

WET TORQUE INDICATING SYSTEM - MAINTENANCE PRACTICES**PT6A-114/PT6A-114A****1. General**

- A. Wet torque indicating system maintenance practices include torque indicator removal/installation and functional test.

2. Torque Indicator Removal/Installation

- A. Remove Torque Indicator (Refer to Figure 201).

- (1) Remove screws (1) securing cowl deck cover (2) to cowl deck assembly, to allow access to engine torque indicator lines.
- (2) Disconnect lines (3) from unions (4).
- (3) Loosen mounting screws (5) securing torque indicator (6) to instrument panel.
- (4) Slide indicator (6) out from instrument panel.

- B. Install Torque Indicator (Refer to Figure 201).

- (1) Slide indicator (6) into instrument panel.
- (2) Tighten mounting screws (5) securing indicator to instrument panel.
- (3) Connect lines (3) to unions (4).

NOTE: Start engine in accordance with Model 208 Pilot's Operating Handbook.

- (4) Observe indicator needle, if excessive fluctuation is present, position rag under indicator pressure line and loosen to bleed off air in system.
- (5) Install cowl deck cover (2) and secure using screws (1).

3. Oil Separator Breather Pad Removal/Installation

- A. Remove Oil Separator Breather Pad (Refer to Figure 201).

- (1) Open right upper engine cowling.
- (2) Disconnect line (4) from elbow (5).
- (3) Remove adapter (6) from oil separator (8).
- (4) Remove breather pads (7) from oil separator (8), using a wire with end formed into a hook.

- B. Install Oil Separator Breather Pad (Refer to Figure 201).

- (1) Insert breather pads (7) into oil separator (8).
- (2) Screw adapter (6) into oil separator and tighten.
- (3) Connect line (4) from torque indicator to elbow (5).
- (4) Close and secure right engine cowling.

4. Torque Indicator Vent Line Leak Test

- A. Leak Test Torque Indicator Vent Line (Refer to Figure 201).

- (1) Disconnect vent line (4) from elbow (5).
- (2) Connect vacuum portion of pitot-static test set to line (4). Set test set altimeter to zero.
- (3) Slowly apply vacuum. Check that indicator reading does not start decreasing below zero. If this is the case, connections to indicator are reversed and must be corrected. Continue applying vacuum until altimeter on test set reads 14,000 feet.
- (4) Shut off vacuum. Check that test altimeter or gage does not show a loss of vacuum for one minute.
- (5) If leakage is noted, disconnect vent line from indicator and cap. Recheck test set plumbing and vent line leakage and repair as required (with vent line not connected to indicator, positive pressure may be used to isolate leaks using bubble leak detector on fittings). Check indicator by applying vacuum per steps (2) through (4) directly to reference port fitting of indicator. If leakage is noted, check fitting for Teflon tape on pipe threads and proper torque. If fitting is not leakage source, replace indicator.
- (6) Connect vent line (4) to elbow (5).

5. Torque Indicator Pressure Line Leak Test

- A. Leak Test Torque Indicator Pressure Line (Refer to Figure 201).

- (1) Disconnect pressure line (6) from adapter (7).
- (2) Connect air pressure source to pressure line (6).
- (3) Apply two (2) PSIG pressure and check that torque indicator reading increases. If reading decreases, line to torque indicators are reversed and must be corrected.
- (4) Apply 40 PSIG pressure and shut off pressure source. Record data as follows:
 - (a) Allow system to set for ten minutes to stabilize. Tap test gage and record exact test pressure (PSIG). Record ambient temperature (°F) and true ambient pressure ("Hg) by reading the window of an altimeter set to zero altitude.
 - (b) Allow system to set for one hour. Record test pressure, ambient temperature, and ambient pressure in same manner as step (a) above.
 - (c) Correct for ambient temperature and pressure differences as follows:
 - 1 Ambient Temperature Correction (PSIG) = Final Reading (°F) - Initial Reading (°F) x 0.1.
 - 2 Ambient Pressure Correction (PSIG) = Final Reading ("Hg) - Initial Reading ("Hg) x -0.49.
 - 3 Corrected Test Pressure = Initial Test Pressure + Ambient Temperature + Ambient Pressure Correction.
 - 4 Leakage = Corrected Test Pressure - Observed Final Test Pressure.
 - (d) Leakage per step (3) shall not exceed 0.5 PSIG. Isolate and repair any leaks by using bubble leak detector solution on fittings.

