

# Continuing Airworthiness Notice – 85-006



## Teledyne Continental Motors (TCM) Cylinder Assembly Rocker Shaft Bosses

26 March 2010

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Issued by the Civil Aviation Authority of New Zealand in the interests of aviation safety. A Continuing Airworthiness Notice (CAN) is intended to alert, educate, and make recommendations to the aviation community. A CAN contains non-regulatory information and guidance that does not meet the criteria for an Airworthiness Directive (AD). The inspections and practices described in this CAN must still be carried out in accordance with the applicable NZCAR Parts 21, 43 and 91. CAN numbering is by ATA Chapter and a serial number for the next CAN in that ATA Chapter.

**The contents of this notice are ADVISORY ONLY and are NOT MANDATORY.**

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### Applicability:

Teledyne Continental Motors (TCM) cylinder assemblies fitted to engine models C75, C85, C90, C125, C145, O-200, O-300 and GO-300 series engines and Rolls Royce C90, O-200 and O-300 series engines.

### Purpose:

This Continuing Airworthiness Notice (CAN) advises operators/maintainers of engines listed in the applicability section of this CAN to accomplish regular visual inspections of cylinder rocker shaft bosses for cracks and defects to prevent an in-flight rocker boss failure. While there is an AD related to this issue, (DCA/CON/168A) it specifies the inspection must be carried out at overhaul using NDT techniques. For engines with very low utilisation rates, some years may elapse between overhauls. Accordingly the CAA recommends owners consider accomplishing a detailed visual inspection of these components at appropriate intervals within the overhaul period.

### Background:

This CAN is prompted by several reports of in service rocker boss failures on affected engines. The latest incident occurred on a Rolls-Royce O-200 engine which suddenly began running rough with the aircraft in the cruise at 3000 feet. A magneto check determined that the drop was even on each magneto. The pilot diverted to a nearby airstrip and landed without incident. During a ground run the number 4 cylinder was found to be cold. The rocker cover was removed and the rocker shaft was found cracked with loose rockers. The rocker shaft bosses had fractured from the cylinder head. Investigation revealed one of the bosses had been broken for a considerable period of time and the pending shaft failure could have been visually detected.

This is the second failure of rocker shaft bosses on the same engine. At the time of failure the engine was within the manufacturers TBO. Other reports of rocker boss failures indicate that failures can be initiated by sticking valves. The CAA considers an in-flight rocker shaft failure to be a safety issue which can result in loss of engine power and an emergency situation.

### Recommendation:

If a visual inspection of cylinder rocker shaft bosses for defects and cracks has not been accomplished within the last 100 hours TIS, then the CAA recommends an initial visual inspection at the next scheduled maintenance inspection, or at the next annual inspection whichever occurs sooner.

Remove the valve covers and clean the rocker shaft bosses, and with the aid of a 10X magnifying glass inspect the rocker bosses for signs of cracks and defects. If a suspected crack is found, accomplish a NDT inspection per the instructions in DCA/CON/168A and replace cylinders with cracked bosses before further flight

Visual inspections of cylinder rocker shaft bosses for cracks and defects should be accomplished thereafter at 500 hours intervals, or whenever a sticking valve is found or suspected, and whenever the valve covers are removed for maintenance.

### Enquiries:

Enquiries with regard to the content of this Continued Airworthiness Notice should be sent to:

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