

## HIGH PRESSURE OXYGEN LINE AND OUTLET VALVE ASSEMBLIES - MAINTENANCE PRACTICES

### 1. General

- A. The high-pressure oxygen line assembly consists of the tubing and fittings connecting the oxygen filler valve to the cylinder-regulator and the capillary line to the pressure gage.
- B. The capillary line is routed from the back of the gage, then overhead through holes in the bulkheads to the oxygen cylinder regulator. The line is supported by grommets and ties at the various bulkheads.
- C. Overhead, outboard of each passenger station and centered between the pilot/copilot stations, are individual oxygen outlet valves. The valves are adjacent to the passenger lighting/ventilation ports and adjacent to the pilot/copilot floodlights.

### 2. High-Pressure Line Assembly Leak Check

- A. Service High-Pressure Line Assembly
  - (1) Charge the oxygen system in accordance with Chapter 12.
  - (2) Allow 30 minutes for cylinder pressure to stabilize between 1800 and 1850 PSIG, indicated on pressure gage.
  - (3) Record the cylinder pressure and ambient temperature.
  - (4) After 24 hours, record cylinder pressure and ambient temperature. Maximum allowable pressure drop is 50 PSIG (correcting for temperature change, using formula of  $618F \div 53.4$  PSIG).
    - NOTE:** A shorter interval than 24 hours may be used. In this case, multiply the pressure change (which has been corrected for any temperature change) by 24/H where H is the number of hours between pressure readings. This gives how much the pressure drop would be in 24 hours.
  - (5) If the pressure drop derived from the formula in the preceding step exceeds 50 PSIG, test the oxygen system for leakage by applying leak detector fluid Type CG-1 or equivalent to all fittings and connections, and observe for formation of bubbles.
  - (6) Remove all traces of solution. Repair or replace leaky fitting and repeat the preceding procedures.

### 3. High-Pressure Line Assembly Removal/Installation

**WARNING:** Do not permit smoking or open flame near airplane while maintenance is being performed on the oxygen system. Ensure all electrical power is disconnected and that airplane is properly grounded. In addition, oils, grease, and solvents may burn or explode spontaneously when contacted by oxygen under pressure.

**WARNING:** Disconnect the high-pressure line from the regulator adapter before attempting any maintenance procedure on the high-pressure side of the system (indicating or filler valve). Refer to Chapter 35, Oxygen System - Maintenance Practices Figure 201 item 9.

**WARNING:** Do not disconnect the safety wired adapter on the regulator.

**NOTE:** Use extreme care to ensure every port on system is kept thoroughly clean and free of water, oil, grease, and solvent contamination.

**NOTE:** Cap all openings immediately upon removal of any component. Do not use tape or caps which will induce moisture.

**NOTE:** Lines and fittings shall be clean and dry. One of the following methods may be used to clean lines.

- A. Remove High-Pressure Line Assembly (Refer to Figure 201).
  - (1) Ensure that oxygen control is in the OFF position.
  - (2) Remove aft baggage partition.
  - (3) Remove high-pressure line (9) from regulator adapter and tee (9A).
- B. Install High-Pressure Line Assembly (Refer to Figure 201).
  - (1) Attach line assembly (9) to tee (9A) and regulator adapter (8).
  - (2) Recharge system. Refer to Chapter 12, Oxygen System - Servicing.
  - (3) Test system for leaks. Refer to High Pressure Line Assembly Leak Check, in this section.

### 4. Capillary Line Removal/Installation

**WARNING:** Do not permit smoking or open flame near airplane while maintenance is being performed on the oxygen system. Ensure all electrical power is disconnected and that airplane is properly grounded. In

**addition, oils, grease, and solvents may burn or explode spontaneously when contacted by oxygen under pressure.**

**WARNING: Disconnect the high-pressure line from the regulator adapter before attempting any maintenance procedure on the high-pressure side of the system (indicating or filler valve). Refer to Chapter 35, Oxygen System - Maintenance Practices Figure 201 item 9.**

**WARNING: Do not disconnect the safety wired adapter on the regulator.**

**NOTE: Use extreme care to ensure every port on system is kept thoroughly clean and free of water, oil, grease, and solvent contamination.**

**NOTE: Cap all openings immediately upon removal of any component. Do not use tape or caps which will induce moisture.**

