from airplane lines and cylinder discharge port. Examine to ensure that fittings (threads) are clean and free of contaminants, thread chips, etc.
- D. Remove any lockwire or cotter pin which may be used to secure cap on fully charged oxygen cylinder. Slowly unscrew cap from cylinder and allow any trapped gas to bleed off before final disengagement of threads.

WARNING: FULL CYLINDER PRESSURE MAY EXIST IN SIDE PRESSURE TYPE CAP. CAP MAY BE BLOWN OFF WITH SOME FORCE IF UNSCREWED TOO RAPIDLY TO ALLOW FOR VENTING OF TRAPPED GAS.

NOTE: Pressure type caps are used on oxygen cylinders having metal seats in the snuff valves and are usually retained to cylinder with a short length of chain. Do not cut or detach chain after removal of cap.

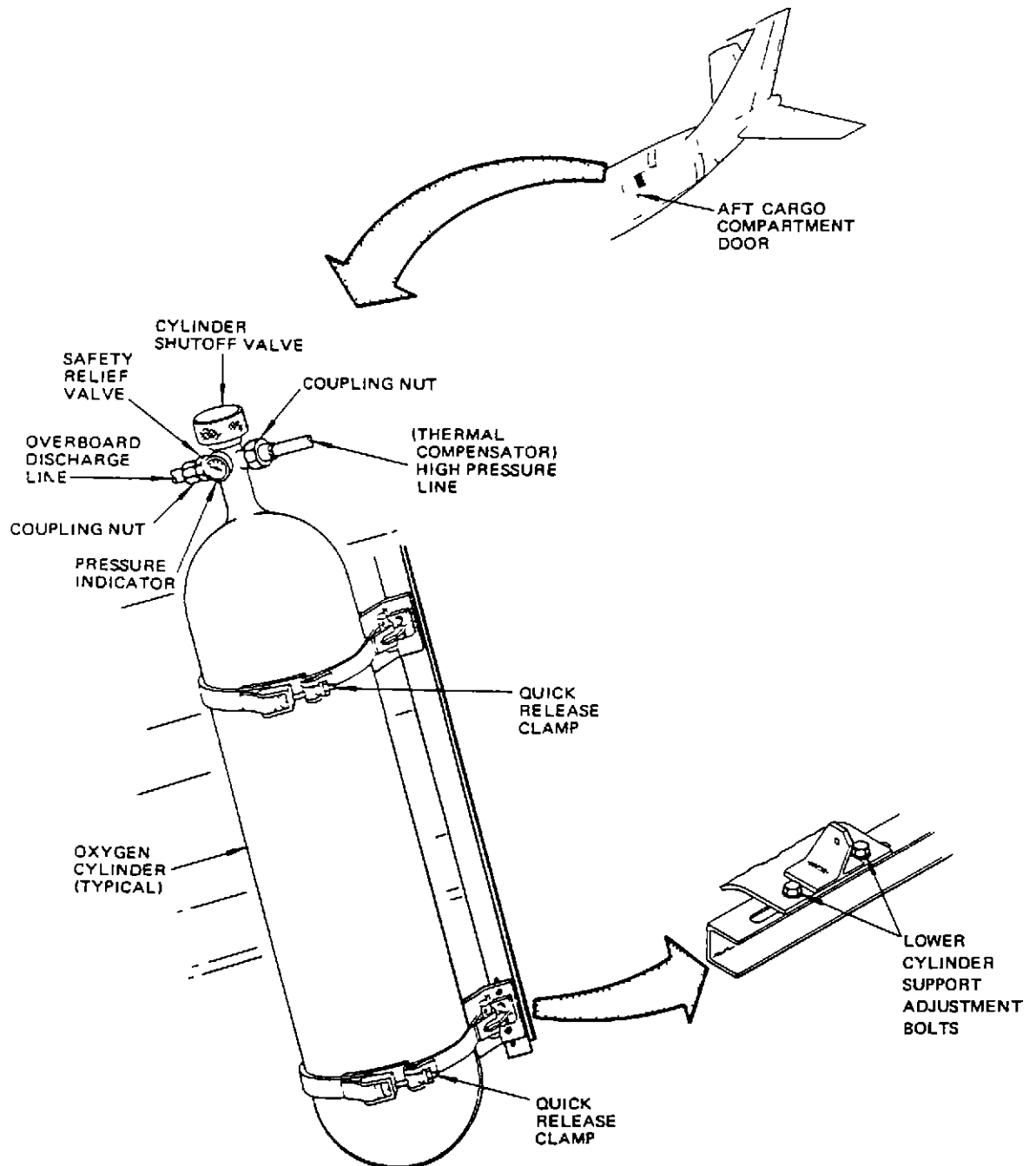
- E. Place cylinder assembly in mounting position.
- F. Connect high pressure oxygen line and overboard discharge line to cylinder ports. Ensure tight connections.

WARNING: NO OIL, LUBRICANT OR GASKETS SHALL BE USED IN MAKING THESE CONNECTIONS.

- G. Connect cylinder quick release clamps.
- H. Slowly open oxygen cylinder valve individually to full open.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURE MAY RESULT.

- I. Check that no leakage exists at cylinder connections using leak detection compound. Leak detection compound shall be wiped off with a clean cloth immediately after testing.
- J. Check that system pressure is within required range.
- K. If installed cylinder has a pressure type cap retained by a length of chain, secure cap from excess movement with lockwire.
- L. Close access door.



PRESSURE SWITCH - MAINTENANCE PRACTICES

1 Removal/Installation Pressure Switch (See figure 201.)

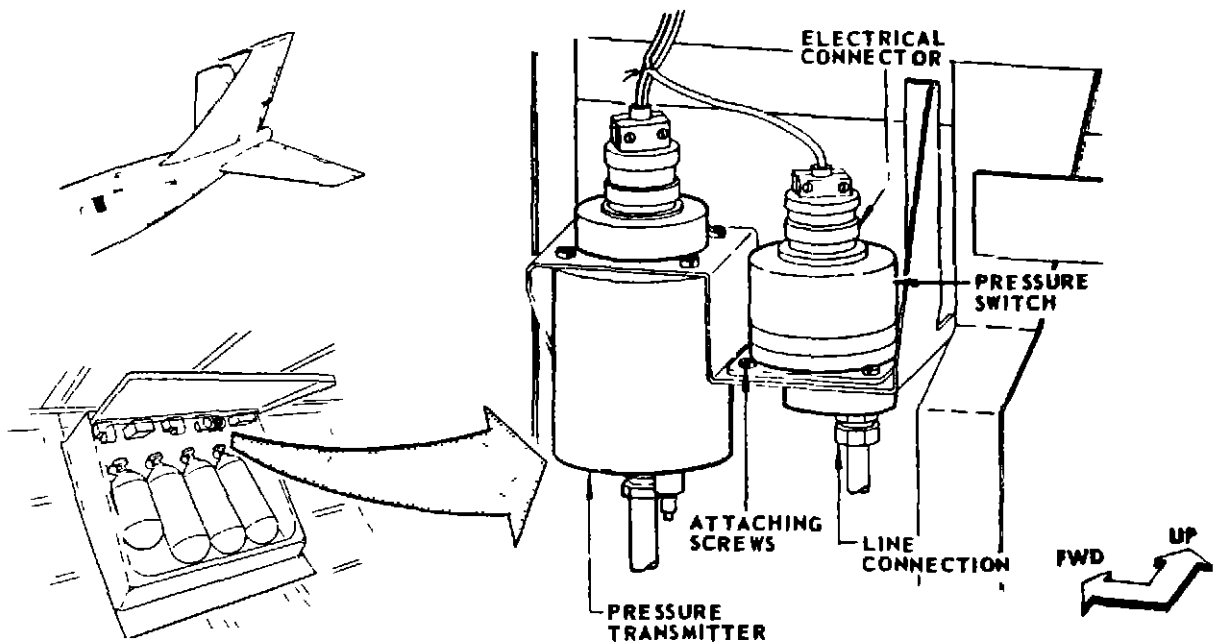
A Remove Pressure Switch

NOTE It is not necessary to close cylinder shutoff valves

- (1) Oper 'PASS OX1. 'ALVE & LT" circuit breaker on 28-volt d-c circuit breaker panel (P5)
- (2) In the aft cargo compartment, open oxygen equipment access door and secure by hooks
- (3) Disconnect and cap line and connection.
- (4) Disconnect electrical connector.
- (5) Remove attaching screws and remove pressure switch

B Install Pressure Switch

- (1) Position switch and install attaching screws
- (2) Connect electrical connector
- (3) Remove caps and connect line. Make sure connections are tight.
- (4) Unhook and close oxygen equipment access door.
- (5) Close Circuit breaker on panel P5



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March 15/59

Passenger Oxygen System Pressure Switch Installation
Figure 201

END
35-2-111
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BOEING
MAINTENANCE MANUAL

PASSENGER AND CABIN ATTENDANTS' OXYGEN MASKS - MAINTENANCE PRACTICES

1 Removal/Installation Oxygen Masks

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

A Equipment and Materials

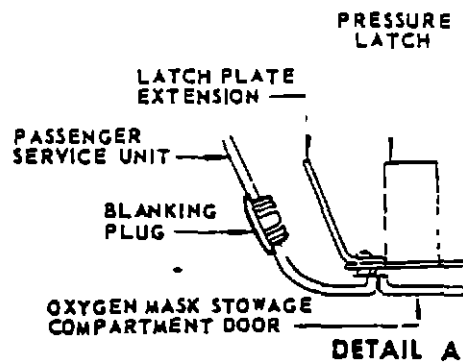
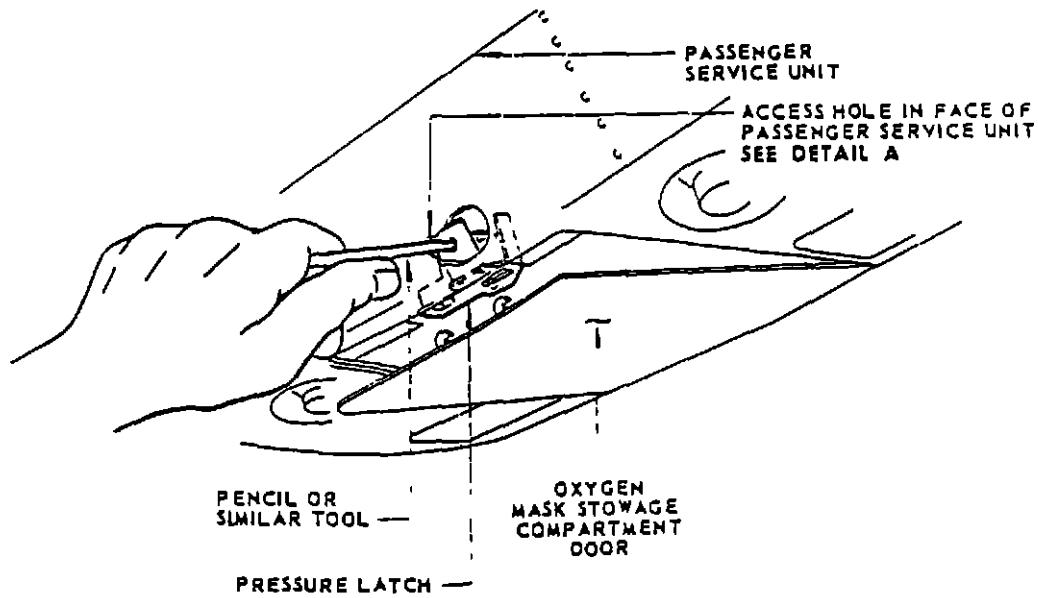
- (1) Aluminum Foil Silicone Adhesive Tape 1/4 Inch Wide, No. 7402, Mystic Tape Products, or Plastic Coil Retainers
- (2) Talc, Commercial Talc No. 325 Mesh

B. Remove Masks

- (1) Open oxygen mask stowage compartment door.
 - (a) Open door on passenger service unit (See figure 201.)
 - 1) Remove blanking plug from aft face of unit by gripping with the fingernails and pulling free.
 - 2) Insert pencil or similar object through hole and engage hole in latch plate extension.
 - 3) Pull latch in inboard direction.

NOTE: If difficulty is experienced latch may be released by inserting a piece of card or metal upwards about 2 inches into gap along aft edge of door and drawing it inboard until it trips latch plate.

BOEING 717
Intercontinental
MAINTENANCE MANUAL



Manual Operation of Passenger Service Unit Door
 Figure 201

BOEING
Intrcontinental
 MAINTENANCE MANUAL

SERVICE UNIT	MEAN DIAMETER D (APPROX) (INCHES)
PASSENGER	4 1 4 - 4-1 2
LOUNGE (ON AIRPLANES )	4 4-1 4
FORWARD ATTENDANTS	4 1 4 - 4-1 2
AFT ATTENDANTS	4-1 4 - 4-1 2
LAVATORY (TYPICAL)	3-1 4 - 3-1 2
LAVATORY (TYPICAL) (ON AIRPLANES )	4
GALLEY 	3 1 4 - 3-1 2

TABLE I

 DLH TURBOJET

 DLH TURBOFAN

 SABENA TURBOJET

 TCA LX-N20198
 LX-N20199
 RTCA LX-N19997
 LX-N20000

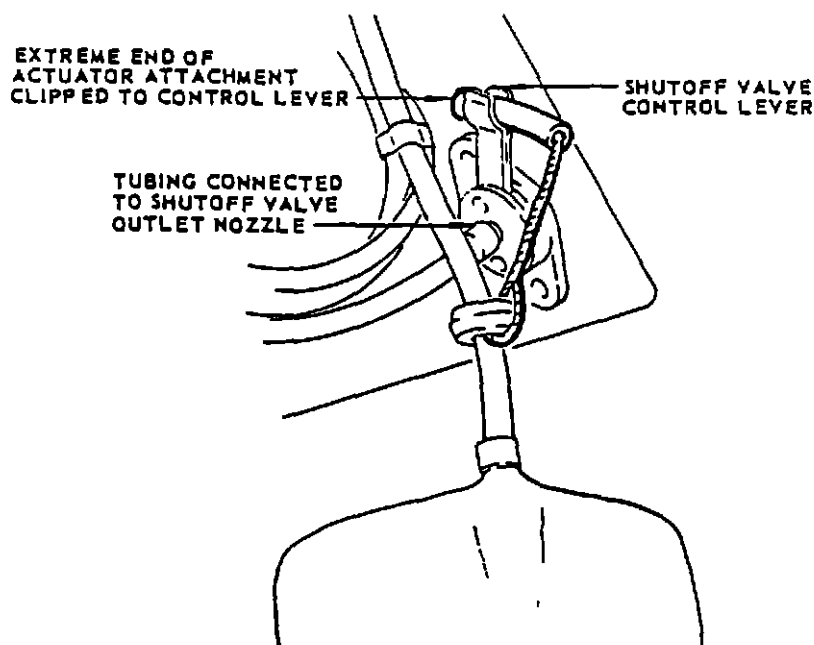
TR 35-502

BOEING
Intercontinental
MAINTENANCE MANUAL

- (4) Install headstrap
 - (a) Clip ends of headstrap to diametrically opposite points on back of mask.
 - (b) Coil headstrap around mask so that it stays in position while mask is stowed, but is easily freed for use
- (5) Connect valve actuator attachment. (See figure 203.)
 - (a) Return control lever of shutoff valve to "CLOSED" position
 - (b) Insert plugged end of actuator attachment into clip at end of shutoff valve control lever.

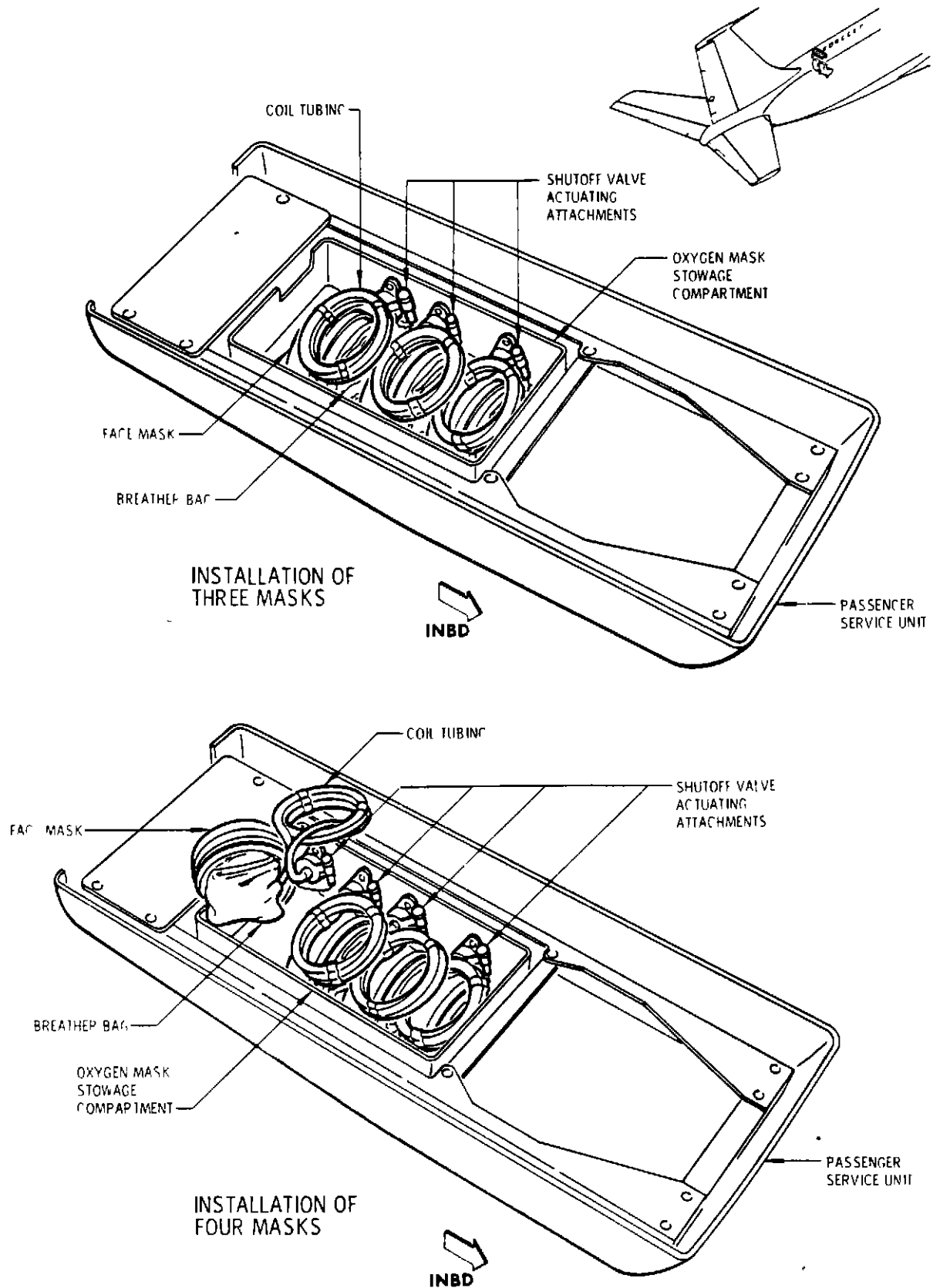
WARNING THIS CONNECTION MUST BE MADE SO THAT PULLING MASK DOWNWARD WILL OPEN THE SHUTOFF VALVE, AND SO THAT EACH MASK IS CONNECTED TO ITS OWN SHUTOFF VALVE
- (6) Apply a light, barely visible trace of talc to outside of masks and tubing to facilitate free drop of masks from mask container, keeping valves clear of talc

WARNING TALC INSIDE MASKS AND IN VICINITY OF VALVES WILL PLUG VALVES, OR CAUSE DIFFICULT BREATHING FOR USER IF INHALED
- (7) Install masks
 - (a) Install masks in passenger service unit. (See figure 204 ,



Connection of Valve Actuating Attachment
Figure 203

Intercontinental
MAINTENANCE MANUAL



1
Oct 15/60
Revised

Oxygen Masks Installation in Passenger Service Unit
Figure 204

35-2-121
Page 205

- 1) Place masks face to back along stowage compartment.

NOTE: If two masks are being stowed they will be connected to the two central shutoff valves

- 2) Deleted.

- 3) Check that the reservoir bag valve of every mask is adjacent to the open upper face of the stowage compartment, and that no part of any tubing or reservoir bag lies between the masks and the door at the bottom of the compartment

- 4) Fold each reservoir bag neatly on top of its mask and lay each tubing coil at the top of its mask and reservoir bag.

- 5) Replace plastic cover to stowage compartment.

CAUTION CHECK THAT NO PART OF ANY MASK ASSEMBLY IS TRAPPED BETWEEN THE EDGE OF THE STOWAGE COMPARTMENT AND THE COVER.

- 6) Raise and lock passenger service unit (see Chapter 25, "Passenger Service Units")

- (b) Install masks in passenger lounge. (See figure 205.)

- 1) Install one mask.

