



Service Instruction

ENGINE COMPONENTS, INC.

S.I. No.: 07-2

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Title: Crankcase Anti-Seep Grooves

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Technical Portions are FAA DER Approved.

- 1.0 **PURPOSE:** This Service Instruction describes the leak prevention grooves machined into new and repaired crankcases at Engine Components, Inc. (ECi®) and provides rationale for these grooves.
- 2.0 **BACKGROUND:** Leak suppressing grooves are machined into new ECi FAA PMA crankcases in accordance with FAA Approved data. Leak prevention grooves are also machined into repaired crankcases in accordance with FAA Approved data and ECi Repair Station AG2R689K Operating Specifications. The airworthiness of these grooves has been established through FAA Certification testing to CAR 13.154 and FAR Part 33.49. This minor alteration is applicable to crankcases of all aircraft opposed engines.
- 3.0 **LEAK PREVENTION GROOVES:** Leak prevention grooves are shown in Photograph 1 and Photograph 2.
- 4.0 **CONTINUED AIRWORTHINESS INFORMATION:** Repair or overhaul of crankcases generally includes honing or machining the crankcase parting line so that the main bearing bosses can be re-machined to new tolerances (± 0.0005 typical tolerance on the diameter). The amount of material that can be safely removed from the parting line is much less than the depth of the anti-seep grooves, so no additional machining to the grooves is necessary to maintain effectiveness. Crankcases repaired or overhauled by FAA Authorized Repair Stations with the proper operating specifications may return the crankcases to service with the anti-seep grooves intact and without additional rework after ensuring that bearing bosses are within new crankcase tolerances. A thin layer of sealant and silk thread may be applied to the crankcase parting surfaces in accordance with Teledyne Continental or Lycoming Continuing Airworthiness Data.

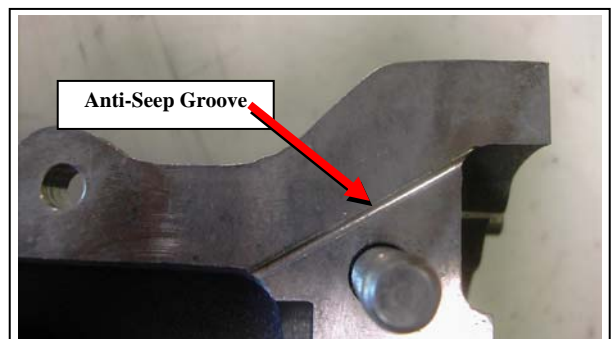


Photograph 1

Indicates the anti-seep groove above the front cam bearing boss of an ECi FAA PMA Replacement crankcase for Lycoming engines.

WARNING

No sealer or other materials are to be applied to the parting line at the bearing bosses around the thru-bolts or under the cylinder flanges (except for the proper O-Ring specified). The reason for this warning is that any material, even though the amount may be small, affects the stiffness of the clamp-up applied by the thru-bolts, and the fatigue life of the thru-bolts is drastically reduced. Failures have been introduced in as few as 25 operating hours with sealant and silk thread at the crankcase parting line at the main bearing bosses around the thru-bolts. The failure process often fails the cylinder hold down studs as well as the thru-bolts, and one result of this phenomenon is that even though properly torqued, if the short studs do not fail, the hold down nuts will often back off and fall off the studs.



Photograph 2

Indicates the anti-seep groove at rear main of an ECi FAA PMA Replacement crankcase for Lycoming engines.