

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

1. General

- A. This section provides removal/installation instructions for the airframe mounted oil cooler and its associated lines and components for airplanes with the PT6A-114/PT6A-114A Engine Installations.
- B. For oil system servicing, including checking engine oil level, draining/changing engine oil, and oil filter removal/installation, refer to Chapter 12, Engine Oil System - Servicing.

WARNING: The U.S. Environmental Protection Agency advises that mechanics and other workers who handle engine oil are advised to minimize skin contact with used oil and promptly remove used oil from the skin. In a laboratory study, mice developed skin cancer after skin was exposed to used engine oil twice a week without being washed off, for most of their life span. Substances found to cause cancer in laboratory mice may also cause cancer in humans.

2. Description and Operation

- A. A remote oil cooler is mounted in right nose cap. Heated oil scavenged from accessory gearbox and reduction gearbox is routed to oil cooler via a hose under engine. A thermal bypass valve opens to circulate oil through cooler if oil temperature is above 150°F to 179°F. Otherwise, oil is routed past collar and returns via a hose, located on top of engine, to engine oil tank.

3. Oil Cooler Removal/Installation

- A. Remove Oil Cooler (Refer to Figure 201).
 - (1) Remove right nose cap. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (2) Cut safety-wire from drain plug (12) and remove plug to drain oil from oil cooler (13). Reinstall plug after oil has drained.
 - (3) Disconnect outlet hose (6) and inlet hose (8) from oil cooler (13). Cap hoses, cooler outlet elbow (7), and cooler inlet union (11) to prevent entry of foreign materials into oil system.
 - (4) Remove bolts (4) (ten each) attaching cooler to baffle (1).
 - (5) Remove bolts (14) (four each) attaching cooler to bracket (3) and remove cooler from airplane.

NOTE: Check seals (9) and (9A) for condition, and, if damaged, replace. Corner seals (9A) are to be cemented to oil cooler (13) using RTV-106 or equivalent.

- B. Install Oil Cooler (Refer to Figure 201).
 - (1) Align holes in oil cooler attach bolt bosses with holes in bracket (3) and install four bolts (14).
 - (2) Install ten bolts (4) attaching cooler to baffle (1).
 - (3) Remove caps from hoses and cooler and connect inlet hose (8) to union (11). Connect outlet hose (6) to elbow (7) of cooler.
 - (4) Tighten drain plug (12) from 215 to 240 inch pounds and safety.
 - (5) Install right nose cap half. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (6) Service oil system. Refer to Chapter 12, Engine Oil System - Servicing.

4. Large Oil Cooler Removal/Installation

- A. Remove Large Oil Cooler (Refer to Figure 201).
 - (1) Remove right nose cap. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (2) Cut safety-wire from drain plug (16) and remove plug to drain oil from oil cooler (17). Reinstall plug.
 - (3) Disconnect outlet hose (6) and inlet hose (11) from oil cooler (17). Cap hoses, cooler outlet elbow (7), and cooler inlet elbow (12) to prevent entry of foreign materials into oil system.
 - (4) Remove ten bolts (9) attaching cooler to baffle (2).
 - (5) Remove bolts (3) (four each) attaching cooler to bracket (4) and remove cooler from airplane.

NOTE: Check seals (10) and (15) for condition, and, if damaged, replace. Corner seals (15) are to be cemented to oil cooler (17) using RTV-106 or equivalent.

- B. Install Large Oil Cooler (Refer to Figure 201).

- (1) Align holes in oil cooler attach bolt bosses with holes in bracket (4) and install four bolts (3).
- (2) Install ten bolts (9) attaching cooler to baffle (2).
- (3) Remove caps from hoses and cooler and connect inlet hose (11) to elbow (12). Connect outlet hose (6) to elbow (7) of cooler.
- (4) Tighten drain plug (16) snug and secure using safety wire.
- (5) Install right nose cap half. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices
- (6) Service oil system. Refer to Chapter 12, Engine Oil System - Servicing.