**NOTE: Lines and fittings shall be clean and dry. One of the following methods may be used to clean lines.**

- A. Remove Capillary Line (Refer to Figure 201).
  - (1) Remove overhead panels as necessary to expose capillary line.
  - (2) Clip ties supporting capillary line.
  - (3) Disconnect capillary line from tee (9A).
  - (4) Disconnect capillary line from oxygen gage (11).
  - (5) Remove and cap capillary line.
- B. Install Capillary Line (Refer to Figure 201).
  - (1) Beginning at oxygen cylinder, route capped capillary line through holes in bulkheads overhead forward to gage position on overhead console panel.
  - (2) Attach capillary line to gage (11).
  - (3) Perform leak check. Refer to High-Pressure Line Assembly Leak Check.
  - (4) Secure capillary line with ties and grommets as required.
  - (5) Replace overhead panels as necessary.

## 5. Inspection of High-Pressure Oxygen Lines

- A. Visually inspect lines and fittings for cracks, nicks, corrosion, kinks, dents, rust, or visible damage. Presence of any of these will require replacement of affected area.

**NOTE: Disassembly and reassembly of high-pressure lines should only be attempted by personnel familiar with high-pressure gases.**

## 6. Passenger Outlet Valve Assembly Removal/Installation

- A. Remove Passenger Outlet Valve Assembly (Refer to Figure 202).
  - (1) Remove Wemac valve (31) by turning counterclockwise.
  - (2) Remove light (34) by turning counterclockwise, then remove screws and washers securing electrical leads to light.
  - (3) Remove dress ring (29) from switch (23).
  - (4) Remove decorative nut (30) from outlet valve (21) and remove cover (28).
  - (5) Open headliner as necessary to gain access to outlet valve (21).
  - (6) Ensure oxygen control is in the OFF position then disconnect line (22) from outlet valve (21), cap line (22) and outlet valve (21).
  - (7) Remove nut (35) and washer (36) then remove outlet valve (21).
- B. Install Passenger Outlet Valve Assembly (Refer to Figure 202).
  - (1) Position outlet valve (21) through bracket (25) and install washer (36) and nut (35).
  - (2) Remove cap from outlet valve (21) and line (22) and connect line (22) to outlet valve (21). Leak check connection.
  - (3) Close headliner.
  - (4) Position cover (28) and install dress ring (29) on switch (23).
  - (5) Install decorative nut (30) on outlet valve (21).
  - (6) Screw Wemac valve (31) into bracket (25).

- (7) Connect electrical leads to light (34).
- (8) Rotate light assembly approximately eight turns counterclockwise, then position in bracket (25) and screw in clockwise. Electrical leads should not be twisted after installation.

## 7. Crew Outlet Valve Assembly Removal/Installation

- A. Remove Crew Outlet Valve Assembly (Refer to Figure 201 ).
  - (1) Remove overhead console.
  - (2) Remove jamnuts (5) holding valve assembly (7) to oxygen valve flange (6).
  - (3) Loosen line assembly (9) from tee (9A) and cap line.
  - (4) Remove valve (7) out of oxygen valve flange (6) and remove escutcheon (6A).
- B. Install Crew Outlet Valve Assembly (Refer to Figure 201).
  - (1) Install escutcheon (6A) and insert valve (7) into hole in oxygen valve flange (6) and install jamnuts (5) loosely.
  - (2) Attach line assembly (9) to tee (9A) and attach tee (9A) to flared end of adapter (8).
 

**NOTE: No Teflon tape or sealant compound is to be used on flared connectors.**
  - (3) Test fittings for leaks.
  - (4) Reinstall overhead console after adjusting jamnut to ensure flush mounting of decorative ring (1).

## 8. Oxygen Outlet Valves Inspection/Test

- A. Inspect Oxygen Outlet Valves.
  - (1) Ensure that oxygen system is fully charged.
  - (2) Insert an oxygen outlet adapter connected to a pressure gage into the oxygen outlet valve.
  - (3) Test retainer assembly adapter junction for leaks with fluid leak detector. No bubbles are permitted.
  - (4) After completion of leak tests, fully charge the oxygen system.

