

Installation Instructions
for
Model BC708
Oil Filter Adapter

for replacement of existing pressure oil screens
or spin-on oil filter adapters

on

Lycoming O-235; O, IO, LIO, AIO, AEIO-320; O, IO, LIO, HO, HIO, TIO, AIO, AEIO-360;
O, IO, HIO, TIO, LTIO, AEIO-540 & IO-720 series engines

Revision History

Rev	Description	Date
A	Original Issue	3/22/02
B	Added “(BC708-1 only)” notes to parts list for Maule	10/16/02
C	Added Diagram 2a	12/01/05

Introduction

This kit is applicable to any aircraft fitted with Lycoming O-235, O, IO, LIO, AIO, AEIO-320; O, IO, LIO, HO, HIO, TIO, AIO, AEIO360; O, IO, HIO, TIO, LTIO, AEIO-540 or O-720 series engines and having adequate mechanical airframe clearance for the filter installation.

Parts List

The following parts are supplied with this installation kit:

<u>Qty.</u>	<u>Part No.</u>	<u>Description</u>
1	BC708-1 or -2	Oil Filter Adapter
1	700-302-1	Gasket, Oil Filter Adapter
1	MS35769-11	Crush Gasket (BC708-1 only)
1	76510	Gasket, Vern-a-therm
1	CH48108 or 48109	Oil Filter (BC708-1 only)
4	AN960-416	Flat Washer
4	AN936A-416 or MS35333-40	Washer, Lock, Int. tooth, 1/4"

Installation

Installation of the new 90E oil filter adapter (referred to as **OFA**) is accomplished as follows:

1. Remove or break loose the oil temperature bulb or oil temperature sender on existing oil screen housing or oil filter adapter.
2. Remove or break loose the thermostatic bypass valve (Vern-a-therm) or plug (if the thermostatic bypass valve is not used) on existing oil screen housing or oil filter adapter.
3. Remove the existing oil screen housing or oil filter adapter.
4. Remove all of the old gasket material. Be sure that you have a clean smooth mounting surface to install the new gasket and **OFA**. Refer to Lycoming service instruction 1316A and check the condition of the thermostatic bypass valve (Vern-a-therm) and accessory case seats if so equipped.

If the engine was not equipped with a thermostatic bypass valve (Vern-a-therm) but one is being added, refer to Lycoming publication #SSP-885-1. This can be obtained by calling Lycoming at (570) 327-7278 or (570) 323-6181. Note that the oil cooler bypass valve and spring is removed when a Vern-a-therm is added to the installation.