5. Vernatherm Removal/Installation

NOTE: Removal, installation and test of the vernatherm is typical on both sizes of oil coolers.

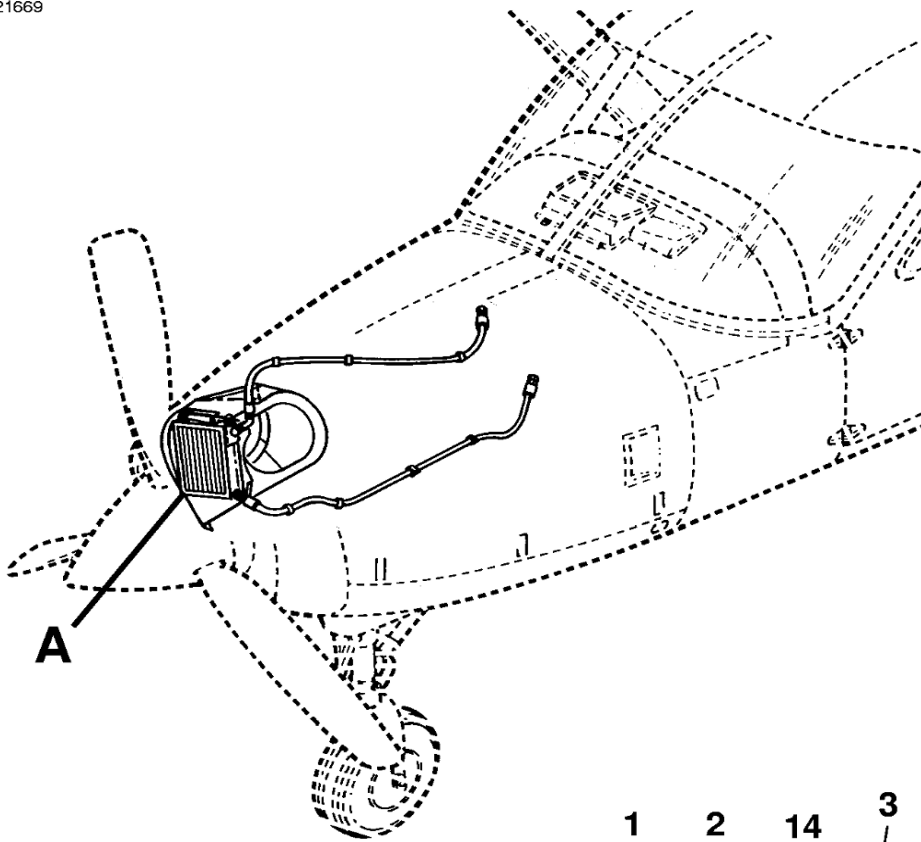
- A. Remove Vernatherm (Refer to Figure 201).
 - (1) Remove right nose cap half. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (2) Identify vernatherm (15 or 18) and remove safety wire.
 - (3) Remove vernatherm from oil cooler (13 or 17).
 - (4) Dispose of old gasket (16 or 19).
 - (5) Perform test on vernatherm. Refer to Vernatherm Function Test.
- B. Install Vernatherm (Refer to Figure 201).
 - (1) Install vernatherm (15 or 18) with new gasket (16 or 19) in oil cooler.
 - (2) Safety wire vernatherm to oil cooler (13 or 17). Refer to Chapter 20, Safelying - Maintenance Practices.
 - (3) Install right nose cap half. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

