



FAA
Aviation Safety

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SAIB: NE-20-05

Date: April 6, 2020

SUBJ: POWERPLANT – Engine Camshaft Gear Tooth Fracture

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts registered owners, operators, and certified repair facilities of all airplanes equipped with **Continental Aerospace Technologies, Inc. O-470-U, IO-470, IO-520, L/TSIO-520, LIO-520, IO-550, IOF-550, TSIO-550, and TSIOL-550 series reciprocating aviation gasoline (AvGas) engines** of possible fatigue failure of camshaft gear teeth resulting in loss of engine power in-flight and forced landings, and of available service instructions that introduce improved camshaft gear, part number (P/N) 656818. The service instructions also provide inspection, removal, and installation procedures for replacing superseded camshaft gear, P/N's 631845, 655430, 655516 and 656031, with P/N 656818.

At this time, the airworthiness concern is not an unsafe condition that would warrant airworthiness directive (AD) action under Title 14 of the Code of Federal Regulations (14 CFR) part 39.

Background

This SAIB was prompted by reports of fractured camshaft gear teeth, which resulted in the loss of engine power in flight and forced landings. Continental performed a metallurgical analysis of an exemplar camshaft gear, P/N 655516, and the results indicated evidence of fatigue cracking initiating at the surface of the gear tooth root. The cause of fatigue crack initiation is not known. The gear met hardness requirements, and no material anomalies were identified. These findings are consistent with findings from the metallurgical analysis of other camshaft gear failures.

Continental introduced camshaft gear, P/N 656818, with an increased thickness as a product improvement in Continental Service Bulletin SB05-8, initial release, dated August 9, 2005, and recommended its installation at the next engine overhaul or whenever camshaft gear replacement was required. Continental also specified a repair for Permold crankcases with its installation to eliminate potential interference with the new, thicker camshaft gear.

Continental subsequently recommended replacement of camshaft gear P/N's 631845, 655430, 655516 and 656031 with P/N 656818 at engine overhaul in Continental SB97-6B, dated November 18, 2009. This information has been incorporated into the Instruction for Continued Airworthiness, Continental Standard Practice Maintenance Manual M-0.

With the publication of Continental Critical Service Bulletin CSB05-8D, dated August 22, 2018, Continental specified a 100-hour or annual inspection, depending on airplane operation or inspection program, or at the next maintenance event when the camshaft gear is accessible, whichever occurs first, for camshaft gear P/N's 631845, 655430, 655516 and 656031 on the affected engine models. The recurring inspections, for physical damage, fractures or cracks on all visible camshaft gear surfaces, continue until the aforementioned camshaft gears are replaced with P/N 656818, no later than the next engine overhaul.

There have been no reported failures of camshaft gear, P/N 656818.

Recommendations

The FAA recommends that repair stations, owners, operators and maintenance personnel perform the inspections of camshaft gear P/Ns 631845, 655430, 655516 and 656031 until installation of the improved superseding camshaft gear P/N 656818, as these inspections and replacement as outlined in Continental CSB05-8D, dated August 22, 2018.

For Further Information, Contact

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