## 9. Functional Test Oxygen System

**NOTE: Whenever the oxygen system regulator (cylinder- regulator assembly) has been replaced or overhauled, perform a flow test to determine that system functions properly.**

- A. Functional Test Uncompensated Oxygen System.
  - (1) Fully charge oxygen system. Refer to Chapter 12, Oxygen System - Servicing.
  - (2) Install an oxygen outlet adapter, Part Number C166005-0506, into a pressure gage calibrated in one-pound increments from 0 to 100 PSIG. Insert adapter into pilot's oxygen outlet.
  - (3) Place oxygen control in the ON position and verify pressure is 70 PSIG, +10 or -10 PSIG.
    - (a) If pressure is not 70 PSIG, +10 or -10 PSIG, replace cylinder and regulator assembly. Repeat steps 9.A.(1) thru (3).
  - (4) Recharge oxygen system as required. Refer to Chapter 12, Oxygen System - Servicing.
- B. Functional Test Compensated Oxygen System.
  - (1) Fully charge oxygen system. Refer to Chapter 12, Oxygen System - Servicing.
  - (2) Install an oxygen outlet adapter, Part Number C166005-0506, into a pressure gage, calibrated in one-pound increments from 0 to 100 PSIG. Insert adapter into pilot's oxygen outlet.
  - (3) Place oxygen control in the ON position.
  - (4) Insert adapters or mask line assemblies into all remaining outlets.
    - (a) With oxygen flowing from all outlets, verify pressure conforms to Table 201.
    - (b) If pressure at given altitude is different than shown per Table 201 check oxygen pressure at altitude compensating regulator inlet and verify pressure is 70 PSIG, +10 or -10 PSIG.
    - (c) If pressure cannot be obtained per Table 201, and pressure is 70 PSIG, +10 or -10 PSIG at line to inlet port of compensating regulator, replace compensating regulator.
    - (d) If 70 PSIG, +10 or -10 PSIG cannot be obtained at compensating regulator, replace cylinder regulator and repeat steps 9.B.(1) thru (4).
  - (5) Position control to OFF and return all masks to mask storage.

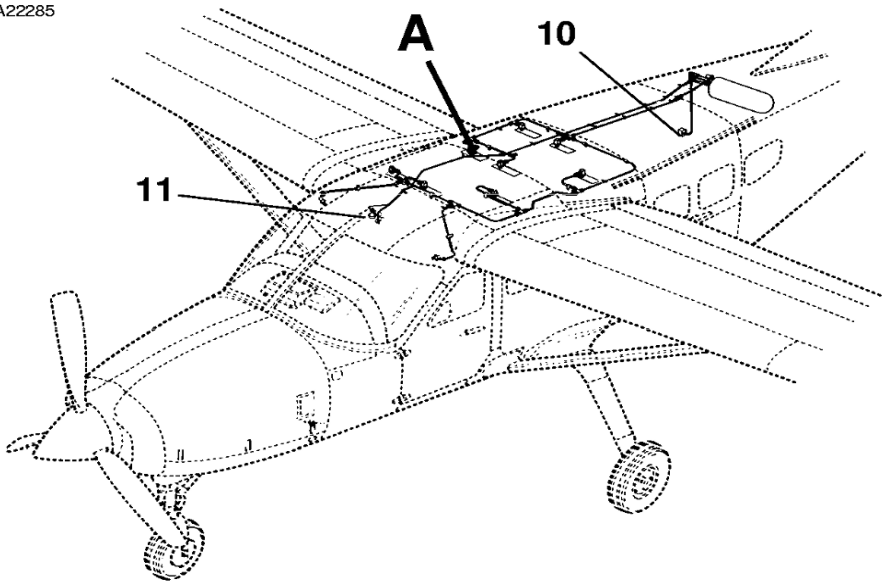
- (6) Recharge oxygen system as required. Refer to Chapter 12, Oxygen System - Servicing.

**Table 201. Altitude Pressure**

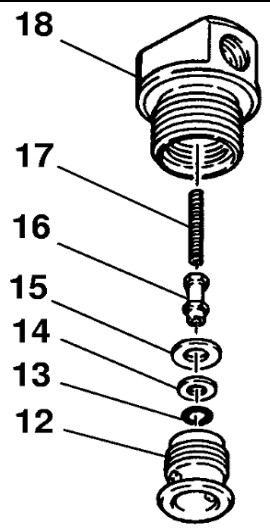
<b>ALTITUDE ABOVE SEA LEVEL</b>	<b>PRESSURE GAGE</b>
Sea Level	7.30 PSIG, +2.50 or -1.50 PSIG
1000	7.83 PSIG, +2.50 or -2.50 PSIG
1330	8.00 PSIG, +2.50 or -2.50 PSIG
2000	8.34 PSIG, +2.50 or -2.50 PSIG
3000	8.83 PSIG, +2.50 or -2.50 PSIG
4000	9.31 PSIG, +2.50 or -2.50 PSIG
5000	9.77 PSIG, +2.50 or -2.50 PSIG
6000	10.22 PSIG, +2.50 or -2.50 PSIG
8000	11.08 PSIG, +2.50 or -2.50 PSIG
10000	11.89 PSIG, +2.50 or -2.50 PSIG
14000	17.57 PSIG, +2.50 or -2.50 PSIG
17000	21.55 PSIG, +2.50 or -2.50 PSIG
20000	24.45 PSIG, +2.50 or -2.50 PSIG

