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**SAIB: NE-07-09R1**  
**Date: March 21, 2007**

*This is information only. Recommendations aren't mandatory.*

*This **REVISED SAIB** corrects ECi cylinder assembly part numbers on page 2.*

**Introduction**

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners and operators of the **Teledyne Continental Motors (TCM) series engines** listed below with certain Engine Components Inc. (ECi) cylinder assemblies, part number (P/N) AEC631397, with aluminum head casting P/N AEC65385 installed. This SAIB recommends periodic inspections of these ECi cylinder assemblies for cracks in the aluminum head.

cylinder head cracks from engine repair stations and aircraft operators.

Loss of cylinder compression in one cylinder of a six cylinder engine will result in a partial loss of engine power and will cause the engine to run rough. Reports show that the cylinder head crack with a loss of cylinder compression can occur between 253 and 1,483 hours-in-service (HIS). Based on the reported data, the average time-to-crack was 891 HIS.

Engine Components Inc. Service Bulletin No. 06-2, Revision 2, dated October 26, 2006, presents inspection procedures for the ECi cylinder assemblies, P/N AEC631397, with aluminum head casting P/N AEC65385 installed. The applicable serial numbers (SNs) for the ECi AEC631397 cylinder assemblies are 7709 thru 33696.

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**TCM Models Affected\***

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**IO-520-A, B, BA, BB, C, CB, D, E, F, J, K, L, M, MB, N, NB**

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**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**

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**IO-550-A, B, C, D, E, F, L**

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**IOF-550-B, C, D, E, F, L**

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\* Including any of the above TCM engine models modified by incorporation of an STC.

**Recommendation**

To detect leaking cylinder assemblies, we recommend that after the subject ECi cylinder assemblies have 500 operating HIS, you inspect each cylinder at 50 hour intervals.

**Background**

FAA service difficulty reports from 2003 thru 2006 indicate that a cylinder head leaking problem exists with these subject replacement Parts Manufacturer Approval (PMA) ECi cylinder assemblies.

Conduct a standard cylinder compression test and also a separate soap solution bubble test on all ECi cylinder assemblies, P/N AEC631397, with casting P/N AEC65385. For cylinder assemblies with 500 or more HIS, the initial compression tests are recommended within the next 10 operating hours. The inspections of the subject ECi cylinder assemblies should be repeated after each 50 operating hours.

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 FAA received 179 Malfunction or Defect Reports of

**Note:** The compression tests can coincide with normally scheduled oil and filter changes at 50 HIS. Any leaking cylinder assembly should be replaced with an FAA-approved cylinder assembly. The replacement cylinder assembly can be ECi P/N AEC631397, Revision E, with S/N 33697 and above.

**Note:** The ECi P/N AEC631397 cylinder assemblies are also identified as follows:

- Continental IO-520 series:  
**TIST71.2ACA** or **TISN71.2ACA**
- Continental TSIO-520 series:  
**TIST71.2BCA** or **TISN71.2BCA**
- Continental IO-550-A, B, & C and IOF-550-B & C series: **TIST71.2CCA** or **TISN71.2CCA**
- Continental IO-550-D, E, F, & L and IOF-550-D, E, F, & L series:  
**TIST76.0CA** or **TISN76.0CA**

#### **For Further Information Contact**

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#### **For Warranty Replacement and Service Information Contact**

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