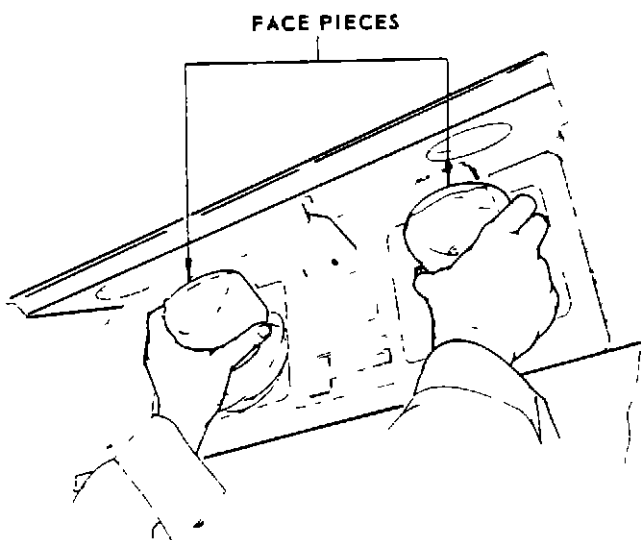
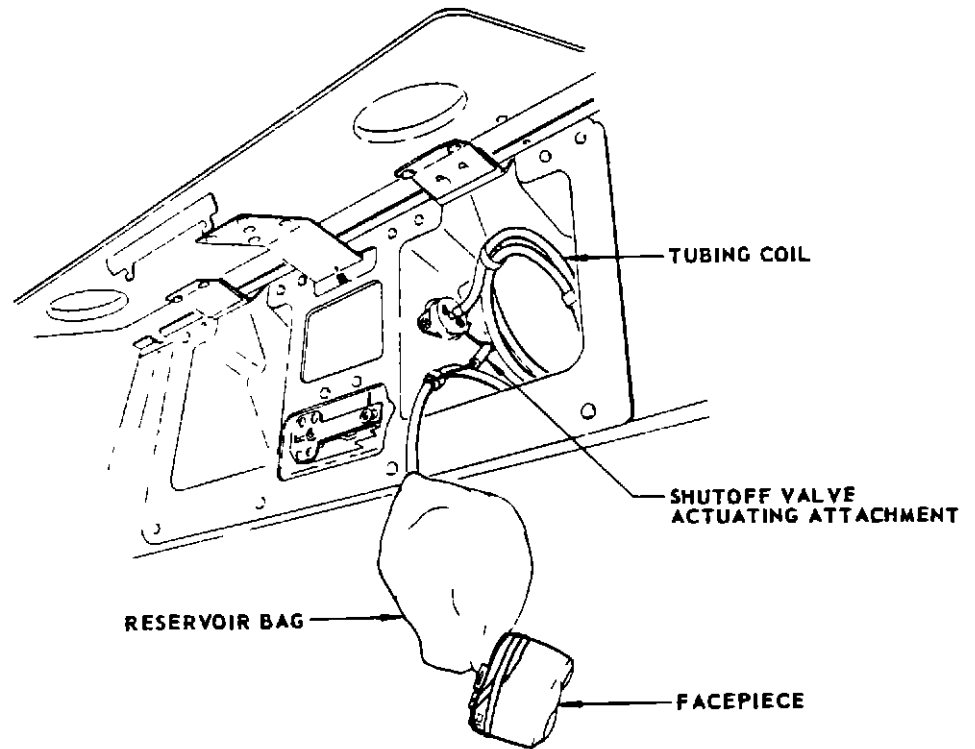
- a) Place tubing coil against outboard face of stowage compartment.
- b) Place mask against tubing coil, towards top of compartment, with its open face inboard and its reservoir bag neatly folded between it and the tubing coil.

- 2) Holding first mask in position with one hand install second mask in the same manner.

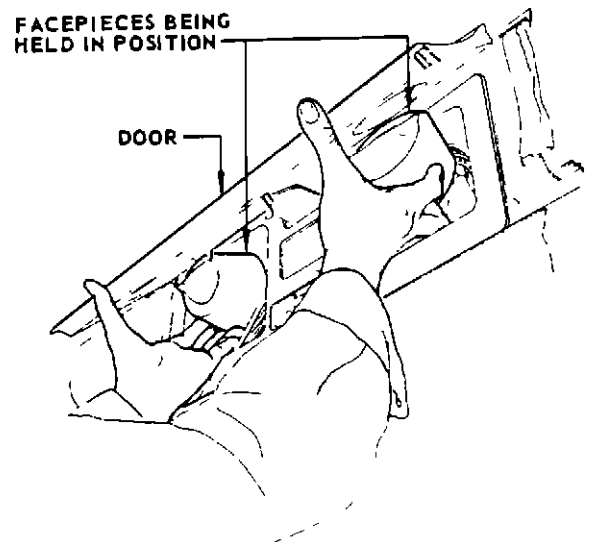
- 3) Close service unit door.

- a) Hold masks in place with fingers of both hands
- b) Using thumbs, close door slowly keeping fingers on masks until door is about closed.

BOEING 707
Intercontinental
MAINTENANCE MANUAL



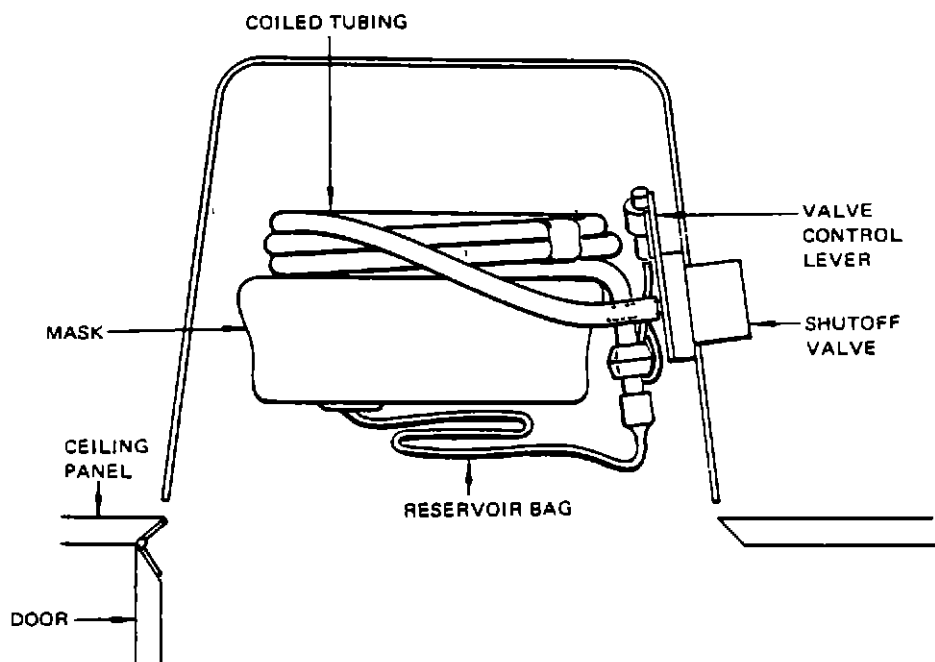
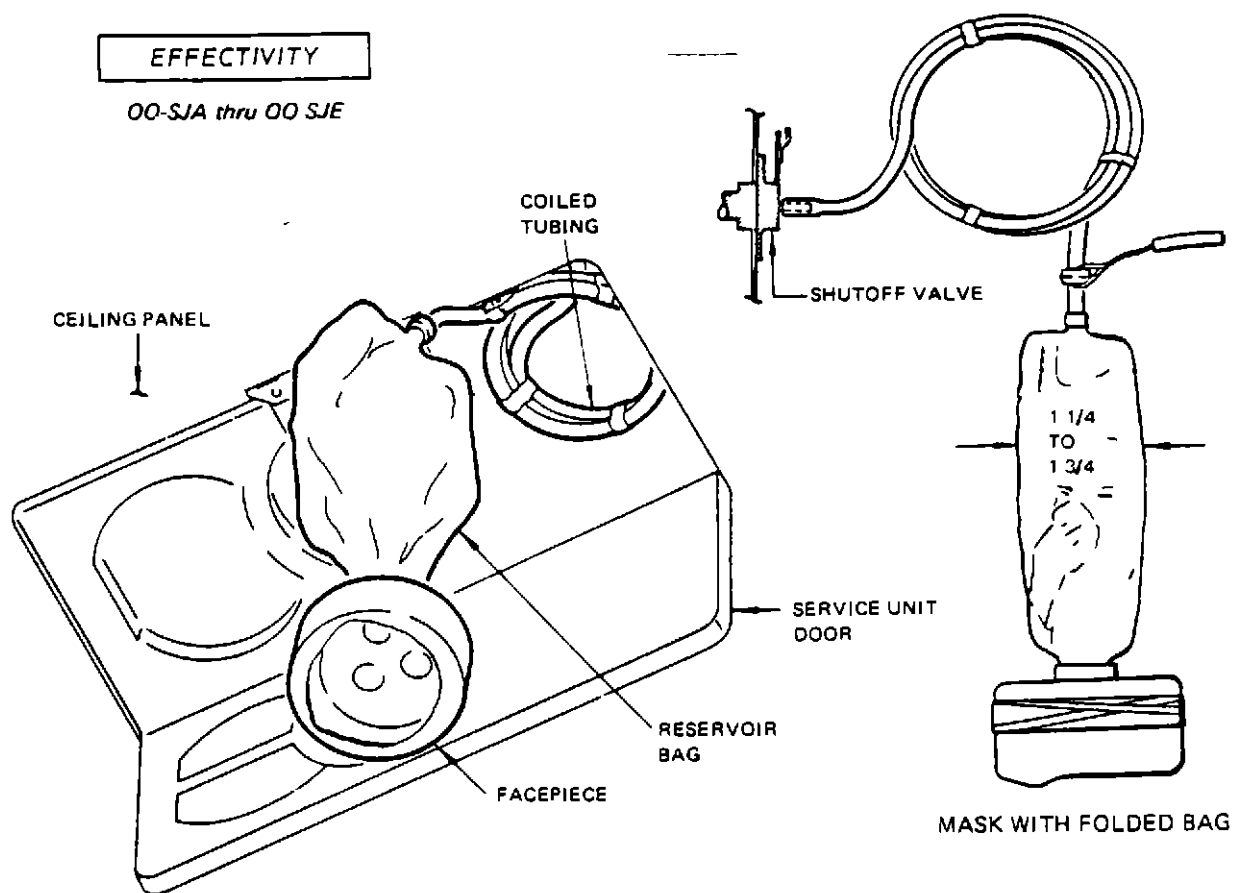
MASKS BEING INSTALLED



DOOR BEING CLOSED

EFFECTIVITY

00-SJA thru 00 SJE

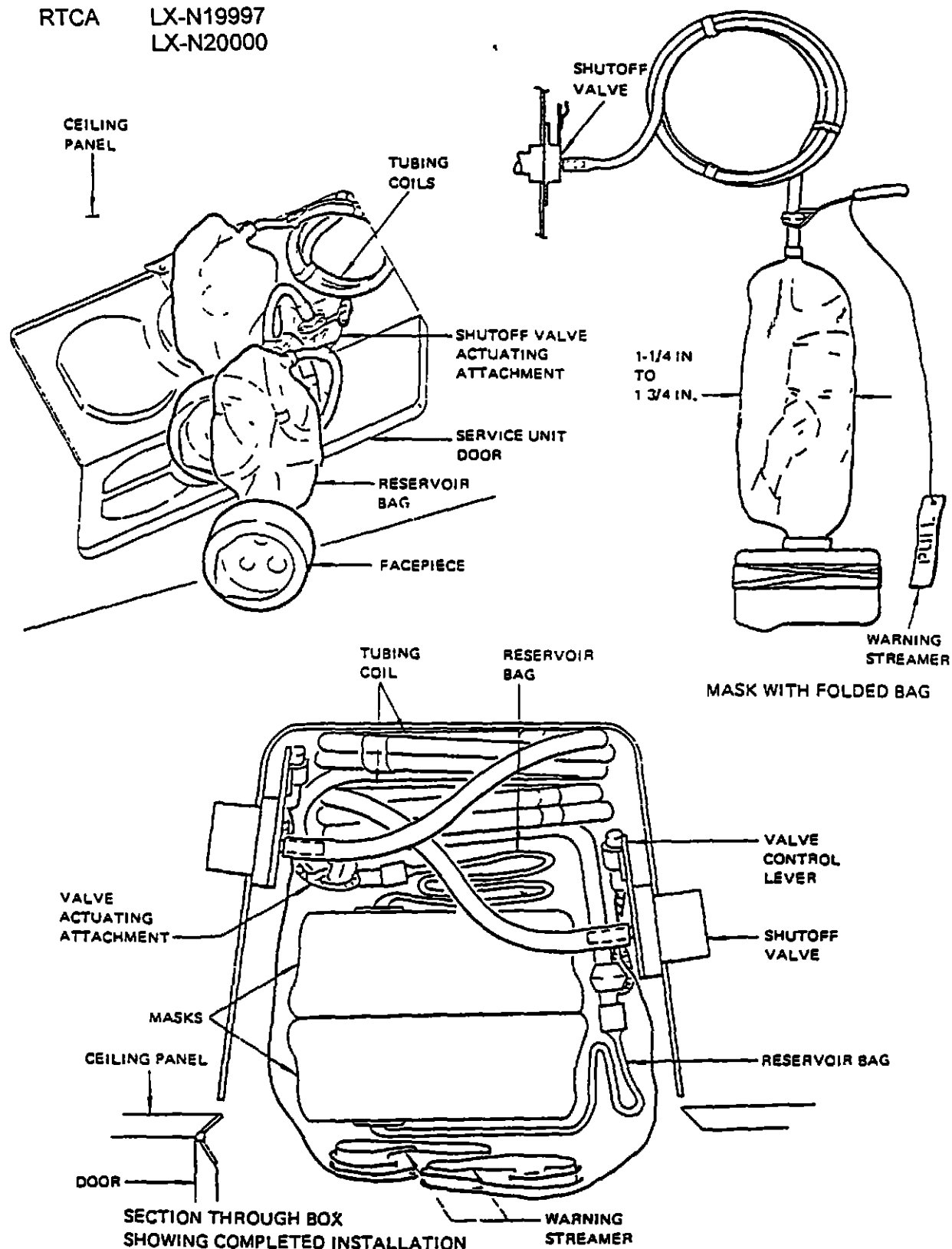


SECTION THROUGH BOX SHOWING COMPLETED INSTALLATION

EFFECTIVITY

TCA LX-N20198
LX-N20199
RTCA LX-N19997
LX-N20000

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707
MAINTENANCE MANUAL



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Jul 15/68

Oxygen Masks Installation in Lavatory Compartments
Figure 206 (Sheet 2)

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MAINTENANCE MANUAL

- (c) Install masks in service units at lavatory compartments.
- 1) In airplanes OO-SJA thru OO-SJE, install mask in lavatory compartment. (See figure 206.)
 - a) Place coil of tubing at top of stowage box.
 - b) Fold bag neatly about inside cord to a width of 1-1/4 in. to 1-3/4 in.
 - c) Install mask attached to coil with its open face against coiled tubing and its reservoir bag neatly folded partially along side of mask farthest from lamp compartment and under end of mask.
 - d) Close service unit door slowly with one hand, keeping mask in position with other hand until door is nearly closed. Actuate latch by hand and gently push door closed until both engage.
 - 2) Install masks in lavatory compartment. (See figure 206.)
 - a) Place both coils of tubing at top of box so that coil connected to upper shutoff valve is at top.
 - b) Fold plastic bags of both masks neatly about inside cord to a width of 1-1/4 inches to 1-3/4 inches.
 - c) Install mask attached to upper coil with its open face downwards and its reservoir bag neatly folded between it and lower coil.
 - d) Install mask connected to lower coil with its open face upwards and its reservoir bag neatly folded down the side of both masks farthest from lamp compartment.
 - e) On airplanes so equipped, coil warning streamers (figure 206) into box below masks and hold with one hand.
 - f) Close service unit door slowly with one hand, keeping masks and streamers in position with other hand until door is nearly closed. Actuate latch by hand and gently push door closed until both engage.
 - (d) Install masks in cabin attendant's station adjacent to aft cabin entrance door. (See figure 207.)

WARNING: VERIFY CORRECT MASK PART NUMBER. IMPROPER PART MAY CAUSE INACCESSABILITY OF MASK TO ATTENDANT WHEN MASK IS DEPLOYED.

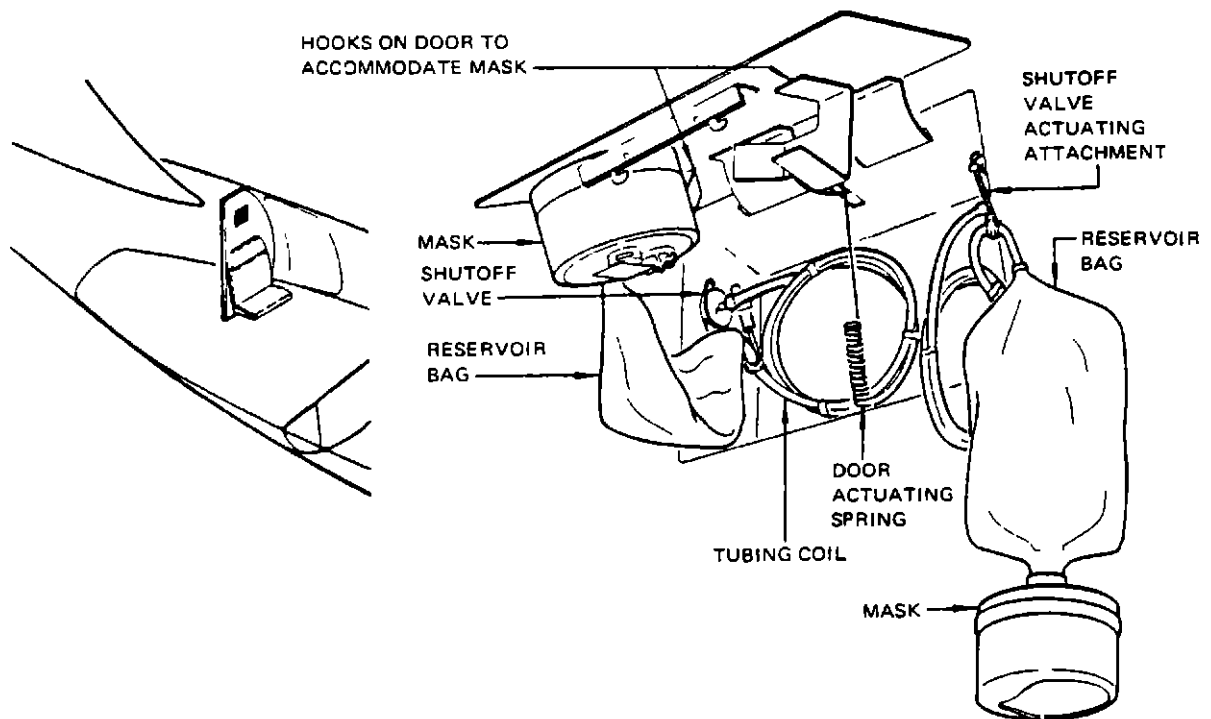
With mask hanging, verify mask is within reach of a seated cabin attendant.

BOEING 707
Intercontinental
MAINTENANCE MANUAL

- 1) Install coils of tubing side by side flat against aft face of stowage box.
- 2) Install masks in clips on inside surface of door with open ends of mask against door so as to face forward with door shut.

NOTE Reservoir bag valves should be located inboard on inboard mask and outboard on outboard mask.

- 3) Close stowage box door.
 - a) Hinge door downwards holding masks in clips on door until door is almost closed.
 - b) While lowering door, check that reservoir bags are folding neatly between facepieces and tubing, and that no part of either mask assembly is in danger of being pinched in coils of door actuating spring.
 - c) Close door by pressing until latch clicks into engagement.