Figure 201 : Sheet 1 : 208/208B Outlet Valve Installation

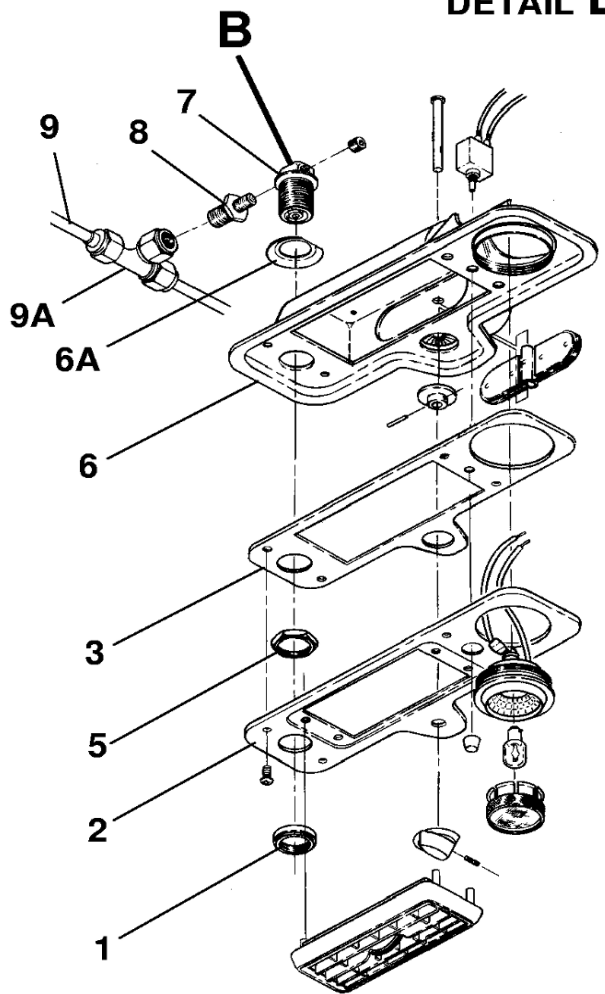
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TEN-PORT SYSTEM  
 AIRPLANES 20800001 THRU  
 20800092



