Stratus Tool Technologies, LLC

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-MANDATORY-

Service Bulletin: SB-001

Original Date: October 25, 2019

SUBJECT: OIL FILTER ADAPTER LEAKS

Applicability: Continental aircraft engines having any of the following F&M or Stratus oil filter adapters installed in accordance with STCs SE09356SC, SE8409SW & SE10348SC.

CO-300
STC# SE8409SW

C6LC-L
STC# SE09356SC

C6LC-S
STC# SE09356SC

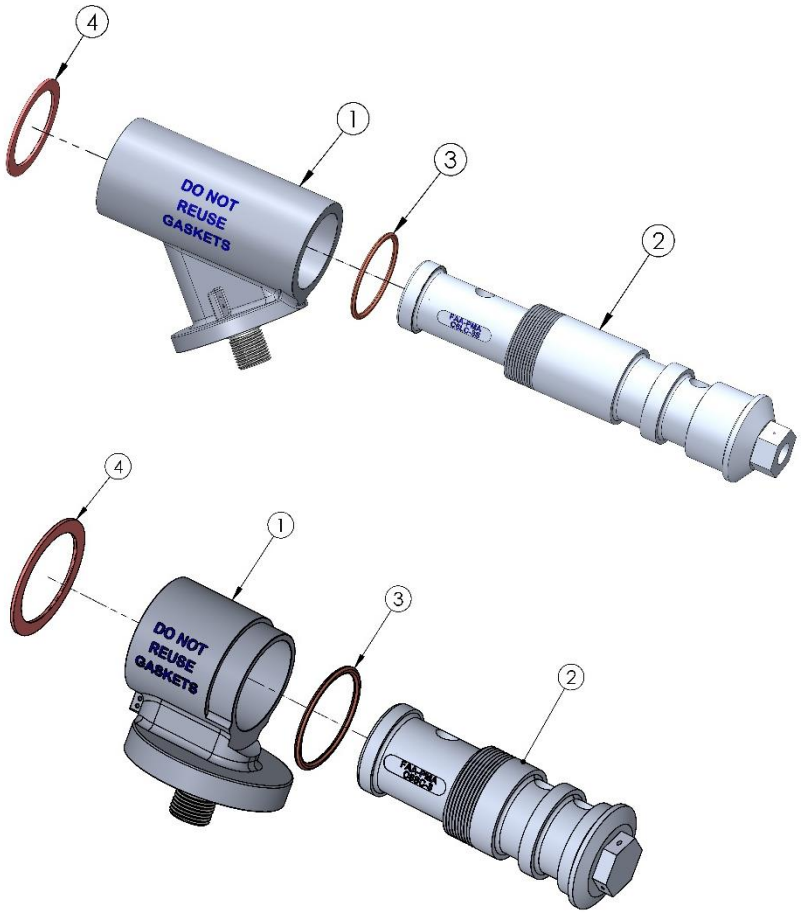
C6SC
STC# SE8409SW

C6LC-11/15
STC# SE10348SC

AIRCRAFT				
CO-300 (STC) SE8409SW Beechcraft Bonanza Beechcraft Debonair Cessna 170, 172 Globe Swift Maule	**C6LC-L** (STC) SE09356SC Beechcraft Bonanza Beechcraft Debonair Cessna 205, 206, 207, 210, 310 Grumman Widgeon Meyers Navion Twin Commander	**C6LC-S** (STC) SE09356SC Beechcraft Bonanza Beach Baron (Model 55) Beechcraft Debonair Bellanca Viking Cessna 180, 182, 185, 188	**C6SC** (STC) SE8409SW Cessna 172 Hawk XP, 175, 336 & 337 Maule Mooney M20-K Piper Seneca II Piper Turbo Arrow III & IV	**C6LC-11/15** (STC) SE10348SC Cessna L-19 Bird Dog
ENGINES				
C-125 Series C-145 Series O-300 Series	O-470 Series (Sand Cast Crankcase Only) IO-470 Series IO-520 Series IO-550 Series TSIO-520 Series	O-470 Series (Sand Cast Crankcase Only) IO-470 Series IO-520 Series IO-550 Series TSIO-520 Series	GO-300 Series IO-360 Series TSIO-360 Series	O-470-11 O-470-15

ITEM NO.	NOMENCLATURE	QTY.
1	ADAPTER BODY	1
2	OIL TRANSFER CYLINDER	1
3	COPPER GASKET*	1
4	FIBER GASKET P/N FMO7	1

*AN900-28 copper gasket is used on all models except model C6LC-11/15 which uses an AN900-29 copper gasket.