Oxygen Mask Installation at Cabin
Attendant's Aft Station
Figure 207



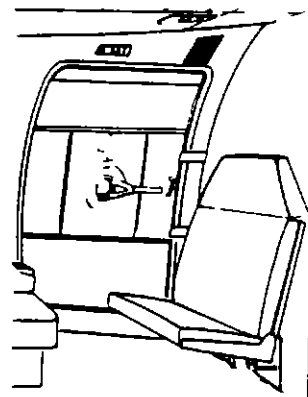
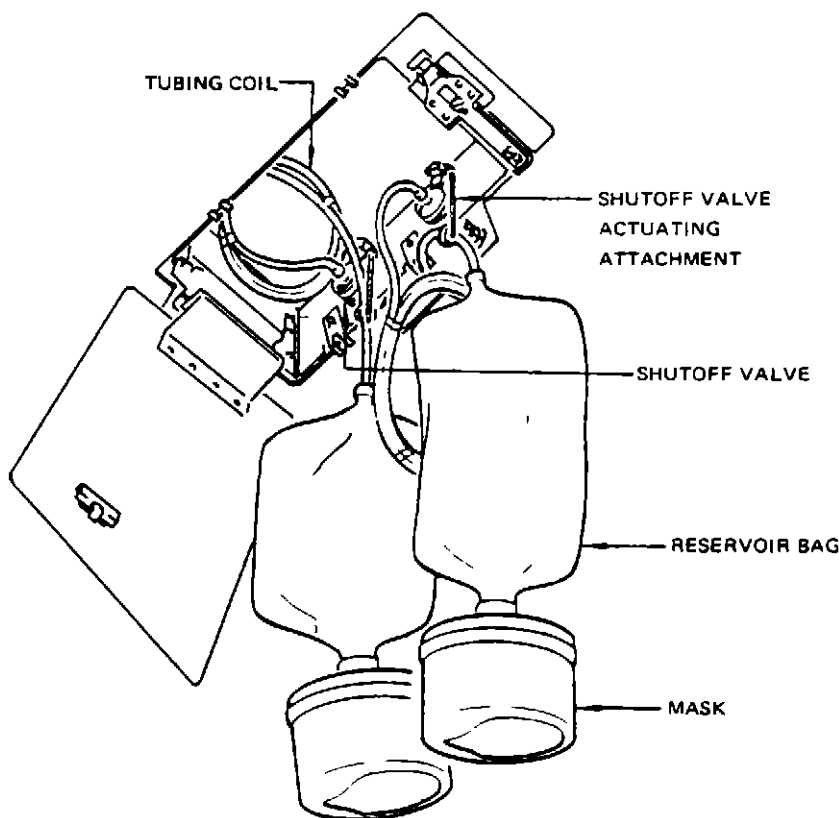
MAINTENANCE MANUAL

- (e) Install masks in cabin attendant's station adjacent to forward cabin entrance door. (See figure 208.)

WARNING: VERIFY CORRECT MASK PART NUMBER. IMPROPER PART MAY CAUSE INACCESSABILITY OF MASK TO ATTENDANT WHEN MASK IS DEPLOYED.

With mask hanging, verify mask is within reach of a seated cabin attendant.

- 1) Install coils of tubing flat against outboard face of stowage box, one above the other.
- 2) Install masks in stowage box.
 - a) Take one mask in each hand and place together on common vertical axis with their open ends face to face, and their valves in alignment.
 - b) Taking care that each reservoir bag lies neatly folded between its tubing coil and its mask, place pair of masks in box with their common axis along its vertical length.



Oxygen Mask Installation at Cabin
Attendant's Forward Station
Figure 208
TR 35-495



MAINTENANCE MANUAL

- c) Holding masks in position by hand, check that reservoir bag of each mask is toward outboard face of box, that no part of either reservoir bag or tubing lies between or below either mask, and that no part of either reservoir bag lies above a tubing coil.
- 3) Close stowage box door.
 - a) Hinge door upwards holding mask assemblies in correct position with one hand until door is almost closed.
 - b) With other hand, hinge door up and press until latch clicks into engagement.
- 2. Inspection/Check Oxygen Masks
 - A. Check Oxygen Masks.
 - (1) Check passenger and cabin attendant's masks for possible deterioration, damage, or accumulation of dust or soil.
- 3. Cleaning and Washing Oxygen Mask
 - A. General
 - (1) Respiratory equipment should be cleaned and disinfected after individual use. Facepieces are made of material that can be cleaned and disinfected in one operation by using a combination cleaning and disinfecting detergent.
 - B. also Facepiece - Oxygen Mask
 - (1) Mix a solution of a detergent disinfectant product with warm water (Follow dilution instructions as found on the product label)
Acceptable products include
 - (a) Airkem "A-3"
 - (b) West "Wescodyne"
 - (c) Lehn & Fink "Tergisyl"
 - (d) Johnson "Blue Chip"
 - (e) (Stephene)
 - (2) Apply solution with absorbent cheesecloth or sponge applicator.
 - (3) Rinse in clear, warm water.
 - (4) Allow to air-dry, or dry with cloth.
 - (5) Reassemble and package.

EFFECTIVITY
TURBOFAN



MAINTENANCE MANUAL

PASSENGER SERVICE UNIT OXYGEN MASKS - REMOVAL/INSTALLATION

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. Equipment and Materials

A Plastic coil retainers.

2. Remove Masks

A Open oxygen mask stowage compartment door.

- (1) Remove blanking plug from aft face of unit by gripping with finger-nails and pulling free. (See figure 401.)
- (2) Insert pencil or similar object through hole and engage knob on latch.
- (3) Pull latch inboard.

NOTE: If difficulty is experienced latch may be released by inserting a piece of card or metal upwards about 2 inches into gap along aft edge of door and drawing it inboard until it trips latch plate.

- (4) Pull masks to free from strap.

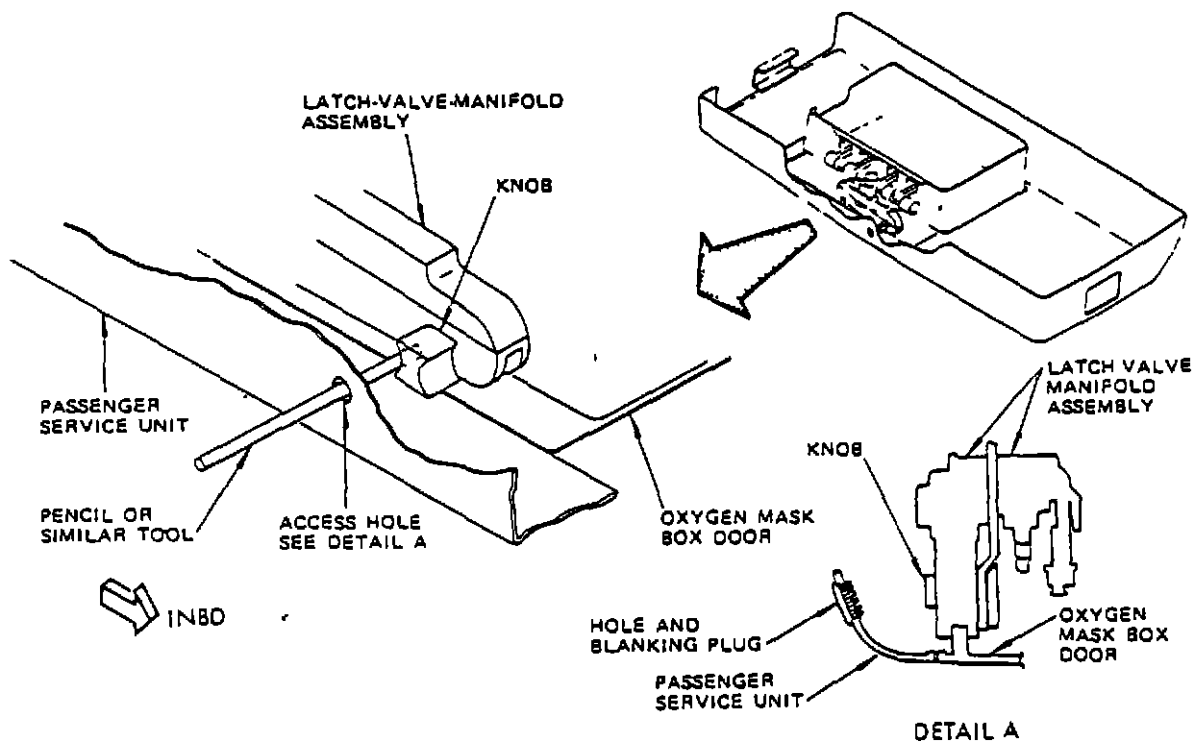
B. Disconnect mask from shutoff valve.

- (1) Pull valve actuating pins out of engagement with outlet valves. (See figure 402.)
- (2) Pull hoses off nozzles.
- (3) Remove valve actuating pins from their actuating attachments.
- (4) Reinsert valve actuating pins into outlet valves.

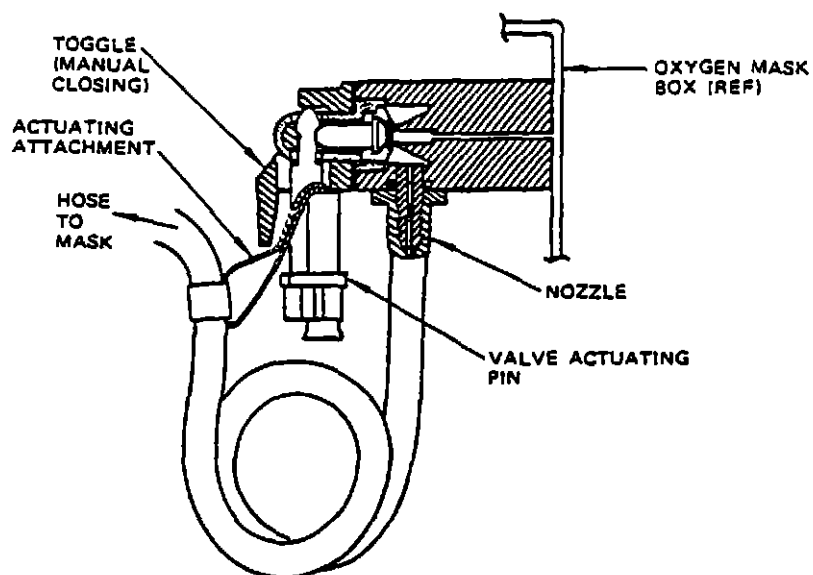
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Manual Operation of Passenger Service Unit Door
Figure 401



Valve Actuating Pin Installation
Figure 402

3 Install Masks

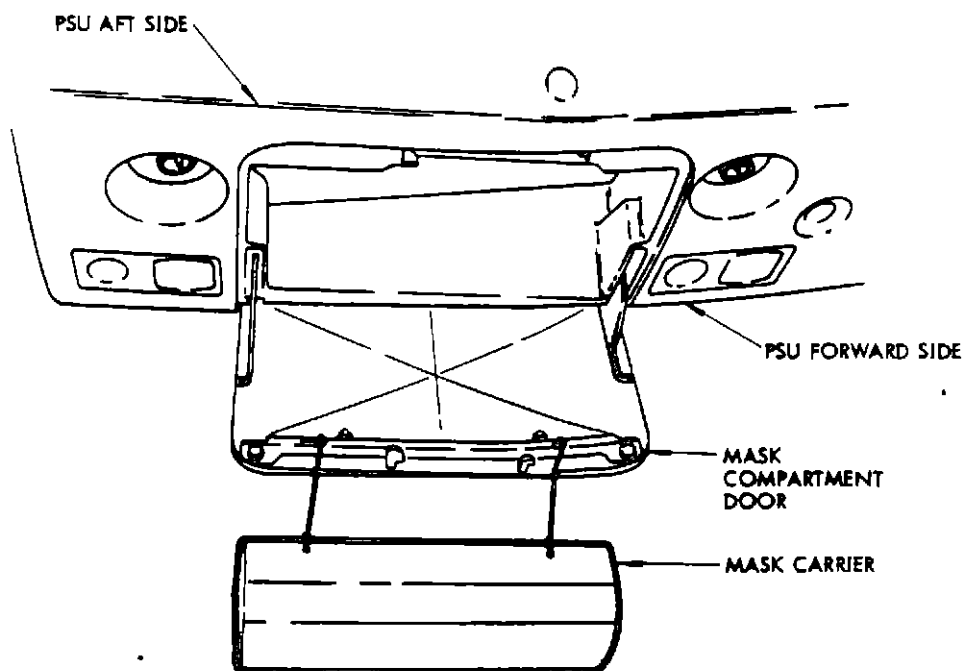
A Prepare passenger service unit for mask installation:

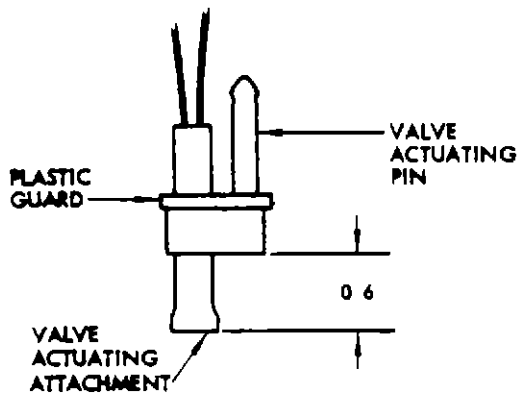
- (1) Open call light lens and lower passenger service unit. Refer to Chapter 25, Passenger Service Unit - Removal/Installation.
- (2) Remove plastic cover from oxygen mask stowage compartment.
- (3) Open service unit door by manually triggering door latch.

NOTE Allow mask carrier to drop out

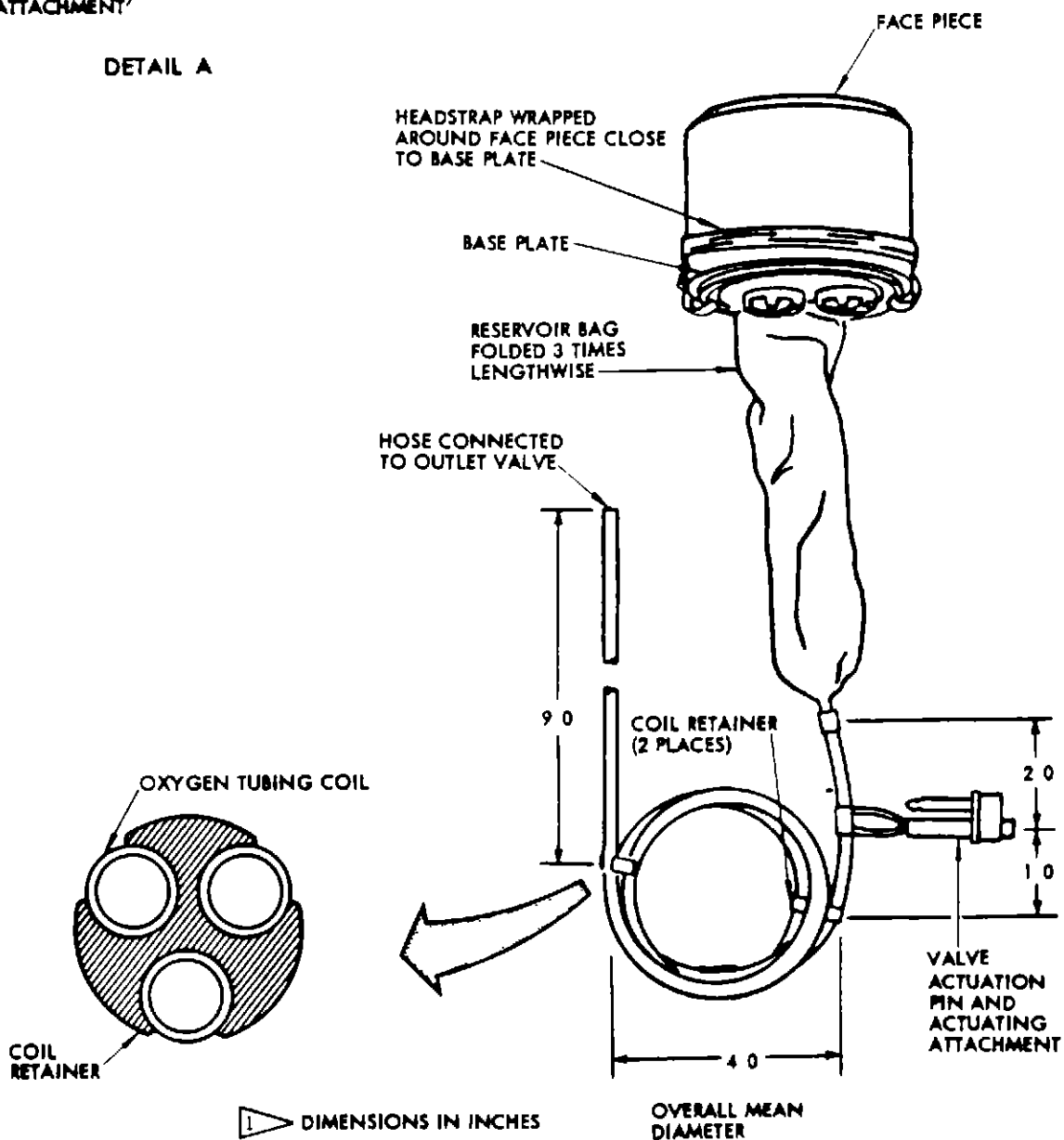
- (4) Check that hinges allow door to open freely
- (5) Check that mask carrier is attached to door by retaining strings with concave side of carrier facing forward (See figure 403)

B Prepare masks per figure 404





DETAIL A



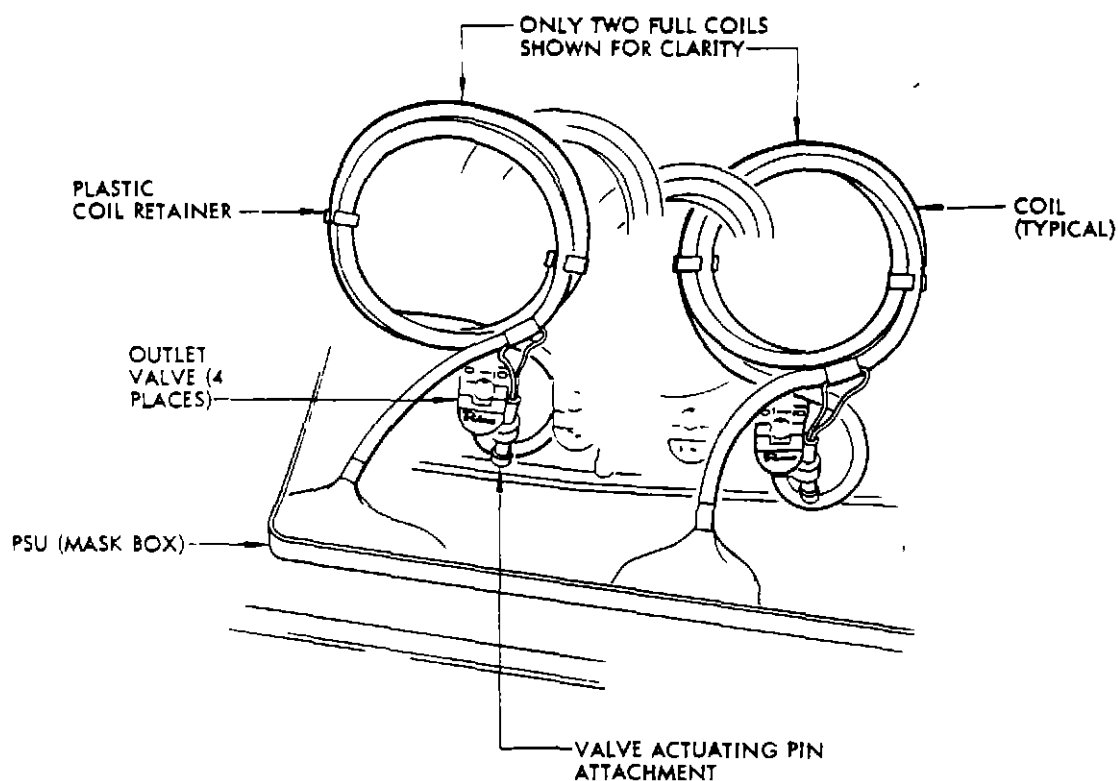
Passenger Service Unit Mask - Preparation for Installation
 Figure 404

- C Keeping the tubing against the stowage compartment aft wall, connect tubing to each valve by pressing fully onto valve outlet. (See figure 402.)

NOTE. This step may be made easier by reaching up through stowage compartment

- D Position coils above valves per figure 405 and insert valve actuating pin firmly into each valve, making sure detent has engaged (See figure 402.)

NOTE Valve end of tubing must be against compartment aft wall and mask actuating attachment must be on outboard side of its pin.

