

PITOT/STATIC SYSTEM - MAINTENANCE PRACTICES

1. General

- A. Correct maintenance of the pitot-static system is essential for correct operation of the altimeter, vertical speed indicator, and airspeed indicator. Leaks, moisture, and obstructions in the pitot system will result in false airspeed indications. Static system malfunctions will affect indications of all three instruments. Cleanliness and correct installation are the principal rules for maintenance of the pitot-static system. The pitot tube and static port **MUST** be kept clean and clear of obstructions. When you replace pitot-static system components, use the minimum amount of antiseize compound on the male threads of both metal and plastic connections. Always avoid excess compound which might be able to enter the pitot-static system lines. Tighten connections firmly, but be very careful not to over tighten and distort fittings.

CAUTION: Except for the use of the system drains and alternate static source pressure valves, make sure to do a leak test after the static pressure system is opened or closed. Refer to Pitot System Inspection and Leak Test.

CAUTION: If an autopilot or integrated flight control system is installed, make sure that any portion of these systems that are interconnected with the static system are disconnected before you purge the static system.

2. Pitot System Purging

NOTE: Moisture may collect at various points in the pitot system and can produce a partial obstruction.

- A. Purge the Pitot System (Refer to Figure 201).

- (1) Identify and disconnect the pitot line from the pressure switch.

CAUTION: Never blow through the pitot or static lines toward the instruments or pressure switch.

- (2) Loosen the clamp and disconnect the pressure switch line from the true airspeed indicator, and put a cap on the airspeed indicator.
- (3) Use clean, dry, low-pressure air, and blow out the pitot system from the pressure switch end of pitot line toward the pitot assembly.
- (4) Connect the pitot line to the pressure switch.
- (5) Connect the pressure switch line to the true airspeed indicator and tighten the clamp.
- (6) Do the leak test. Refer to Pitot System Inspection and Leakage Test.

3. Static System Purging

NOTE: Static pressure lines must also be kept clear and connections tight. A drain valve is used to drain moisture from the system. The static source drain valve is found at the low point in the system, which is at the lower left corner of the instrument panel, directly below the alternate static source valve. If the hoses are not correctly installed, moisture can also collect at other points in the system and cause a partial obstruction.

- A. Purge the Static System.

- (1) Loosen the lower clamp and disconnect the alternate static source line at the lower tee fitting forward of the true airspeed indicator and vertical speed indicator.
- (2) Put a cap on the tee fitting.
- (3) Make sure the alternate static source valve is closed.

NOTE: The vent hole in the main body of the alternative static source valve must be clear and free from any blockages.

- (4) Disconnect the static source line from the tee fitting found above the static source drain valve.
- (a) Put a cap on the top of the tee fitting.
- (5) Disconnect the static line at the pressure switch.
- (6) Close the static source drain valve.

CAUTION: Never blow through the pitot or static lines toward the instruments or pressure switch.

- (7) Use clean, dry, low pressure air, and blow out the static lines from the indicator end of the alternate static source line toward the static source drain valve.
- (8) Put a cap on the pressure switch end of the static line.

- (9) Open the static source drain valve and blow clean, dry, low pressure air from the indicator end of the alternate static source line toward the static source drain valve.
- (10) Remove the cap from the lower tee fitting.
- (11) Connect the alternate static source line to the lower tee fitting and tighten the lower clamp.
- (12) Connect the static line to the pressure switch.
- (13) Use clean, dry, low pressure air, and blow from the static source drain valve end of static source line toward the static port in the pitot assembly.
- (14) Connect the static source line to the tee fitting found above the static source drain valve.

4. Pitot Assembly Removal/Installation

- A. Remove the Pitot Assembly (Refer to Figure 201).

WARNING: Before you try to do a removal or installation of the pitot assembly, make sure the airplane battery switch is in the OFF position.

- (1) Remove the screws that attach the access plate (503BB left, 603BB right) and remove from the lower surface of the wing.
 - (a) Identify and disconnect the pitot line and static source line found in the leading edge.
- (2) Remove the four screws and washers that attach the pitot assembly to the pitot tube assembly.
- (3) Pull the pitot assembly forward, identify and disconnect the components that follow:
 - (a) Pitot heat electrical connector
 - (b) Pitot line
 - (c) Static line.

- B. Install the Pitot Assembly (Refer to Figure 201).

- (1) Put the pitot assembly in position forward of the pitot tube assembly and connect the components that follow:
 - (a) Pitot heat electrical connector
 - (b) Pitot line
 - (c) Static line.
- (2) Put the pitot assembly in its position on the pitot tube assembly.
- (3) Install the four attach screws and washers that attach the pitot assembly to the pitot tube assembly.
- (4) Connect the pitot line and static source line found in leading edge of wing.
- (5) Do the operational test. Refer to Chapter 34, Pitot System Inspection and Leak Test.
- (6) Carefully, make sure that the pitot tube becomes warm when the PITOT-STATIC HEAT switch is in the ON position.
- (7) Put the access plate (503BB left, 603BB right) in its position on the lower surface of the wing and attach with the screws.