Background: Due to reports of oil leakage at the fiber gasket on some oil filter adaptors (the adaptor), the inspections and procedures addressed in this bulletin must be accomplished.

Improper installation, improper maintenance (including, but not limited to failure to identify and eliminate oil leaks), and/or the re-use of copper or fiber gaskets can result in an oil leak and the loss of engine oil. Insufficient engine oil may result in partial or complete loss of engine power.

This bulletin emphasizes the importance of carefully following the adapter Installation Instructions and ICA instructions and the need for adequate maintenance to ensure that the adapter is not leaking and is properly and securely installed.

Compliance Time: The inspections and instructions, described in this bulletin must be accomplished before further flight. If discrepancies are discovered during these inspections, they must be rectified before further flight.

After the inspections and instructions described in Paragraphs 1, 2 a thru f, 3, 4, 5 and 6 are accomplished, the aircraft may be approved for return to service with respect to the issues addressed by this bulletin.

Compliance Instructions:

1. Using bright lighting and a mirror as required, inspect the adapter for leaks, seepage, gasket damage (physical bulges, fraying etc.), and for security. If any oil leaks, seepage, gasket damage, adapter looseness, or other defect(s) are discovered, however slight, proceed directly to Paragraph 3. Note: Oil and dirt stains on the engine accessory case/oil pump housing may indicate a seeping or leaking gasket.

2. If NO leaks or seepage, however slight, or gasket damage, looseness or other discrepancies are discovered:

    a. Use a fine point felt pen to make a match mark on the oil transfer cylinder and oil pump housing as shown on Figure 1. While standing beside the aircraft, grasp the oil filter and, using the filter as a lever (or 'handle'), apply 30 to 50 pounds of force in an attempt to rotate the filter body in a counter-clockwise direction around the oil transfer cylinder, see Figure 2. (Note: You are not trying to unscrew the filter itself. You are trying to make the body rotate about the oil transfer cylinder). Check the match marks for movement of the body. If ANY displacement of the match marks occurred and/or any movement of the body, the oil transfer cylinder, or both was detected, no matter how slight, proceed directly to Paragraph 3.

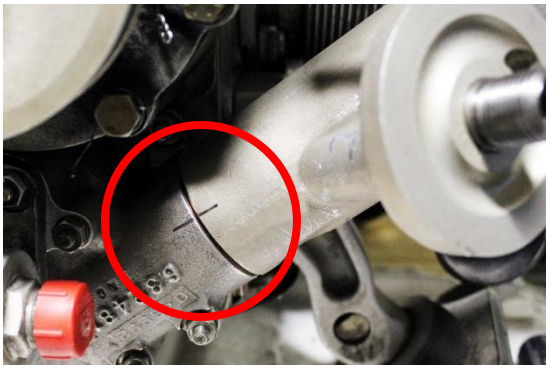


Figure 1

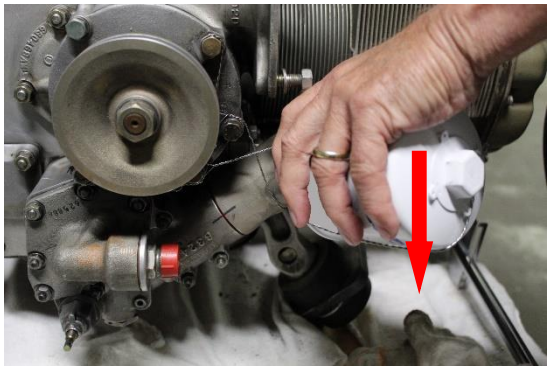


Figure 2
(Pushing Down on Filter)

b. If neither the body or oil transfer cylinder moved when tested in accordance with Paragraph 2 a, apply a bead of Torque Seal (Cross Check ITW PRO Brand or equivalent) across the gasket at the oil transfer cylinder/oil pump housing joining as shown below in Figure 3.