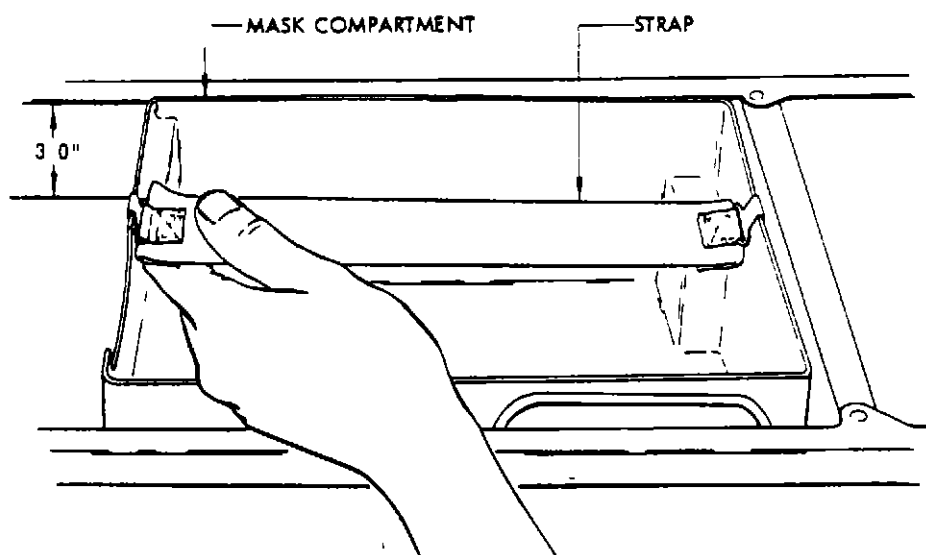


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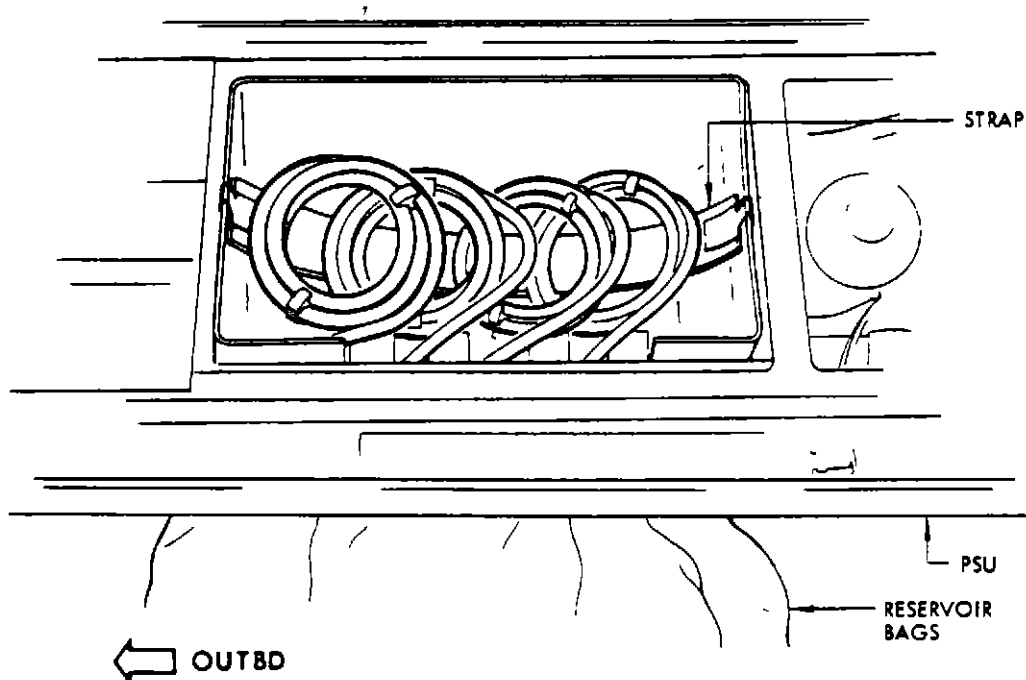
E Install a strap assembly to top of mask stowage compartment. (See figure 406.)

F Place coils on strap assembly (See figure 407.)

NOTE: Make sure that coils are evenly distributed on strap assembly



Strap Installation
Figure 406

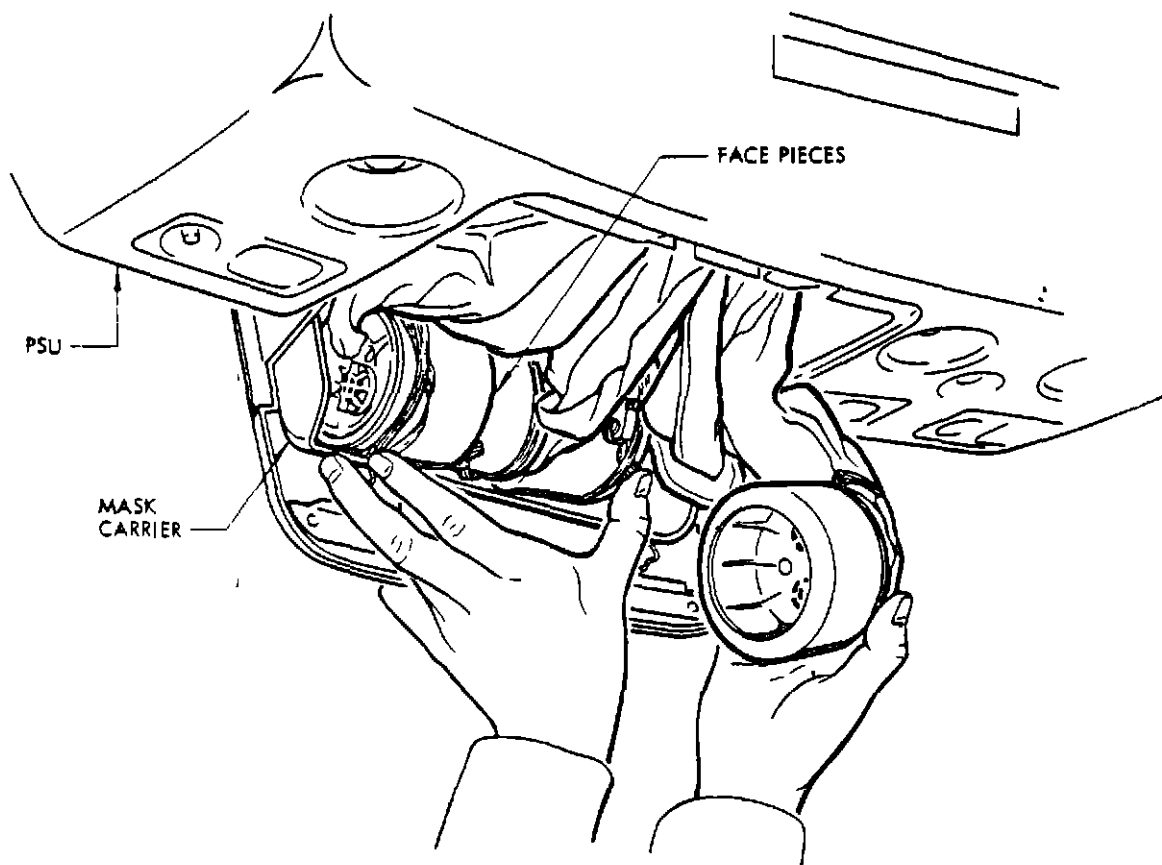


Coil Installation
Figure 407

MAINTENANCE MANUAL

- G Install cover on mask stowage compartment and secure with velcro tape
- H Raise and latch passenger service unit and install call light lens Refer to Chapter 25, Passenger Service Unit - Removal/Installation.
- I Install facepieces.
 - (1) Rotate mask carrier until concave side faces upward.
 - (2) Place facepieces in carrier with open end of outboard mask facing inboard and other masks facing outboard. (See figure 408.)

NOTE: The end of the tubing contained in the reservoir bag must be positioned to the aft side of the carrier.

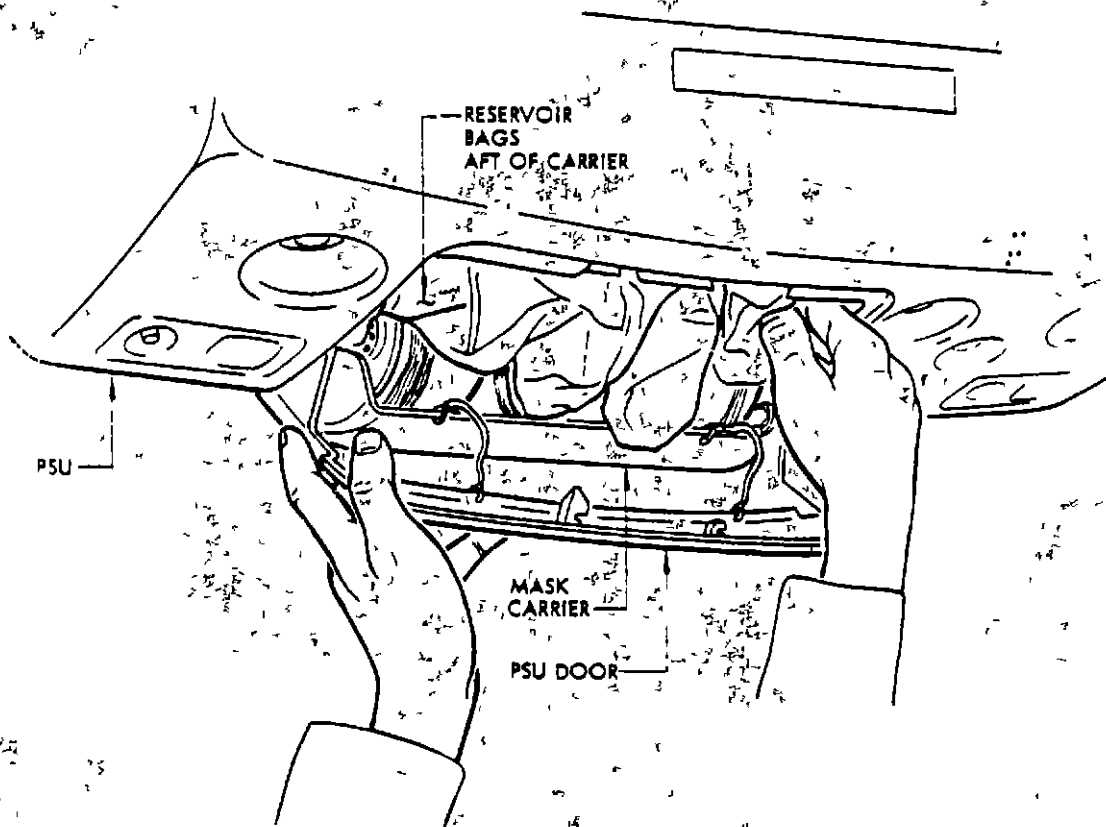


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- (3) Insert carrier with facepieces into stowage compartment and slowly close PSU door, keeping carrier as close as possible to forward wall of compartment. (See figure 409)

NOTE: Check that no part of any mask assembly is caught between the edges of the carrier and the compartment sidewall.

- (4) Close and latch PSU door.



Closing PSU Door
Figure 409

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MAINTENANCE MANUAL

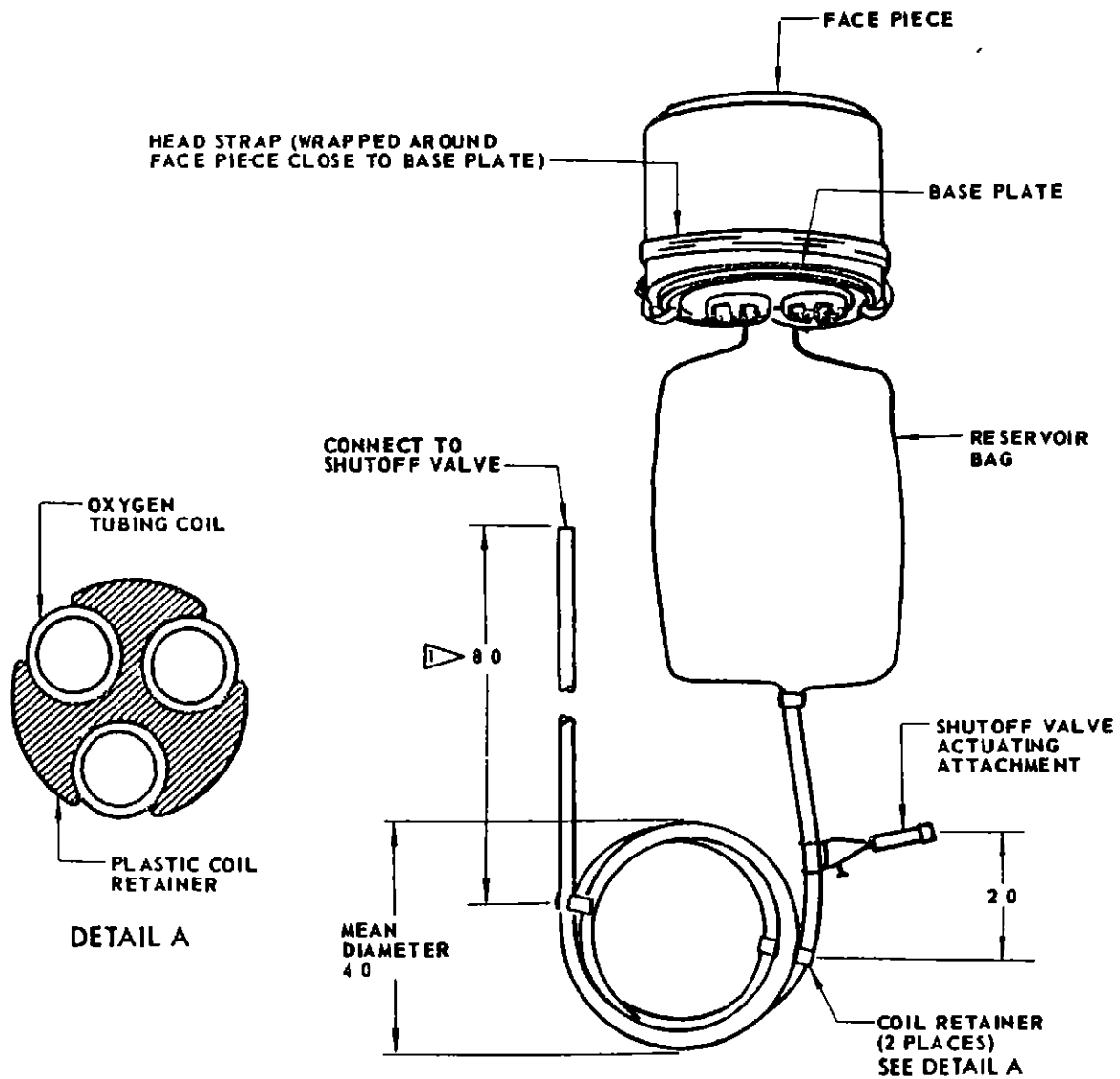
LOUNGE SERVICE UNIT OXYGEN MASKS - REMOVAL/INSTALLATION

EFFECTIVITY

CARGO CONVERTIBLE AIRPLANES

1. Equipment and Materials
 - A. Plastic coil retainers.
2. Remove Lounge Service Unit Masks
 - A. Lower service unit. Refer to Chapter 25.
 - B. Actuate latch manually to open mask compartment. Masks will drop.
 - C. Disconnect mask from shutoff valve.
 - (1) Unclip valve actuating attachment from lever of shutoff valve.
 - (2) Pull mask tubing off nozzle.
3. Install Lounge Service Unit Masks
 - A. Actuate pressure latch by hand and gently push door upward until both engage.
 - B. Remove plastic cover from mask compartment.
 - C. Coil tubing per figure 401.

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▷ DIMENSIONS IN INCHES



MAINTENANCE MANUAL

D. Connect masks to shutoff valves.

- (1) Push plastic tubing of mask on to outlet nozzle of shutoff valve until end of tube can be made to touch face of valve body by pressing against small sprung axial movement of nozzle.

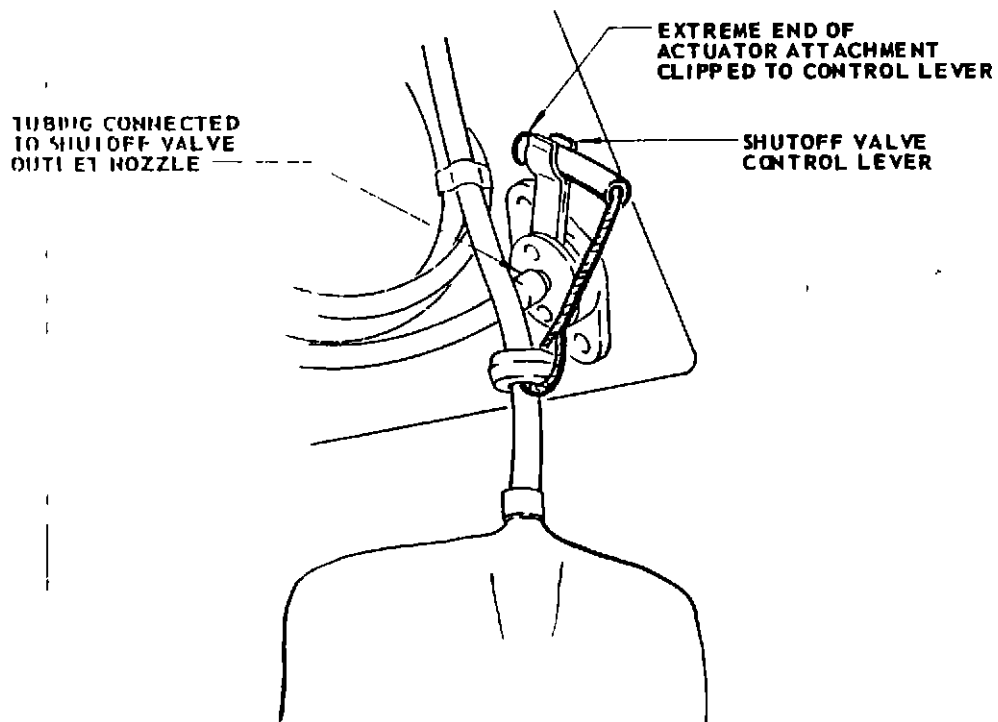
NOTE. If difficulty is experienced tubing end may be softened by immersion in clean hot water.

WARNING UNDER NO CIRCUMSTANCES MAY GREASE OR OIL BE APPLIED TO THIS OR ANY OTHER PART OF THE OXYGEN SYSTEM.

F. Connect valve actuator attachment. (See figure 402.)

- (1) Return control lever of shutoff valve to "CLOSED" position.
- (2) Insert plugged end of actuator attachment into clip at end of shutoff valve control lever.

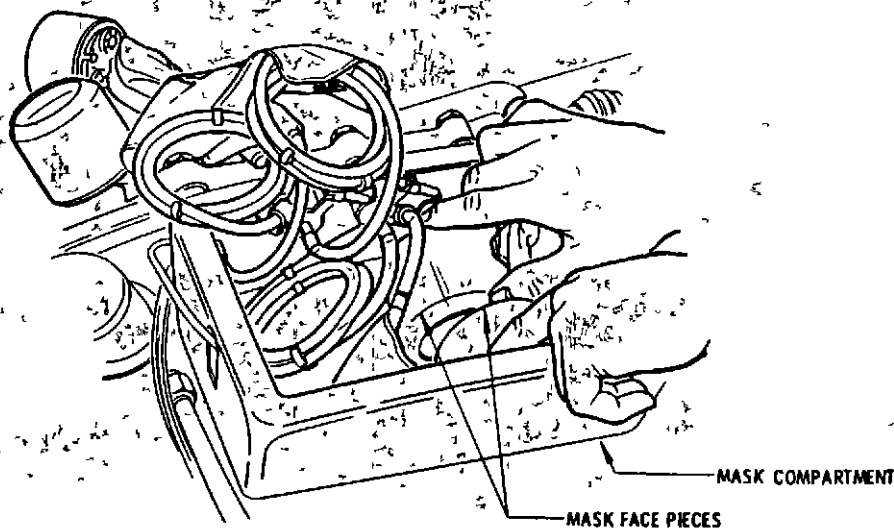
WARNING: THIS CONNECTION MUST BE MADE SO THAT PULLING MASK DOWNWARD WILL OPEN THE SHUTOFF VALVE, AND SO THAT EACH MASK IS CONNECTED TO ITS OWN SHUTOFF VALVE.



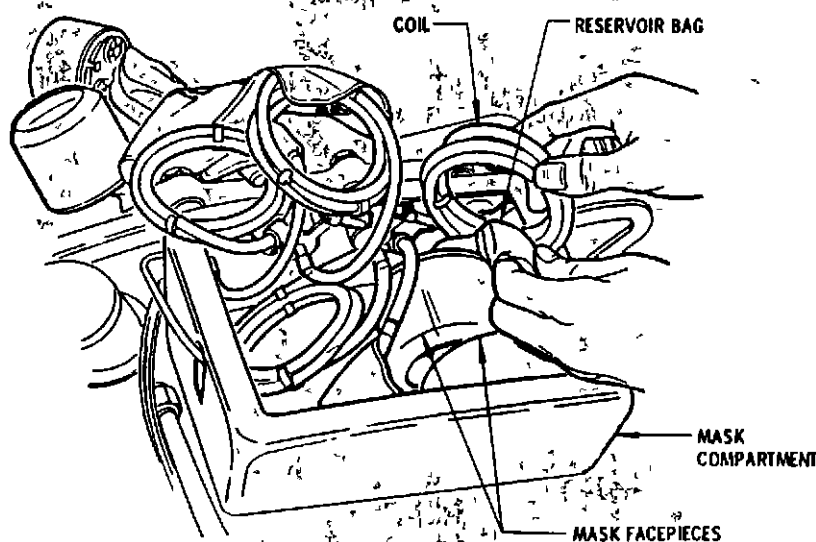
Connection of Valve Actuating Attachment
Figure 402

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- F. Install mask facepieces in pairs on both sides of stowage compartment with open ends of masks facing each other. (See figure 403.)
- G. Install reservoir bag.
- (1) Fold bag lengthwise twice.
 - (2) Neatly fold bag again and place on top of its respective facepiece. (See figure 404.)



