

OIL INDICATING - MAINTENANCE PRACTICES (PT6A-114/PT6A-114A)

1. General

- A. This section has description, operation and removal and installation procedures for systems and components used to measure and show the condition of the engine oil. The components the maintenance practices are given for in this section include, the Oil Pressure Switch, Oil Pressure/Oil Temperature Indicator, Oil Temperature Bulb.
- B. The oil pressure/oil temperature indicator maintenance procedures are given for Airplanes 20800001 thru 20800499 and Airplanes 208B0001 thru 208B1999. For Airplanes 20800500 and On and Airplanes 208B2000 and On the oil pressure and temperature indications are shown on the Garmin G1000 Multifunction Display (MFD) engine display.
- C. The maintenance procedures for the oil temperature bulb and the oil pressure switch are given for Airplanes 20800001 and On and Airplanes 208B0001 thru 208B2196 and Airplanes 208B2198 thru 208B4999. These airplanes have the PT6A-114/PT6A-114A engines installed.
- D. For the oil pressure switch maintenance procedures for Airplane 208B2197 and Airplanes 208B5000 and On refer to Chapter 79, Oil Pressure Switch - Maintenance Practices. For the oil temperature sensor maintenance procedures for Airplane 208B2197 and Airplanes 208B5000 and On refer to Chapter 79, Main Oil Temp Sensor - Maintenance Practices section of the Pratt and Whitney PT6A-140 Maintenance Manual P/N 3075742 found in the Introduction List of Publications.

2. Description and Operation

- A. The engine has separate systems to measure the quantity, temperature and pressure of the oil in the engine. The oil filler cap and dipstick location is on the aft, top left side of the engine. The dipstick is used to measure the quantity of the oil in the engine oil tank. An annunciator panel light LOW OIL PRESS (red) or crew alerting system (CAS) message OIL PRESS LOW (red), comes on when the engine oil pressure decreases below approximately 40 PSI, +2 or -2 PSI.
 - (1) For Airplanes 20800500 and On and Airplanes 208B2000 and On, the oil pressure and temperature indications are shown on the Garmin G1000 Multifunction Display (MFD) engine display.
 - (2) For Airplanes 20800001 thru 20800499 and Airplanes 208B00001 thru 208B1999, during engine operation one gage shows both the oil pressure and temperature. This gage is installed on the upper center portion of the instrument panel.
- B. An optional magnetic chip detector system monitors if ferrous particle contaminants are in the oil sumps of the propeller reduction gearbox and the accessory gearbox of the engine. The system has two chip detector switches, an annunciator panel light CHIP DETECTOR (amber) or CAS message (MFD) CHIP DETECT (amber), and the wiring necessary to connect the system. When installed, the chip detector switches replace the related gearbox sump drain plugs. The annunciator panel light comes on if the ferrous particles make an electrical connection across the magnetic electrodes of either chip detector switch.

3. Oil Filler Cap and Dipstick

- A. The oil filler cap and dipstick location is on the aft, top left side of the engine. Open the left upper cowling door to access the oil filler cap and dipstick. The engine oil tank capacity is 9.5 U.S. quarts with five quarts measured on the dipstick. For the servicing of the engine oil, refer to Chapter 12, Engine Oil System - Servicing.

4. Oil Pressure/Oil Temperature Indicator Removal/Installation

- A. Remove the Oil Pressure/Oil Temperature Indicator (Refer to Figure 201).
 - (1) Remove the glareshield access covers to get access to the rear top of the instrument panel.
 - (2) Disengage the OIL TEMP circuit breaker.
 - (3) Disconnect the oil pressure line from the nipple on the rear of the oil pressure and temperature indicator case.
 - (4) Remove the screws that attach the clamp to the oil pressure and temperature indicator case.
 - (5) Remove the oil pressure and temperature indicator from the instrument panel to get access to the electrical connector.
 - (6) Remove the safety wire from the electrical connector.
 - (7) Remove the electrical connector from the oil pressure and temperature indicator.
 - (8) Remove oil pressure and temperature indicator from the instrument panel.
- B. Install the Oil Pressure/Oil Temperature Indicator (Refer to Figure 201).

