Examined N 9206A Engine Log books & found that this AD does not apply because Engine was not dis-assembled during this time period.

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [63 FR 44545 NO. 161 08/20/98]

[Docket No. 98-ANE-27-AD; Amendment 39-10713; AD 98-17-11]

RIN 2120-AA64

Airworthiness Directives; Textron Lycoming and Teledyne Continental Motors Reciprocating Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

Douglas W. Peterson 9-10-98

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain Textron Lycoming and Teledyne Continental Motors reciprocating engines that had crankshafts repaired by Nelson Balancing Service, Repair Station Certificate No. NB7R820J, Bedford, Massachusetts, that requires removal from service of affected crankshafts, or a visual inspection, magnetic particle inspection, and dimensional check of the crankshaft journals, and, if necessary, rework or removal from service of affected crankshafts and replacement with serviceable parts. This amendment is prompted by reports of crankshafts exhibiting heat check cracking of the nitrided bearing surfaces which led to crankshaft cracking and subsequent failure. The actions specified by this AD are intended to prevent crankshaft failure due to cracking, which could result in an inflight engine failure and possible forced landing.

DATES: Effective October 19, 1998.

FOR FURTHER INFORMATION CONTACT: Rocco Viselli, Aerospace Engineer (assigned to Textron Lycoming), New York Aircraft Certification Office, FAA, Engine and Propeller Directorate, 10 Fifth St., 3rd Floor, Valley Stream, NY 11581-1200; telephone (516) 256-7531, fax (516) 568-2716; or Jerry Robinette, Aerospace Engineer (assigned to Teledyne Continental Motors), Atlanta Aircraft Certification Office, FAA, Small Airplane Directorate, 1895 Phoenix Boulevard, One Crown Center, Suite 450, Atlanta, GA 30349; telephone (770) 703-6096, fax (770) 703-6097.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to certain Textron Lycoming and Teledyne Continental Motors (TCM) reciprocating engines that had crankshafts repaired by Nelson Balancing Service, Repair Station Certificate No. NB7R820J, Bedford, Massachusetts, was published in the **Federal Register** on, May 11, 1998 (63 FR 25781). That action proposed to require removal from service of affected crankshafts, or a visual inspection, magnetic particle inspection, and dimensional check of the crankshaft journals, and, if necessary, rework or removal from service of affected crankshafts and replacement with serviceable parts.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

One commenter states that the proposed AD is insufficiently researched; specific dates and serial numbers are needed for affected crankshafts. The commenter suggests that there were periods during the time frame of interest when the grinding was acceptable. The FAA does not concur. The FAA believes that this AD has been thoroughly researched. The failures/known cases of crankshaft nitride cracking occur throughout the time period. There is no way to isolate one specific time and determine that crankshafts during that time were satisfactorily repaired. Those crankshafts that are identified in the company's records are presented in the AD, but the FAA has determined that these records are incomplete. Therefore, the applicability of the AD must include all crankshafts identified in aircraft owners' and other repair station records as being repaired at Nelson during the suspect time period.

The same commenter questions how many TCM O-470 crankshafts have been determined to be bad and if there is a sufficient percentage to warrant tearing down all O-470 engines that Nelson repaired during this time period. The FAA does not concur. The available data indicates that crankshafts from O-470 engines were subject to the same improper repair procedures as crankshafts from other engines. Of the three related failure events, one occurred on an O-470-R engine. Therefore, the FAA has determined that all crankshafts repaired by Nelson Air Services during the suspect time period have the potential of causing an unsafe condition.

The same commenter believes that the proposed AD is based on failures of aerobatic engines. The commenter suggests that the AD is an overly reactive extrapolation from highly stressed aerobatic crankshafts to comparatively mildly stressed non-aerobatic engines. The FAA does not concur. The FAA is unaware of any information that indicates that the safety analysis presented in the NPRM is biased by aerobatic engine data. There is only one aerobatic engine listed. The other engines are used in normal or utility category applications. The data indicates that nitride cracking of the crankshafts is not limited to specific flight operations but rather a matter of an improper grinding procedure that can result in heat check cracking of the nitride surface.

The same commenter states that the AD should not be issued as written, but only imposed on those who have a reasonable likelihood of having a bad crankshaft, due to expense required to tear down an engine. The FAA does not