Facepiece Installation
Figure 403



Reservoir Bags Installation
Figure 404

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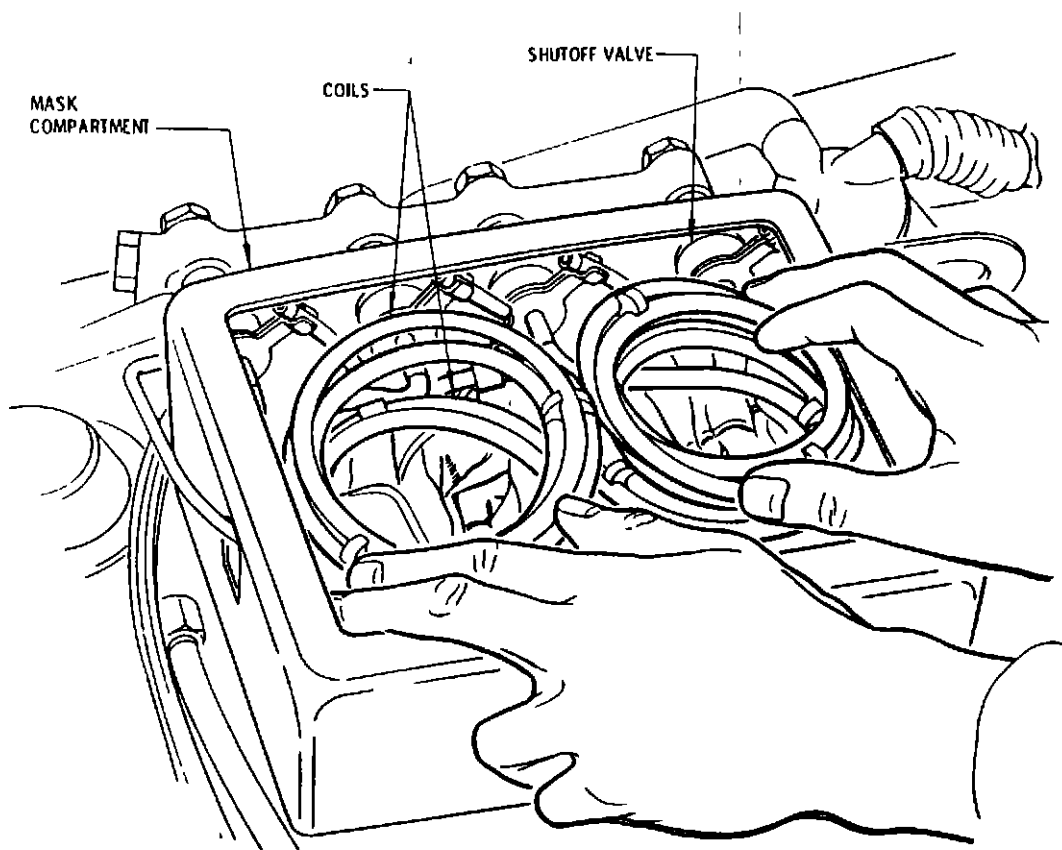
H. Install coil on top of its reservoir bag.

- (1) Place bags and coils in an orderly manner to avoid hang-up when masks are dropped.
- (2) Allow approximately one inch clearance between coils and compartment sidewalls.
- (3) Allow no part of masks, coils, or reservoir bags on top of valve assembly. (See figure 405.)
- (4) Allow no tubing between masks.
- (5) Allow no part of reservoir bags on top of coils.
- (6) Allow only hard surfaces of masks to contact sides of stowage compartment.

I. Place all rotary valves in the "OFF" position.

J. Install compartment cover and secure with scotch tape. Make sure that no part of any mask assembly is caught between cover and edge of compartment.

K. Raise and lock service unit. Refer to Chapter 25.





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PRESSURE TRANSMITTER - MAINTENANCE PRACTICES

1. Removal/Installation Pressure Transmitter

A Remove Pressure Transmitter (See figure 201.)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open OXYGEN PRESSURE circuit breaker on 28-volt ac circuit breaker panel (P7).
- (3) Open passenger oxygen equipment shroud door.
- (4) Close all cylinder shutoff valves.
- (5) Disconnect electrical connector.
- (6) Disconnect and cap line and connection.
- (7) Remove attaching screws and remove transmitter.

B Install Pressure Transmitter (See figure 20.)

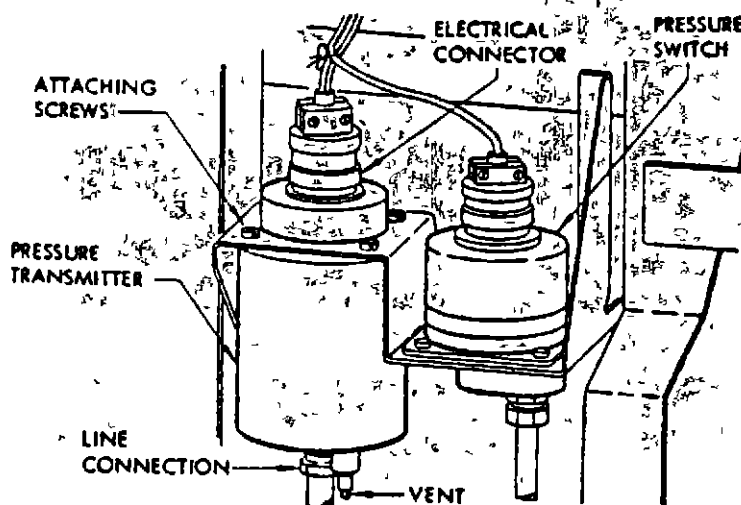
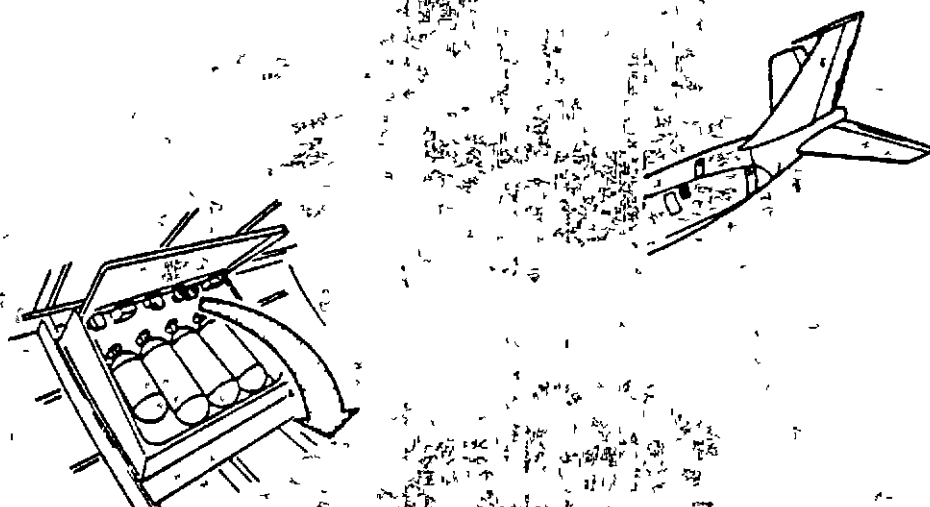
- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Position transmitter and install attaching screws.
- (3) Remove caps and connect pressure line and electrical connector to transmitter.
- (4) Close circuit breaker on panel P7 to energize the 28-volt ac bus.
- (5) Open all cylinder shutoff valves.

WARNING VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

CAUTION MAKE SURE ALL CYLINDER SHUTOFF VALVES ARE OPEN

- (6) Observe pressure gage to be sure that pressure indication operates correctly. See 35-2-0, figure 101.
- (7) Check for leaks, using soap/water solution.
- (8) Close oxygen equipment shroud door.

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Passenger Oxygen System Pressure Transmitter Installation
 Figure 201

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PASSENGER OXYGEN PRESSURE REDUCING REGULATOR - MAINTENANCE PRACTICES

1. Removal/Installation Passenger Oxygen Pressure Reducing Regulator

A Equipment and Materials

- (1) Thread Compound - MIL-T-5542B
- (2) Leak-Test Compound - MIL-L-25567A, Type I

B Remove Regulator

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Open oxygen cylinder shroud door in aft cargo compartment.
- (3) Close passenger oxygen cylinder shutoff valves.
- (4) On airplanes with thermal compensators proceed as follows. (See figure 201 for effectivity.)
 - (a) Disconnect B nut at upstream end of compensator assembly.

NOTE Residual pressure in high pressure line is 1800 psi and oxygen will escape with some force.

- (b) Disconnect regulator at outlet.
- (c) Remove regulator and compensator assembly attached together.
- (d) Using wrench on union flats rather than on B nut, disconnect regulator from compensator assembly. Refer to 35-2-151, Thermal Compensators Maintenance Practices.
- (5) On airplanes without thermal compensators disconnect inlet and outlet lines and remove regulator.
- (6) Cap open connections.

C. Install Regulator

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) If nuts are not dry-lube type, apply thread compound, sparingly and evenly, to first three male threads of each fitting. Exert care to keep fitting ends clean.

CAUTION. COMPOUND ON FITTING ENDS MAY CONTAMINATE SYSTEM.



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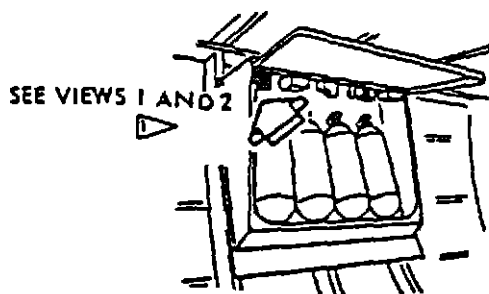
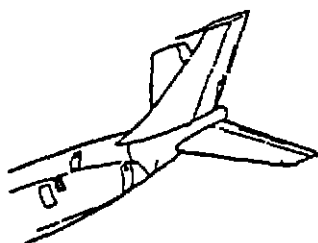
- (3) On airplanes with thermal compensators attach regulator to compensator assembly. (See figure 201 for effectivity.) Use wrench on union flats rather than on B nut. Refer to 35-2-151, Thermal Compensators Maintenance Practices.
- (4) Locate regulator, orienting arrow marked "FLOW" to point inboard away from oxygen cylinder. (See figure 201.)

CAUTION: ARROW MUST POINT AWAY FROM CYLINDER OR REGULATOR WILL BE DAMAGED BY EXCESSIVE BACK PRESSURE.

- (5) Loosely connect fittings and then tighten them gradually and evenly.
- (6) Slowly open passenger oxygen cylinder shutoff valves.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (7) Perform system pressure and operation tests per 35-2-0.



TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

TR 35-215

Pressure Reducing Regulator Installation
Figure 201 (Sheet 1)



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THERMAL COMPENSATOR ASSEMBLY - REMOVAL/INSTALLATION

1. General

- A During removal, installation and cleaning the thermal compensator assemblies are not separated. Make sure compensator is clean before installing. For cleaning procedure refer to Thermal Compensator Assembly - Cleaning/Painting.

2. Removal/Installation of Thermal Compensator Assembly Installed on Oxygen Cylinders

A Equipment and Materials

- (1) Leak-Test Component - MIL-L-25567, Type I

B. Remove Thermal Compensator Assembly

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Close all oxygen cylinder shutoff valves.
- (3) Disconnect connector coupling at cylinder end of thermal compensator assembly. (See detail B, figure 401.)

NOTE: On ALL airplanes EXCEPT TWA do not loosen the small B nut next to connector coupling.

CAUTION: ON ALL AIRPLANES EXCEPT TWA DAMAGE TO THERMAL COMPENSATOR WIRE BRISTLES AND JAMMING OF COMPENSATOR IN CONNECTOR COUPLING MAY RESULT IF SEPARATION IS MADE BETWEEN CONNECTOR COUPLING AND B NUT.

- (4) Disconnect B nut at tube end of thermal compensator assembly.
- (5) Remove thermal compensator assembly.



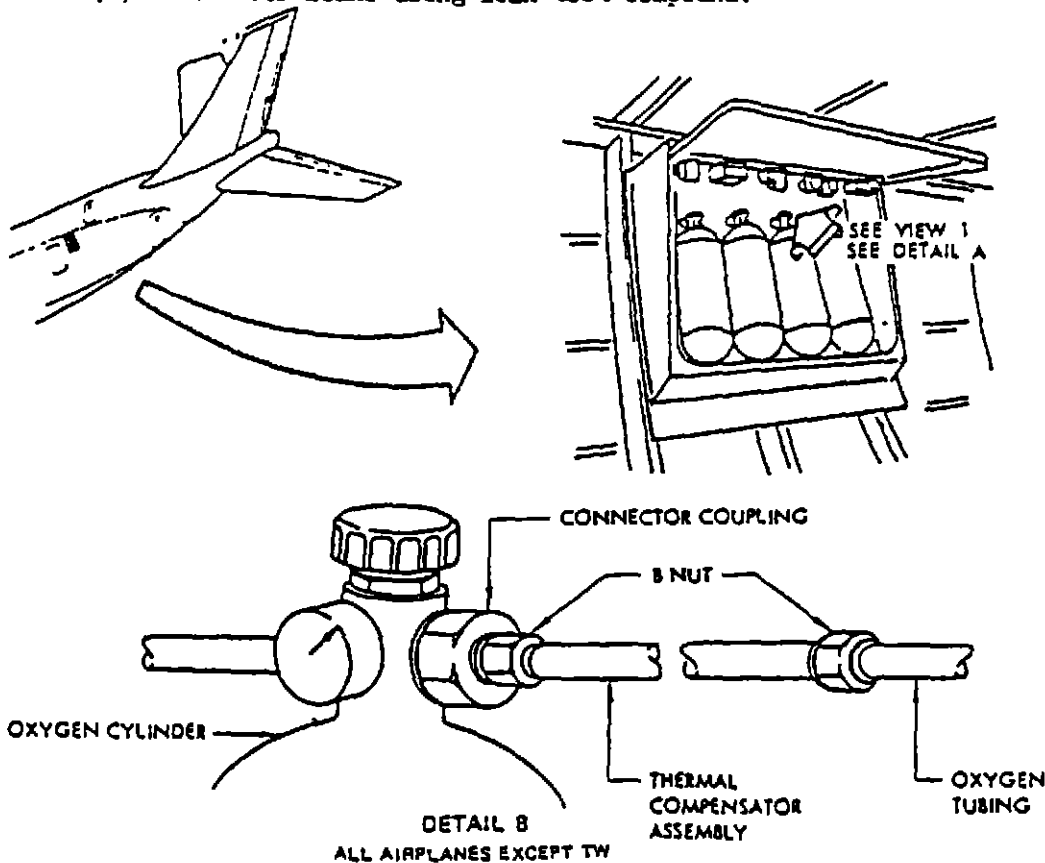
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C Install Thermal Compensator Assembly

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Replace thermal compensator. Optional clean existing compensator. Refer to Thermal Compensator Assembly - Cleaning/Painting.
- (3) Position assembly.
- (4) Loosely connect connector coupling. Refer to note and caution on step 2.B.(2) above.
- (5) Loosely connect B nut at tube end of thermal compensator assembly.
- (6) Tighten connections.
- (7) Slowly open all oxygen cylinder shutoff valves.

CAUTION VALVES MUST BE OPEN SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- (8) Check for leaks using leak-test compound.



Passenger Oxygen System Thermal Compensator Assembly Installation

Figure 401 (Sheet 1)

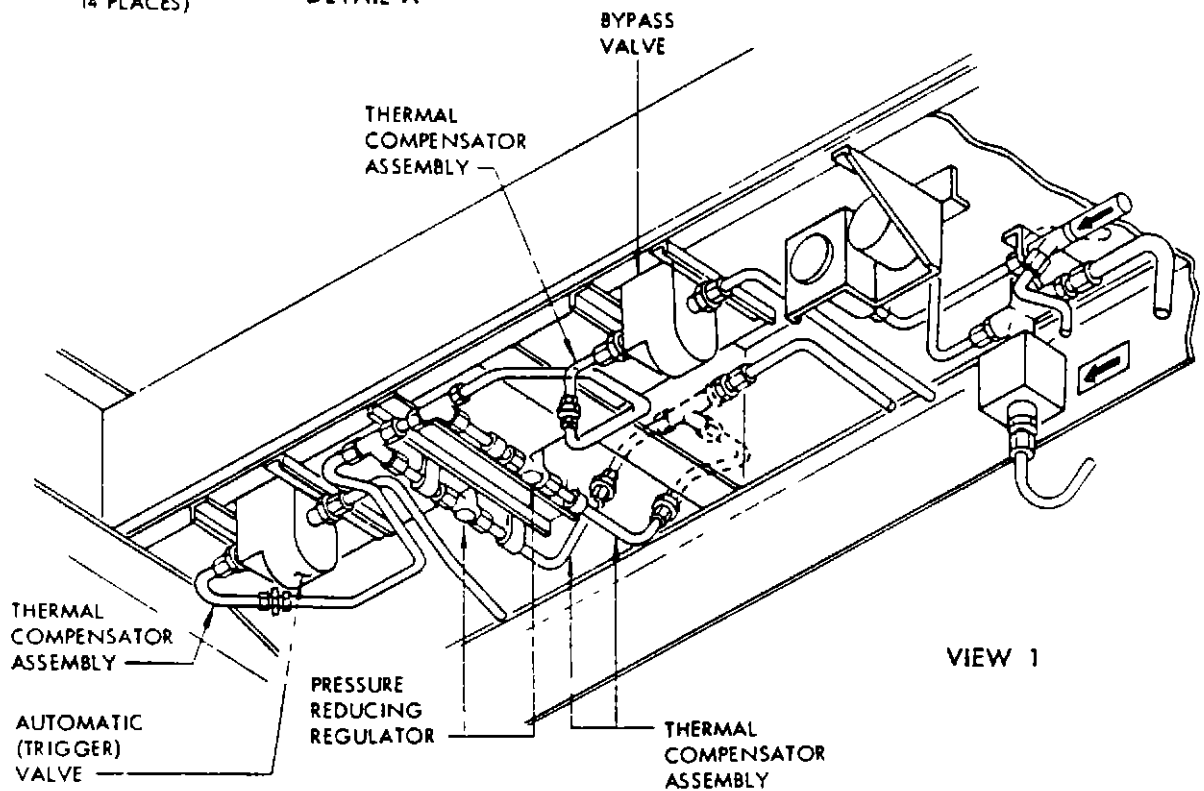
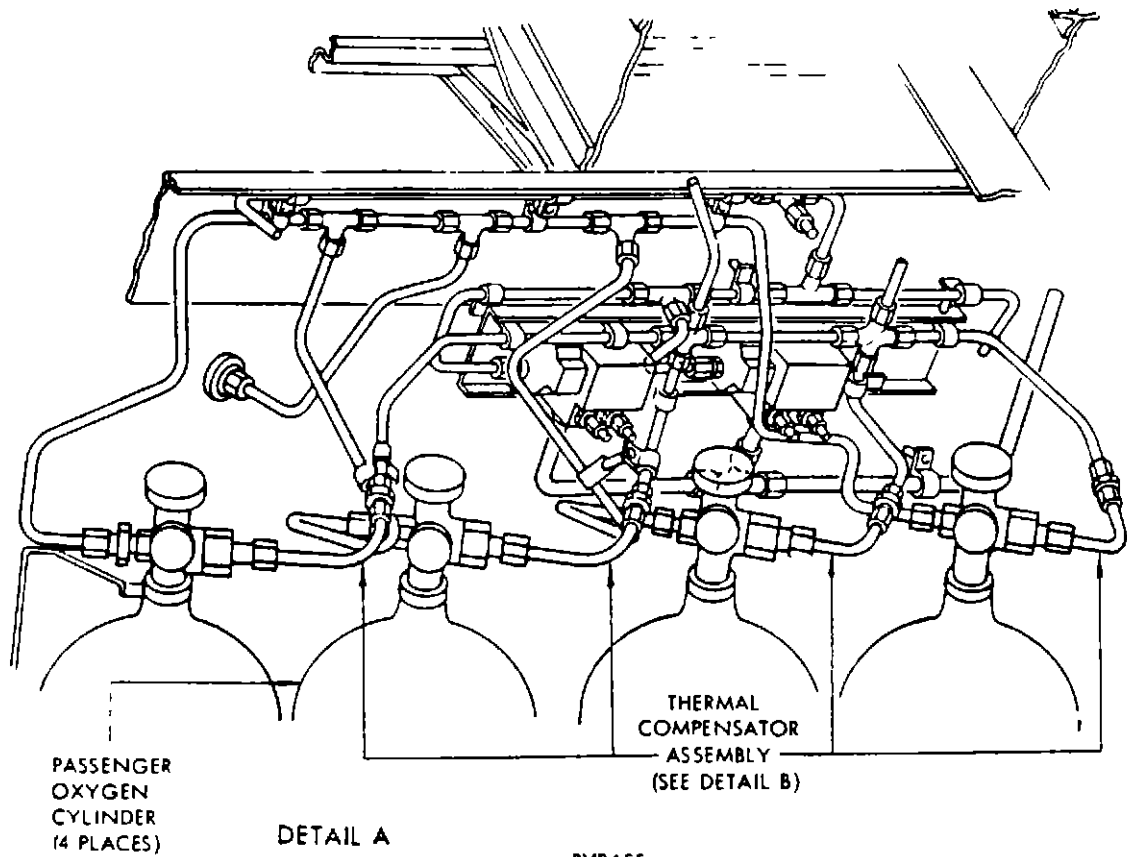
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3. Removal/Installation of Thermal Compensator Assembly Installed on Other Components

A General

- (1) Thermal compensator assemblies consist of the tube, thermal compensator and the union into which some of the compensator bristles extend.

