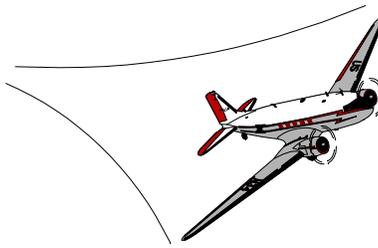


# SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

AIRCRAFT CERTIFICATION SERVICE  
800 INDEPENDENCE AVENUE, S.W.  
WASHINGTON, DC 20591

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This is issued for informational purposes only and any recommendation for corrective action is not mandatory.

## Introduction

The purpose of this Special Airworthiness Information bulletin (SAIB) is to alert owners/operators of Teledyne Continental Motors (TCM ) models C-75, C85, C90, O-200, O-300, GO-300, IO-240, IO-346, IO-360, TSIO-360, LTSIO-360, E-165, E-185, E-225, O-470, IO-470, TSIO-470, IO-520, TSIO-520, LTSIO-520, GTSIO-520, IO-550, TSIO-550, TSIOL-550 and Rolls-Royce, plc. (RR) C-90, O-200, O-240, O-300, TSIO-360 series reciprocating engines of possible abnormal wear on the hardened tip of valves purchased from TCM during the time periods shown in TABLE I below. The valves could have been purchased individually, as part of a cylinder assembly or as part of a new or rebuilt engine. This information is advisory in nature and not mandated by regulation.

**TABLE I**

Engine Model (Series)	Purchase Date of Affected Valve, Cylinder Assembly or Engine	Engine Model (Series)	Purchase Date of Affected Valve, Cylinder Assembly or Engine
C-75, C-85, C-90*, O-200*	1/1/96 to 5/15/98	O-470***	1/1/96 to 3/31/98
RR O-240**	1/1/96 to 5/15/98	IO-470***	1/1/96 to 3/31/98
TCM & RR O-300	1/1/96 to 5/15/98	TSIO-470***	1/1/96 to 3/31/98
GO-300***	1/1/96 to 5/15/98	IO-520***	1/1/96 to 3/31/98
IO-240***	1/1/96 to 5/15/98	TSIO-520***	1/1/96 to 3/31/98
IO-346***	1/1/96 to 3/31/98	LTSIO-520***	1/1/96 to 3/31/98
IO-360***	1/1/96 to 5/15/98	GTSIO-520***	1/1/96 to 3/31/98
TCM & RR TSIO-360	1/1/96 to 5/15/98	IO-550***	1/1/96 to 3/31/98
LTSIO-360***	1/1/96 to 5/15/98	TSIO-550***	1/1/96 to 3/31/98
E-165, E-185, E-225***	1/1/96 to 3/31/98	TSIOL-550***	1/1/96 to 3/31/98

\* TCM & RR have model series designated as C-90 and O-200

\*\* RR model series only - no corresponding TCM model

\*\*\* TCM model series only - no corresponding RR model

## **Background**

Reports of abnormal wear on the hardened tip of seven valves produced for TCM has been confirmed. These seven valves are from approximately 200,000 valves produced for TCM between January 1, 1996, and March 31, 1998. In each case, the valves exhibited signs indicative of improper heat treatment during the manufacturing process. During the investigation of this matter, a stock sweep was conducted at the TCM factory and TCM distributors; approximately 8,000 valves which were in stock were checked for hardness of the wear tip and 43 were found to be below the specified minimum hardness. There have been no reports of engine failures because of this condition; however, the possibility of accelerated valve tip wear does exist. This abnormal wear could result in engine damage or failure.

TCM has prepared a Critical Service Bulletin, CSB98-1B, dated June 1, 1998, which details the inspection recommended on each valve, cylinder assembly and engine supplied by TCM during the time periods shown in TABLE I.

## **Recommendation**

Based on currently available information, the FAA is only recommending the following actions. However, the FAA will continue this investigation and additional actions, such as issuance of an Airworthiness Directive, may be found to be warranted based upon analysis of new information.

The FAA is recommending the following:

(a) If no work was performed on an engine which required replacing valves or cylinder assemblies during the time periods shown in TABLE I, no further action is required.

*Note 1: A check of engine maintenance records or log books for the time periods shown in TABLE I, may help determine if any work was accomplished on these components (invoices may be necessary to determine exactly what work was completed and what parts replaced).*

(b) Serial numbers of affected factory new and rebuilt engines are presented in Table 2 of CSB98-1B; inspection of suspect engines should be accomplished in accordance with Part 3 of CSB98-1B at the times outlined in paragraphs (c) (2), (c) (3) and (c) (4) below.

(c) If parts were purchased or work performed on the valves or cylinder assemblies during the time periods shown in TABLE I, perform the inspections detailed in TCM CSB98-1B as follows:

(1) Uninstalled valves and service spares cylinder assemblies should be inspected in accordance with Part 1 and Part 2, respectively, of TCM CSB98-1B prior to installation.

(2) Any engine experiencing audible valve lifter clatter should comply with Part 3 of CSB98-1B within 10 hours time in service (TIS). Valve lifter clatter may be the result of increased clearances because of valve tip wear.

*Note 2: Improperly heat treated valves will wear at a low rate; therefore, no inspection is required prior to the accumulation of 200 hours TIS.*

(3) Engines with 200 to 400 hours TIS since installation of these components should comply with Part 3 of CSB98-1B within 100 hours TIS or the next annual or progressive inspection, whichever occurs first.

(4) Engines with more than 400 hours TIS since installation of these components should comply with Part 3 of CSB98-1B within 50 hours TIS or the next annual or progressive inspection, whichever occurs first.

(d) A copy of TCM CSB98-1B may be obtained by calling the TCM Customer Service Department at (888) 826-5874, extension 1 or (334) 438-3411, extension 981 and leaving your name and address; the bulletin will be mailed as soon as possible. Alternatively, you may contact the Service Department by mail at:

Teledyne Continental Motors  
P.O. Box 90  
Mobile, AL 36601

In addition, the complete text of CSB98-1B is available on the "Recently Released" section of the TCM website at: [www.TCMLINK.com](http://www.TCMLINK.com).

**For Further Information Contact**

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