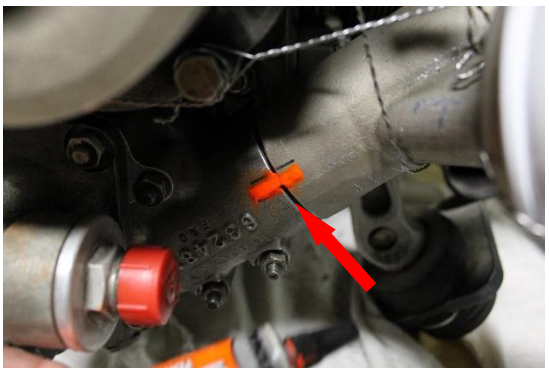


Figure 3

c. Check the safety-wirings (lockwire). They must be tight and run in the correct direction to prevent loosening of the parts they secure. Correct any discrepancies.

d. If there is no safety-wire securing the <u>body itself</u> against rotation, install a safety-wire such that the wire will prevent the body from rotating in a counter-clockwise (loosening) direction, see Figure 4, Secure the safety-wire to a suitable location **on the engine**. <u>*Do not secure any safety-wire from the adapter to the airframe.*</u>

SAFETY- WIRE
securing the body itself
against rotation

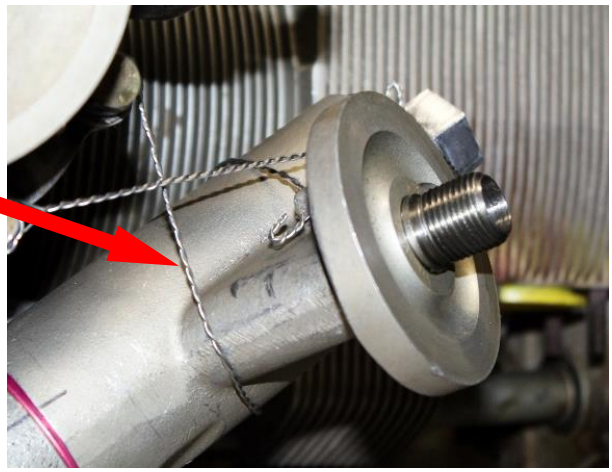


Figure 4

e. If, during ANY inspection, the Torque Seal applied to an adapter is broken or missing, thoroughly inspect and investigate the oil filter adapter for **leaks, seepage, bulging, and security. If defects are found, make necessary repairs prior to approving the aircraft for return to service. ALWAYS INSTALL NEW COPPER AND FIBER GASKETS ANY TIME THE ADAPTER IS REMOVED, ADJUSTED, LOOSENED, OR REPAIRED. NEVER ATTEMPT TO CORRECT AN ADAPTER OIL LEAK OR LOOSE BODY BY TIGHTENING THE OIL TRANSFER CYLINDER ON USED GASKETS.**

f. Replace missing Tamper Seal before approving the aircraft for return to service.

3. **Remove the adapter from the engine.** Cut and remove the safety-wire as necessary. Then, unscrew the oil transfer cylinder from the engine oil pump. Tag the aircraft "OUT OF SERVICE – DO NOT FLY" until appropriate repairs are accomplished.

4. Reinstall the oil filter adapter in accordance with the instructions contained in the appropriate Installation Instructions and ICA applicable to your model oil filter adapter. It is imperative that the instructions in the Installation Instructions and ICA be followed.

5. The following information is provided to assist you in carrying out the instructions in the Installation Instructions and ICA and this Service Bulletin.