NOTE: Allowable leakage of 0.5 PSIG is due to tolerances in pressure gage and correction procedures. Goal is zero leakage. If there is any doubt as to whether leakage exists, check all fittings with bubble leak detector fluid.

- (e) Relieve pressure and disconnect test equipment. Reconnect pressure line (6) to adapter (7).

6. Torque Indicator Functional Test

- A. Functional Test Torque Indicator (Refer to Table 201).

CAUTION: Improper connection will damage the indicator.

- (1) Connect pressure source and gage (or deadweight tester) to pressure port (marked P) of the indicator.
- (2) Leave reference port (marked V) of the indicator open to atmosphere.
- (3) Apply pressures in increasing direction. Check indicator reading tolerance after tapping indicator to overcome friction. Repeat with decreasing pressure, except at the 2500 ft-lb point.
- (4) Failure of indicator to comply with above shall result in rejection of unit.
- (5) Apply 8.6 PSIA pressure (14,000-foot altimeter reading with altimeter originally set to zero) to reference port (marked V) of indicator. Shut off vacuum and check that no discernible leakage occurs in one minute.

Table 201. Scale Error

INPUT PSI (NOTE 1)	INPUT PSI (NOTE 2) (REF)	TOLERANCE PSI (REF)	TORQUE (FT-LBS)	TOLERANCE (FT-LBS)
-0.71	0	+1.38 or -1.38	0	+50 or -50
13.49	14.20	+1.38 or -1.38	500	+50 or -50
27.68	28.39	+1.02 or -1.02	1000	+35 or -35
41.87	42.59	+0.78 or -0.78	1500	+28 or -28
46.36	47.08	+0.56 or -0.56	1658	+20 or -20
55.22	55.93	+0.56 or -0.56	1970	+20 or -20
70.26	70.98	+1.18 or -1.18	2500	+40 or -40

NOTE 1: To be used when indicator and pressure source are at same level.

NOTE 2: To be used when indicator is 20 inches higher than pressure source.

1. Constant = 35.22 ft-lbs/PSI. Gage will sense 0.71 PSI lower (level flight) due to gage location approximately 20 inches higher than engine ports.

2. Zero PSI at the gage = 25 ft-lbs. Difference will disappear when gage is installed and operating.
3. Pressures listed in Column 1 are with reference port open to ambient pressure and no fluid head difference between source and indicator.
4. Values listed in Column 1 are for calibration of indicator only and are not applicable to installed system.
5. Tap indicator before reading.