DETAIL B



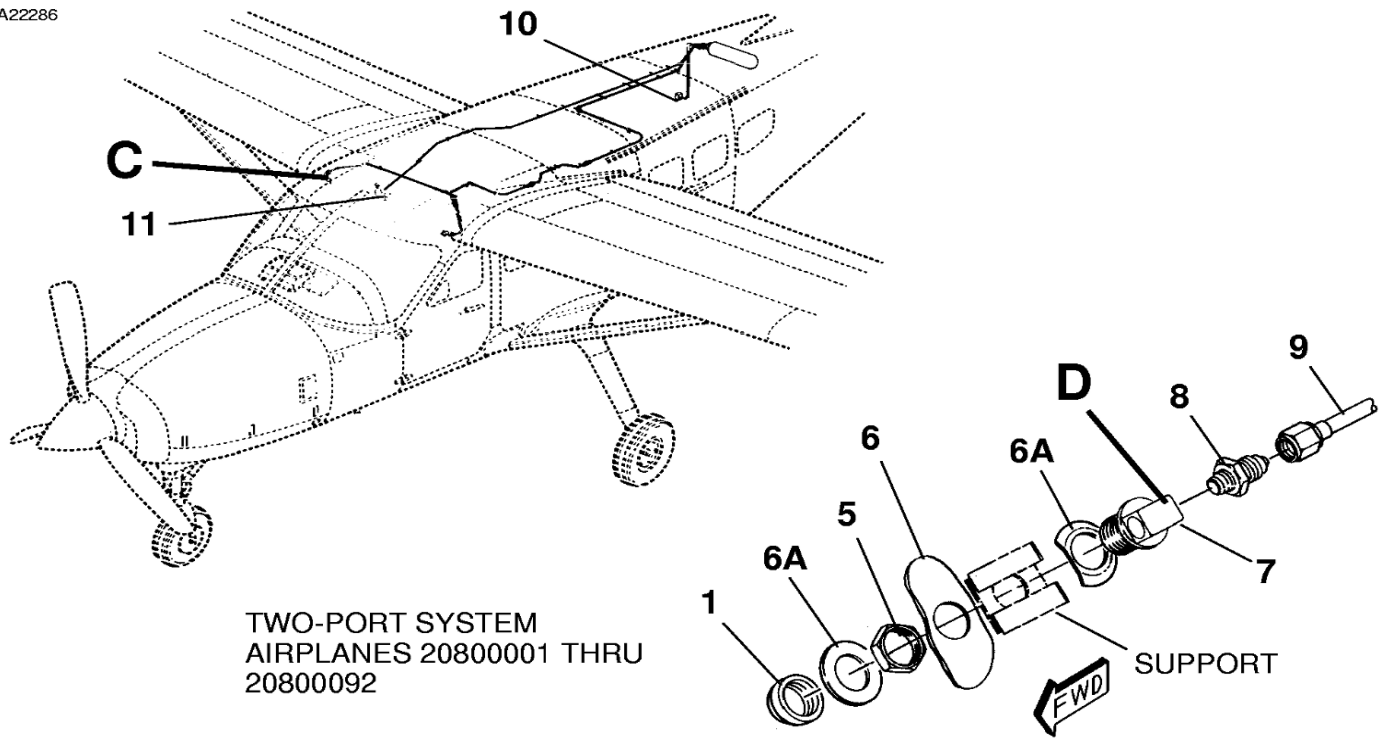
DETAIL A

26141046  
 A26143010  
 B2614X1212

- 1. DECORATIVE RING
- 2. COVER
- 3. COVER ASSEMBLY
- 4. JAMNUTS
- 5. OXYGEN VALVE FLANGE
- 6. ESCUTCHEON
- 7. VALVE
- 8. ADAPTER
- 9. LINE ASSEMBLY
- 9A. TEE
- 10. FILLER VALVE
- 11. OXYGEN GAGE
- 12. RETAINER ASSEMBLY
- 13. O-RING
- 14. WASHER
- 15. SEAT
- 16. POPPET
- 17. SPRING
- 18. BODY
- 19. DRAIN LINE
- 20. GROMMET

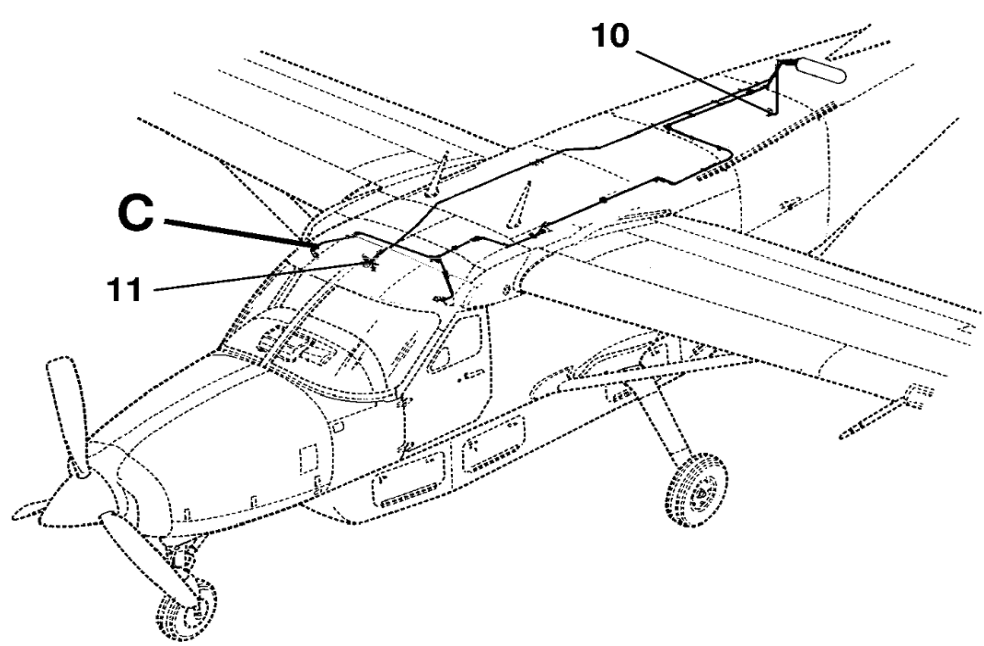
Figure 201 : Sheet 2 : 208/208B Outlet Valve Installation