In conjunction with the latest FAA accepted ICA and FAA approved installation instructions, the following inspection and verification steps are recommended:

Occurrence	Recommended Action
Each oil change Each 100-hour or annual inspection Any time the adapter is removed and installed	When inspecting the oil filter adapter for oil seepage per step 4.a of Stratus Tool Technologies, LLC ICA ST001, also perform the following inspections to verify gasket integrity and installed location: a. Inspect the entire visable outer diameter of both the fiber gasket and copper gasket for signs of bulging, tearing, protrusion, displacement, or other abnormal wear. If any of those conditions are found, replace the fiber and copper gaskets on the transfer cylinder with new gaskets. Reinstall the adapter in accordance with the applicable Stratus Tool Technologies, LLC installation instructions. b. Verify that the fiber gasket and copper gasket are installed in their correct locations. If either gasket is incorrectly installed, replace the fiber gasket and copper gasket on the transfer cylinder with new gaskets in their correct location. Reinstall the adapter in accordance with the applicable Stratus Tool Technologies, LLC installation instructions.
Following any oil filter installation	Check and verify per step 4.c of Stratus Tool Technologies, LLC ICA ST001 "that body does not move (rotate around the transfer cylinder) when 10 to 20 pounds of force is applied to the body in a manner that would tend to rotate it around the cylinder…" If the body rotates around the transfer cylinder, replace both gaskets and reinstall the adapter in accordance with the applicable Stratus Tool Technologies, LLC installation instructions.

NOTE: Whenever tightening the adapter transfer cylinder to 65 ft-lbs of torque, ensure the gaskets and body do not rotate around the transfer cylinder, as damage may occur to either gasket. If this occurs, replace both gaskets and reinstall per the installation instructions.

When the adapter is ready to be tightened, use a fine point felt pen to make a match mark on the body and oil pump housing as shown in Figure 5.

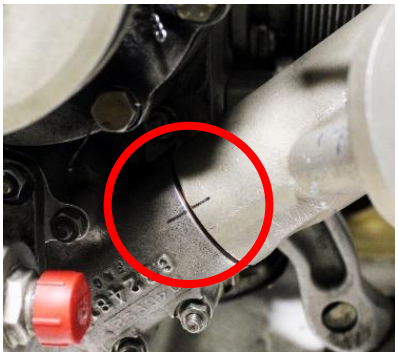


Figure 5

Fabricate a wooden block/wedge that will fit snugly between the filter mount flange and an adjacent structurally sound part of the engine or airframe that is competent to resist the turning forces encountered when tightening the oil transfer cylinder. Place the block so that as the oil transfer cylinder is tightened the body cannot rotate with the oil transfer cylinder. See the exemplar arrangement in Figures 6 and 7.

Figure 6

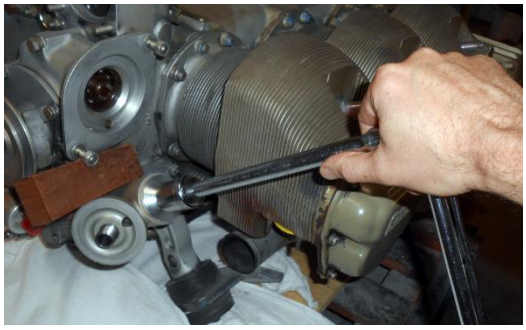


Figure 7

Note: Because the adapters are used on many different aircraft, the block/wedge arrangement will be different in different aircraft.

With the block in place, tighten the oil transfer cylinder to 65 ft/lbs torque. If the match marks misalign by more than 1/32 inch after tightening the oil transfer cylinder, i.e., the body has moved relative to the oil pump housing, remove the adapter assembly from the engine as previously described. Replace both gaskets with new gaskets and reinstall the adapter in accordance with the instructions

contained in the Installation Instructions and ICA applicable to your model adapter

When the installation is successful, i.e., the match marks are aligned within limits, and the oil transfer cylinder is tightened to 65 ft/lbs torque, safety-wire the:

a. oil transfer cylinder to the engine (Figure 8) and,
b. the body to the engine (Figure 9).

Wrap the wire around the body in such a manner that the oil transfer cylinder cannot turn counter-clockwise, see Figure 9.

Install the oil filter. Tighten it to the torque recommended by the filter manufacturer. Safety-wire the filter to the safety-wire tab on the oil transfer cylinder, see Figure 10.

Do not secure any safety-wire from the filter adapter or filter to the airframe.