5. Pitot Drain Valve Removal/Installation

- A. Remove the Pitot Source Drain Valve (Refer to Figure 202).

- (1) On the left installation, remove the screws that attach the clamps to the drain valve bracket.
- (2) On the right installation, remove the screws that attach the clamps to the avionics shelf sidewall.
- (3) If necessary on the applicable installation remove the screws that attach pitot line clamps to the airplane structure.
- (4) Carefully move the drain valve assembly a sufficient distance from the drain valve bracket or avionics side panel as applicable, to access the clamps.
- (5) Pull the applicable drain valve assembly out of the clamps.
- (6) Hold the assembly fitting firmly to unscrew and remove the pitot drain valve.

- B. Install the Pitot Drain Valve (Refer to Figure 202).

- (1) Hold the fitting firmly and screw the pitot drain valve into the fitting.
- (2) Put the drain valve assembly in the clamps.
- (3) For the left installation:

- (a) Put the drain valve assembly in its correct position on the bracket.
- (b) Install the screws that attach the drain valve assembly to the bracket.
- (4) For the right installation:
 - (a) Carefully put the drain valve assembly in its correct position on the avionic shelf sidewall.
 - (b) Install the screws that attach the drain valve assembly to the avionic shelf sidewall.

6. Pitot Tube Assembly Removal/Installation

- A. Remove the Pitot Tube Assembly (Refer to Figure 201).
 - (1) Remove the pitot assembly. Refer to Pitot Assembly Removal/Installation.
 - (2) Carefully remove the sealant from the pitot tube mast.
 - (3) Remove the landing light lens attach screws and the landing light lens.
 - (4) Remove the pitot tube assembly attach screws and the pitot tube assembly.
 - (5) Remove the electrical line, pitot line, and static source line from the pitot tube assembly.
 - (6) Do an inspection to make sure the pitot tube assembly is serviceable.
- B. Install the Pitot Tube Assembly (Refer to Figure 201).
 - (1) Install the serviceable electrical line, pitot line, and static source line in the pitot tube assembly.

NOTE: A replacement pitot tube must be installed if the removed pitot tube is not serviceable.
 - (2) Install the pitot tube assembly into the leading edge of the wing with the pitot tube assembly attach screws.
 - (3) Install the landing light lens with the landing light lens attach screws.
 - (4) Apply Type II Class II sealant to the pitot tube mast. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.
 - (5) Install the pitot assembly. Refer to Pitot Assembly Removal/Installation.

7. Alternate Static Source Valve Assembly Removal/Installation

- A. Remove the Alternate Static Source Valve Assembly (Refer to Figure 203).
 - (1) Identify, disconnect, and put a cap on the alternate static source line from the alternate static source valve.
 - (2) Disconnect the static source drain valve line from the alternate static source valve.
 - (3) Remove the setscrew from the knob.
 - (4) Pull the knob and remove it from the alternate static source valve.
 - (5) Remove the screws and nuts that attach the alternate static source valve to the instrument panel.
 - (6) Remove the alternate static source valve from the instrument panel.
- B. Install the Alternate Static Source Valve Assembly (Refer to Figure 203).
 - (1) Install the alternate static source valve to the instrument panel with the screws and nuts.

NOTE: The vent hole in the main body of the alternative static source valve must be clear and free from any blockages.
 - (2) Connect the static source drain valve line to the alternate static source valve.
 - (3) Identify, remove the cap, and connect the alternate static source line to the alternate static source valve.
 - (4) Push the knob onto the alternate static source valve and install the setscrew.

8. Static Source Drain Valve Removal/Installation

- A. Remove the Static Source Drain Valve (Refer to Figure 203).
 - (1) Remove the two clamps from the tee fitting.
 - (a) Remove the screws that attach the clamps to the substrate forward wall panel for the left installation.
 - (b) Remove the screws and nuts that attach the clamps to the avionic shelf sidewall for the right installation.
 - (2) Pull the fitting out of the clamps.
 - (3) Hold the fitting firmly to unscrew and remove the static source drain valve.
- B. Install the Static Source Drain Valve (Refer to Figure 203).
 - (1) Hold the fitting firmly and screw the static source drain valve into the fitting.

- (2) Attach the fitting and the static source drain valve.
 - (a) Put the fitting in the clamps, with the static source drain valve installed, and attach it to the substrate forward wall panel with one screw for the left installation.
 - (b) Put the fitting in the clamps, with the static source drain valve installed, and attach it to the avionic shelf sidewall with one screw and nut for the right installation.

9. Overspeed Pressure Switch Removal/Installation

- A. Remove the Overspeed Pressure Switch (Refer to Figure 201).
 - (1) Disconnect the electrical connector.
 - (2) Identify, disconnect, and put a cap on the pitot line and the static line.
 - (3) Remove two nuts and washers that attach the pressure switch to mounting bracket.
 - (4) Remove the pressure switch.
- B. Install the Overspeed Pressure Switch (Refer to Figure 201).
 - (1) Put the pressure switch in the mounting bracket with the ports marked P and S correctly oriented, and install it with two washers and nuts.
 - (2) Identify the pitot line and static line, remove the caps, and connect the pitot line and static line to the ports marked P and S, respectively.
 - (3) Connect the electrical connector to the pressure switch.
 - (4) Do the operational test. Refer to Overspeed Pressure Switch Operational Test.