CAUTION ROTATION OF THE COMPENSATOR WITHIN THE UNION MUST BE HELD TO THE ABSOLUTE MINIMUM AS ROTATION MAY DAMAGE THE WIRE BRISTLES, THUS REDUCING EFFICIENCY, AND MAY CAUSE LEAKS. REPLACE THE COMPENSATOR ASSEMBLY IF THE COMPENSATOR AND UNION HAVE HAD ANY LONGITUDINAL MOTION OR IF THE COMPENSATOR AND UNION CAN BE READILY ROTATED BY HAND.

B Remove Thermal Compensator Assembly (See figure 401.)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Remove component and compensator assembly as a unit. Refer to specific component removal/installation instructions.
- (3) Using wrench on union flats rather than B-nut, remove compensator assembly from component.

NOTE Do not loosen compensator assembly B-nut when removing union from component.

C Install Thermal Compensator Assembly (See figure 401.)

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) Replace thermal compensator. Optional clean existing compensator. Refer to Thermal Compensator Assembly - Cleaning/Painting.
- (3) Install compensator assembly on component, using a wrench on union flats to tighten assembly.
- (4) Install component and compensator assembly as a unit into the oxygen system. Refer to specific component removal/installation instructions.
- (5) If it is necessary to rotate compensator assembly to align tubing connections, loosen compensator assembly B-nut and rotate as required. See CAUTION above.



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THERMAL COMPENSATOR ASSEMBLY - ADJUSTMENT/TEST

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. Equipment and Materials

- A. Air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 ppm total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F. and 760 mm mercury
- B. Flowmeter, with a range of 0 to 1200 liters per minute

2. Test Thermal Compensator Assembly (Flow Test)

- A. Check that pressure drop does not exceed 200 psi with a flow rate of 1000 liters per minute of air at standard conditions.

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THERMAL COMPENSATOR ASSEMBLY - CLEANING/PAINTING

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. Equipment and Materials

- A. Nitrogen per Specification BB-N-411, Type 1, Class I, Grade A
- B. Air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 ppm total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F. and 760 mm mercury

2. Clean Thermal Compensator Assembly

- A. Clean by ultrasonic cleaning or by vapor degreasing process.

CAUTION: IN NO CASE SHOULD THERMAL COMPENSATOR (WIRE BRUSH) BE SEPARATED FROM THE ASSEMBLY. REPLACE ASSEMBLY IF COMPENSATOR AND UNION HAVE HAD ANY LONGITUDINAL MOTION OR IF COMPENSATOR AND UNION CAN BE READILY ROTATED BY HAND.

- B. After cleaning purge and dry with nitrogen or air.
- C. Perform flow test. Refer to Thermal Compensator Assembly - Adjustment/Test.

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THERMAL COMPENSATOR ASSEMBLY - CLEANING/PAINTING

EFFECTIVITY

PA N414PA thru N499PA	NW N363US and on
N870PA thru N897PA	AA N7562A and on, plus
AF F-BLCD and on	airplanes incorporating
SN OO-SJJ and on	Boeing Service Bulletin
BA Turbofan	2165
LH D-ABUA, D-ABUD	IN EI-ANV and on
and on	QF VH-EBR and on
AI VT-DVA and on	CO N17325 and on
RG 707-341C	FL N323F and on
SA ZS-SAE and on	

1. Equipment and Materials

- A. Nitrogen per Specification BB-N-411, Type 1, Class I, Grade A
- B. Air that is cleaned, dried, and water pumped with no particles greater than 100 microns in size, no more than 3 ppm total hydrocarbons by weight, and with moisture content not exceeding 0.00002 grams per liter of gas at 70°F. and 760 mm mercury

2. Clean Thermal Compensator Assembly

- A. Clean by ultrasonic cleaning or by vapor degreasing process.

CAUTION · IN NO CASE SHOULD THERMAL COMPENSATOR (WIRE BRUSH) BE SEPARATED FROM THE ASSEMBLY. REPLACE ASSEMBLY IF COMPENSATOR AND UNION HAVE HAD ANY LONGITUDINAL MOTION OR IF COMPENSATOR AND UNION CAN BE READILY ROTATED BY HAND.

- B. After cleaning purge and dry with nitrogen or air.
- C. Perform flow test. Refer to Thermal Compensator Assembly - Adjustment/Test.



MAINTENANCE MANUAL

PERSONNEL ACCOMMODATIONS OXYGEN SYSTEM - DESCRIPTION AND OPERATION

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. General

- A. The personnel accommodations oxygen system supplies oxygen automatically to the forward attendant's station, the courier station, and lavatories A and B when cabin pressure is equivalent to an altitude of 14,000 feet. The system consists of one oxygen cylinder assembly, two continuous flow control units, oxygen distribution lines, pressure indicators, and oxygen masks stowed in service units. (See figure 1.) Since there are no bleed ports in the personnel accommodations system, a service unit shutoff valve in lavatory A is lockwired in the OPEN position to permit bleedoff of any residual pressure. Operation of the system is initiated automatically by either or both of the continuous flow control units, by means of an aneroid-operated device in each unit. The system can also be actuated electrically by a switch on the pilot's overhead panel or manually by pulling a lever which turns on one of the flow control units.
- B. The portion of the system upstream of the flow control units is designated the high pressure side. The portion downstream of the units is designated the low pressure side. All tubing is stainless steel.
- C. Cylinder pressure is shown by a pressure indicator on the flight engineer's panel, which receives signals from a remote pressure transducer, which is part of the electro-pneumatic continuous flow control unit. Cylinder pressure gives an indication of the quantity of oxygen available. The oxygen cylinder is equipped with a safety discharge disc which will break to discharge the cylinder contents overboard if cylinder pressure exceeds a safe limit.

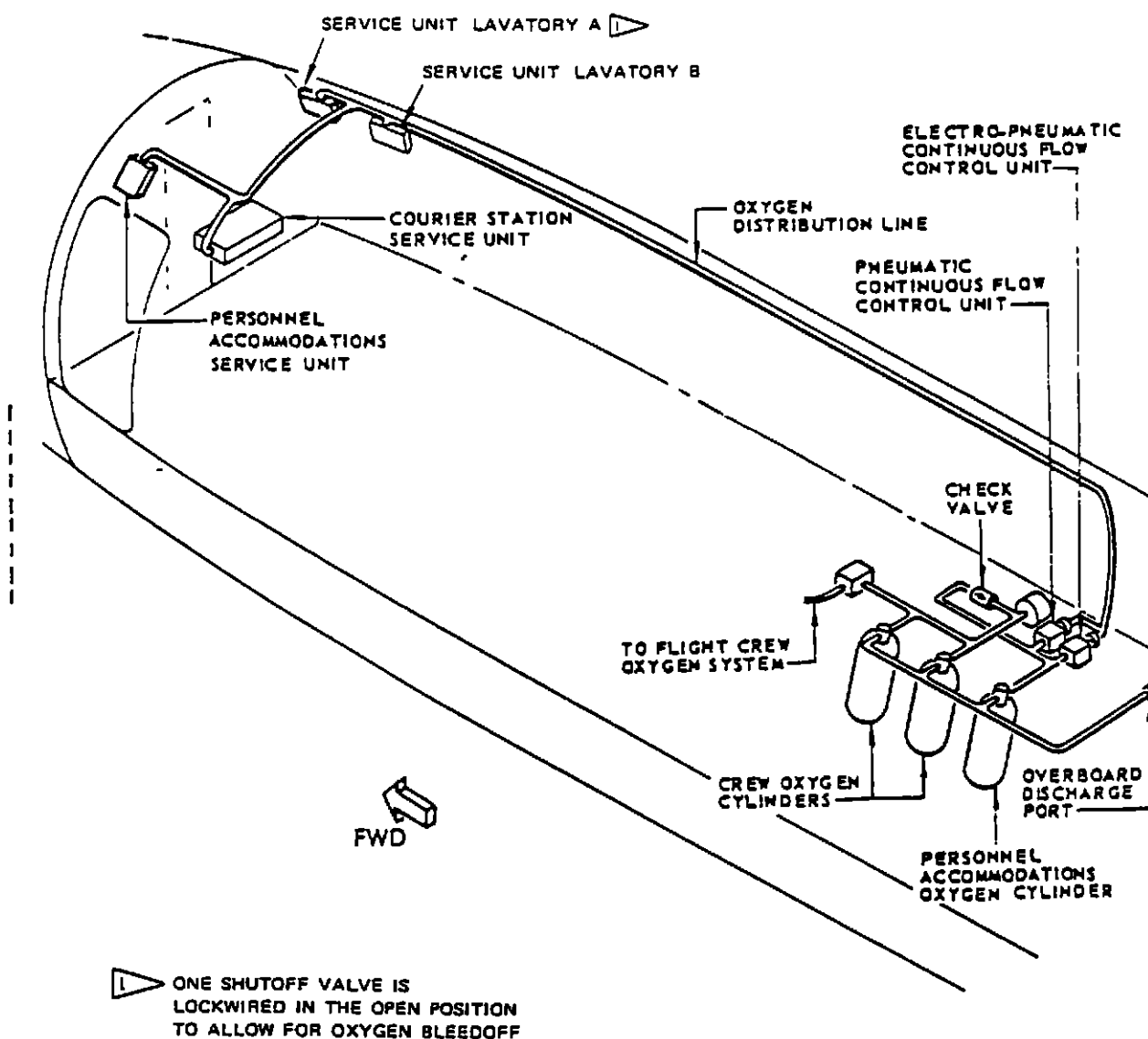
2. Personnel Accommodations Oxygen Cylinder Assembly

- A. The personnel accommodations oxygen cylinder assembly has a capacity of 114 cubic feet (3225 liters) of oxygen at 1850 psi and 70°F. The assembly is mounted in the forward cargo compartment together with the crew oxygen system cylinders. (See figure 2.)
- B. The personnel accommodations cylinder assembly includes a slow opening shutoff valve, a pressure gage, and a safety outlet device which blows out at 2500-2700 psig and is connected to an overboard discharge line common to the crew cylinders, which runs to a discharge indicator at the airplane skin. Incorporated into the discharge indicator is a plastic disc which normally prevents dirt, grease, etc. from entering the discharge line, but which blows out at 500 psig to allow oxygen to discharge overboard.

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3 Continuous Flow Control Units

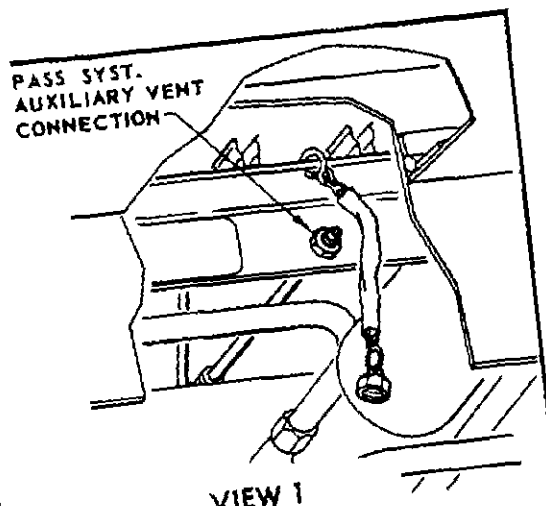
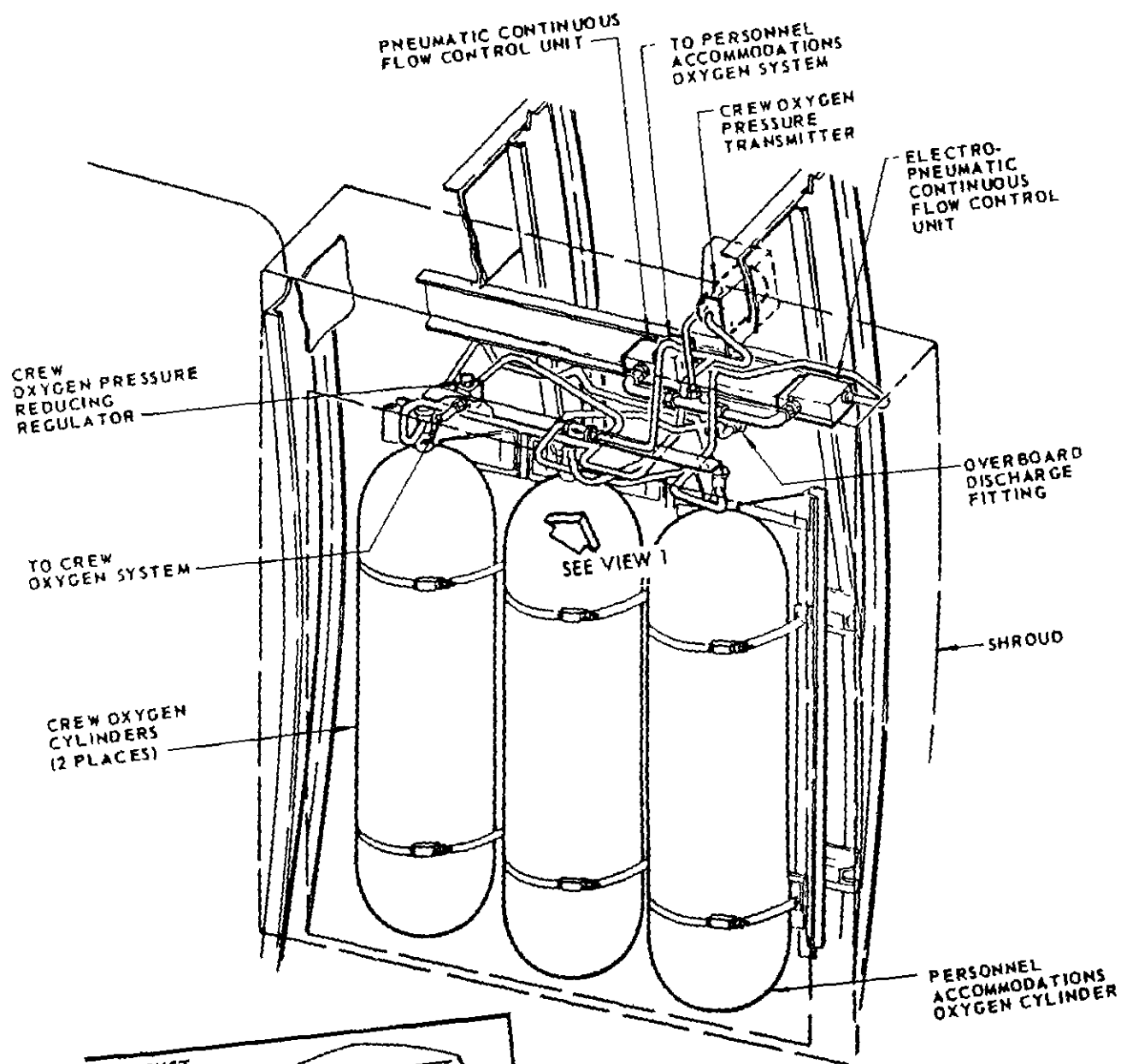
4. Two continuous flow control units are connected in parallel: the electro-pneumatic continuous flow control unit, and the pneumatic continuous flow control unit. They provide two independent automatic means, one electrical means, and one manual means of initiating flow into the personnel accommodations oxygen system. Each unit is independently capable of supplying the system. They are installed in the oxygen cylinders compartment. (See figure 2)



SAB. 707/548

Personnel Accommodations Oxygen System Components Location Diagram
Figure 1

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VIEW 1

SAB. 707/548
Personnel Accommodations Oxygen Cylinders and
Control Units Installation
Figure 2

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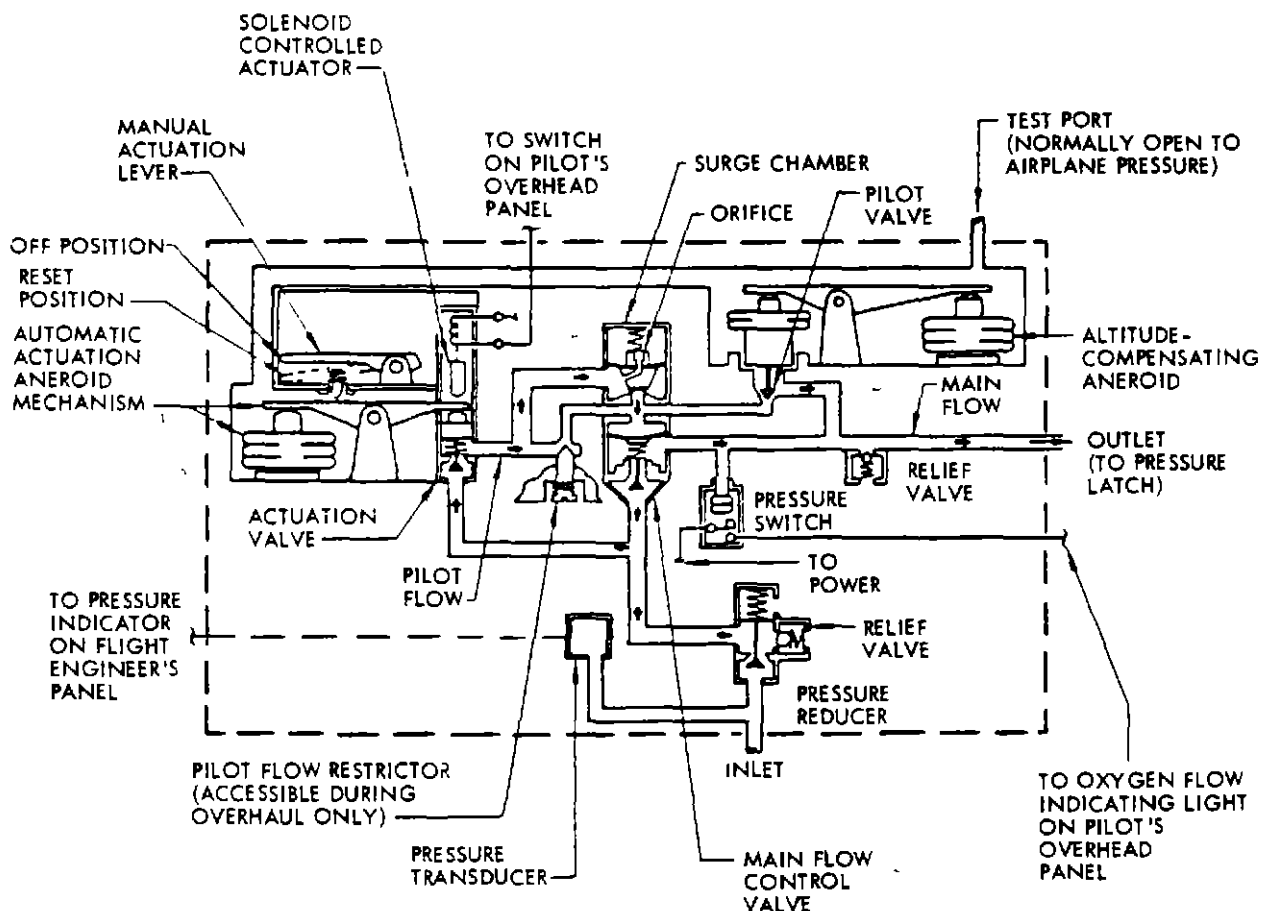
B. Electropneumatic Continuous Flow Control Unit

- (1) This unit consists of a pressure reducer, an actuation valve, and a main flow control valve. (See figure 3) The actuation valve may be operated by an automatic aneroid mechanism, or by a solenoid-controlled actuator which is activated by a switch on the pilot's overhead panel.
- (2) Oxygen pressure is lowered by the pressure reducer from 1850 psig to 100 psig (nominally). The automatic actuation aneroid mechanism opens the actuation valve at 14,000 ft cabin altitude with increase of cabin altitude, and closes it at 10,000 ft cabin altitude with decrease of cabin altitude on airplanes having an automatic reset mechanism. Downstream from the actuation valve are a main flow control valve and a pilot valve. The main flow control valve controls flow of oxygen to the low pressure side of the system. The main flow control valve opening is controlled by a diaphragm, which deflects under pressure provided by the pilot flow. This pressure is controlled by the pilot valve, which is connected to two altitude-compensating aneroids. These aneroids sense cabin altitude, and cause more oxygen to flow to the masks as altitude increases, and less oxygen as altitude decreases.
- (3) The main flow control valve has a surge chamber which causes the unit to provide a pressure surge of 50 to 100 psig for 7 to 15 seconds. This pressure surge is released when oxygen, entering the surge chamber, deflects a diaphragm against spring pressure, and opens a valve momentarily increasing the pressure provided by the pilot flow, thus causing the main flow control valve to open widely. The pressure surge actuates the latches in service unit doors and allows the masks to drop. After 7 to 15 seconds, oxygen, flowing through an orifice, fills the surge chamber on both sides of the diaphragm. With pressure thus equalized, spring action returns the diaphragm to its normal position, ending the pressure surge.
- (4) In the low pressure side of the unit is a pressure switch which closes a circuit to an amber light on the pilots' overhead panel. The light illuminates when the low pressure tubing is pressurized between 1-1/2 and 20 psig.
- (5) In its high pressure side the unit incorporates a pressure transducer which contains a bourdon tube with a wiper blade. Variation in pressure repositions the wiper blade on a resistor. A voltage regulatory circuit supplies constant voltage to the resistor. The circuit is completed with a pressure indicator on the flight engineer's panel. (See figure 5.) The indicator is calibrated to read the corresponding pressures from the voltage output of the transducer.

