

Airworthiness Directive Amendment 39-10155, AD 97-21-02

Federal Register Information

Header Information

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [62 FR 52942 NO. 197 10/10/97]

Docket No. 97-ANE-39-AD; Amendment 39-10155, AD 97-21-02

RIN 2120-AA64

Airworthiness Directives; Teledyne Continental Motors E-165, E-185, E-225, O-470 and IO-470 Series

Reciprocating Engines

Preamble Information

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to Teledyne

Continental Motors E-165, E-185, E-225, O-470 and IO-470 series reciprocating engines. This action supersedes priority letter AD 97-15-01 that currently requires removal from service of affected cylinders, and reassembly with serviceable parts.

This action adds the latest revision to applicable Critical Service Bulletin (CSB), corrects references to Parts of that CSB, and lists a new contact telephone number to obtain the CSB from the manufacturer. This amendment is prompted by the availability of the new CSB revision and the need to correct the CSB references. The actions specified by this AD are intended to prevent extreme side loading of the piston, and consequent failure of the piston and engine.

DATES: Effective October 27, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of October 27, 1997.

Comments for inclusion in the Rules Docket must be received on or before December 9, 1997.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Assistant Chief Counsel, Attention: Rules Docket No. 97-ANE-39-AD, 12

New England Executive Park, Burlington, MA 01803-5299. Comments may also be sent via the Internet

using the following address: "9-ad-engineprop@faa.dot.gov". Comments sent via the Internet must

contain the docket number in the subject line.

The service information referenced in this AD may be obtained from Teledyne Continental Motors, PO Box 90, Mobile, AL 36601; telephone toll free (888) 826-5874. This information may be examined at the FAA, New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Jerry Robinette, Aerospace Engineer, 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) 703-6057.

SUPPLEMENTARY INFORMATION: On July 17, 1997, the Federal Aviation Administration (FAA) issued priority letter airworthiness directive (AD) 97-15-01, applicable to Teledyne Continental Motors

(TCM) new and rebuilt Model O-470 and IO-470 series engines with serial numbers (S/Ns) listed in Table 1 of

TCM Critical Service Bulletin (CSB) No. CSB97-10, dated June 19, 1997; and TCM Model E-165, E-185, E-225, O-470 and IO-470 series engines, regardless of S/N, which have cylinder(s) with part number and purchase date as shown in Table 2 of TCM CSB No. CSB97-10, dated June 19, 1997. The priority letter AD

requires removal from service of affected cylinders, and reassembly with serviceable parts. That action was prompted by a report from TCM of an engine equipped with factory new cylinders with approximately 28 hours time in service (TIS) that was discovered to have high aluminum particulates during an oil analysis. Further investigation revealed the piston pin plug was experiencing increased

wear, which was, in turn, traced to the roughness of the cylinder bore. A stock sweep at the factory revealed 10 additional cylinders with this condition. The cylinder bore surface finish on some cylinders is rougher than specified. This condition was caused during a manganese phosphate coating process on the cylinder barrel bore. The cylinders are exposed to the phosphate process in batches of 10 cylinders.

The manganese phosphate coating provides resistance to corrosion during the first hours of operation.

The problem occurred because of extended exposure of the cylinder bore to the manganese phosphate treatment which results in the surface finish being rougher than specified, although the piston pin plug will wear first; it will, in turn, wear a groove in the cylinder wall which will cause massive oil consumption in the near future. This will result in accelerated piston pin plug wear, as the piston pin plug is made of aluminum while the cylinder barrel is made of nitrided steel. The FAA has determined that one side of the piston pin could disconnect from the piston if the wear of the pin plug becomes excessive. This condition, if not corrected, can result in extreme side loading of the piston, and consequent failure of the piston and engine. Since issuance of the priority letter AD, the FAA has determined that the references to Parts 2A and 2B, and Appendix A of the CSB are in error, and should reference Parts 2-1(a) and 2-2. In addition, this superseding AD lists a new, toll-free contact telephone number to obtain the CSB from the manufacturer.

Also, the FAA has reviewed and approved the technical contents of the latest revision, TCM CSB No. CSB97-10A, dated July 15, 1997, that provides a list of S/Ns of new and rebuilt model O-470 and IO-470 engines with affected cylinders installed, and a list of cylinders with part number and purchase date that may be installed on E-165, E-185, E-225, O-470 and IO-470 series engines, regardless of serial number. This CSB describes procedures for removal and shipment to the factory of affected cylinders, and procedures for reassembly with serviceable parts. Since an unsafe condition has been identified that is likely to exist or develop on other engines of this same type design, this AD supersedes priority letter AD 97-15-01 to add reference to the latest revision of the applicable CSB, correct incorrect references to parts of the applicable CSB, and list a new contact telephone number to obtain the CSB from the manufacturer. Operators that have removed affected cylinders in accordance with priority letter AD 97-15-01 or the original version of the CSB are in

compliance with this AD and no further action is required. The actions are required to be accomplished in accordance with the CSB described previously. Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days. Comments Invited Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption "ADDRESSES." All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed. Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 97-ANE-39-AD." The postcard will be date stamped and returned to the commenter. The regulations adopted herein will not have substantial direct effects on the States, on the relationship

between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment. The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a "significant regulatory action" under

Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A

copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.
§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

Regulatory Information

97-102, Teledyne Continental Motors:
Amendment 39-10155. Docket No. 97-ANE-39-AD.
Supersedes

Priority Letter AD 97-15-01, issued July 17, 1997.
Applicability: Teledyne Continental Motors (TCM) new and rebuilt Model O-470 and IO-470 series reciprocating engines with serial numbers (S/Ns) listed in Table 1 of TCM Critical Service Bulletin (CSB)

No. CSB97-10A, dated July 15, 1997; and TCM Model E-165, E-185, E-225, O-470 and IO-470 series

reciprocating engines, regardless of S/N, which have cylinder(s) with part number and purchase date as

shown in Table 2 of TCM CSB No. CSB97-10A, dated July 15, 1997. These engines are installed on but not

limited to the following aircraft: Bellanca Models 14-19-2 and 14-19-3; Cessna Models 180, 180A through K, 182, 182A through R, 185, 185A through E, 188, 188A, 188B, 210, 210A through E, 210-5 (205), 210-5A (205A), 305A, 305C, 305D, 305E, 310, 310A through Q, E310H, E310J, 300J-1; Frontier-Aerospace, Inc. (Fletcher) Models FU-24 and FU-24A; Luscombe Aircraft Corporation Model 11A; Navion models Navion, Navion A, and Navion D through G; Prop-Jets, Inc. Models 700, 700A through C; Raytheon (formerly Beech) Models 35, A35 through P35, 35R, 35-B3, 35-A35F, 35-B33, 35-C33, E33, F33, 45 (YT-34), A45 (T-34), B-45), D45 (T-34B), 95-55, 95-55A, 95-B55, 95-B55A and 95-B55B; Reims models F182P and F182Q; and Twin Commander Aircraft, Inc. Model 500-A.

Note 1: This airworthiness directive (AD) applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the

requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for

an alternative method of compliance in accordance with paragraph (d) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition

addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include

specific proposed actions to address it.
Compliance: Required as indicated, unless accomplished previously.

To prevent extreme side loading of the piston, and consequent failure of the piston and engine, accomplish the following:

(a) Operators that have removed affected cylinders in accordance with priority letter AD 97-15-01 and TCM CSB No. CSB97-10, dated June 19, 1997, are in compliance with this AD and no further action is required

(b) For the TCM O-470 and IO-470 series engines listed by S/N in Table 1 of TCM CSB No. CSB97-10A, dated July 15, 1997, within 10 hours time in service (TIS) after the effective date of this AD, accomplish the following:

(1) Remove from service the cylinders, six each, and the piston pins, six each, in accordance with the Inspection Instructions, Part 2-1(a), of TCM CSB No. CSB97-10A, dated July 15, 1997.

(2) Obtain serviceable replacement parts and reassemble the engine in accordance with the Inspection

Instructions, Part 2-2, of TCM CSB No. CSB97-10A, dated July 15, 1997.

(c) For the E-165, E-185, E-225, series engines and those O-470 and IO-470 series engines not listed by S/N in Table 1 of TCM CSB No. CSB97-10A dated July 15, 1997, within 10 hours TIS after the effective date of this AD, accomplish the following:

(1) Determine from engine log books or maintenance records if a cylinder has been replaced with a

cylinder purchased in the time frames shown in Table 2 of TCM CSB No. CSB97-10A, dated July 15, 1997.

(2) If a cylinder was not replaced with a cylinder purchased during those time frames listed in the CSB, or

if a cylinder is identified with the letter "M" or "P" steel stamped after the cylinder position number, as

cylinders marked with "M" or "P" have a surface finish that has been found to be within

specification, no further action is required. The cylinder position number is located at the 12 o'clock position on the cylinder mounting flange.

(3) If a cylinder has been replaced with a cylinder purchased during those time frames listed in the CSB,

remove from service the affected cylinders and piston pins in accordance with the Inspection Instructions, Part 2-1(a) of TCM CSB No. CSB97-10A, dated July 15, 1997.

(4) Obtain serviceable replacement parts and reassemble the engine in accordance with the Inspection

Instructions, Part 2-2, of TCM CSB No. CSB97-10A, dated July 15, 1997.

(d) An alternative method of compliance or adjustment of the compliance time that provides an

acceptable level of safety may be used if approved by the Manager, Atlanta Aircraft Certification Office.

Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who

may add comments and then send it to the Manager, Atlanta Aircraft Certification Office.

Note 2: Information concerning the existence of approved alternative methods of compliance with this

airworthiness directive, if any, may be obtained from the Atlanta Aircraft Certification Office.

(e) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal

Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft at a location where the requirements of this AD can be accomplished.

(f) The actions required by this AD shall be done in accordance with the following TCM CSB:

Document No.

Pages

Date

CSB97-10A 1-11 July 15, 1997

Total pages: 11.

This incorporation by reference was approved by the Director of the Federal Register in accordance with

5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Teledyne Continental Motors, PO Box

90, Mobile, AL 36601; telephone toll free (888) 826-5874. Copies may be inspected at the FAA, New

England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park,

Burlington, MA;

or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(g) This amendment supersedes priority letter AD 97-15-01, issued July 17, 1997.

(h) This amendment becomes effective on October 27, 1997.