10. Airspeed Warning Horn Removal/Installation

- A. Remove the Airspeed Warning Horn (Refer to Figure 201).
 - (1) Remove four screws that attach the cover assembly to the trim assembly, found in the headliner above the pilot's seat.
 - (2) Remove the cover assembly.
 - (3) Remove the screw from the hinged mounted plate assembly.
 - (4) Pull the aft end of the hinged mounting plate assembly down through the trim assembly.
 - (5) Identify and disconnect the electrical connector.
 - (6) Remove two nuts, washers, and screws from the airspeed warning horn.
 - (7) Remove the airspeed warning horn.
- B. Install the Airspeed Warning Horn (Refer to Figure 201).
 - (1) Put the airspeed warning horn against the hinged mounting plate assembly.
 - (a) Install two screws, washers, and nuts to attach the airspeed warning horn to the hinged mounting plate assembly.
 - (2) Identify and connect the electrical connector.
 - (3) Push the hinged mounting plate assembly up through the trim assembly.
 - (4) Install the attach screw for the hinged mounting plate assembly.
 - (5) Put the cover assembly against the trim assembly and install the four attach screws.

Figure 201 : Sheet 1 : Pitot-Static System Installation

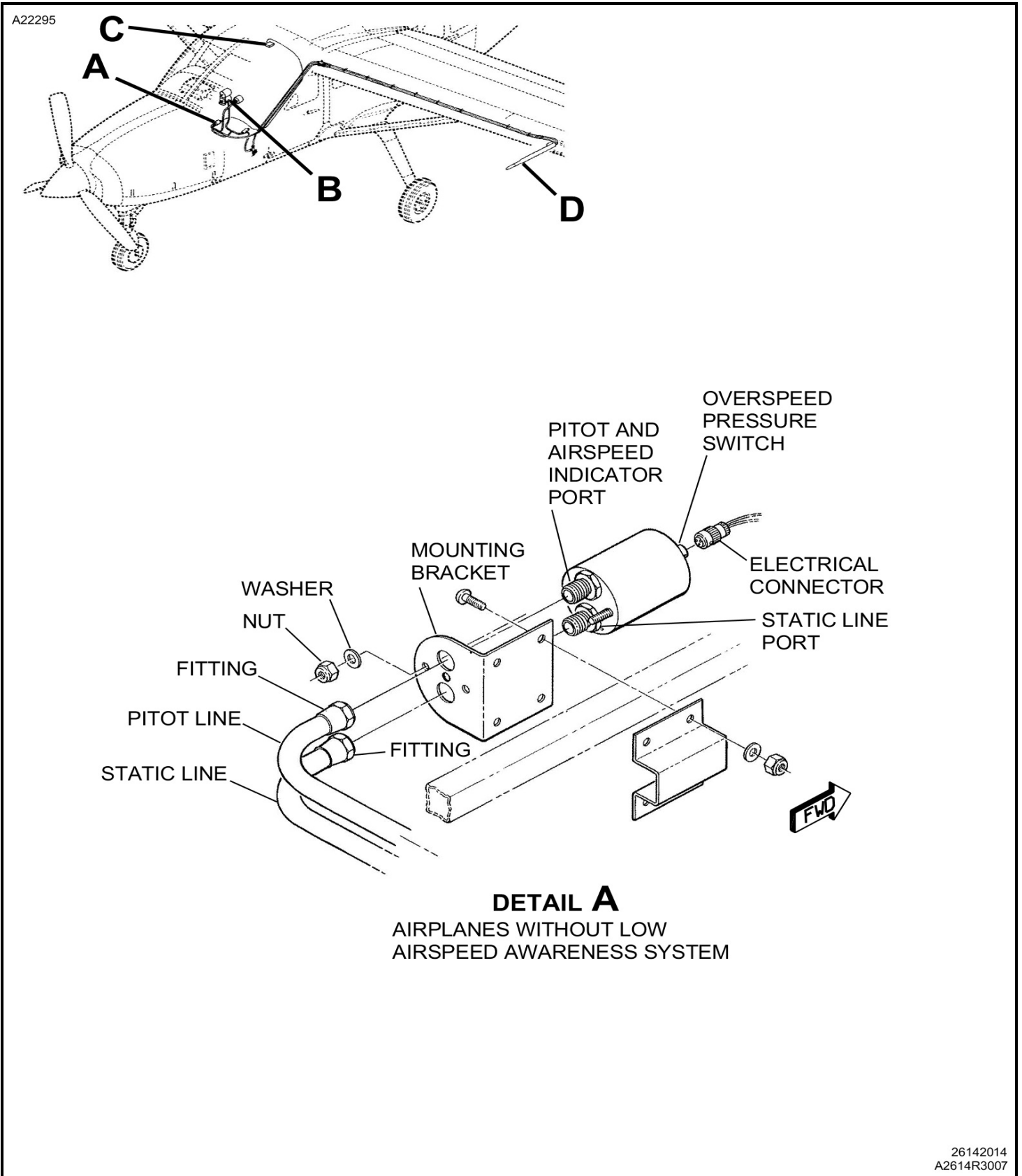
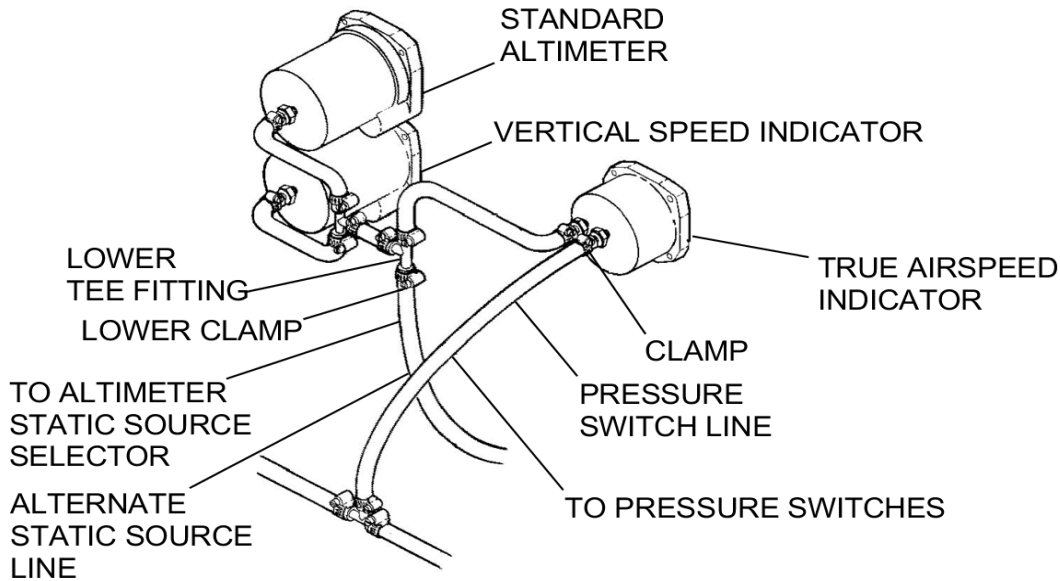