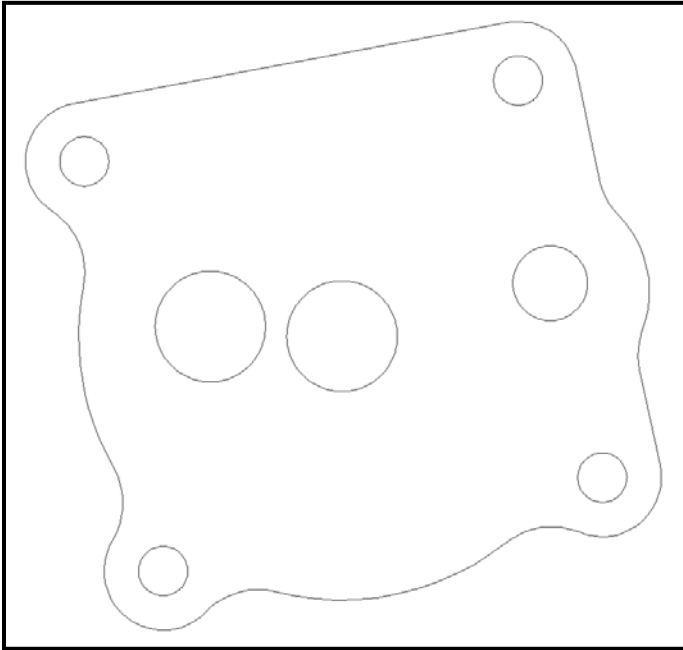


Figure 1

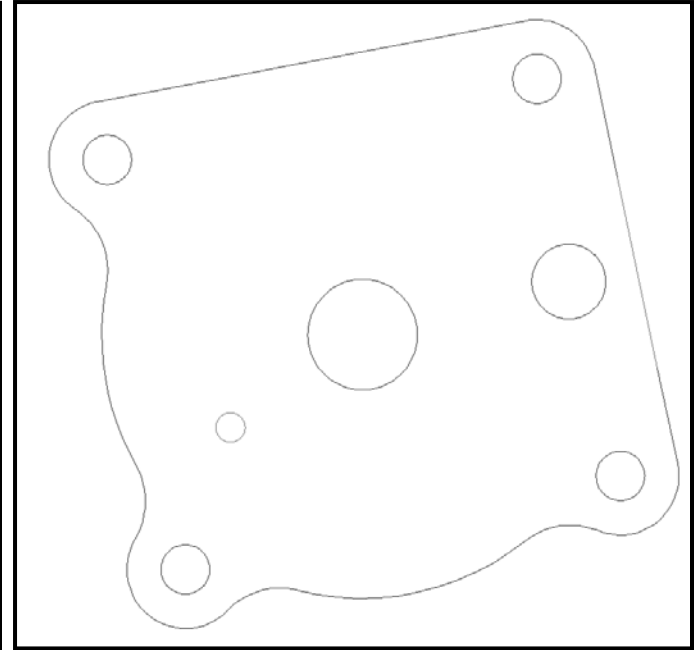


Figure 2

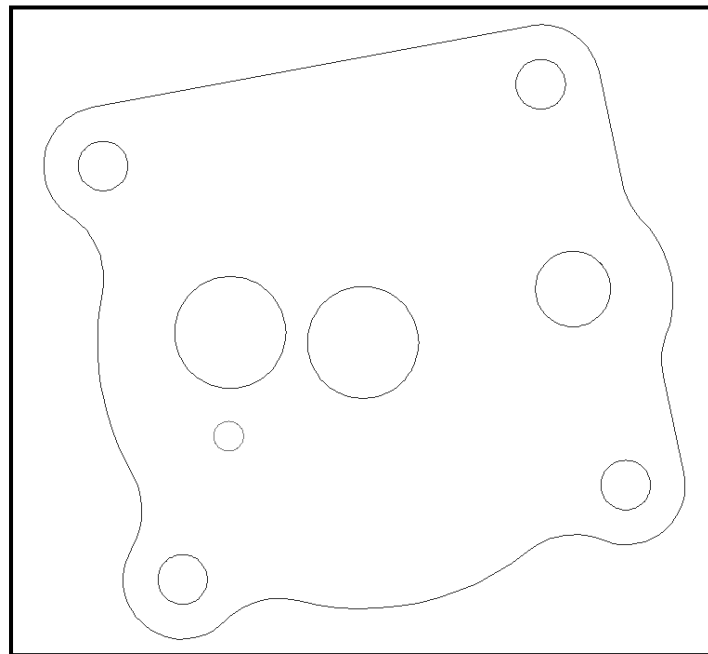


Figure 2a

5. The mounting pad on the accessory case for the OFA should be like the drawing in Figure 1, Figure 2, or Figure 2a. If the mounting pad is different, DO NOT use this adapter. Call B & C Specialty Products at (316) 283-8000. The B&C OFA is not compatible with 76 series engines or on accessory cases with "Dual Magneto" mounts (two magnetos in one case with a single drive).

If installing the **OFA** on an IO-720 engine, it requires the use of a spacer (Lycoming part number LW-12775) to properly align the oil passages. This spacer should already be on the engine if a Lycoming oil filter adapter was previously installed and may be re-used under the B&C **OFA**.

6. Check the fit of the **OFA** on the accessory pad. Temporarily screw the oil filter onto the adapter and hold the adapter in place on the accessory case. Make certain that the oil filter will clear the engine mount, cowling, and any other fixed structure in the engine compartment by at least ½ inch. The installer is responsible for assuring that the oil filter and **OFA** will have adequate clearance to other structures during maximum engine mount deflection. A spacer will be required between the accessory case and adapter whose length depends on the fuel pump used. The following installation kits are available to space the filter away from the accessory case as required:

B&C P/N	Spacer Length	Description, P/N	Qty
FK505-.75	.75"	Spacer, 700-303-.75	1
		Gasket, Accessory Case, LW12795	1
		Bolt, Hex, Gr. 8, 1/4-20 x 1.75 Lg., S879-28	3
		Stud, S886-16, 1/4-20 x 2.0 Lg.	1
		Nut, S804-420, 1/4-20, Gr. 8	1
FK505-1.4	1.4"	Spacer, 700-303-1.4	1
		Gasket, Accessory Case, LW12795	1
		Bolt, Hex, Gr. 8, 1/4-20 x 2.37 Lg., S879-38	3
		Stud, S886-22, 1/4-20 x 2.75 Lg.	1
		Nut, S804-420, 1/4-20, Gr. 8	1
FK505-2.5	2.5"	Spacer, 700-303-2.5	1
		Gasket, Accessory Case, LW12795	1
		Bolt, Hex, Gr. 8, 1/4-20 x 3.5 Lg., S879-56	3
		Stud, S886-30, 1/4-20 x 3.75 Lg	1
		Nut, S804-420, 1/4-20, Gr. 8	1

7. Before installing the OFA bolts, check the depth of the tapped holes in the accessory case mounting pad. Turn a bolt into each hole by hand as far as it will go. Measure the distance between the accessory case pad and the underside of the bolt head. If the distance is more than 1/4" plus the spacer length, re-tap the hole using a 1/4-20 bottoming tap to clean the threads in the bottom of the hole. **Do not** machine the holes deeper than they were originally machined. If you are removing a Lycoming oil filter adapter and

