1.0 **SUBJECT:** Engine Components, Inc. (ECi®) crankcases for Lycoming 320/360 series engines.

2.0 **BACKGROUND:** ECi has completed design documentation, endurance, and durability testing in accordance with 14CFR33.49 and 14CFR33.19 and has received PMA approval of 4-cylinder crankcases for a number of Lycoming 320 and 360 series engines. This service instruction details the features and options available for these crankcases.

3.0 **OVERHAUL REQUIREMENTS:**

The ECi replacement crankcase is a cast 356 aluminum alloy. ECi strongly recommends that all crankcases be inspected and repaired (overhauled) by an approved FAA Repair Station. These crankcases may be weld-repaired, but only FAA Repair Stations that have specific FAA approval may accomplish these major repairs using FAA approved or accepted data.

Particular attention must be paid to the crankshaft bores to ensure proper crush of the sleeve bearings. The tolerance on most crankcase crankshaft bearing bores is ±.0005 inch. This very small tolerance is almost impossible to quantify using mechanical measuring equipment. For this fact, ECi relies upon air gages to verify these dimensions and has found this technique to be most reliable.

When crankcases are planed at the parting line during repair (prior to line-bore to re-establish bearing bore tolerances), the location of the idler shaft centers are moved relative to the centerline of the rear main crankshaft and camshaft journals. These idler shaft centers must be re-established to ensure proper gear backlash and operation. All of these repairs must be accomplished according to FAA approved or accepted data. Note that for repairs and tolerances not specifically documented herein, such as cylinder deck heights, use Lycoming overhaul manual and table of limits.

The ECi crankcase has been endurance tested to show compliance with FAR Part 33.49 and was subsequently durability tested to show compliance with FAR Part 33.19. According to the protocol established by the FAA Engine and Propeller Directorate for durability requirements, the recommended overhaul period for this crankcase is the same as the Lycoming crankcase it replaces.

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4.0 FEATURES AND DESIGNATIONS:

ECi Part No.	Features	Lycoming Engine Eligibility
AEL65460-01	1) Dynafocal Type 1 Engine Mount 2) Machined for low crush (AEL11021) main bearings 3) Oil supply hole in thrust surface for additional lubrication to crankshaft/crankcase thrust surface interface 4) Anti-wicking grooves machined along backbone to prevent oil seepage from upper rib	**O-320**-D1A, D1B, D1C, D1D, D2A, D2B, D2C, D2G, D2H, D3G, E1A, E1B, E1C, E2A, E2B, E2C, E2D, E2G, E2H, E3D, E3H **IO-320**-D1A, F1A **O-360**-A1A, A1D, A1F, A1F6, A1G, A1G6, A2A, A2D, A2F, A2G, A3A, A3D, A4A, A4D, A4G, A4J, A4K, A4M, A4P, B1A, B1B, B2A, B2B, B2C **IO-360**-A1A, A1B, A1B6, A1C, A1D, A2A, A2B, A2C, A3B6, B1B, B1D, B1E, B1F, B1F6, B2E, B2F, B2F6, B4A, C1A, C1B, C1C, C1C6, C1D6, C1F, F1A, L2A **TIO-360**-A1A, A1B, A3B6 **AEIO-360**-A1A, A1B, A1B6, A1C, A1D, A2A, A2B, A2C, B1B, B1D, B1E, B1F, B1F6, B1G6, B2F, B2F6, B4A
AEL65460-02	1) Dynafocal Type 1 Engine Mount 2) Machined for low crush (AEL11021) main bearings 3) Machined for AEC646288 thrust washer to help reduce wear at the crankshaft/crankcase thrust surface interface 4) Anti-wicking grooves machined along backbone to prevent oil seepage from upper rib	
AEL65460-09	1) Conical Engine Mount 2) Machined for low crush (AEL11021) main bearings 3) Oil supply hole in thrust surface for additional lubrication to crankshaft/crankcase thrust surface interface 4) Anti-wicking grooves machined along backbone to prevent oil seepage from upper rib	**O-320**-No Suffix, A1A, A1B, A2B, A2C, A2D, A3A, A3B, B1B, B2B, B2C, B2D, B3B, C1B, C2B, C2C, C3B, **IO-320**-E1A, E1B, E2A, E2B **AEIO-320**-E1A, E1B, E2A, E2B **O-360**-C1A, C1C, C1E, C1F, C2A, C2B, C2C, C2E, C4F, C4P, D1A, D2A, J2A **HO-360**-C1A **IO-360**-K2A **HIO-360**-A1A, A1B, B1A, B1B, D1A **AEIO-360**-H1A
AEL65460-10	1) Conical Engine Mount 2) Machined for low crush (AEL11021) main bearings 3) Machined for AEC646288 thrust washer to help reduce wear at the crankshaft/crankcase thrust surface interface 4) Anti-wicking grooves machined along backbone to prevent oil seepage from upper rib	