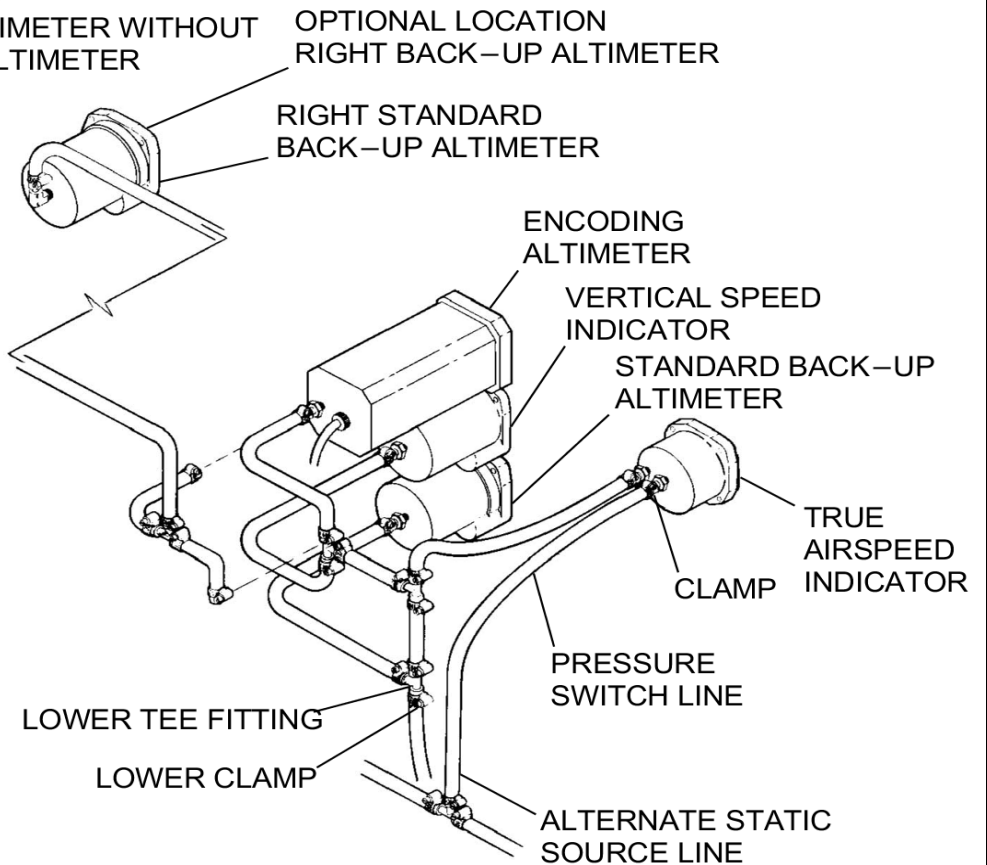
Figure 201 : Sheet 2 : Pitot-Static System Installation