- (1) Connect the electrical connector to the oil pressure and temperature indicator.
- (2) Install safety wire on the electrical connector.
- (3) Insert the oil pressure and temperature indicator through the hole in the instrument panel and through the clamp.
- (4) Install the clamp to the oil pressure and temperature indicator case.
- (5) Connect the pressure line to the nipple on the rear of the oil pressure and temperature indicator case; but do not completely tighten the nut.
- (6) Do an engine motoring procedure and then bleed the air from the pressure line.
- (7) Tighten the pressure line on the rear of the oil pressure and temperature indicator case.
- (8) Engage the OIL TEMP circuit breaker.
- (9) Make sure the oil temperature indicator system operates correctly. Refer to Oil Temperature Indicating System Test.
- (10) Start the engine.
- (11) Make sure there are no oil leaks.
- (12) Install the glareshield access covers.

5. Oil Temperature Bulb Removal/Installation

- A. Remove the Oil Temperature Bulb (Refer to Figure 201).
 - (1) Disengage the OIL TEMP circuit breaker.
 - (2) Open the upper right cowl door to get access to the oil temperature bulb.
 - (3) Remove the safety wire from the oil temperature bulb electrical connector.
 - (4) Remove the oil temperature bulb electrical connector.
 - (5) Remove the safety wire from the oil temperature bulb.
 - (6) Remove the oil temperature bulb from the adapter.
 - (7) Discard the O-ring from the oil temperature bulb.
- B. Install the Oil Temperature Bulb (Refer to Figure 201).
 - (1) Put a new O-ring on the oil temperature bulb.
