

Continental Motors® PMA Aircraft Engine Products
SERVICE INFORMATION LETTER

CATEGORY 5
SIL010

Contains Useful Information Pertaining to Your Aircraft Engine

- SUBJECT:** Continental Motors Angled Oil Filter Adapter Configuration Options for Lycoming® Engines
- PURPOSE:** This Service Document provides configuration options and requirements for installing the angled oil filter adapter (P/N AEL105-1) used on Lycoming® engines.
- COMPLIANCE:** Reference material to identify angled oil filter adapter features and available Continental Motors configuration options.

MODELS

AFFECTED: Lycoming®¹ model 235, 290, 320, 360, 540, and 720 engines except 76 series engines (O-320-H2AD, O-360-E1A6D, etc.) and dual magneto engines (O-360-A1AD, A1F6D, A1LD, etc.) fitted with Continental Motors replacement parts manufactured under PMA.

I. GENERAL INFORMATION

Continental Motors (CMI) has FAA engineering design and Parts Manufacturing Approval (PMA) replacement angled oil filter adapters applicable to Lycoming® 235, 290, 320, 360, 540, and 720 engines (except 76 series engines (O-320-H2AD, O-360-E1A6D, etc.) and dual magneto engines (O-360-A1AD, A1F6D, A1LD, etc.)) that have sufficient clearance for installation. This Service Document details features and installation requirements for the CMI angled oil filter adapter (P/N AEL105-1) applicable to Lycoming® engines (see Models Affected above).

II. FEATURES

The CMI angled oil filter adapter is an alternative to the Lycoming® straight oil filter adapter 77852, which in most applications requires the use of a short oil filter that have reduced filtration capacity and service life.

1. The use of the CMI angled oil filter adapter allows the use of a long oil filter (such as Tempest® AA48109 or equivalent), which provides improved filtration capacity.
2. Three *optional* mounting extension kits (spacers) set the angled oil filter adapter back from the accessory case. This may be needed to allow installation of unique components requiring additional space to avoid engine mounts, magnetos, and other accessories (see Table 1).
 - AEL106-1 - 0.75 inch (AEL22776-108)
 - AEL106-2 - 1.40 inch (AEL22776-114)
 - AEL106-3 - 2.50 inch (AEL22776-125)

1. Lycoming® is a registered trademark of Textron Innovations Inc. Continental® is not connected to, affiliated with, sponsored by, or endorsed by Textron Innovations Inc. or Lycoming® Engines, a Division of Avco Corporation, or any of their related or affiliate companies.

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III. INSTALLATION AND CONFIGURATION REQUIREMENTS

The angled oil filter adapter is sold as kit AEL105-1 (see Table 1), which includes components needed to complete the basic installation of the oil filter adapter (*except extension spacers or oil filters; these are not included in the basic kit*).

Installation configurations will vary depending upon specific engine accessories and installation requirements. The CMI angled oil filter adapter assembly may need an additional oil filter adapter extension kit (reference Table 1, AEL106-#). It is the responsibility of the installer to determine which extension kit best fits the particular engine installation.

Installation of the Continental Motors (CMI) angled oil filter adapter on Lycoming® IO-720 series engines requires the use of a spacer (Lycoming® part LW-12775), which should already be available if the straight oil filter adapter was previously installed. Determine spacer requirements as needed.

The angled oil filter adapter requires an oil filter with an internal bypass valve (such as AA48109 (long) or AA48108 (short)) which ensures oil flow in the event the filter media is completely filled to capacity. The oil filter must be provided by the installer. These filters have a 3/4-inch internal thread attachment.

CMI angled oil filter adapters are not eligible for Lycoming® 76 models (O-320-H2AD, O-360-E1A6D, etc.) or dual magneto accessory cases (see Lycoming® Overhaul Manuals for an explanation of the dual magneto designation).

CMI extensions (AEL22776-###) are not valid for Lycoming® 235 models because of the unique engine oil supply configuration.