Figure 201 : Sheet 1 : Wet Torque Indicating System Installation

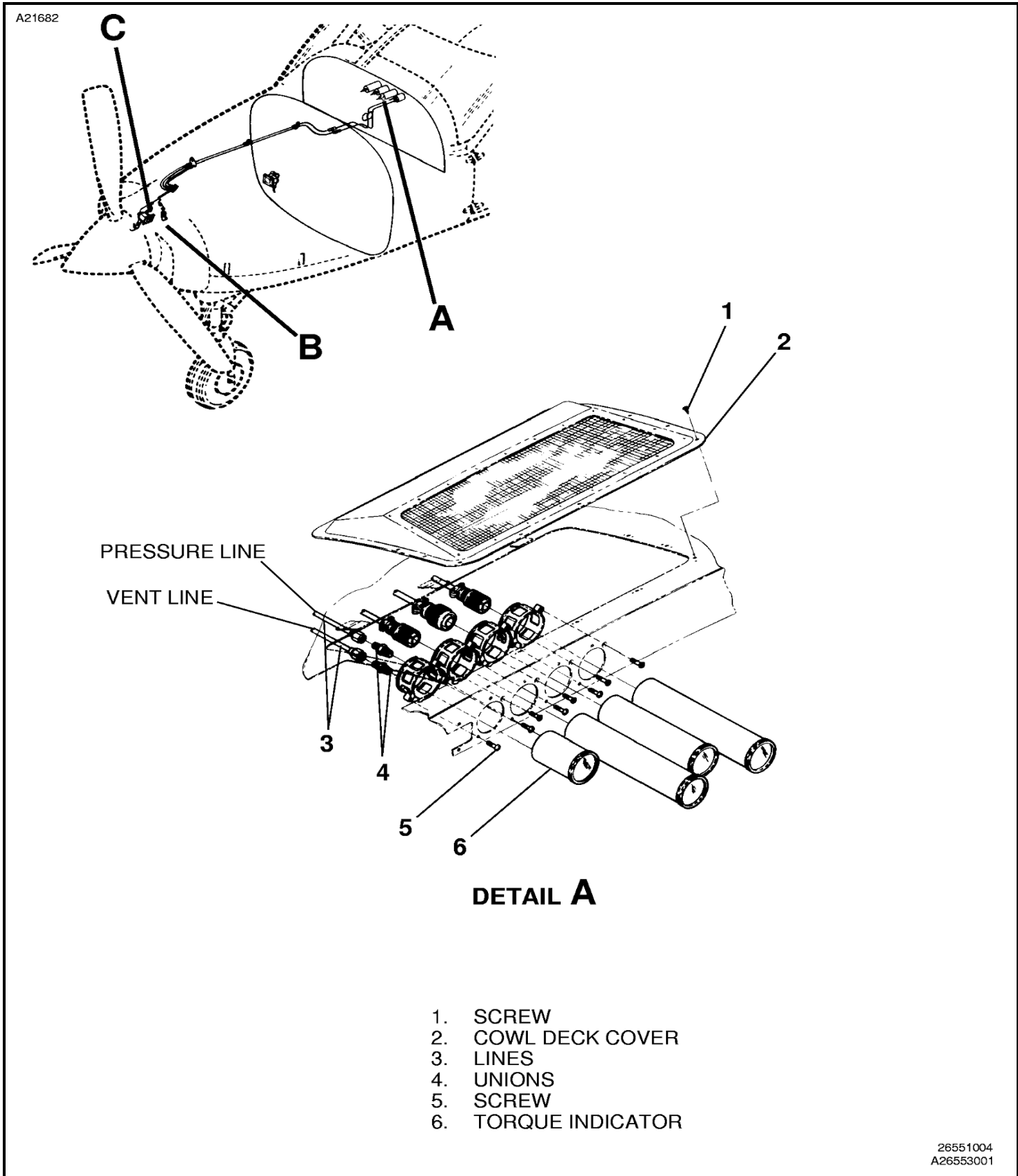
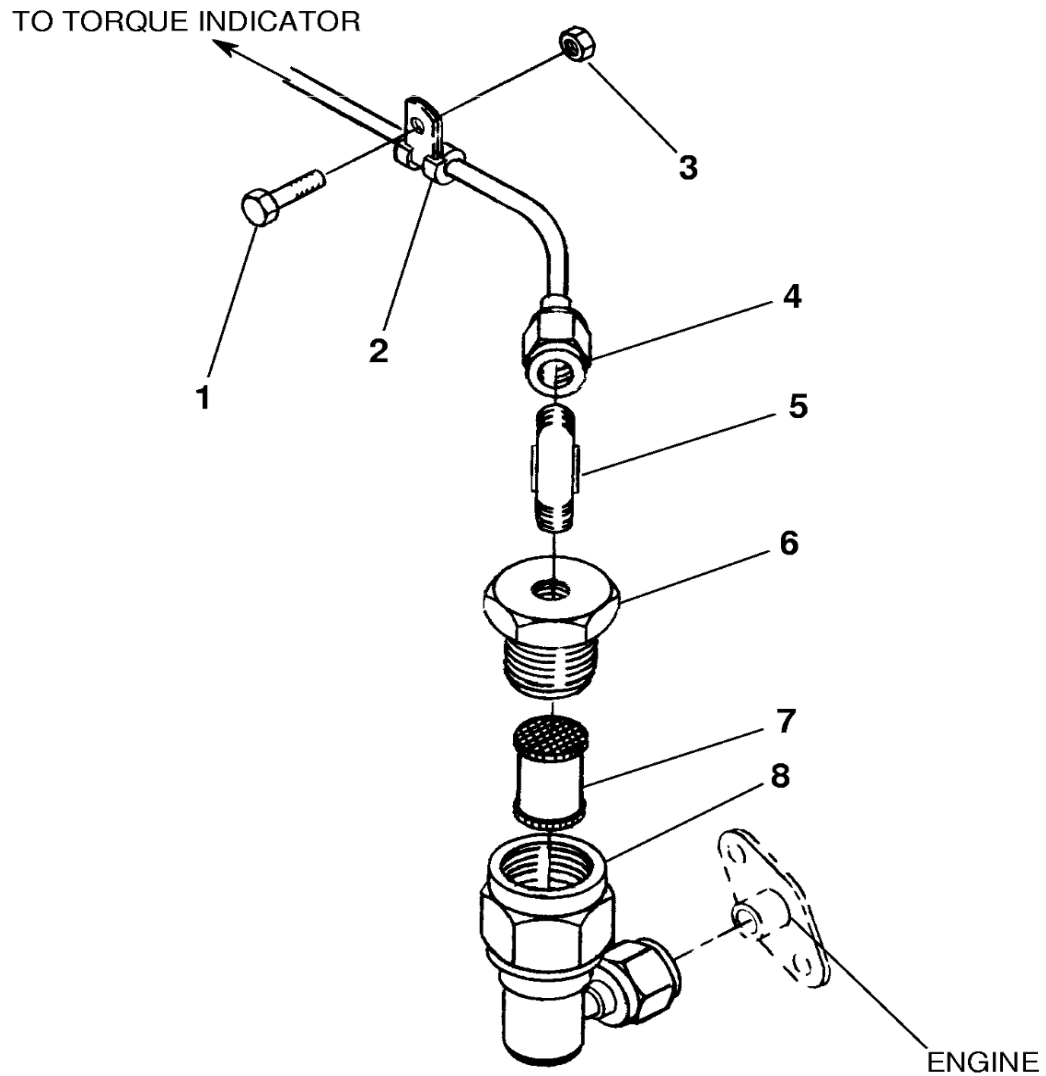


