

# SERVICE INSTRUCTION

DATE: July 21, 2016

Service Instruction No. 1008C  
(Supersedes Service Instruction No. 1008B)  
Engineering Aspects are FAA Approved

**SUBJECT:** Installation of Thermostatic Oil Cooler Bypass Valve  
**MODELS AFFECTED:** All O-320, IO-320, O-340, O-360, IO-360, VO-360, HIO-360, IVO-360, O-540, IO-540, IO-720, and TIO-541 engines that do not have a Thermostatic Oil Cooler Bypass Valve Assembly installed

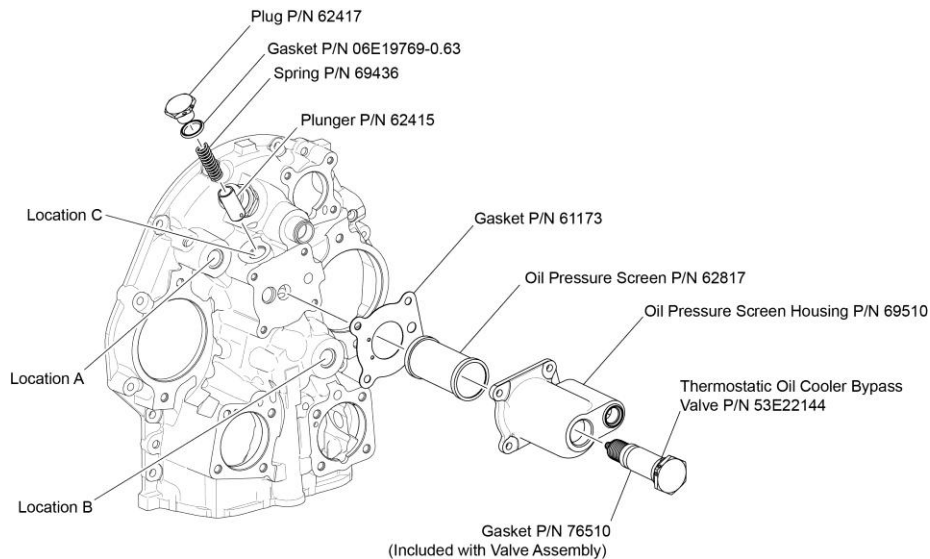
**TIME OF COMPLIANCE:** Optional, at owner's discretion

**REASON FOR REVISION:** Updated required parts in Table 1; clarified procedure

**NOTICE:** Incomplete review of all the information in this document can cause errors. Read the entire Service Instruction to make sure you have a complete understanding of the requirements.

This Service Instruction includes a procedure to install a thermostatic oil cooler bypass valve as a replacement for a pressure-operated bypass valve. This revision of the Service Instruction identifies thermostatic oil cooler bypass valve part number (P/N) 53E22144 as the current thermostatic oil cooler bypass valve approved for use in affected Lycoming engine models (unless otherwise identified in the latest revision of Service Instruction No. SI-1565). This procedure requires the oil pressure screen housing used with a pressure-operated bypass valve be replaced by oil pressure screen housing P/N 69510.

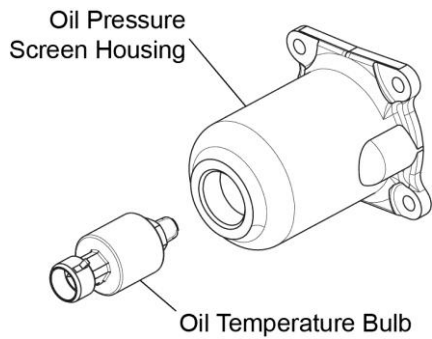
**NOTICE:** Figures in this Service Instruction are for illustrative purposes, only. Your engine configuration could be different.



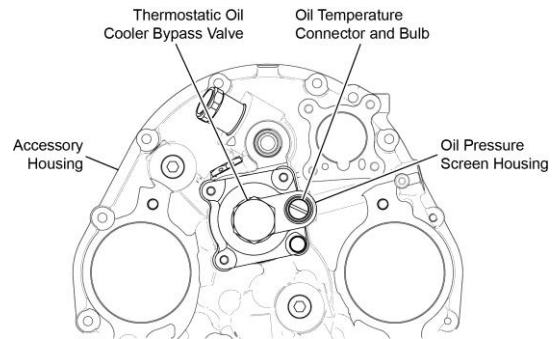
**Figure 1**

**Oil Pressure Screen Housing P/N 69510 for a Thermostatic Oil Cooler Bypass Valve**

ISSUED			REVISED			PAGE NO.	REVISION
MO	DAY	YEAR	MO	DAY	YEAR		
05	16	60	07	21	16	1 of 3	C



**Figure 2**  
**Oil Pressure Screen Housing for a Pressure-Operated Bypass Valve**



**Figure 3**  
**Oil Pressure Screen Housing for a Thermostatic Oil Cooler Bypass Valve**

Engines equipped with a pressure-operated bypass valve have the location for connecting the oil temperature bulb concentric with the oil pressure screen (Figure 2) on the oil pressure screen housing. Engines equipped with a thermostatic oil cooler bypass valve have the location for connecting the oil temperature bulb beside the oil pressure screen (Figure 3) on the oil pressure screen housing.

The currently approved thermostatic oil cooler bypass valve, P/N 53E22144 (or other thermostatic oil cooler bypass valve in the latest revision of Service Instruction No. SI-1565) supersedes all previous bypass valve P/Ns.

Table 1 identifies required parts and part numbers to install the thermostatic oil cooler bypass valve.