Table 1. Kit, Parts List (P/N AEL105-1 & Oil Filter Adapter Extensions)

| Kit No. | Components | Lycoming® Equivalent | Description | Qty. |
|-----------------|----------------------------|----------------------|---|------|
| AEL105-1 | AEL22772-1 | N/A | Adapter Assy., Oil Filter | 1 |
| | AEL22778 | N/A | Gasket, Oil Filter | 1 |
| | AE8001-4-1.00 | STD-1856 | 1/4-20 x 1 Hex Cap Screw, SAE Grade 5 Steel | 4 |
| | AN960-416 | N/A | Washer, Plain, 1/4 ID | 4 |
| | MS51413-4 | N/A | Washer, Internal Star, 1/4 ID | 4 |
| | AELSTD294 | STD-294 | Gasket, Crush Washer | 1 |
| | AEL76510 | 76510 | Gasket, Valve Assy | 1 |
| | MS20823-8D | N/A | Elbow, 45 Degree, Aluminum | 1 |
| | AE27769-2 | N/A | Plug, Oil Drain (included in AEL2272-1) | 1 |
| AEL106-1 | AEL22776-108 | N/A | Extension, Oil Filter Adapter | 1 |
| | AEL12795 | LW-12795 | Gasket, Oil Filter | 2 |
| | AE8001-4-1.75 ¹ | STD-2084 | 1/4-20 x 1-3/4 Hex Cap Screw, SAE Grade 5 Steel | 4 |
| AEL106-2 | AEL22776-114 | N/A | Extension, Oil Filter Adapter | 1 |
| | AEL12795 | LW-12795 | Gasket, Oil Filter | 2 |
| | AE8001-4-2.50 ² | N/A | 1/4-20 x 2-1/2 Hex Cap Screw, SAE Grade 5 Steel | 4 |
| AEL106-3 | AEL22776-125 | N/A | Extension, Oil Filter Adapter | 1 |
| | AEL12795 | LW-12795 | Gasket, Oil Filter | 2 |
| | AE8001-4-3.50 ³ | LW-25-3.50 | 1/4-20 x 3-1/2 Hex Cap Screw, SAE Grade 5 Steel | 4 |

1. This bolt is fabricated and purchased as ANSI B18.2.1 standard bolt (1/4-20 x 1-3/4 Hex Cap Screw, SAE Grade 5 Steel).

2. This bolt is fabricated and purchased as ANSI B18.2.1 standard bolt (1/4-20 x 2-1/2 Hex Cap Screw, SAE Grade 5 Steel).

3. This bolt is fabricated and purchased as ANSI B18.2.1 standard bolt (1/4-20 x 3-1/2 Hex Cap Screw, SAE Grade 5 Steel).

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IV. OIL FILTER ADAPTER REPLACEMENT GUIDELINES

Installation should be accomplished in accordance with the Lycoming® Overhaul Manual and Advisory Circular 43.13-1 requirements. The following steps are helpful guidelines to these requirements.

1. If replacing an existing oil filter or screen adapter, remove all attaching components such as temperature probes and control valves (Vernatherm).
2. Remove the old oil filter adapter or oil screen adapter. Clean the accessory case surface thoroughly to remove old residue. The surface must be clean and smooth to install the CMI angled oil filter adapter assembly.
3. Visually inspect the oil filter mounting pad to confirm that the profile is the same as depicted in Figure 1. If your mounting pad does not conform to this figure, the CMI angled oil filter adapter may not be used.

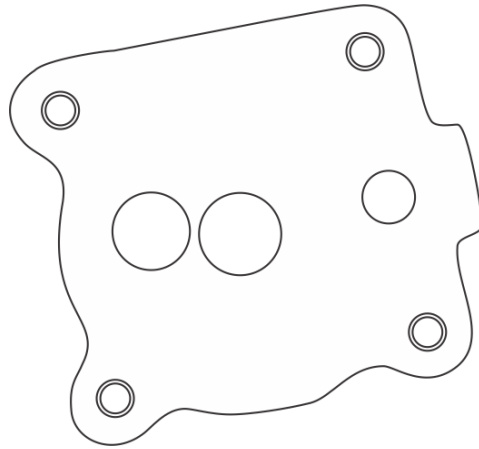


Figure 1. Accessory Case Oil Filter Pad

WARNING

The AEL22778 gasket MUST be used between the AEL22772-1 adapter and the accessory case or the extension (see Table 1, Kit, Parts List). Only the AEL22778 gasket provides sufficient clearance for the AEL19600 temperature control valve to properly seat and perform satisfactorily.