6. Vernatherm Functional Test

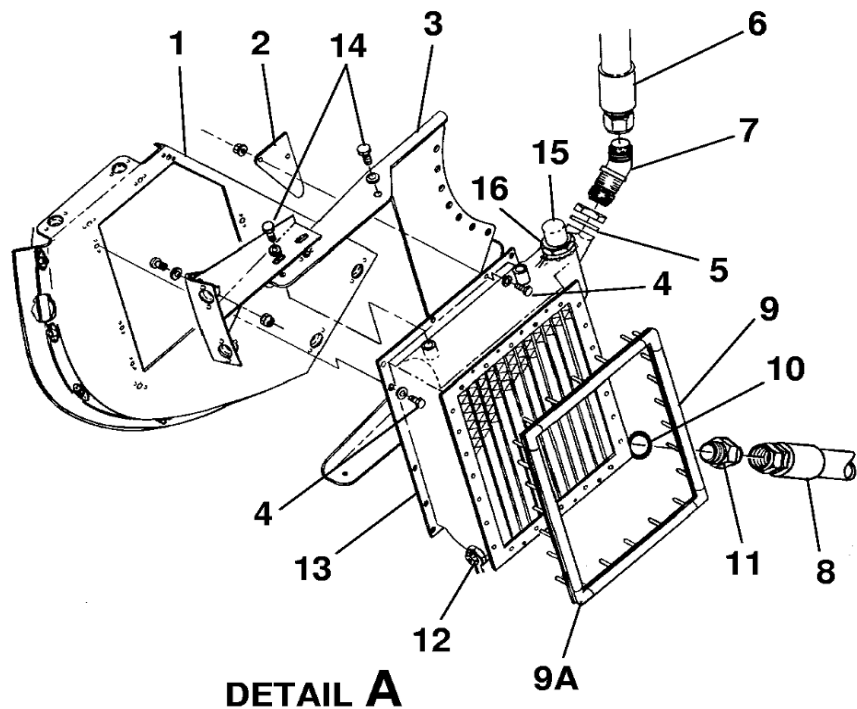
- A. Test Vernatherm.
 - (1) Check vernatherm (15 or 18) by submerging in water at start to close temperature of 150°F for five minutes.
 - (2) Remove and measure length.
 - (3) Submerge vernatherm in water at fully closed temperature of 178°F for five minutes.
 - (4) Minimum travel shall be 0.100 inch.
 - (5) If valve being tested does not function properly, replace with new valve.

