

Continuing Airworthiness Notice – 85-001



Inspection of Engine Components Inc. (ECI) Cylinders

20 November 2006

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.

Applicability:

Engine Components Inc. (ECi) cylinder assemblies P/N AEC631397, S/Ns 7709 through 33696 with aluminium head casting P/N AEC65385 installed on the following Teledyne Continental Motors (TCM) engines series:

- Models IO-520-A, B, BA, BB, C, CB, D, E, F, J, K, L, M, MB, N, NB
- Models TSIO-520-A, AF, B, BB, C, CE, D, DB, E, EB, G, H, J, JB, K, KB, L, LB, M, N, NB, P, R, T, U, UB, VB, WB
- Models IO-550-A, B, C, D, E, F, L
- Models IOF-550-B, C, D, E, F, L

Purpose:

This Continuing Airworthiness Notice (CAN) recommends periodic inspections of ECi cylinder assemblies for cracks per ECi Mandatory Service Bulletin (MSB) 06-2 Revision 2.

A copy of MSB 06-2 is available on the ECi website at <http://www.eci2fly.com>

Background:

The FAA has received 179 defect reports of cylinder head cracks from engine repair stations and aircraft operators of cylinder head leaking problems with ECi cylinder assemblies. Metallurgical analysis shows that a fatigue crack propagates all the way through the cylinder head wall near the exhaust valve seat. The cylinder head crack causes a loss of cylinder compression, but is unlikely to result in a cylinder/head separation. The loss of compression in one cylinder will result in a rough running engine and a reduction in engine power.

Reports show that cylinder head cracks can occur between 253 and 1483 hours TIS. Based on the reported data, the average time for a crack to develop is 891 hours TIS.

Recommendation:

To detect leaking cylinder assemblies, we recommend the following:

- Accomplish an initial inspection within 500 hours TIS, and thereafter at intervals of 50 hours TIS.
- Conduct a compression test and a soap solution bubble test.
- For cylinder assemblies with 500 hours or more TIS, the initial compression tests are recommended to be accomplished within the next 10 hours TIS, and thereafter at intervals of 50 hours TIS.

The compression tests can coincide with normally scheduled oil and filter changes at 50 hours TIS.

Leaking cylinder assemblies should be replaced with a manufacturer approved cylinder assembly. The replacement cylinder assembly can be ECi P/N AEC631397, Revision E, with S/N 33697 and above.

Note: Refer to ECi Service Instruction (SI) No. 99-8-1 revision 7 for further information on cylinder P/N identification.

Enquiries:

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