FAA
Aircraft Certification Service

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SAIB: NE-09-08
SUBJ: Reciprocating Engine Cylinder Section **Date:** January 30, 2009

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners, operators, and certificated repair facilities of **Teledyne Continental Motors (TCM) 520 series, 550 series, and 470 series engines with certain Airmotive Engineering Corp., Division of Engine Components Inc. (ECi), compression piston rings with a molybdenum plasma coating.** The loss of a portion of the molybdenum plasma coating can result in higher oil consumption, lower cylinder compression pressure, and a possible reduction in engine power. The design of the piston rings was FAA-approved under parts manufacturer approval (PMA). At this time, this airworthiness concern is not an unsafe condition that would warrant an airworthiness directive action under Title 14 of the Code of Federal Regulations (14 CFR) part 39.

Background

From January 2003 thru December 2005, piston ring manufacturer, Prima Piston Rings, supplied **Airmotive Engineering Corp.** with top compression piston rings with a molybdenum plasma coating. These piston rings have a C-shaped groove to retain the molybdenum material. Of these 49,029 top compression piston rings manufactured by Prima Piston Rings during this period, about one percent had a reported delamination problem with the molybdenum plasma coating.

Starting in 2006, the C-shaped groove was replaced with an L–shaped groove, at manufacture, to correct the molybdenum delamination problem. Also starting in 2006, the Dana Corporation has manufactured about 50 percent of the new design molybdenum plasma coated top compression piston rings for Airmotive Engineering Corp. Since the design change, no reports of piston ring failures or coating delamination have been received on any of these rings.

Installation Eligibility

NOTE: The molybdenum plasma coated top compression ring is included in the following Airmotive Engineering Corp. ring sets. Depending on year of manufacture, some of these sets could have top compression piston rings with a C-shaped groove.

TCM Engine Models	Airmotive Engineering Corp. Ring Part No.	Airmotive Engineering Corp. Ring Set No.
520 and 550 series	AEC648005PL	CN110 or ST110
470 series	AEC648009PL	CN106, ST106, CN108, or ST108

NOTE: The molybdenum plasma coated top compression ring is used only with steel cylinder barrels or nickel-plated cylinder barrels.

Recommendations

If the replacement cylinder assemblies in your TCM engine were manufactured by Airmotive Engineering Corp. and installed between January 1, 2003 thru December 31, 2006 and you notice either a sudden increase in oil consumption and/or a decrease in the engine power, do the following:

a. Check the TCM engine records to determine if any new Airmotive Engineering Corp. cylinder assemblies were installed between January 1, 2003 and December 31, 2006.
b. Also, check to determine if any of the Airmotive Engineering Corp. piston ring sets listed in this SAIB were purchased between January 1, 2003 and December 31, 2006 and installed in your TCM engine.
c. If you notice high oil consumption, perform a standard differential compression test to locate any engine cylinder with possible leaking piston rings. Compression test procedures can be found in TCM Service Bulletin No. SB03-3.
d. If a cylinder fails the differential compression test, inspect and overhaul the cylinder in accordance with the applicable TCM overhaul manual.
    1. Cylinders with bore diameters larger than 5.2700 inches when measured at the lower 4.25 inches of the barrel must be replaced.
    2. Otherwise, cylinder barrels may be honed and a new ring set may be installed. After cleaning, cylinder diameter measurements will have to be taken to measure wear. Check the appropriate TCM overhaul manual for wear limits to determine if standard or oversized ring sets are required. If oversized ring sets are required, they cannot exceed 0.005 inch beyond the standard ring set.
e. Also reference ECi Service Instruction (SI) No. 06-6, dated October 23, 2006; and ECi SI 94-4, Revision 22, dated May 18, 2007.

For Further Information Contact

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For Related Service Information Contact

For technical information and instructions for returning cylinder assemblies for possible warranty repair, contact Airmotive Engineering Corp., 9503 Middlex, San Antonio, TX 78217; telephone: (210) 820-2452.