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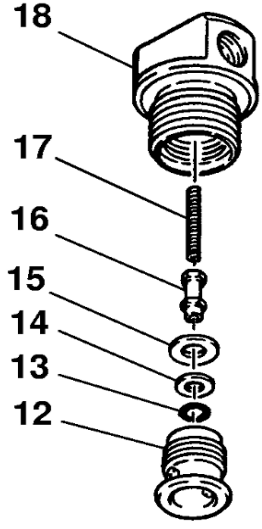


TWO-PORT SYSTEM  
 AIRPLANES 20800001 THRU  
 20800092

DETAIL C



TWO-PORT SYSTEM  
 MODEL 208B



DETAIL D

2614X1213  
 2614X1214  
 A26141042  
 B2614X1212

Figure 201 : Sheet 3 : 208/208B Outlet Valve Installation

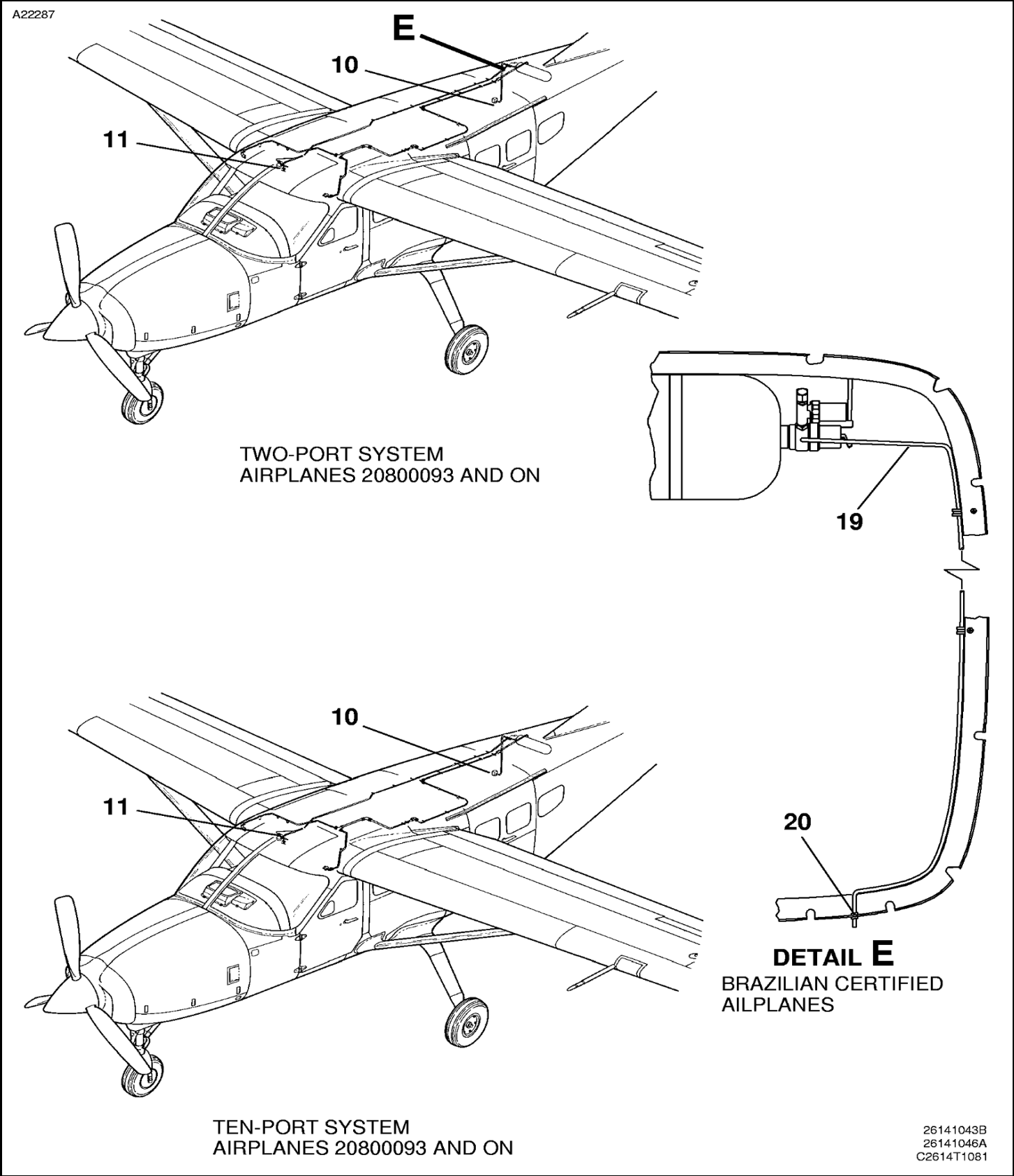
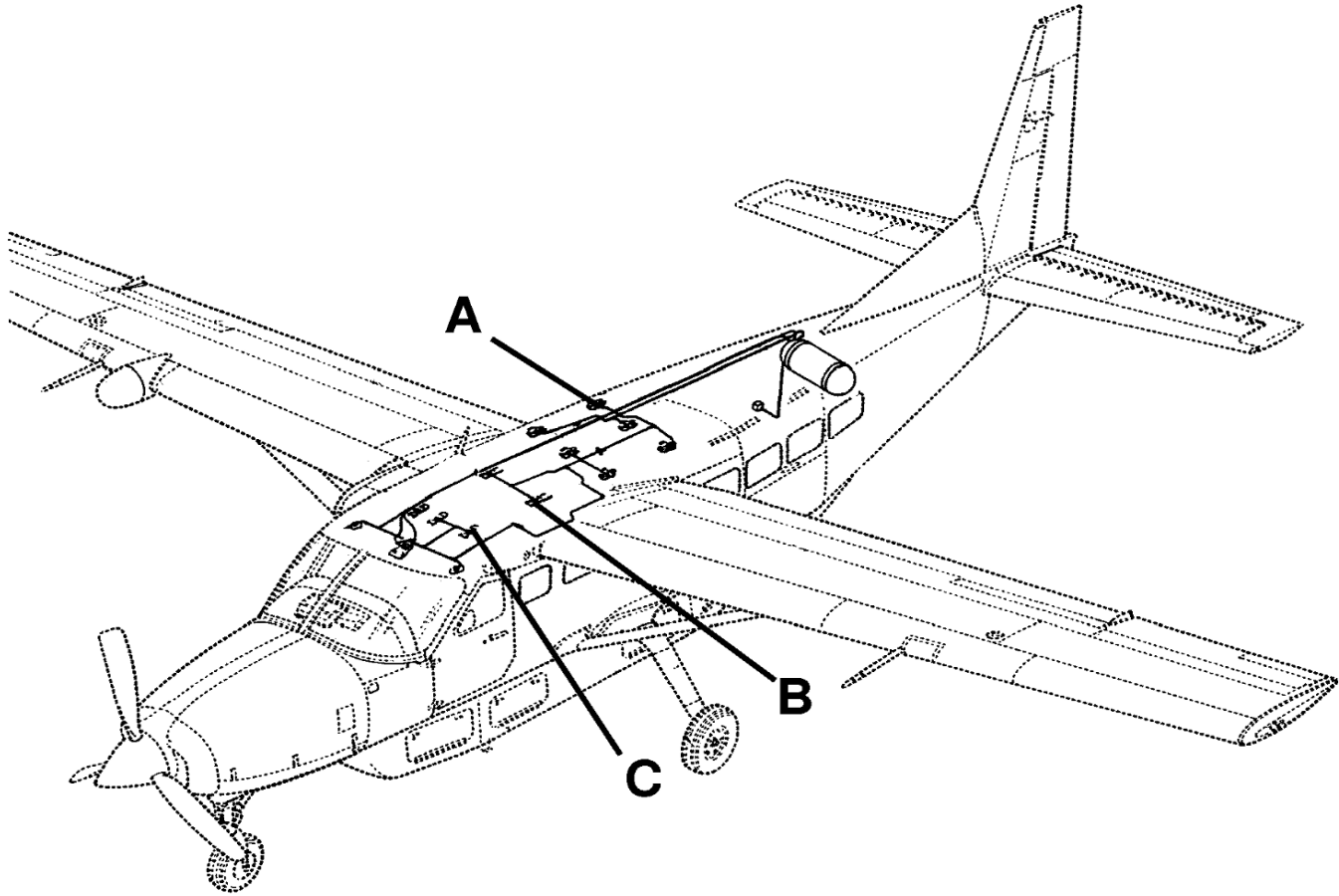