4. To ensure that you have the correct kit, temporarily assemble and fit (with oil filter and all adapters) onto your accessory case (see Figure 2). Each oil filter adapter kit requires the appropriate length bolt for installation (reference Table 1 footnotes).
 - a. Maintain minimum 1/2-inch clearance between the firewall and any other structure on the aircraft or engine. If the assembly does not have sufficient clearance (reference Figure 3), contact Continental Motors customer service for assistance in ordering the correct kit.
 - b. A 45° elbow (P/N MS20823-8D) must be installed in the oil cooler return (located above the left magneto). This elbow is provided with each kit to accommodate the oil filter adapter.

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***ITEMS ARE INSTALLER PROVIDED**

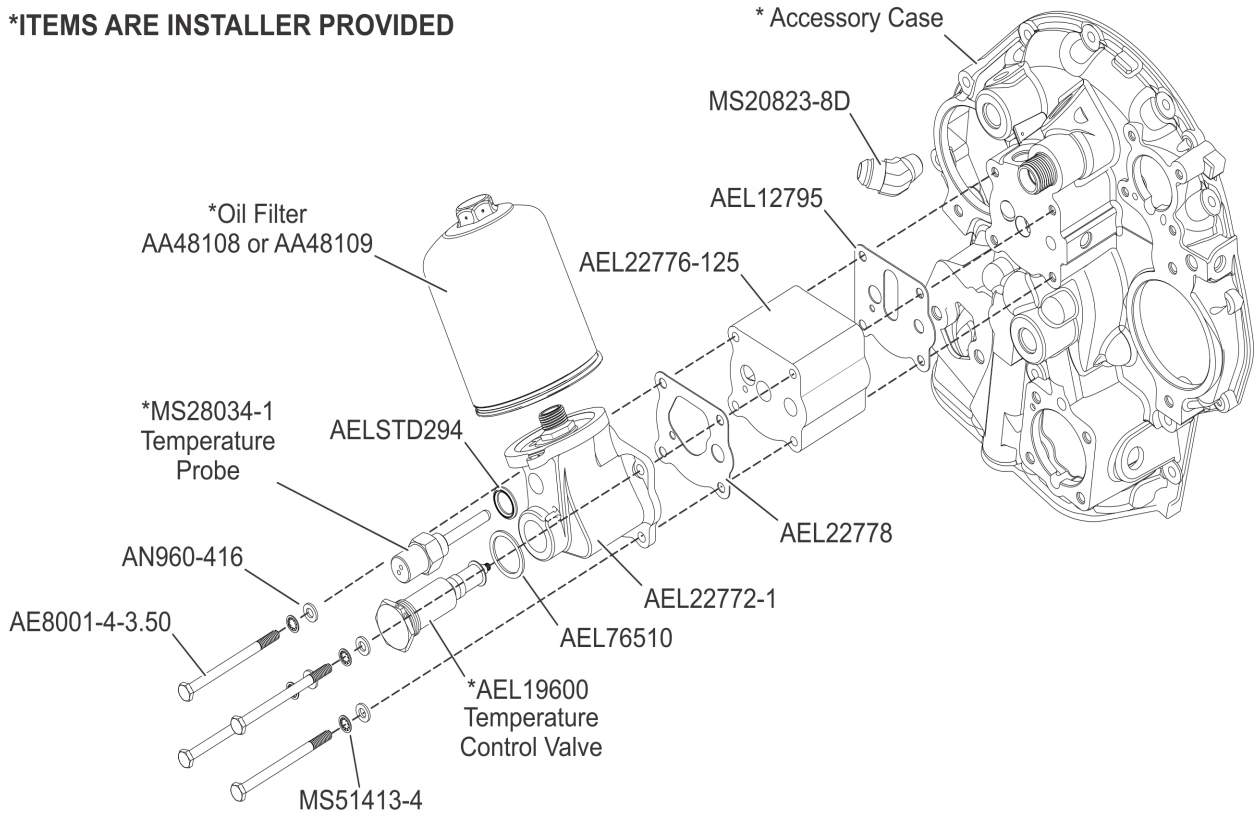


Figure 2. Angled Oil Filter / Oil Filter Adapter Extension, typical

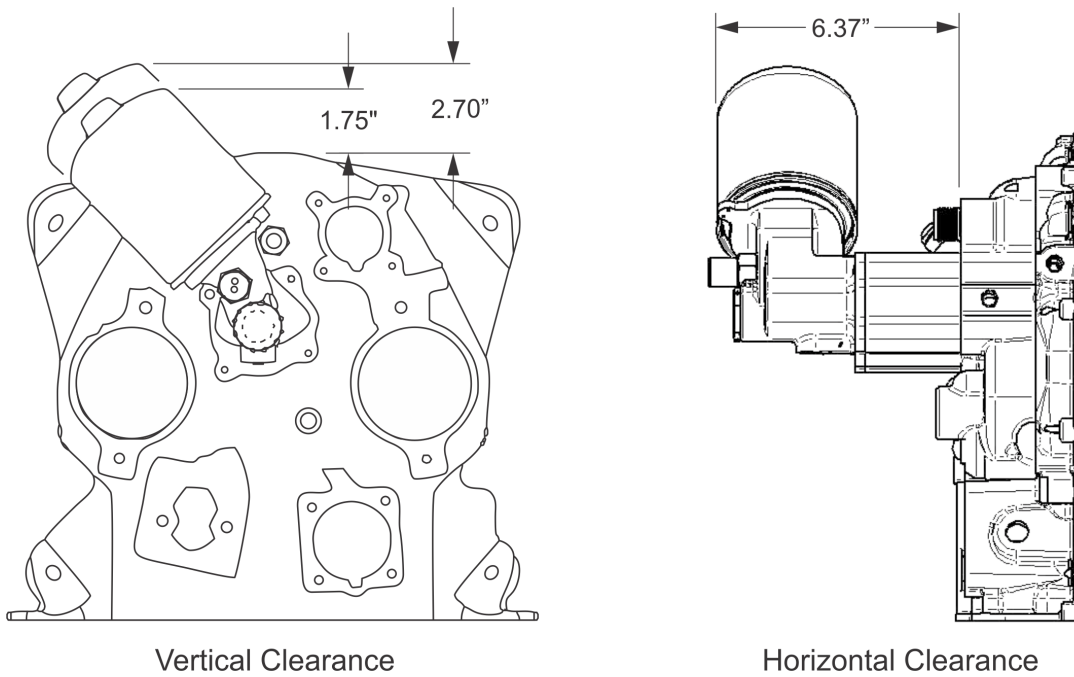


Figure 3. Angled Oil Filter Clearance Requirements

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5. Remove the oil filter from the adapter, and install the CMI angled oil filter adapter and spacers using the enclosed gaskets, bolts, and washers. The installation should be accomplished according to the following:
 - a. Take care to ensure that the gasket is aligned precisely as indicated on its surface to ensure that no oil passages are obstructed.