Figure 201 : Sheet 2 : Wet Torque Indicating System Installation

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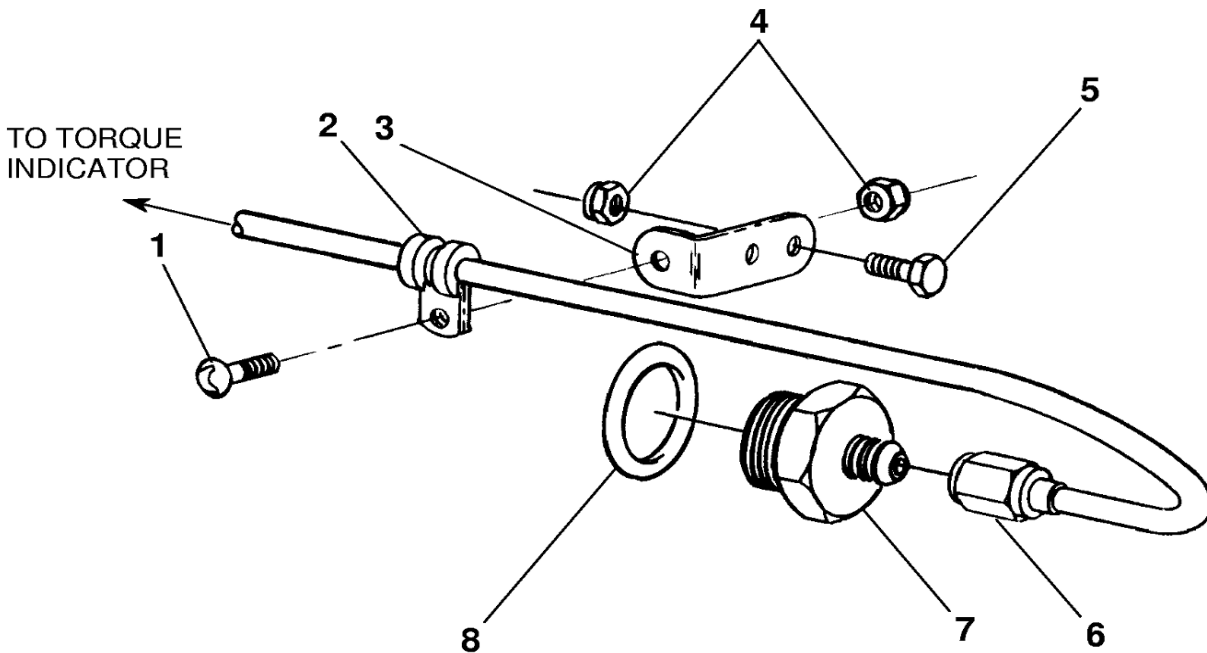
DETAIL B
TORQUE INDICATOR VENT LINE

1. BOLT
2. CLAMP
3. NUT
4. LINE
5. ELBOW
6. ADAPTER
7. BREATHER PADS
8. OIL SEPARATOR

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Figure 201 : Sheet 3 : Wet Torque Indicating System Installation

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DETAIL C
TORQUE INDICATOR PRESSURE LINE

- 1. SCREW
- 2. CLAMP
- 3. BRACKET
- 4. NUT
- 5. BOLT
- 6. LINE
- 7. ADAPTER
- 8. PACKING

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