**Table 1**  
**Required Parts and Part Numbers in Figure 4**

Part Number	Description	Quantity
06E19769-0.63	GASKET, Annular, 5/8 I.D.	2
53E22144*	VALVE ASSEMBLY, Temperature control, oil cooler bypass (Thermostatic Oil Cooler Bypass Valve)	1
69510	HOUSING, Oil pressure screen	1
61173	GASKET, Oil pressure housing	1
STD-784**	PLUG, 3/8-18 NPT, Allen head	1
STD-160	LOCK WASHER, 1/4 lock, internal teeth	4

\* Gasket P/N 76510 is included with the thermostatic oil cooler bypass valve P/N 53E22144.

\*\* Required only if the oil cooler line is to be installed at Location C (Figure 1).

### **Thermostatic Oil Cooler Bypass Valve Installation**

1. Remove the plug P/N 62417, gasket P/N 06E19769-0.63, spring P/N 69436, and plunger P/N 62415 from location C in the accessory housing (Figure 1). Discard the gasket, spring, and plunger.

**NOTICE:** The oil supply line to the oil cooler can be installed at either location B or location C (Figure 1) depending on the arrangement. Refer to the applicable instructions below.

If the oil line to the oil cooler is to be installed at location B:

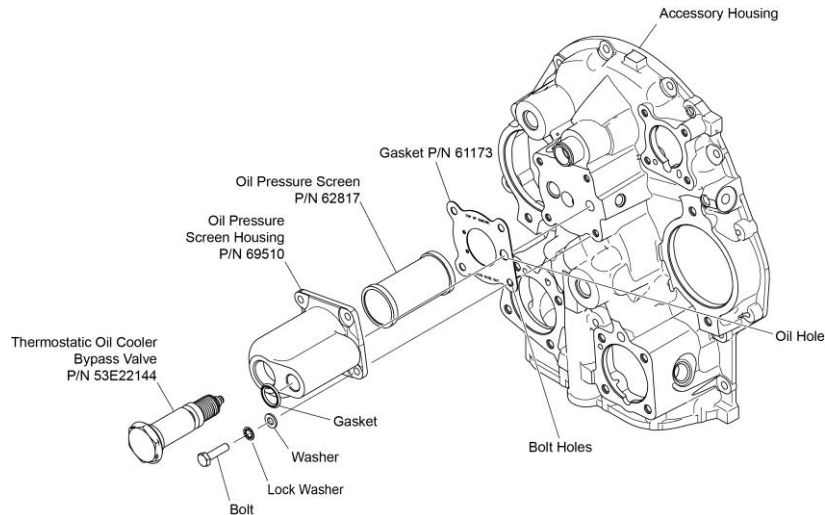
- A. Install the plug P/N 62417 with a new gasket P/N 06E19769-0.63 at location C (Figure 1).
- B. Connect the oil supply line to the oil cooler at location B (Figure 1) on the accessory housing.

If the oil line to the oil cooler is to be installed at location C:

- A. Install the plug P/N STD-784 at location B (Figure 1).
- B. Connect the oil supply line to the oil cooler at location C (Figure 1) on the accessory housing.

ISSUED			REVISED			PAGE NO.	REVISION	S.I. 1008
MO	DAY	YEAR	MO	DAY	YEAR	2 of 3	C	
05	16	60	07	21	16			

2. Connect the oil return line from the oil cooler to fitting installed at Location A (Figure 1).
3. Torque the oil cooler supply line and oil cooler return line per the airframe manufacturer's instructions.
4. Remove the oil temperature bulb from the end of the oil pressure screen housing (Figure 3).
5. Remove the four bolts, lock washers, and washers that attach the oil pressure screen housing to the accessory housing. Discard the lock washers.
6. Remove the oil pressure screen housing and gasket from the accessory housing.
7. Remove the oil pressure screen from its housing. Discard the oil pressure screen housing and gasket.
8. Thoroughly clean the oil pressure screen in petroleum solvent.



**Figure 4**  
**New Oil Pressure Screen Housing**

9. Install the oil pressure screen in the new oil pressure screen housing P/N 69510 (Figure 4).
- NOTICE:** Be sure the oil hole (Figure 4) in the gasket aligns with the oil hole in the accessory housing.
10. Install the new oil pressure screen housing P/N 69510 (with the oil pressure screen installed) on the accessory housing with a new gasket P/N 61173 (Figure 4).
  11. Install the four bolts, washers, and new lock washers in the oil pressure screen housing. Torque the bolts to 96 in.-lb. (11 Nm).
  12. Apply Food Grade Anti-seize to the threads of a serviceable thermostatic oil cooler bypass valve, P/N 53E22144 (or other thermostatic oil cooler bypass valve identified in the latest revision of Service Instruction No. SI-1565).
  13. Install the thermostatic oil cooler bypass valve P/N 53E22144 with gasket P/N 76510 (included) in the new oil pressure screen housing (Figure 4). Torque the thermostatic oil cooler bypass valve to 300 in.-lb. (34 Nm).
  14. Safety wire/cable the thermostatic oil cooler bypass valve.
  15. Install the oil temperature bulb (Figure 2) and electrical connector with a new gasket P/N 06E19769-0.63 in the new oil pressure screen housing per the airframe manufacturer's instructions.
  16. Operate the engine at 1000 rpm for 3 minutes at the operating temperature and pressure specified in the Lycoming Engines manual. Make sure there are no oil leaks. Identify and correct the cause of all oil leaks.
  17. Monitor the engine oil temperature and pressure gages during engine operation to ensure correct operation.

ISSUED			REVISED			PAGE NO.	REVISION	S.I. 1008
MO	DAY	YEAR	MO	DAY	YEAR			
05	16	60	07	21	16	3 of 3	C	