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C Pneumatic Continuous Flow Control Unit

- (1) This second control unit includes major features of the electro-pneumatic unit described above, namely a pressure reducer, automatic aneroid actuation, a continuous flow control regulator. (See figure 4)
- (2) In parallel with the aneroid actuation mechanism is a manual on-off and reset mechanism which is actuated by the lever on the unit. Pulling the lever turns on the unit
- (3) Other differences between the two units are that the pneumatic unit does not have a pressure transducer or a pressure switch and it can not be operated electrically.
- (4) Operation is identical to that of the electro-pneumatic continuous flow control unit except that the actuation valve may be operated manually instead of electrically





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D. Reset Feature

- (1) Manual reset is required after electrical or manual actuation on all airplanes.
- (2) Manual reset is required after automatic actuation on all airplanes, except those having an automatic reset mechanism, which are the following:

AF	F-BLCC
SABENA	OO-SJH
BOAC	G-ASZF and G-ASZG
DLH	D-ABUA and D-ABUE
WAI	N372WA
NWA	N359US through N364US
AA	N7555A through N7561A
CAL	N17323 and N17324
FTL	N322F and N323F
IIA	EI-AMW and EI-ANO

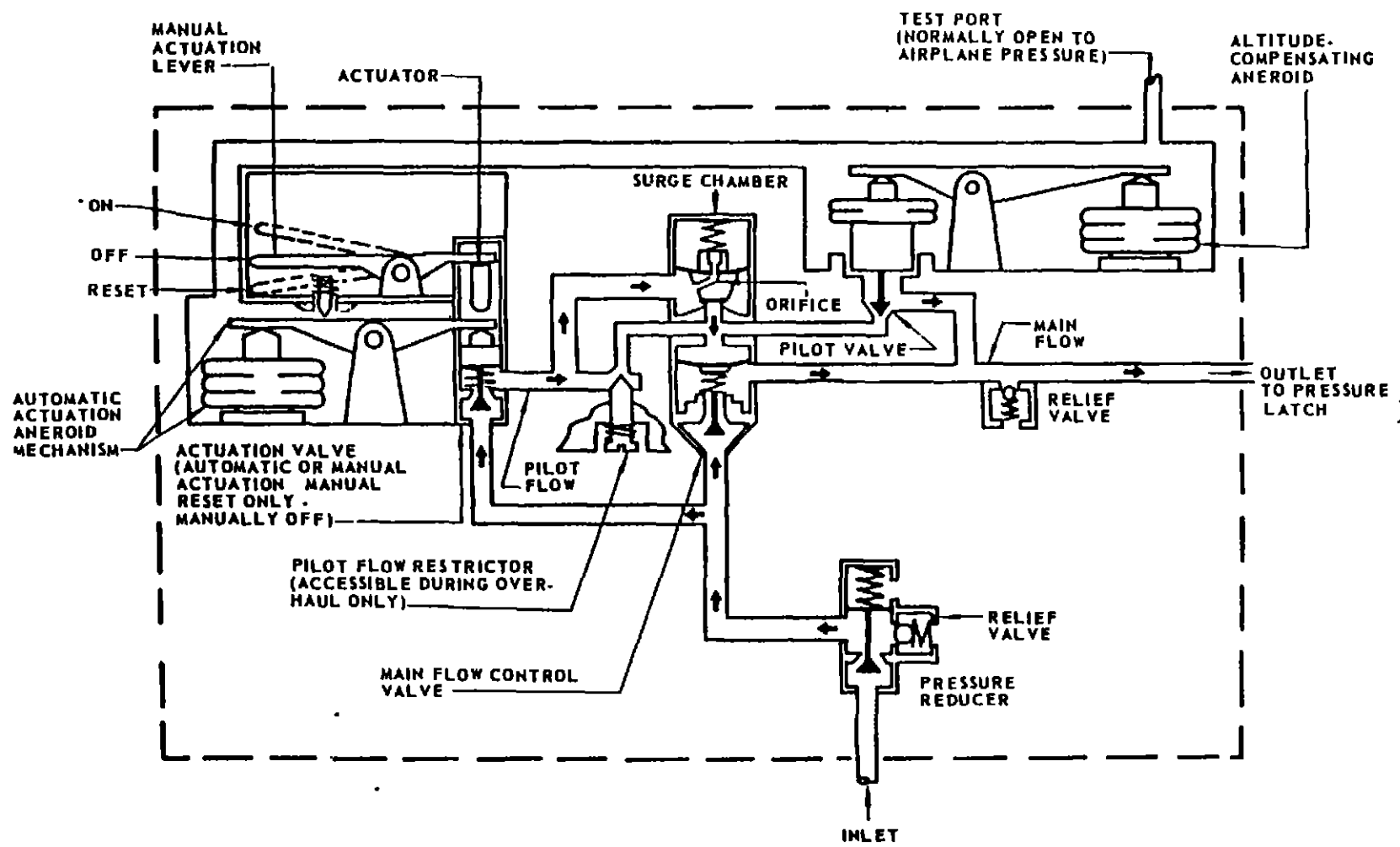
- (3) The reset mechanism manual actuation lever is accessible directly on each unit. Pushing the lever until its plunger bottoms and holding it for 5 seconds resets the unit.

4. Personnel Accommodations Oxygen Distribution Line and Overboard Discharge Line

- A. The personnel accommodations oxygen distribution line has a high pressure side, between the oxygen cylinder assembly and the continuous flow control units, and a low pressure side, downstream from the control units. Tubing is almost entirely stainless steel. Refer to Boeing Illustrated Parts Catalog for identification of material of any specific tube assembly.
- B. The overboard discharge line is made of stainless steel and is connected to a safety outlet device on the oxygen cylinder, and to a discharge indicator at the airplane skin. (See Personnel Accommodations Oxygen Cylinder Assembly.)

5. Personnel Accommodations Service Units

- A. One courier station service unit, one attendants' service unit and two lavatory service units are provided. Each contains stowage space for the oxygen masks, the pressure operated latch for automatic release of masks, and oxygen distribution and shutoff equipment. The courier service unit is similar to a PSU. See 35-2-0. The attendants' service unit and lavatory service unit are respectively the same as the forward attendants' service unit and the lavatories A and B service units in the passenger system in turbojet airplanes. See 35-2-0. See Chapter 25 for a description of each service unit.



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Pneumatic Continuous Flow Control Unit
Figure 2



MAINTENANCE MANUAL

6. Service Unit Components

- A. The pressure latch, rotary shutoff valve, and oxygen masks, are identical to those described in 35-2-0.

7. Portable Oxygen Cylinder Assembly

- A. See 35-2-0.

8. External Filling Provision

Deleted.

9. Warning Devices

- A. Lights on the pilot's overhead panel and the forward attendants' panel indicate pressurization of the personnel accommodations oxygen system.

- (1) A pressure switch located downstream of the flow control valve in the electro-pneumatic continuous flow control unit controls both lights.

10. Personnel Accommodations Oxygen System Operation

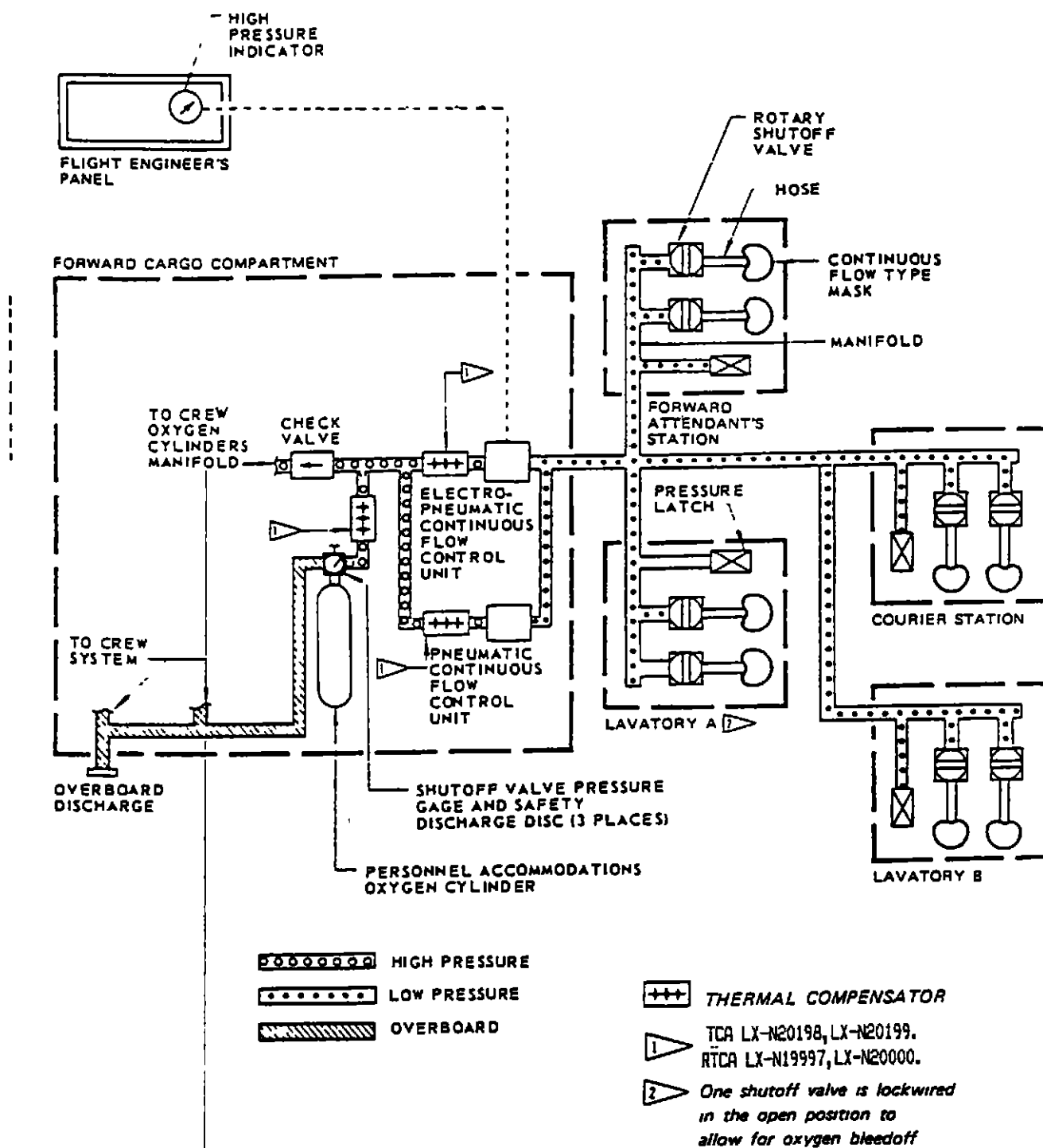
- A. The low pressure side is pressurized automatically whenever cabin altitude reaches or exceeds 14,000 ft. On actuation oxygen flows from the cylinder, through the flow control units, to the service units. (See figure 5.) During the first few seconds either control unit releases a pressure surge (50 to 100 psi) which causes the oxygen mask box doors to open. Each mask assembly then falls out and is suspended by the actuating attachment on the flexible tubing. The user must pull down the mask in order to apply it to his face for use. The action of pulling the mask down to a usable position opens the shutoff valve allowing oxygen to flow to the mask.
- B. The system may be activated by operating a switch to open the solenoid actuation valve. The switch is located on the pilot's overhead panel and may be used in the event that both automatic valves fail to open during an emergency, or at the discretion of the flight crew. The manually operated lever on the pneumatic continuous flow control unit may also be used to pressurize the distribution lines.
- C. The user of the mask inhales pure oxygen until his reservoir bag is empty, then inhales air during the remainder of the inhalation cycle. The quantity of oxygen flow is controlled by the altitude compensated continuous flow control units which regulate manifold pressure, and by a metering orifice (nozzle) in each mask outlet valve.

11. Thermal Compensators

- A. Thermal compensators are installed at various places in the system. (See figure 5.) For a description refer to 35-1-0.

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Personnel Accommodations Oxygen System Schematic Diagram
Figure 5

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PERSONNEL ACCOMMODATIONS OXYGEN SYSTEM - TROUBLE SHOOTING

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. General

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. The passenger oxygen system is capable of holding pressure almost indefinitely, when not in use, with the cylinder shutoff valves open and the continuous flow control unit valves closed.
- C. Apparent loss of pressure may be caused by temperature change or leakage of the system. Oxygen cylinders are charged to 1850 psi at 70°F. Refer to the Temperature Correction Chart, figure 101 for variations.
- D. Since the system is normally inactive, operating troubles may be met only in the event that cabin altitude rises above a nominal 14,000 ft. or during ground test under simulated altitude conditions.

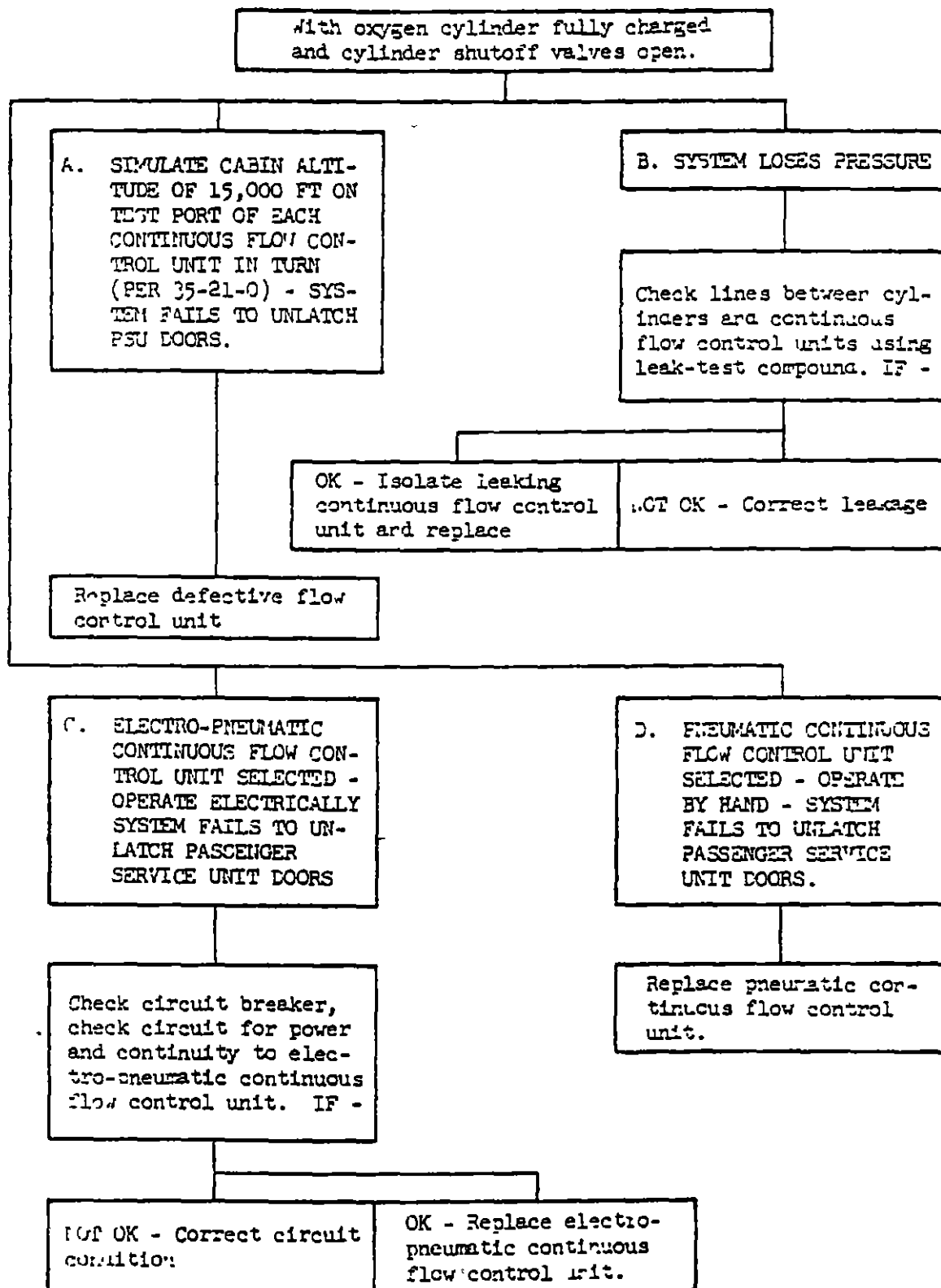
2. Equipment and Materials

- A. Leak-Test Compound - MIL-L-25567A, Type I

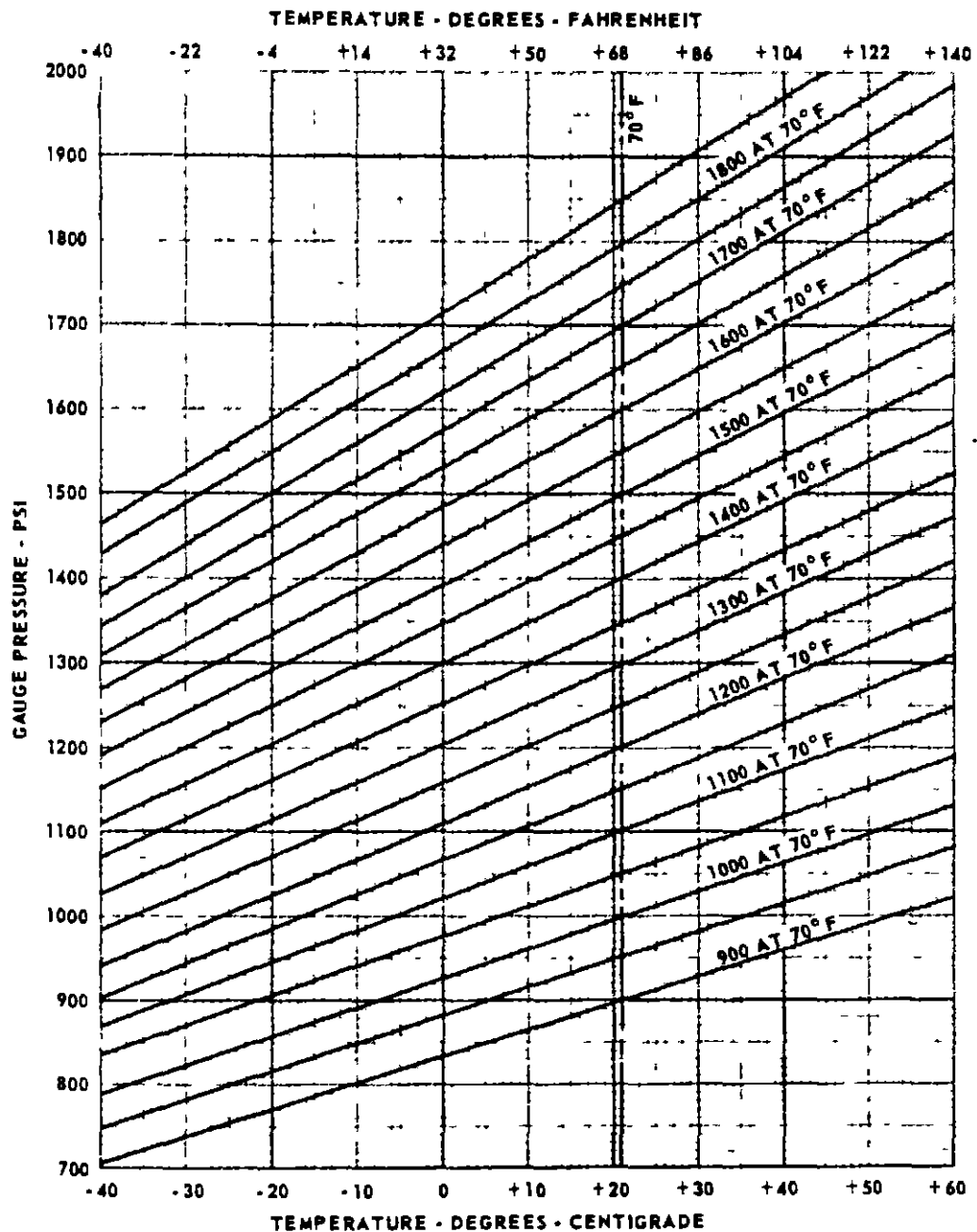
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3. Trouble Shooting



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Passenger Oxygen Cylinder Pressure Temperature Correction Chart
 Figure 101



MAINTENANCE MANUAL

PERSONNEL ACCOMMODATIONS OXYGEN SYSTEM - ADJUSTMENT/TEST

EFFECTIVITY

Passenger/Cargo Convertible Airplanes

1. Test Personnel Accommodations Oxygen System Operation

A. General

- (1) Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- (2) The personnel accommodations oxygen systems operation is tested by reducing pressure at the test ports of the continuous flow control units to simulate different altitudes. Compensation for ambient pressure at sea level is included in this test.