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DETAIL B

USED WITH STANDARD ALTIMETER WITHOUT AN OPTIONAL ENCODING ALTIMETER



DETAIL B

USED WITH OPTIONAL ALTIMETER WITH BACK-UP STANDARD ALTIMETER

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 B2618R3006

Figure 201 : Sheet 3 : Pitot-Static System Installation

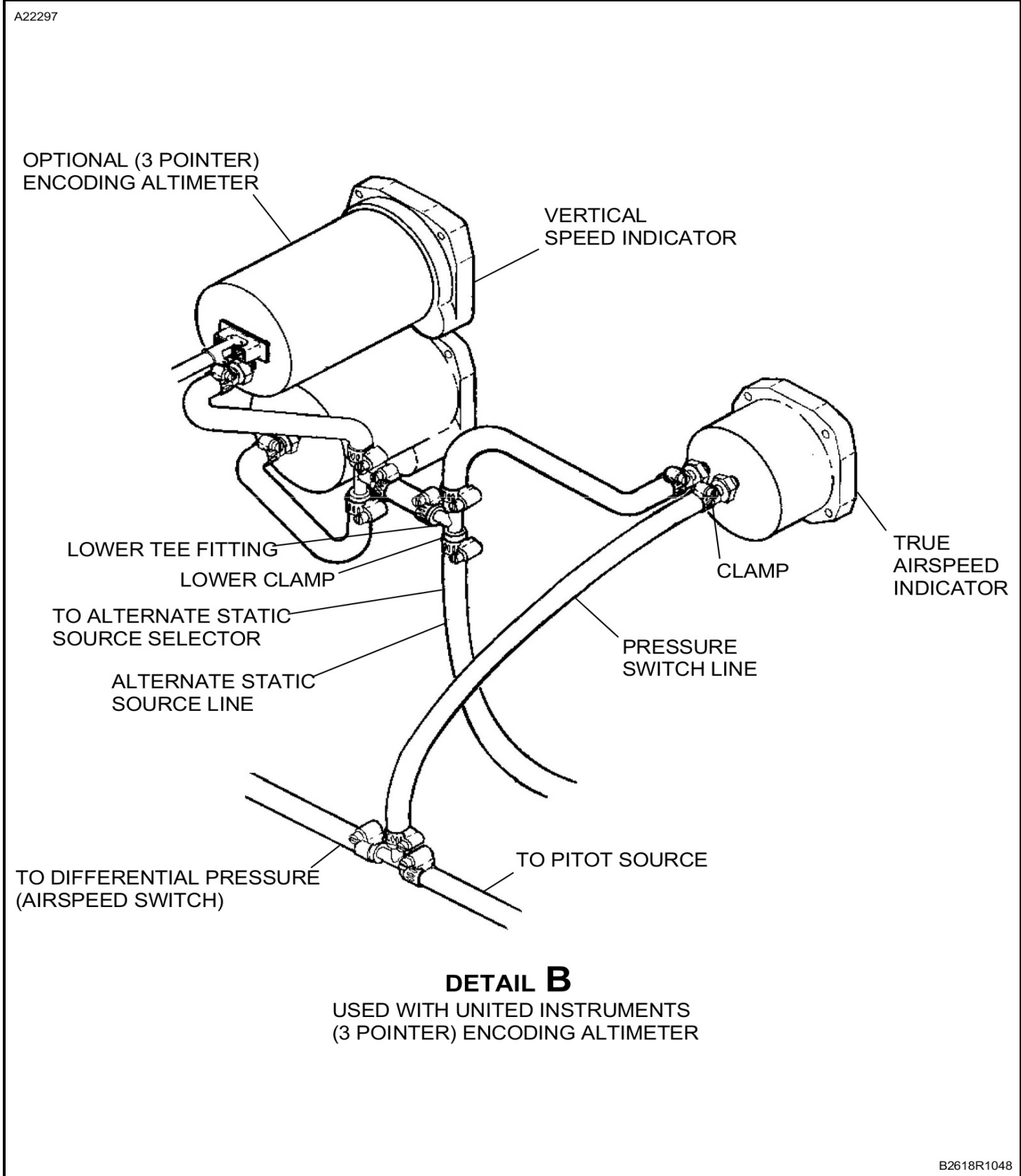


Figure 201 : Sheet 4 : Pitot-Static System Installation

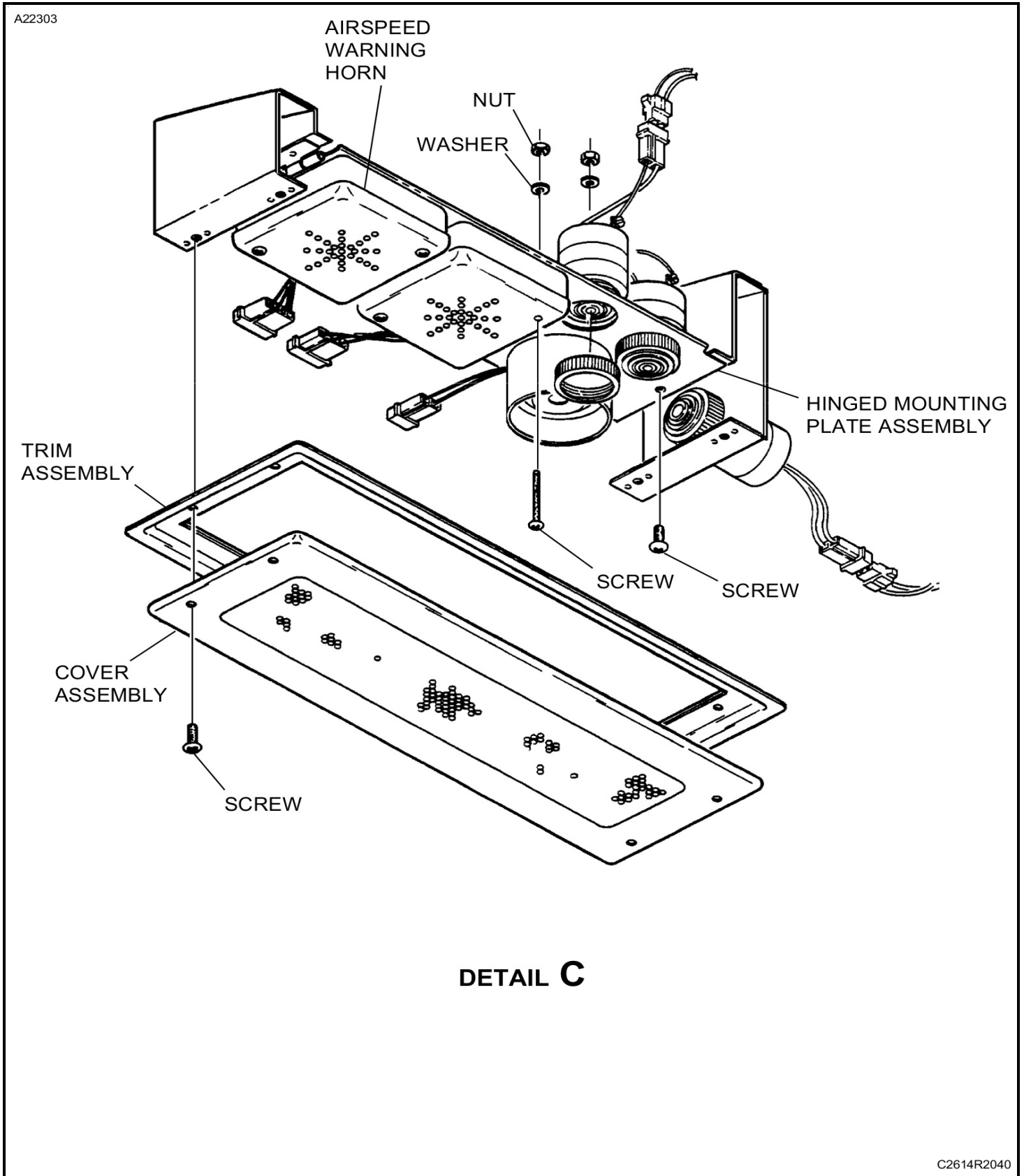
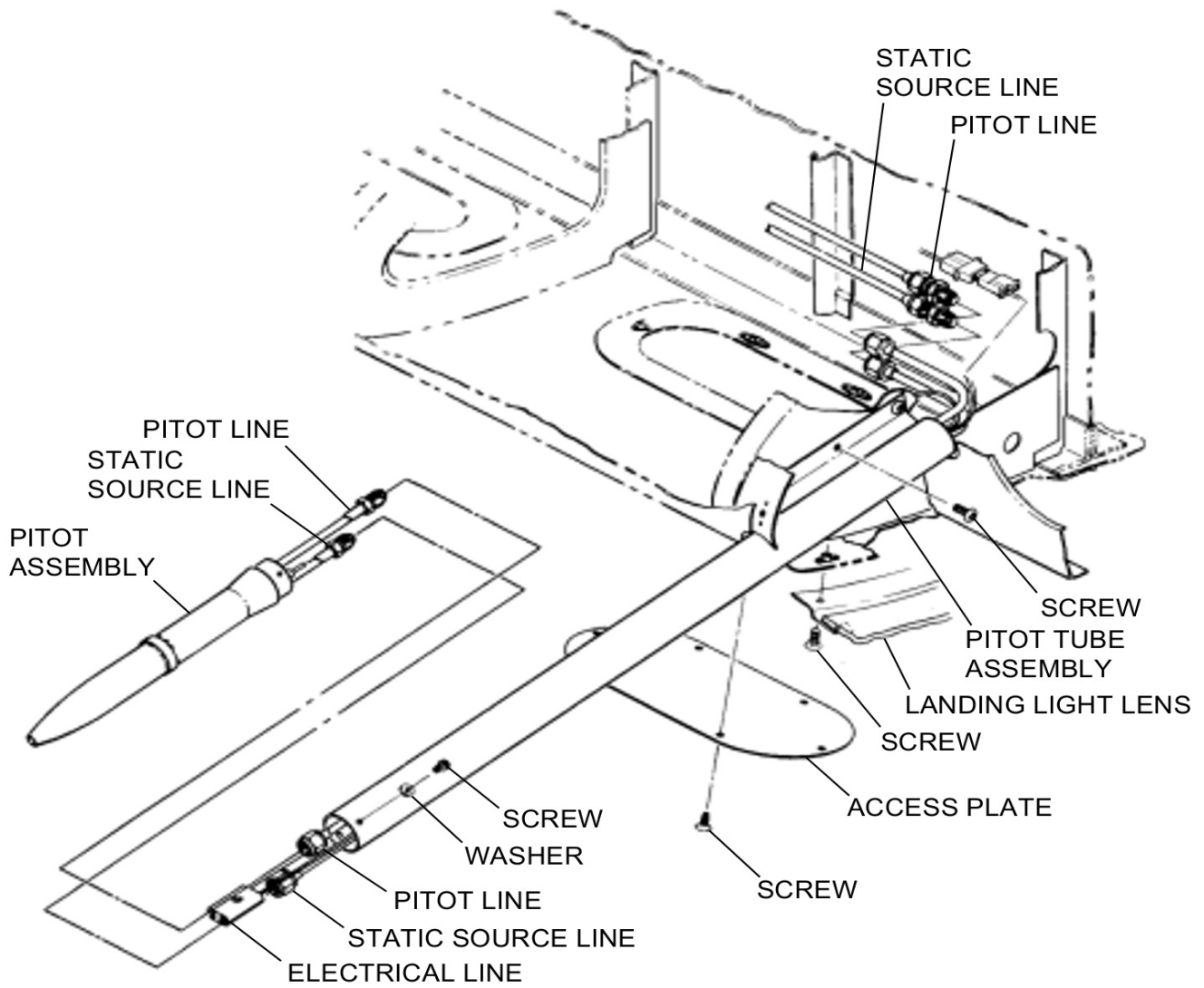


