

**CONTINENTAL MOTORS® AIRCRAFT ENGINE**  
**MANDATORY SERVICE BULLETIN**

**CATEGORY 1**  
**MSB96-10B**

Subject Matter of This Document may be Incorporated, in Whole or in Part,  
in an FAA Issued Airworthiness Directive

**Supersedes MSB96-10A**  
**TECHNICAL PORTIONS**  
**FAA APPROVED**

- SUBJECT:** Crankshaft Ultrasonic Inspection
- PURPOSE:** To provide crankshaft ultrasonic inspection requirements for all crankshafts utilized in the affected engine models.
- COMPLIANCE:** At the next and each subsequent removal of the crankshaft from the crankcase for inspection or overhaul, the crankshaft must be ultrasonically inspected by a “qualified inspector” as mandated by this Mandatory Service Bulletin.

NOTE: The ultrasonic inspection requirements set forth in this Service Bulletin must be performed on replacement crankshafts prior to installation. Ultrasonic inspection is NOT required on CMI Factory new crankshafts prior to initial installation, but must be performed at each subsequent removal as stated above.

**MODELS**

**AFFECTED:** All six cylinder 0300, IO360, L&TSIO360, 0470, IO470, TSIO470, IO520, GTSIO520, L&TSIO520, IO550, IOF550, TSIO550, TSIOF550, TSIOL550 aviation gasoline engines.

**I. General**

Although a high level of reliability has been attained in the design and manufacture of aircraft engine crankshafts, experience shows that fractures can and do occur. Although fractures are frequently attributed to operational or maintenance conditions, preventive measures can be practiced to alleviate them, as discussed in *FAA Advisory Circular AC20-103, March 7, 1978*.

In addition to crankshaft fractures of known causes, some engine models have experienced unexplained subsurface origin fatigue cracks initiating below the intermediate main bearing fillets. These cracks can propagate fatigue through the short cheek of the crank pin, resulting in a potential crankshaft fracture.

In an effort to detect such cracks, CMI has established an ultrasonic test procedure *CMI Specification MHS 200*. Utilization of this test procedure has resulted in the detection of subsurface cracks in the intermediate main bearing fillet area of crankshafts which could not be detected using the standard magnetic particle inspection method.

NOTE: Any crankshaft listed in the latest revision of CMI Service Bulletin CSB96-8 that is NOT verified as being a vacuum arc remelted (VAR) forging, must be replaced.

<b>ISSUED</b>	<b>REVISED</b>	 P.O. Box 90 Mobile, AL 251-436-8299	<b>PAGE NO</b>	<b>DOC NO</b>	<b>REVISION</b>
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## II. Inspector Qualification

Ultrasonic inspection of the crankshaft must be performed in accordance with CMI specification MHS 200 and only by individuals that have successfully completed and possess the following current certifications:

1. Continental Motors, Inc. Crankshaft Ultrasonic Testing **Level I (UT-102)**  
*or;*
2. Certified as NDT UT Level II inspector (IAW NAS 410) and Continental Motors, Inc. Crankshaft Ultrasonic Testing **Refresher (UT-103)**.

These courses are available only through Continental Motors' designated representative. Please contact the following for course prerequisites and recertification requirements:

PQT Services Company  
Phone: (904) 425-1381  
Website: <http://www.pqt.net>

## III. Qualified Inspectors

For the facility nearest you that employs a qualified inspector, contact CMI Customer Service at (800) 326-0089 or (251) 436-8299.

## IV. Crankshaft Inspection and Acceptance Criteria

1. Prior to the installation of a crankshaft in an affected engine model, verify that the crankshaft has been inspected by a “qualified inspector” as set forth in Section II, “Inspector Qualification” of this Mandatory Service Bulletin and has been found to be in an acceptable condition.
2. Any crankshaft that is verified as unacceptable by performing visual, magnetic particle, ultrasonic, and dimensional inspections as set forth in this Mandatory Service Bulletin or the appropriate CMI overhaul manual, must be replaced.
3. Any crankshaft listed in the latest revision of CMI Service Bulletin CSB96-8 that is NOT verified as being a VAR forging, must be replaced.

## V. Affected Publications

Insert a copy of this Mandatory Service Bulletin (MSB) into the latest publication of the following maintenance and overhaul manuals:

Part No.	Overhaul Manual	Part No.	Overhaul Manual
X30013	C125, C145 & O-300	X30575	TSIO-520 Sandcast Series
X30019	GO-300	X30574	TSIO-520 Permold Series
X30594	IO-360	X30045	GTSIO-520
X30596	L/TSIO-360	X300568	IO-550 Permold Series
X30016	E-165, E-185 & E-225	X30607	IO-550 Sandcast Series
X30586	O-470	OH-24	IOF550
X30588	IO-470	M-18	TSIO-550
X30033	TSIO-470	M-26	TSIOF-550
X30039	IO-520	X30600	TSIOL-550

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