Figure 201 : Sheet 1 : Oil Cooler Installation

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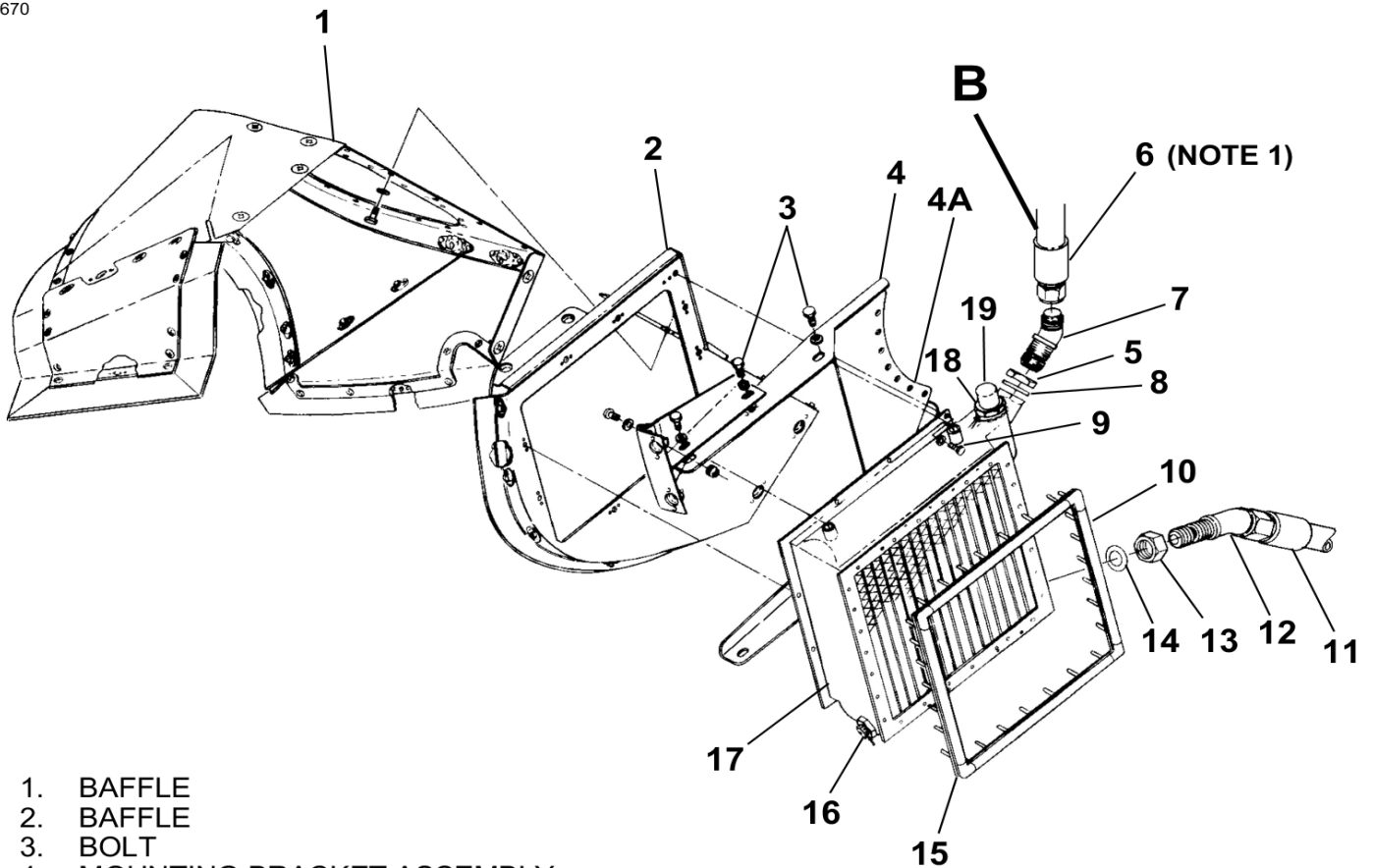
- 1. BAFFLE
- 2. PLATE
- 3. BRACKET
- 4. BOLT
- 5. PACKING
- 6. OUTLET HOSE
- 7. ELBOW
- 8. INLET HOSE
- 9. SEAL
- 9A. CORNER SEAL
- 10. PACKING
- 11. UNION
- 12. DRAIN PLUG
- 13. OIL COOLER
- 14. BOLTS
- 15. VERNATHERM
- 16. GASKET



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Figure 201 : Sheet 2 : Oil Cooler Installation

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- 1. BAFFLE
- 2. BAFFLE
- 3. BOLT
- 4. MOUNTING BRACKET ASSEMBLY
- 4A. WELD ASSEMBLY
- 5. NUT
- 6. OUTLET HOSE
- 7. ELBOW
- 8. PACKING
- 9. BOLT
- 10. SEAL
- 11. INLET HOSE
- 12. ELBOW
- 13. NUT
- 14. PACKING
- 15. CORNER SEAL
- 16. DRAIN PLUG
- 17. OIL COOLER
- 18. VERNATHERM
- 19. GASKET

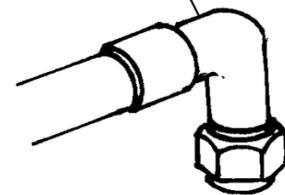
DETAIL A

LARGE OIL COOLER

AIRPLANES 20800146 AND ON
AND 20800001 THRU 20800145
INCORPORATING SK208-40

AIRPLANES 208B0039 AND ON
AND 208B0001 THRU 208B0038
INCORPORATING SK208-40

6 (NOTE 2)



DETAIL B

NOTE 1: AIRPLANES 20800001 THRU 20800156
AND 208B0001 THRU 208B0188

NOTE 2: AIRPLANES 20800157 AND ON
AND 208B0189 AND ON

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