- there is a stud in the lower left mounting hole, the stud must be removed and replaced with the longer one furnished in the installation kit. The old stud must be removed using double nuts locked together on the end of the stud. If heat is required for removal of the stud, a heat gun such as is used for paint stripping is suggested.
8. Install the new aluminum washer (Lycoming P/N 76510) on the thermostatic bypass valve (Vern-a-therm, Lycoming P/N 75944). Screw thermostatic bypass valve into the **OFA**. If a thermostatic bypass valve was not originally used in the screen housing, the plug that was previously used is installed in the OFA using the new aluminum sealing washer.
 9. Install B&C gasket P/N 700-302-1. Only this gasket must be used between the **OFA** and the spacer. Use a thin film of Loctite 518 gasket eliminator on both sides of the gasket. Take care that the gasket holes align with all of the holes in the **OFA** and the gasket contour matches the surface. This will happen in only one gasket position. Lycoming gasket P/N LW12795 (furnished with the spacer kit) must be used between the spacer and the accessory case. Also apply Loctite 518 on both sides of the Lycoming gasket. The spacer holes will align with the bolt holes in the accessory case in only one position with the hollow side of the spacer toward the accessory case.
 10. After removing filter from the **OFA**, install the **OFA** and spacer using the hardware provided in the **OFA** and spacer kits. Torque the four fasteners to 75 in. lbs.
 11. Torque the thermostatic bypass valve to 300 in. lbs.
 12. The hole (if provided) for the oil temperature sender is tapped 5/8-18UNF to accommodate P/N MS28034-1 temperature sender. If this hole is not used for an oil temperature sender, B&C Part Number 708-305-1 Plug, must be installed instead of the temperature sender to plug the hole. Check Figure 3 for maximum temperature probe size.

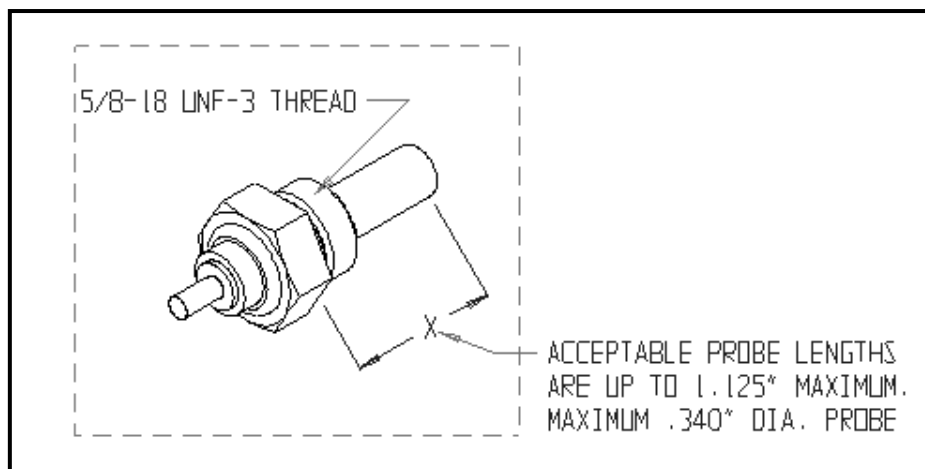


Figure 3

13. Install MS35769-11 copper crush type gasket onto the temperature sender. Gasket should be installed with the unbroken surface against the flange of the temperature sender. Turn the temperature sender until the sealing surfaces are in contact. Then turn the temperature sender an additional 180E. If B&C Plug part number 708-305-1 is being used, the crush gasket is used between the Plug and the **OFA** with the unbroken surface against the Plug and tightened in the same manner.
14. Safety wire the thermostatic bypass valve (Vern-a-therm) and the temperature sender or plug.
15. Lubricate the oil filter base gasket with Dow Corning -4 Compound. If unavailable, use clean engine oil. Install the spin-on oil filter and torque to 16-18 lb. ft. Do not use dirty engine oil to lube the filter base gasket. The dirty engine oil makes the oil filter difficult to remove later.

CAUTION

DO NOT TIGHTEN THE SPIN-ON FILTER BEYOND THE SPECIFIED MAXIMUM TORQUE. OVER TIGHTENING WILL MAKE THE FILTER EXTREMELY DIFFICULT TO REMOVE. ALWAYS USE A 6 POINT, 1 INCH SOCKET WHEN TIGHTENING A FILTER.

16. **RUN ENGINE AND CHECK FOR CORRECT OIL PRESSURE AND OIL LEAKS.**
17. **CHECK OIL LEVEL.**
18. **SAFETY WIRE FILTER**
19. Refer to Lycoming Mandatory Service Bulletin No.480C for oil and filter change intervals and oil filter content inspections.
20. Refer to B&C BC708_ICA.wpd for instructions for continued airworthiness.

REMOVING THE OIL FILTER

1. Poke a hole in the top of the oil filter with an awl.
2. Remove safety wire on filter.
3. Drain the sump.
4. After 45 minutes to 1 hour of draining, the filter can be removed with minimal oil leakage. You can buy a plastic bag (2' X 2') that has a drawstring. Break the initial torque loose on the filter. Put the plastic bag over the filter and pull the drawstrings tight around the **OFA** flange and unscrew the filter inside the plastic bag. **NO MESS!**

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