Figure 202 : Sheet 1 : 208B Passenger Outlet Valve Installation

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2614X1215



Figure 202 : Sheet 2 : 208B Passenger Outlet Valve Installation

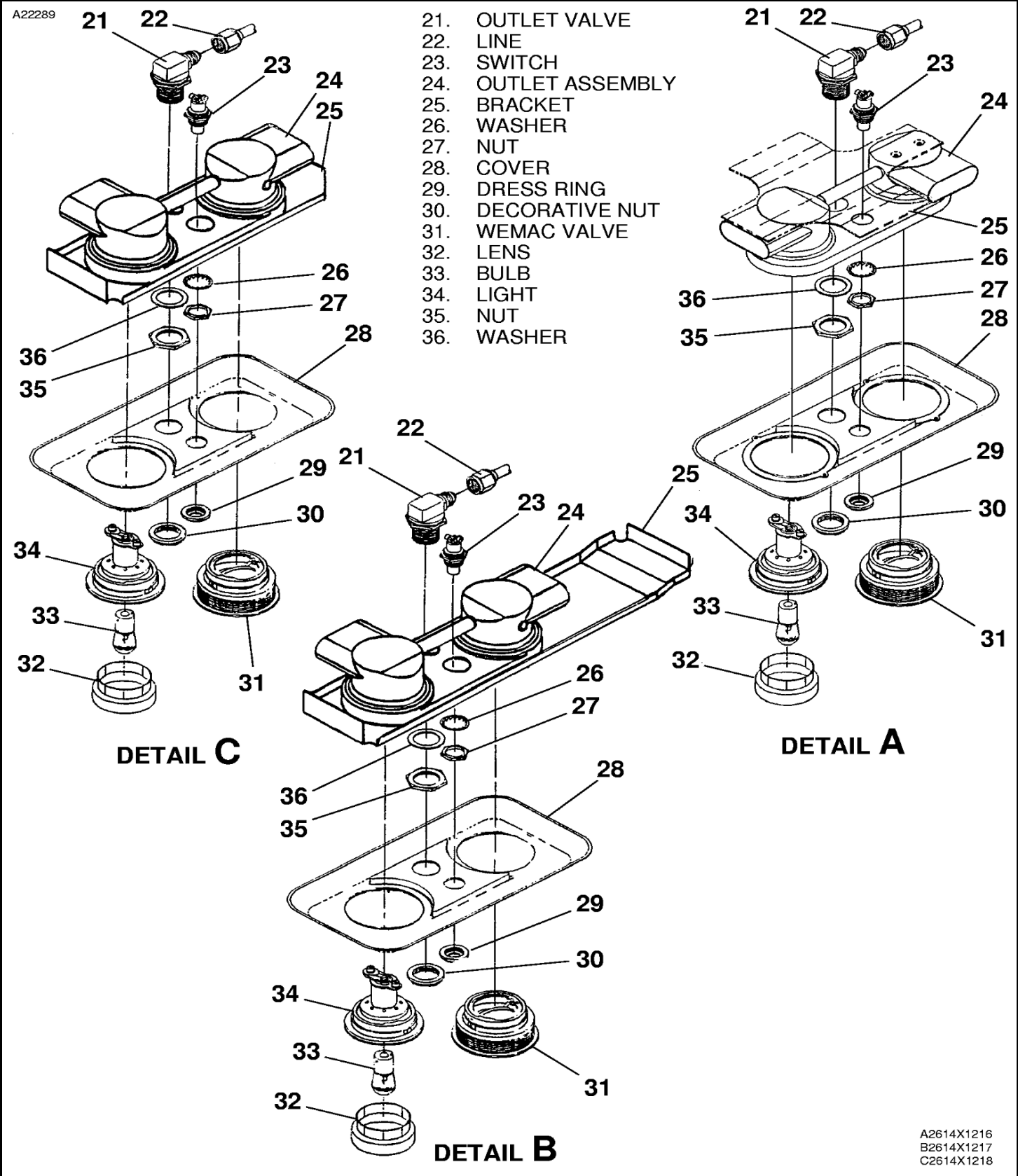


Figure 201 : Sheet 1 : Two-Port Oxygen Bottle and Regulator Installation