Figure 201 : Sheet 5 : Pitot-Static System Installation

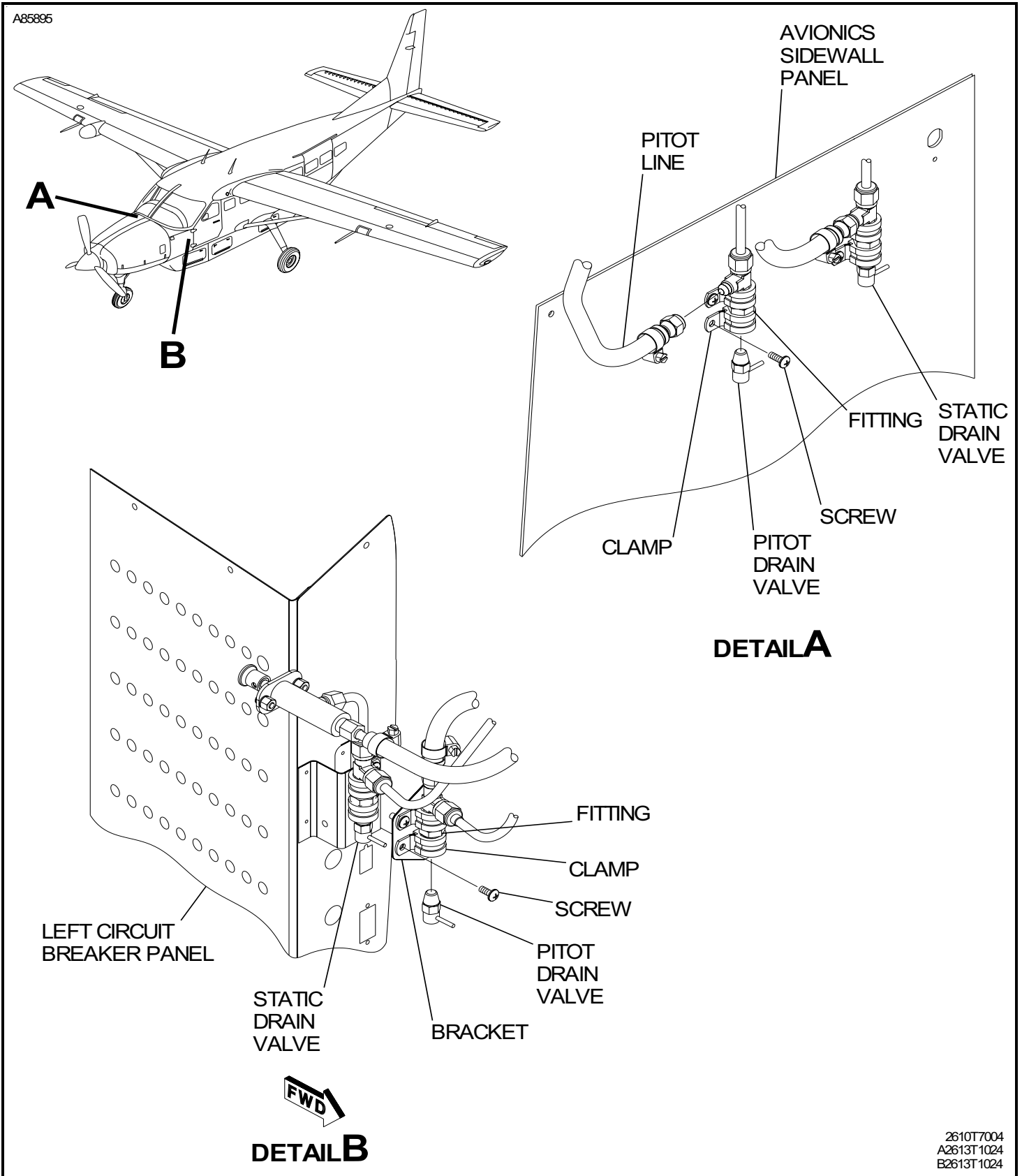
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DETAIL D