 - b. Inspect the depth of the bolt holes thoroughly to ensure that they are clean, damage-free, and deep enough to fully seat the bolt on the adapter flange by hand. If the accessory case oil filter pad contains one or more studs, they may need to be removed prior to installing CMI oil filter adapter extensions. Great care should be exercised when performing this task in order to prevent breaking the stud or damaging threads on the oil filter pad. CMI recommends repairs be accomplished only by an FAA-certified repair station.
6. Install the temperature control valve (CMI P/N AEL19600) and the temperature probe (P/N MS28034-1 or equivalent) using the gaskets provided and according to Lycoming® Overhaul Manual torque requirements. Safety wire all components as required in the Lycoming® Overhaul Manual and AC 43.13-1.
7. Follow the manufacturer's instructions to determine if the oil filter seal should be pre-coated (with clean engine oil) or not coated (typically anti-stick seals).
8. Install and torque oil filter (installer provided) to 16-18 ft-lbs.

NOTE: The CMI angled oil filter adapter assembly does not have an internal bypass valve; oil filters (AA48108 (short) or AA48109 (long)) must be used. The eligible filters have a 3/4-inch diameter internal thread attachment.

9. Safety wire the oil filter according to the Lycoming® Overhaul Manual and AC 43.13-1.
10. Run the engine and confirm correct operation in accordance with Lycoming® Overhaul Manual requirements.

V. OIL FILTER REMOVAL GUIDELINES

1. Replace the oil filter in accordance with the engine manufacturer's instructions.

NOTE: Avoid oil spillage. Remove the oil filter carefully.

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