 - (2) Install the oil temperature bulb into the adapter.
 - (3) Connect the oil temperature bulb electrical connector to the oil temperature bulb.
 - (4) Install safety wire on the oil temperature bulb and the oil temperature bulb electrical connector.
 - (5) Engage the OIL TEMP circuit breaker.
 - (6) Start the engine.
 - (7) Make sure there are no oil leaks.
 - (8) Make sure the oil temperature indicator system operates correctly. Refer to Oil Temperature Indicating System Test.

6. Oil Pressure Switch Removal/Installation

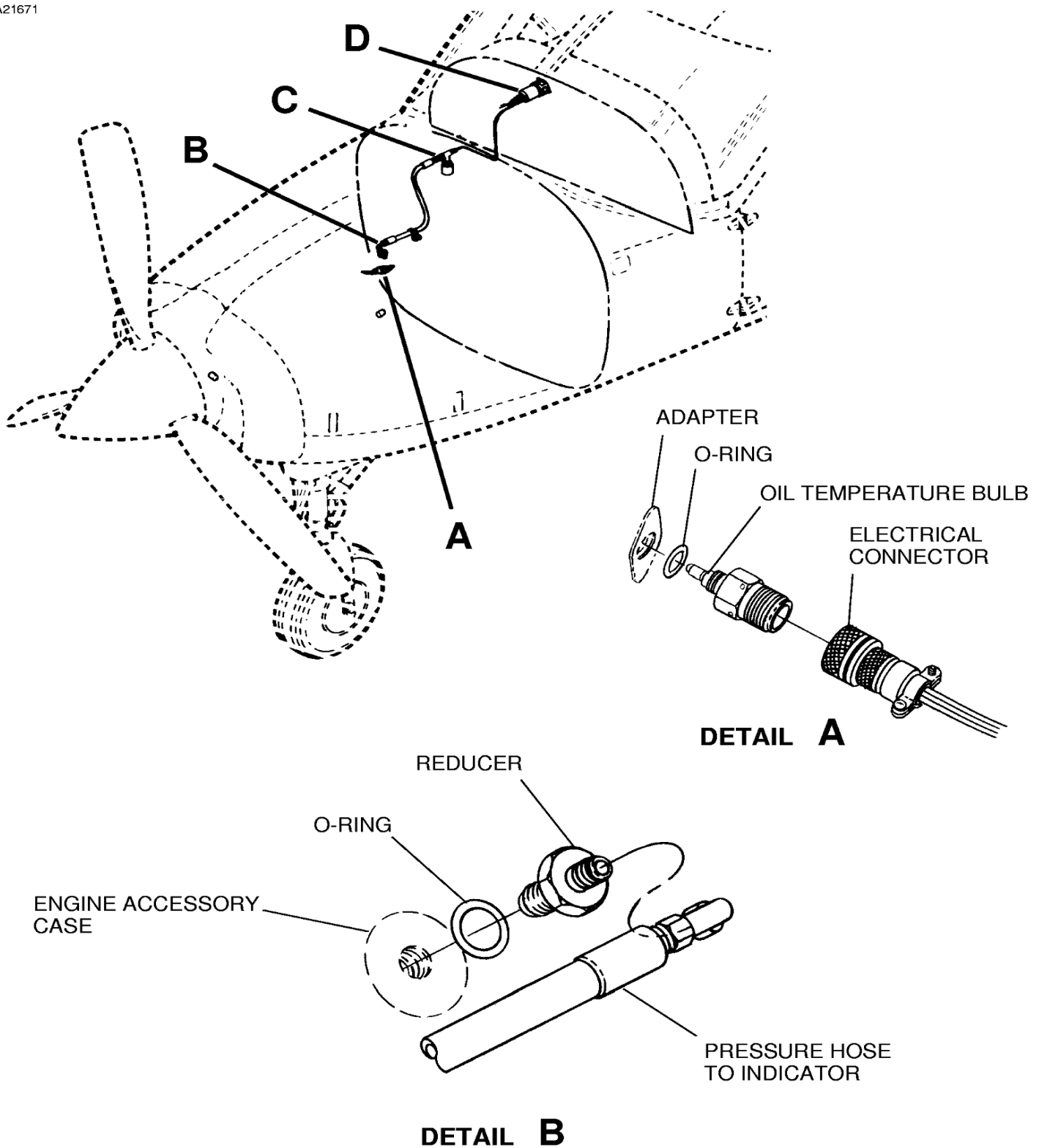
- A. Remove the Oil Pressure Switch (Refer to Figure 201).
 - (1) For Airplanes 20800500 and On and Airplanes 208B2000 and On disengage the ENG INTFC circuit breaker found on the Avionics circuit breaker panel.
 - (2) For Airplanes 20800001 thru 20800499 and Airplanes 208B0001 thru 208B1999 disengage the ANNUN PANEL circuit breaker found on the left circuit breaker panel.
 - (3) Remove the glareshield access covers to get access at the top of the instrument panel.
 - (4) On Airplanes 20800001 thru 20800080 disconnect the electrical wiring from the oil pressure switch.
 - (5) On Airplanes 20800081 and On and 208B0001 and On disconnect the oil pressure switch electrical connector.
 - (6) On Airplanes 20800001 thru 20800100 remove the oil pressure switch from the tee and then put a cap on the tee.
 - (7) On Airplanes 20800101 and On and 208B0001 and On remove the oil pressure switch from the tee and then put a cap on the tee.
 - (8) Discard the O-ring.
 - (9) Remove the oil pressure switch from the airplane.