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Figure 202 : Sheet 1 : Pitot Drain Valve Installation



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Figure 203 : Sheet 1 : Static Source Drain Valve Installation

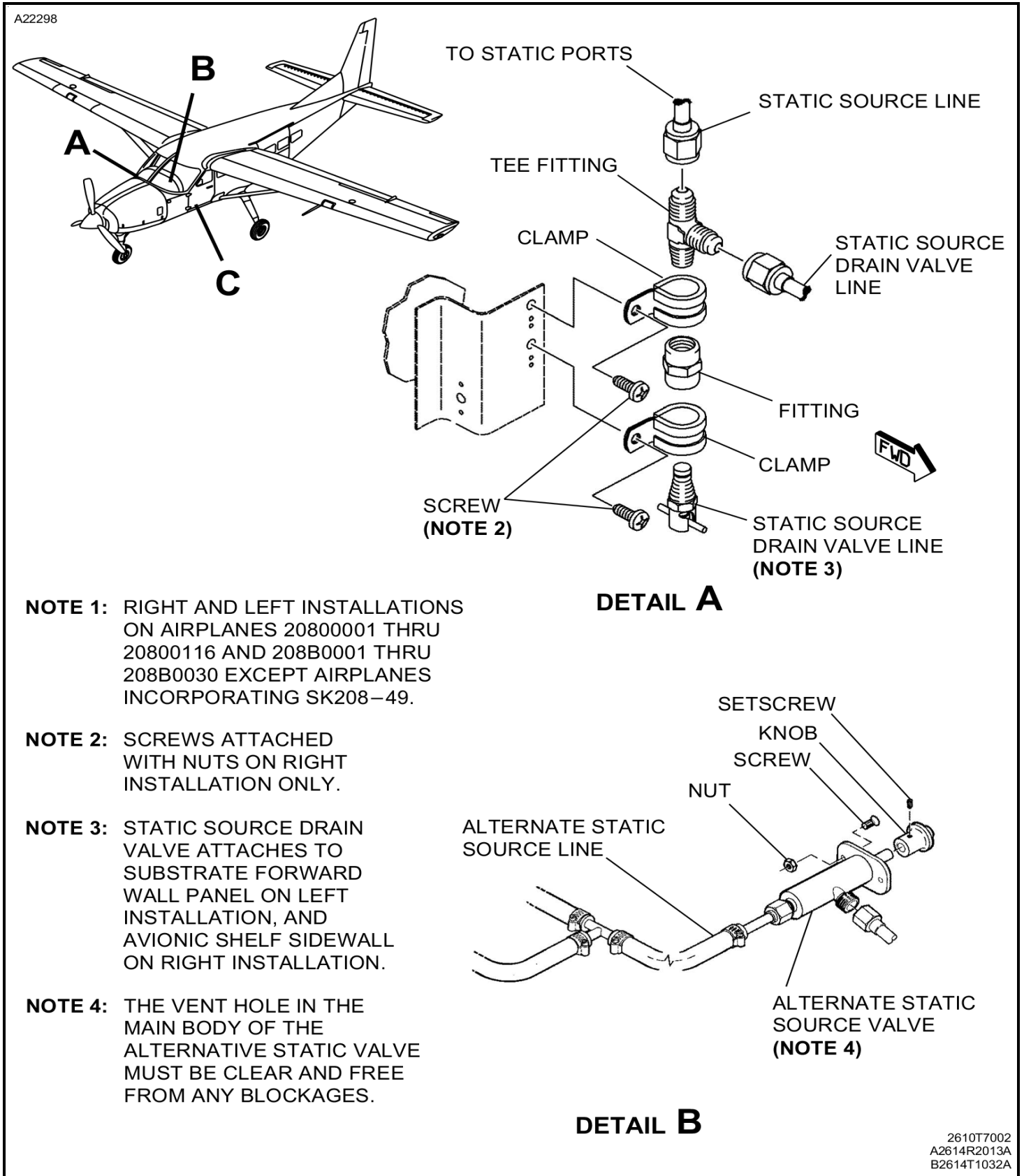


Figure 203 : Sheet 2 : Static Source Drain Valve Installation