B Equipment and Materials

- (1) Vacuum source capable of maintaining 25 in Hg vacuum with minimum flow of 1 cfm
- (2) Vacuum gage
- (3) 0- to 50-psi pressure gage
- (4) 0- to 10-psi pressure gage coupled to a shutoff valve

C. Test Personnel Accommodations Oxygen System Operation

- (1) Energize T-R bus No. 4
- (2) Close PASS OXY VALVE & LT's circuit breaker on P5 panel.
- (3) Check that personnel accommodations oxygen cylinder shutoff valve is open and oxygen charging shutoff valve is closed.
- (4) Check that PERS ACCOM oxygen pressure indicator on flight engineer's panel reads approximately same pressure as cylinder gage.
- (5) Gain access to lavatory service unit line connection to shutoff valve (Ref 35-2-53). Disconnect flexible hose from tee. Connect 0- to 50-psi gage and 0- to 10-psi gage to flexible hose. Connect to tee. Ensure that 0- to 10-psi gage shutoff valve is closed
- (6) Connect vacuum source to labeled test port on electropneumatic flow control unit.

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- (7) Reduce pressure at test port of flow control unit to 17.25-18.60 inches Hg absolute.
- (8) For electropneumatic unit test observe that warning light on pilot's overhead panel has illuminated.
- (9) Observe that pressure on test pressure gage increases.
- (10) Observe that pressure latch on each service unit operates, each door opens, and masks drop out.
- (11) Open 0- to 10-psi pressure gage shutoff valve.
- (12) Change pressure at test port of flow control unit as required to effect a test pressure gage indication of 5.25 +0.50/-0.00 psig.
- (13) Open oxygen outlet valves by pulling actuator attachments.
- (14) Check that flow is available at each mask.
- (15) Close 0- to 10-psi pressure gage shutoff valve.
- (16) Reduce pressure at test port of flow control unit to 12.10 inches Hg absolute.
- (17) Observe test pressure gage. Pressure in distribution line shall rise to between 9.9 and 12.9 psig.
- (18) Reduce pressure at test port of flow control unit to 5.54 inches Hg absolute.
- (19) Observe test pressure gage. Pressure in distribution line shall rise to 38-41 psig.
- (20) On the following airplanes:
 - AF F-BLCC
 - SN OO-SJH
 - AA N7555A thru N7561A
 - CO N17324
 - FT N323F
 - BR G-AWTK and G-AZJMfor electropneumatic unit test proceed as follows:
 - (a) Increase pressure at test port to 22.22 inches Hg absolute.
 - (b) Observe warning light on pilot's overhead panel goes out within 10 minutes.
- (21) For electropneumatic unit test when pressure falls to zero check that warning light on pilot's overhead panel goes out.



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- (22) On all airplanes except those called out in step (20) above, reset flow control unit by pushing reset lever on unit until plunger is stopped and holding in that position for a minimum of 5 seconds.
- (23) Repeat steps (6) thru (10) and (16) thru (22) using pneumatic flow control unit.
- (24) Repack masks as necessary (Ref Oxygen Masks).
- (25) Disconnect vacuum from test port of pneumatic unit
- (26) Close all passenger oxygen cylinder shutoff valves in aft cargo compartment to prevent mask deployment.
- (27) Turn on PERS ACCOM OXYGEN switch on overhead panel.
- (28) Observe that warning light on pilots' overhead panel has illuminated
- (29) Observe that pressure on test pressure gage increases.
- (30) Observe that pressure latch on each service unit operates, each door opens, and masks drop out.
- (31) On all airplanes except those called out in step (20) above reset electropneumatic continuous flow control unit by pushing reset lever on unit until plunger is stopped and holding in that position for a minimum of 5 seconds.
- (32) Remove gage from line to bleed system.
- (33) Install oxygen masks Refer to appropriate service unit maintenance practices in Passenger Oxygen System.
- (34) Remove low pressure gage from line in lavatory and replace shutoff valve
- (35) Slowly open all passenger oxygen cylinder shutoff valves closed in step (26).

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

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2. Test Personnel Accommodations Oxygen System for Low Pressure Tubing Leakage

A. Equipment and Materials

(1) Low pressure source

(a) Portable test cylinder charged with oxygen at 75 ± 5 psig

(2) 0-100 psig pressure gage

B. Close personnel accommodations oxygen cylinder shutoff valve.

C. Disconnect continuous flow control units from low pressure line.

D. Plug control unit outlets.

CAUTION: OUTLETS MUST BE PLUGGED TO AVOID CONTAMINATION.

E. Connect 75 psig pressure source to end of line. Connect low pressure gage between source and line.

F. Slowly apply regulated pressure from pressure source.

G. Check that pressure latch on each service unit operates between 5 and 16 psig and door opens.

NOTE: Masks may be retained by loosely fastening each service unit door to prevent full opening.

H. Allow pressure to stabilize at 70 psig and close test cylinder valve. Check that pressure drop does not exceed 5 psig over a 5 minute period.

NOTE: All valves inside service units must be closed.

I. Disconnect pressure source and pressure gage, allow low pressure side to depressurize, reconnect disconnected components. Close service unit doors.

J. Slowly open personnel accommodations oxygen cylinder valve.

WARNING: VALVE MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY OCCUR



MAINTENANCE MANUAL

CONTINUOUS FLOW CONTROL UNITS - REMOVAL/INSTALLATION

1. Equipment and Materials

- A. Leak-Test Compound - MIL-L-25567A, Type I

2. Remove Continuous Flow Control Unit

NOTE: Pneumatic unit is installed forward of electropneumatic unit. (See figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Open oxygen equipment access door in forward cargo compartment.
- C. Close personnel accommodations oxygen cylinder shutoff valve.
- D. When removing electropneumatic unit
 - (1) Open PASS OXY VALVES & LTS circuit breaker on radio and cb panel P5.
 - (2) Disconnect electrical connector from unit.
 - (3) Where necessary remove lanyard attaching lever to tubing.
- E. On airplanes with thermal compensators proceed as follows. (See figure 401 for effectivity.)
 - (1) Disconnect B-nut at upstream end of compensator assembly.

NOTE: Residual pressure in high pressure line is 1800 psi and oxygen will escape with some force.
 - (2) Disconnect control unit at outlet and remove mounting screws. Avoid pulling or pushing manual actuation lever.
 - (3) Remove control unit and compensator assembly attached together.
 - (4) Using wrench on union flats rather than on B-nut, disconnect control unit from compensator assembly. Refer to 35-1-151, Thermal Compensators Maintenance Practices.
- F. On airplanes without thermal compensators disconnect inlet and outlet lines, remove mounting screws, and remove control unit.
- G. Cap open connections.

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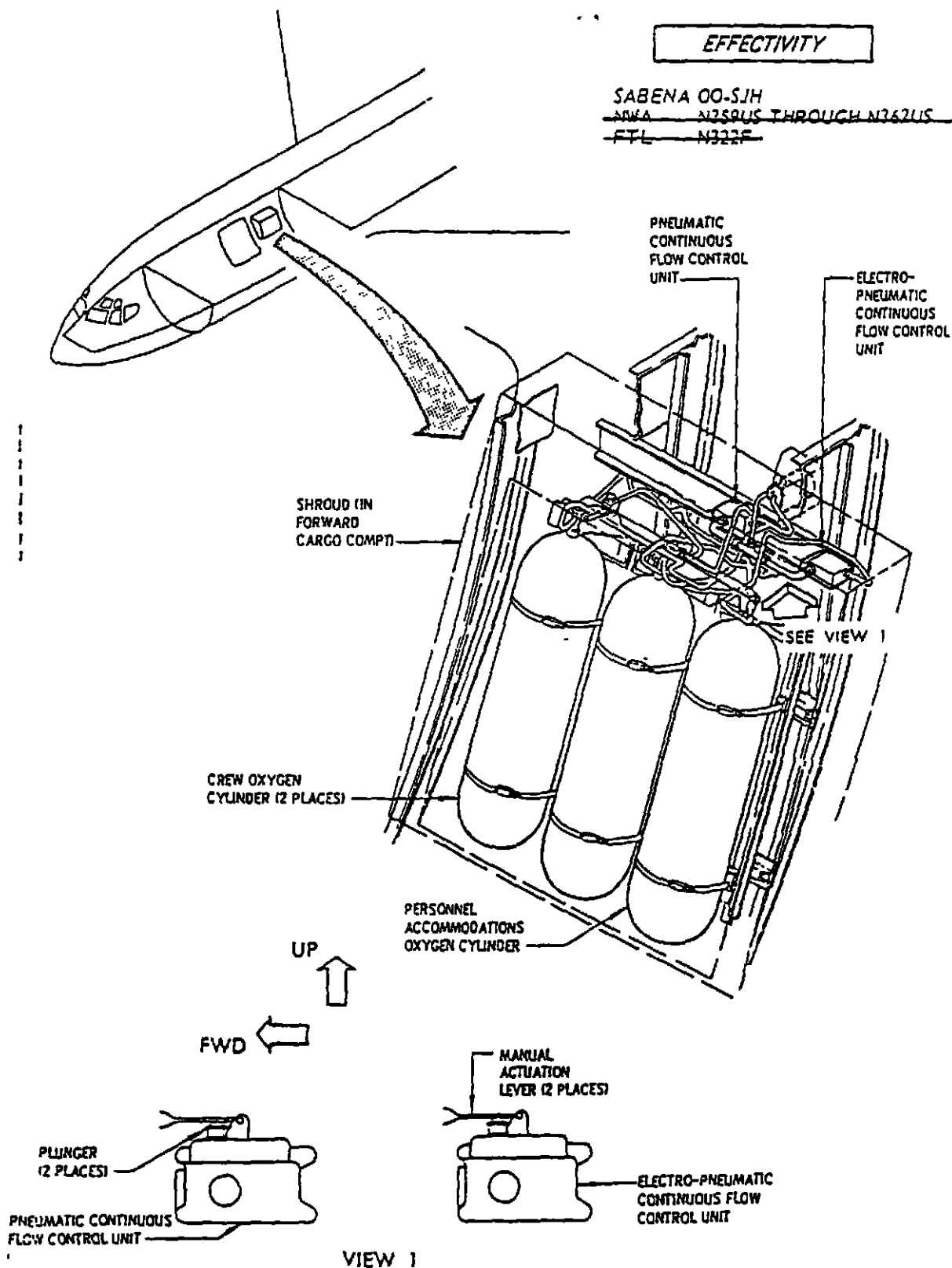
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EFFECTIVITY

SABENA 00-SJH

~~AWA N359US THROUGH N362US~~

~~FTL N322F~~



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Continuous Flow Control Units Installation
Figure 401 (Sheet 1)

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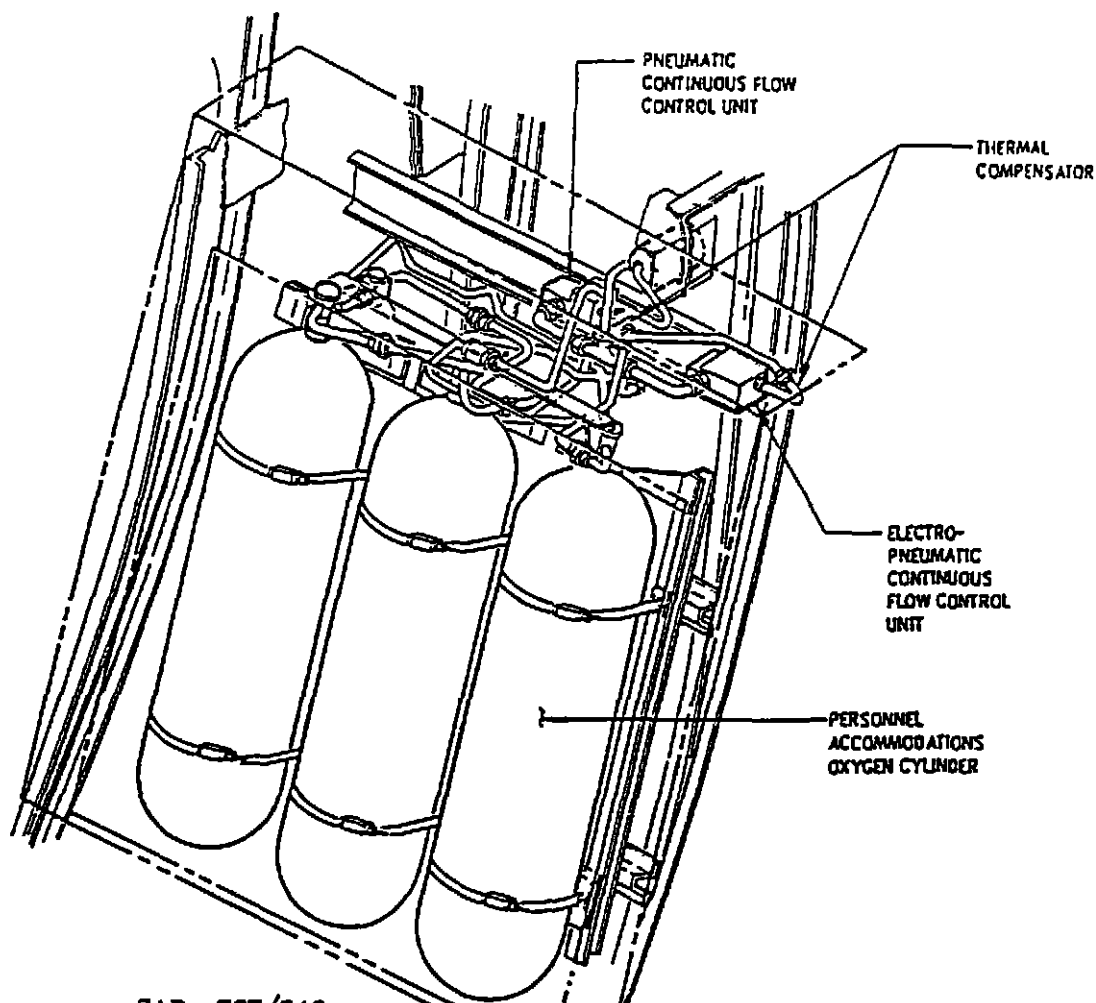
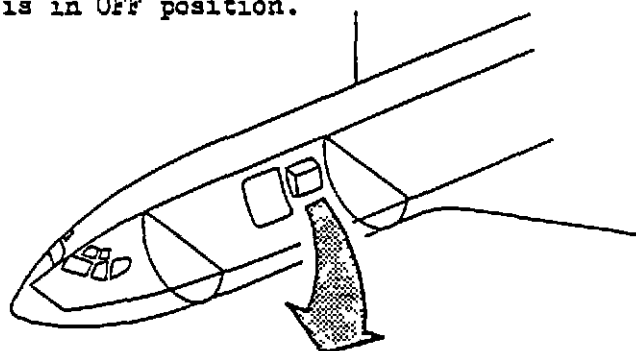
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3. Install Continuous Flow Control Unit

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Check personnel accommodations oxygen cylinder shutoff valve is closed.
- C. Check manual actuation lever is in OFF position.

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000



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Continuous Flow Control
Units Installation
Figure 401 (Sheet 2)

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- D. On airplanes with thermal compensators attach valve to compensator assembly. Use wrench on union flats rather than on B nut. (See figure 201 for effectivity.) Refer to 35-2-151, Thermal Compensators Maintenance Practices.
- E. Position unit and loosely install mounting screws.
- F. Restore line connections and tighten screws.
- G. Slowly open personnel accommodations cylinder shutoff valve.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- H. Check for leaks using leak-test compound.
- I. When installing electropneumatic unit
 - (1) Connect electrical connector to unit.
 - (2) Close "PASS OXY VALVES & LTS" circuit breaker on radio and cb panel P5.
 - (3) Using lanyard where necessary secure manual actuation lever at about 15° from horizontal.
- J. Test system operation. (See Adjustment/Test - Personnel Accommodations Oxygen System.)

NOTE: If pneumatic continuous flow control unit only has been removed, test of system operation with electrical actuation may be omitted.

NOTE: During test of system operation with automatic actuation, the masks may be prevented from falling by loosely fastening each service unit door to prevent full opening.

MAINTENANCE MANUAL

SERVICE UNIT PRESSURE LATCH - REMOVAL/INSTALLATION

EFFECTIVITY

Passenger/Cargo Convertible Airplanes

1. General

- A. The pressure latch removal/installation procedure is identical to the passenger oxygen system pressure latch removal/installation procedure except that the personnel accommodations oxygen cylinder valve must be closed prior to removal and opened after installation instead of passenger oxygen cylinder valve (Ref Pressure Latch - Maintenance Practices under Passenger Oxygen System).

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SERVICE UNIT SHUTOFF VALVE - REMOVAL/INSTALLATION

EFFECTIVITY

Passenger/Cargo Convertible Airplanes

1. General

- A. The shutoff valve removal/installation procedure is identical to the passenger oxygen system shutoff valve removal/installation procedure except that the personnel accommodations oxygen cylinder valve must be closed prior to removal and opened after installation instead of passenger oxygen cylinder valve (Ref Shutoff Valve - Maintenance Practices under Passenger Oxygen System).

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PRESSURE LATCH-VALVE-MANIFOLD ASSEMBLY - REMOVAL/INSTALLATION

EFFECTIVITY

TCA	LX-N20198
	LX-N20199
RTCA	LX-N19997
	LX-N20000

1. General

- A. The pressure latch-valve-manifold assembly removal/installation procedure is identical to the passenger oxygen system pressure latch-valve-manifold assembly removal/installation procedure except that the personnel accommodations oxygen cylinder valve must be closed prior to removal and opened after installation instead of passenger oxygen cylinder valve (Ref Pressure Latch-Valve-Manifold Assembly - Maintenance Practices under Passenger Oxygen System).

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PERSONNEL ACCOMMODATIONS OXYGEN CYLINDER ASSEMBLIES - REMOVAL/INSTALLATION

EFFECTIVITY

Passenger/Cargo Convertible Airplanes

1. General

- A The oxygen cylinder is located on the right side of the forward cargo compartment. Access to the cylinder is through the oxygen equipment shroud door

2. Equipment and Materials

- A. Oxygen Leak Detection Compound, Specification MIL-L-25567

3. Remove Cylinder Assembly (See figure 401.)

- A Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B In the forward cargo compartment, open oxygen equipment shroud door and secure it in the open position.
- C Close all oxygen cylinder shutoff valves hand tight.
- D Disconnect overboard discharge line coupling nut from cylinder.
- E Slowly loosen high pressure line coupling nut at cylinder to bleed system pressure, then disconnect.

WARNING RESIDUAL PRESSURE MAY EXIST IN LINES AND ESCAPE WITH SOME FORCE

CAUTION DISCONNECT HIGH PRESSURE LINE CYLINDER COUPLING NUT, NOT B NUT AT FLARELESS TUBE CONNECTION.

- F. Release clamps and remove cylinder assembly.
- G Install protective caps at cylinder ports and open lines to prevent contamination of system.



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4. Install Cylinder Assembly (See figure 401.)

- A. Prior to performing maintenance, review oxygen system safety precautions and general maintenance instructions outlined in 35-0, Maintenance Practices.
- B. Ensure that hydrostatic test date on replacement oxygen cylinder has not expired and that cylinder is in good condition.
- C. Remove protective cap from airplane line. Examine to ensure that fittings (threads) are clean and free of contaminants, thread chips, etc.
- D. Remove any lockwire or cotter pin which may be used to secure cap on fully charged oxygen cylinder. Slowly unscrew cap from cylinder and allow any trapped gas to bleed off before final disengagement of threads

WARNING FULL CYLINDER PRESSURE MAY EXIST INSIDE PRESSURE TYPE CAP. CAP MAY BE BLOWN OFF WITH SOME FORCE IF UNSCREWED TOO RAPIDLY TO ALLOW FOR VENTING OF TRAPPED GAS.

NOTE: Pressure type caps are used on oxygen cylinders having metal seats in the shutoff valves and are usually retained to cylinder with a short length of chain. Do not detach chain after removal of cap.

- E. Place cylinder assembly in mounting position.

NOTE: Ensure that cylinder ports align with airplane line connections. If they do not align, adjust lower cylinder support up or down as necessary to permit proper alignment.

- F. Connect high pressure oxygen line and overboard discharge line to cylinder ports. Ensure tight connections.

WARNING: NO OIL, LUBRICANT OR GASKETS SHALL BE USED IN MAKING THESE CONNECTIONS.

- G. Connect cylinder quick release clamps
- H. Slowly open oxygen cylinder valves individually to full open.

WARNING: VALVES MUST BE OPENED SLOWLY OR EXCESSIVE TEMPERATURES MAY RESULT.

- I. Check that no leakage exists at cylinder connections using leak detection compound. Leak detection compound shall be wiped off with a clean cloth immediately after testing.
- J. Check that system pressure is within required range.
- K. If installed cylinder has a pressure type cap retained by a length of chain, secure cap from excess movement with lockwire.
- L. Close oxygen equipment shroud door.

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