

FUEL FLOW TRANSMITTER - REMOVAL/INSTALLATION (PT6A-140)

1. General

- A. This section gives the removal and installation procedures for the fuel flow transmitter for Airplane 208B2197 and Airplanes 208B5000 and On with the PT6A-140 engine installed.

2. Description and Operation

- A. The fuel flow indicating system measures rates of flow by means of an inline transmitter that supplies an electrical signal to the Garmin G1000 system. The G1000 system shows the fuel flow information on the Multifunction Display (MFD) engine display. For MFD maintenance procedures refer to Chapter 34 Garmin Display Unit - Removal/Installation.

3. Fuel Flow Transmitter Removal/Installation

CAUTION: Handle the fuel flow transmitter carefully during removal/installation procedures to prevent damage to the transmitter.

- A. Remove the Fuel Flow Transmitter (UN032) (Refer to Figure 401).
- (1) Remove external electrical power from the airplane.
 - (2) Make sure that the BATTERY switch (SC005), found on the circuit breaker switch panel, is set to the OFF position.
 - (3) Make sure that the EXTERNAL POWER switch (SC006), found on the circuit breaker switch panel, is set to the OFF position.
 - (4) Disengage the F FLOW, NG & NP circuit breaker found on the left circuit breaker panel.
 - (5) Open the upper right cowling door to get access to fuel flow transmitter. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (6) Record the direction of the arrow on the fuel flow transmitter.
 - (7) Disconnect the electrical connector (PN032) from the fuel flow transmitter.
 - (8) Cut and remove the safety wire from the coupling nut on the aft fuel line connected to the fuel flow transmitter.
 - (9) Loosen the nut on the fuel line.
 - (a) Remove the aft fuel line from the fuel flow transmitter.
 - (10) At the accessory box housing remove the bolt and nut on the fuel line clamp.
 - (11) Cut and remove the safety wire from the coupling nut on the center fuel line connected to the fuel flow transmitter.
 - (12) At the aft fire seal bulkhead coupling cut and remove the safety wire on the coupling nut.
 - (13) Loosen the coupling nut.
 - (a) Remove the fuel flow transmitter with the fuel line from the airplane.
 - (14) If the fuel flow transmitter is to be replaced, carefully remove the center fuel line from the fuel flow transmitter on a bench.
 - (15) Cap all open fuel lines and fittings.

- B. Install the Fuel Flow Transmitter (UN032) (Refer to Figure 401).

CAUTION: Make sure that the arrow on fuel flow transmitter is pointing in proper direction recorded when the transmitter was removed from the engine. The arrow must indicate a direction of flow from the pump to the flow divider.

- (1) Remove the caps from the fuel lines.
- (2) Install the center fuel line on the fuel flow transmitter and tighten the coupling nut by hand.
- (3) Hold the fuel flow transmitter in its correct angular position between the aft fuel line and the bulkhead coupling.
- (4) Carefully tighten the fuel lines nuts on the transmitter.
 - (a) Torque the coupling nuts at the fuel flow transmitter to between 450 and 500 inch-pounds.
 - (b) Safety the nuts with wire. Refer to Chapter 20, Safetying - Maintenance Practices.
- (5) At the accessory box housing put the clamp on the fuel line.
- (6) Install the bolt and nut that attach the fuel line to the clamp.
 - (a) Torque the nut between 27 to 30 inch-pounds.

- (7) Connect the electrical connector (PN032) to the transmitter.
- (8) Engage the F FLOW, NG & NP circuit breaker.

4. Do a Fuel Transmitter Line Assembly Leakage Test

- A. Do an engine operational check to do a test of the fuel indication and fuel line leaks. Refer to Model 208B Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.
 - (1) If there are fuel line leaks at the fuel flow transmitter refer to Conical Seal Installation (Fuel Transmitter Line Assembly Leakage).
 - (2) If the fuel flow transmitter and fuels lines are serviceable close the cowling door. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

5. Conical Seal Installation (Fuel Transmitter Line Assembly Leakage)

CAUTION: Do not install seal into line assembly. Seal shall be installed on male fitting only. Do not lubricate the seal or threads.

NOTE: Conical seals are permitted only at the fuel transmitter line connections and only if the cause of the leak is a damaged male fitting (slight deformation) of the fuel transmitter. Any leakage caused by other damage, such as cracked fittings or deformed line assembly flares, cannot be corrected with conical seals, but must be corrected by replacement of the torque transducer and/or line assemblies.

- A. Fuel Line Examination (Refer to Figure 401).
 - (1) Remove external electrical power from the airplane.
 - (2) Make sure that the BATTERY switch (SC005), found on the circuit breaker switch panel, is set to the OFF position.
 - (3) Disconnect the airplane battery.
 - (4) Make sure that the EXTERNAL POWER switch (SC006), found on the circuit breaker switch panel, is set to the OFF position.
 - (5) Remove the safety wire from the applicable fuel line nuts.
 - (6) Loosen the applicable fuel line nut where there is a fuel leak.
 - (7) Disconnect the applicable fuel line.
 - (8) Inspect line flare and fuel transmitter fitting for cracks or deformities.
 - (a) If cracks or other unserviceable conditions are found, replace the lines and/or the transmitter as necessary. Refer to Fuel Flow Transmitter Removal/Installation and Fuel Lines, Valves and Filters - Maintenance Practices.
 - (9) If leak is found install conical seal onto male flare portion of fitting. Refer to Conical Seal Installation Procedures.

- B. Conical Seal Installation Procedures (Refer to Figure 401).

NOTE: The flats on conical seals are designed to provide proper positioning of seal onto the male fitting to prevent the incorrect installation of the seal that could cause flow restriction.

- (1) Turn the fuel line nut on the male flared fitting several turns with fingers until joint is snug.
 - (a) If line assembly nut cannot be tightened snugly with finger torque, remove the nut and make sure that the conical seal is installed correctly.
- (2) Tighten the fuel line assembly nuts from 575 to 625 inch-pounds. Torque values are higher than torque values for lines assembly nuts without conical seals installed. Allow 5 minutes elapsed time for cold creep to occur and then check the torque again. After 30 minutes check torque again.

NOTE: Conical seals are subject to cold creep, therefore, a double tightening procedure is necessary.

- (a) If necessary tighten the nuts again.
- (b) Safety the nuts with wire. Refer to Chapter 20, Safetying - Maintenance Practices.
- (3) Connect the airplane battery.
- (4) Do an engine operational check to examine the fuel lines for leaks. Refer to Model 208B Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.
 - (a) If there are fuel line leaks at the fuel flow transmitter refer to Conical Seal Installation (Fuel Transmitter Line Assembly Leakage).
- (5) If the fuel flow transmitter and fuels lines are serviceable close the cowling door. Refer to Chapter 71, Engine Cowling

and Nose Cap - Maintenance Practices.

Figure 401 : Sheet 1 : Fuel Flow Transmitter Installation

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