B. Install the Oil Pressure Switch (Refer to Figure 201).

- (1) On Airplanes 20800001 thru 20800100 use a new O-ring and install the oil pressure switch in the tee.
- (2) On Airplanes 20800101 and On and 208B0001 and On use a new O-ring and install the oil pressure switch in the tee.
- (3) On Airplanes 20800001 thru 20800080 connect the electrical wiring to the oil pressure switch.
- (4) On Airplanes 20800081 and On and 208B0001 and On connect the oil pressure switch electrical connector.
- (5) Engage the ANNUN PANEL circuit breaker.
- (6) Start the engine.
- (7) Make sure the low oil pressure light goes off at approximately 40.0 PSI, +2 or -2 PSI.
- (8) Make sure there are no leaks around the oil pressure switch.
- (9) Install the glareshield access covers.

Figure 201 : Sheet 1 : Oil Indicating System

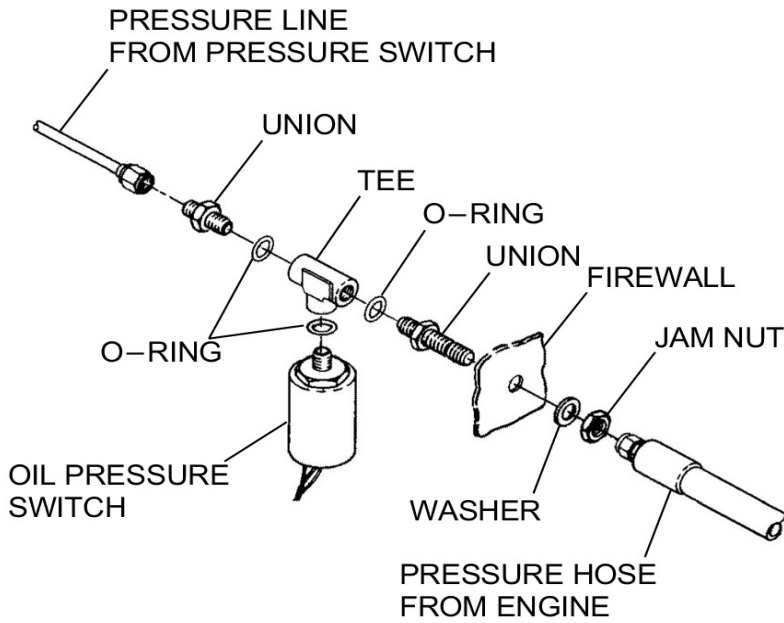
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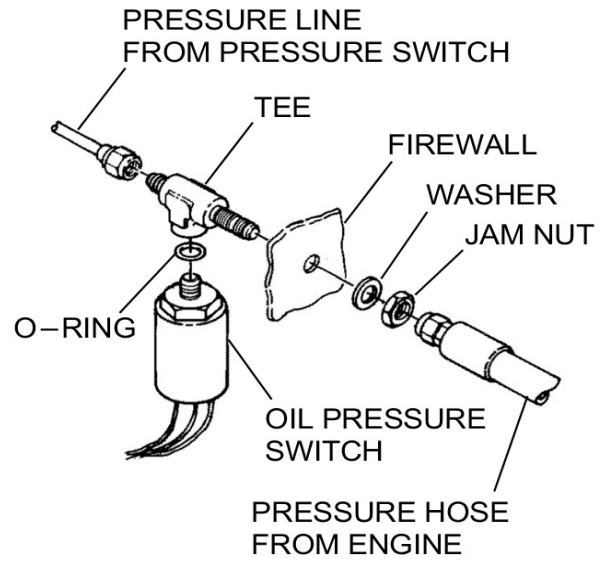
Figure 201 : Sheet 2 : Oil Indicating System

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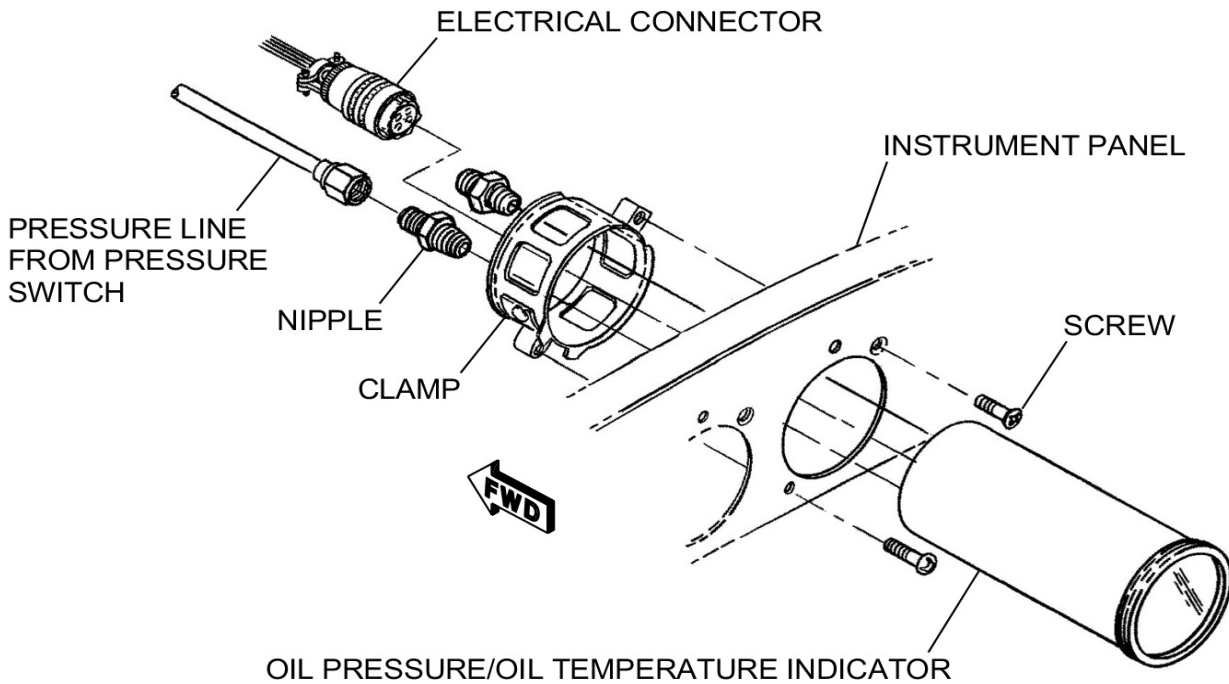
DETAIL C

AIRPLANES 20800001 THRU 20800100



DETAIL C

AIRPLANES 20800101 AND ON AND
AIRPLANES 208B0001 THRU 208B1999



DETAIL D

AIRPLANES 20800001 THRU 20800499 AND
AIRPLANES 208B0001 THRU 208B1999

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