



# Mandatory Service Bulletin

ENGINE COMPONENTS, INC.

S.B. No.: 02-9

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Title: CYLINDER HEAD INSPECTION

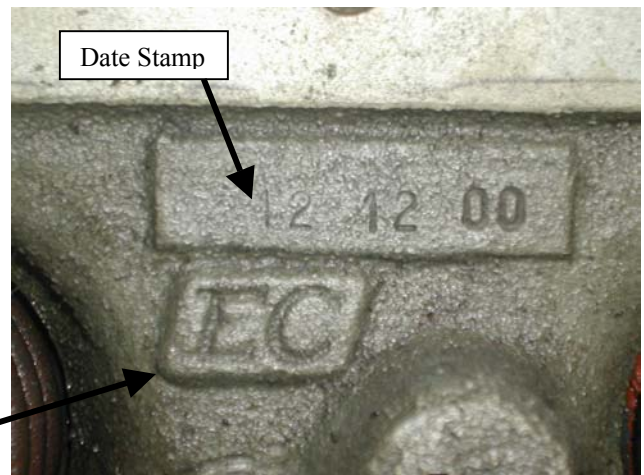
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*Technical Portions are FAA DER Approved.*

- I. **SCOPE AND APPLICATION:** This Mandatory Service Bulletin details an inspection of cylinders manufactured by ECi and installed on TSIO-520 engines of 325 horsepower and above.
- II. **INTRODUCTION:** This Mandatory Service Bulletin alerts Repair Stations, FBO's, FSDO's, and owners or operators of Teledyne Continental TSIO-520 series engines rated at 325 horsepower and above to inspect cylinder heads manufactured by Engine Components, Inc. (ECi), aka Airmotive Engineering Company (AEC) for any evidence of cracking and to report any incidents of ECi/AEC cylinder head structural cracking or failures to the FAA. This Service Bulletin is limited to ECi/AEC cylinders with heads cast by Felco Industries, Inc. aka Quality Castings, Inc. of Hanford, California, installed in engines defined in section 1 above.
- III. **BACKGROUND:** The FAA has received reports of 18 (out of 13,000 produced) cracked Parts Manufacturing Approval (PMA) ECi/AEC cylinder heads on aircraft equipped with Teledyne Continental TSIO-520 engines rated at 325 through 335 horsepower. The cracks are located at the top of the cylinder barrel and between the fourth and sixth cylinder head fins from the head/barrel junction. These cracks have started on the exhaust side of the cylinder head and progressed around the cylinder head between the fins until an overload event separates the head from the barrel. The majority of the failures have occurred on the number 6 cylinder, which is the left front cylinder on the engines.
- IV. **IMPLEMENTATION:** Engine Components, Inc. requires that at the next maintenance opportunity, but no longer than 25 hours from the date of this bulletin, all owners, operators and repair stations:

- a. Remove the rocker box covers from the engine cylinder heads and check to verify if there is a cast-in EC logo at the top center of the head just under the rocker box flange. The EC logo will be on a raised boss, with an additional boss above it (As shown in photograph 1).
- b. Check the date stamp just above the EC logo (between the logo and the flange) and determine if the cylinder head was cast before April 2001. Failures to date have been confined to parts cast before that date.



THIS BULLETIN APPLIES TO HEADS WITH THIS LOGO AND WITH DATE CODE BEFORE APRIL 2001

PHOTOGRAPH 1

- c. Proceed with step "d" only if heads contain the logo shown in Photograph 1 and the date stamped on the heads is prior to April 2001. This Bulletin does not apply to any other heads.



**NOTE:** *This Service Bulletin does not apply to cylinder heads with this logo and with the part number between the ECi logo and the flange. These later cylinder heads were cast by a different foundry.*

- d. Visually inspect the cylinder heads to determine if there are any cracks between the fourth, fifth and sixth fins from the bottom of the aluminum cylinder head. The inspection should focus on the Exhaust side of the cylinder head (deep fins), but should also include the intake side. Cracks may be visible at the fillet between the fins, and if the cracks extend through the cylinder wall, there may be evidence of white or gray powder deposits. If this evidence is found, verify that it is not coming from the exhaust flange attachment.
- e. If cracks or evidence of cracks are found, contact ECi Customer Service at 1-800-324-2359 for warranty evaluation. Additionally, please provide details of cracked or broken cylinder heads to the FAA (Mr. Richard Karanian, SW-190, 817-222-5195) or: [Richard.D.Karanian@FAA.Gov](mailto:Richard.D.Karanian@FAA.Gov). If no cracks are found, then record evidence of this inspection in the engine records and return the airplane to service.
- f. This inspection should be repeated every 100 hours until the cylinders have accumulated at least 800 hours of operation. After 800 hours, the inspections can be accomplished during the normal annual inspection. Contact ECi Customer Service if you have additional questions about the extent of the inspection or application.



PHOTOGRAPH 2



PHOTOGRAPH 3