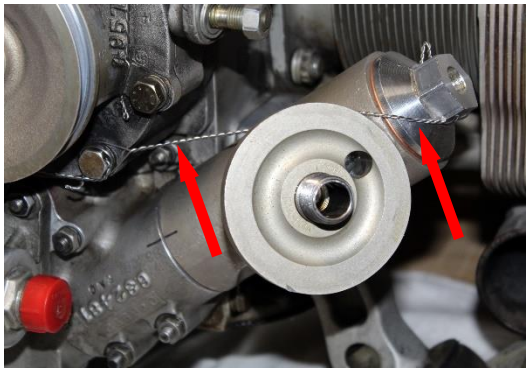


Figure 8

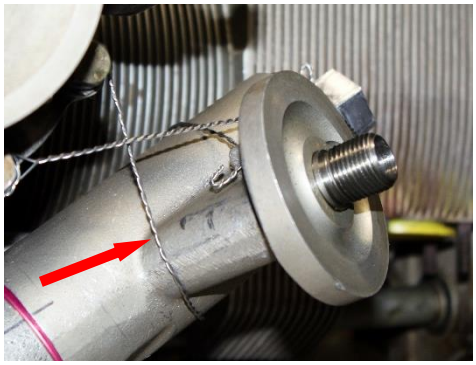


Figure 9

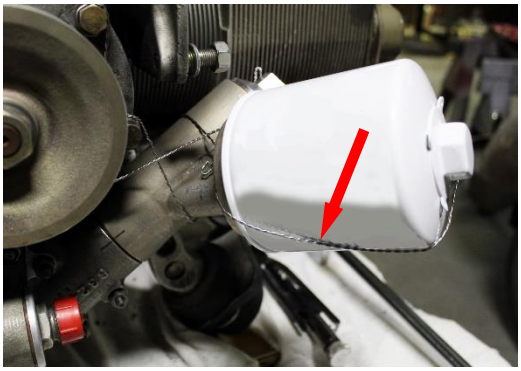


Figure 10

When the adapter is successfully installed, apply a bead of Tamper Seal from the oil pump housing across the fiber gasket and onto the oil transfer cylinder as shown in Figure 11.

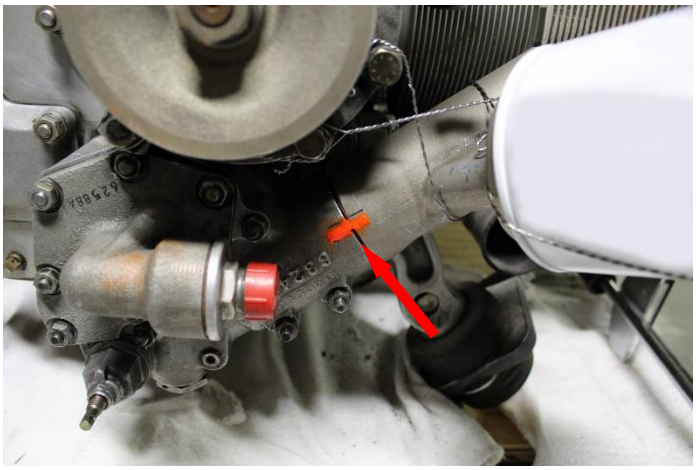


Figure 11

6. PRIOR TO APPROVAL FOR RETURN TO SERVICE:

   a. Reinstall any airframe or engine parts removed in accordance with the airframe or engine manufacturer's instructions.

   b. Check and, if necessary, replenish the engine oil. *The filter may hold up to about one quart of oil, so check the engine oil after the leak check engine run.*

   c. Perform an engine run to check for oil leaks. Run the engine for at least 5 minutes. Stop the engine and inspect the adapter installation for leaks.

   d. Make a detailed logbook entry referencing this Service Bulletin Number SB-001 dated 10/25/19, or later revision, to memorialize the adapter installation inspections and re-installation, and/or any other work accomplished while complying with this service bulletin.

For additional information regarding this Service Bulletin, contact:

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Safety First: Stratus Tool Technologies, LLC is a customer-service orientated company committed to technical innovation in pursuit of aviation safety. While Stratus Tool Technologies, LLC has no authority to compel aircraft owners and/or operators to act responsibly and take prudent action to ensure their own safety and the safety of others, Stratus Tool Technologies, LLC believes that compliance with this MANDATORY service bulletin is important and will help ensure better maintained and better performing products.