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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2006-24785; Directorate Identifier 2006-NE-20-AD; Amendment 39-17196; AD 2012-19-01]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Lycoming Engines Reciprocating Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are superseding an existing airworthiness directive (AD) for certain Lycoming Engines (L)O-360, (L)IO-360, AEIO-360, O-540, IO-540, AEIO-540, (L)TIO-540, IO-580, and IO-720 series reciprocating engines. That AD currently requires replacing certain crankshafts in the affected engines. This AD continues to require replacing certain crankshafts, corrects the start date of affected engine models in Lycoming Mandatory Service Bulletin (MSB) No. 569A to the start date in Supplement No. 1 to Lycoming MSB No. 569A, dated May 27, 2009, and includes additional (formerly experimental) IO-390, AEIO-390, and AEIO-580 series engine models having affected crankshafts. This AD was prompted by Lycoming Engines discovering that the start date of affected engine models in MSB No. 569A is incorrect and the need to include additional engine models having the affected crankshafts. We are issuing this AD to prevent failure of the crankshaft, which will result in total engine power loss, in-flight engine failure, and possible loss of the aircraft.

**DATES:** This AD is effective October 24, 2012.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of October 24, 2012.

The Director of the Federal Register approved the incorporation by reference of a certain other publication listed in the AD as of November 3, 2006 (71 FR 57407, September 29, 2006).

**ADDRESSES:** For service information identified in this AD, contact Lycoming, 652 Oliver Street, Williamsport, PA 17701; phone: 570 323-6181; fax: 570-327-7101, or on the internet at [www.Lycoming.Textron.com](http://www.Lycoming.Textron.com). You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Norm Perenson, Aerospace Engineer, New York Aircraft Certification Office, FAA, Engine & Propeller Directorate, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 516-228-7337; fax: 516-794-5531; email: [norman.perenson@faa.gov](mailto:norman.perenson@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 to supersede AD 2006-20-09, amendment 39-14778 (71 FR 57407, September 29, 2006). That AD applies to the specified products. The SNPRM published in the Federal Register on April 6, 2012 (77 FR 20743). The original NPRM (76 FR 50152, August 12, 2011) proposed to retain the requirements of AD 2006-20-09 to replace certain crankshafts and to correct the start date of MSB No. 569A from March 1, 1997 to January 1, 1997, which is the start date in Supplement No. 1 to Lycoming MSB No. 569A, dated May 27, 2009. The SNPRM proposed to add IO-390, AEIO-390, and AEIO-580 series engine models that have the affected crankshafts to the applicability of the AD. The SNPRM also proposed to change Service Instruction No. 1009AS, dated May 25, 2006, to Service Instruction No. 1009AU, dated November 18, 2009, because Lycoming updated this service instruction. The changes to Service Instruction 1009AS do not affect the engine overhaul time.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comment received on the proposal and the FAA's response to that comment.

### **Request To Determine if AD Applies to IO-360 Engine**

A commenter asked if the AD applies to the Lycoming Engine IO-360-A3B6D. We reply that this engine is listed in Lycoming MSB No. 569A, so if the crankshaft serial number of that engine is also listed in Table 5 of MSB No. 569A, then the AD applies.

### **Changes to Previous Credit Paragraph**

We reviewed our previous credit paragraph in the SNPRM (77 FR 20743, April 6, 2012) and found that not all the ADs and service bulletins (SBs) listed in paragraphs (f)(1) and (f)(2) of the SNPRM resolved the unsafe conditions. Accordingly, we changed the Credit for Previous Actions paragraphs, paragraphs (g)(1) and (g)(2) of this AD, retaining only Lycoming MSB No. 569A and AD 2006-20-09 (71 FR 57407, September 29, 2006) in the AD to resolve the unsafe condition and deleting all other ADs and SBs referenced in the SNPRM. Paragraphs (g)(1) and (g)(2) now read: "(1) If you previously complied with AD 2006-20-09 (71 FR 57407, September 29, 2006), no further action is required. (2) If you previously accomplished Lycoming MSB No. 569A, no further action is required."

## **Costs of Compliance Paragraph**

We reviewed the cost estimate made in AD 2006-20-09 (71 FR 57407, September 29, 2006) when we added the new affected engine models to the SNPRM (77 FR 20743, April 6, 2012). We found that the cost estimate in AD 2006-20-09 included the number of affected engines worldwide rather than those installed only on aircraft of U.S. registry. We also found that the cost estimate in AD 2006-20-09 already included the engine models that we have now added to the applicability of this AD. Accordingly, we changed the number of affected engine models from 3,774 to 2,831 and the overall cost estimate from \$60,384,000 to \$45,288,000.

## **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD as proposed.

## **Costs of Compliance**

We estimate that this AD affects 2,831 engines installed on airplanes of U.S. registry. Because the AD compliance interval coincides with engine overhaul or other engine maintenance, we estimate no additional labor hours will be needed to comply with this AD. Required parts will cost about \$16,000 per engine. Based on these figures, we estimate the total cost of the AD to be \$45,288,000. Our estimate is independent of any possible warranty coverage.

## **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect 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.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

## **List of Subjects in 14 CFR Part 39**

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

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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. The FAA amends § 39.13 by removing airworthiness directive (AD) 2006-20-09, Amendment 39-14778 (71 FR 57407), and adding the following new AD:



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**2012-19-01 Lycoming Engines:** Amendment 39-17196; Docket No. FAA-2006-24785; Directorate Identifier 2006-NE-20-AD.

**(a) Effective Date**

This AD is effective October 24, 2012.

**(b) Affected ADs**

This AD supersedes AD 2006-20-09 (71 FR 57407, September 29, 2006).

**(c) Applicability**

This AD applies to Lycoming Engines (L)O-360, (L)IO-360, AEIO-360, IO-390, AEIO-390, O-540, IO-540, AEIO-540, (L)TIO-540, IO-580, AEIO-580, and IO-720 series reciprocating engines listed by engine model number and serial number in Table 1, Table 2, Table 3, or Table 4 of Lycoming Mandatory Service Bulletin (MSB) 569A, dated April 11, 2006, and those engines with crankshafts listed by crankshaft serial number in Table 5 of Lycoming MSB 569A, dated April 11, 2006. These applicable engines are manufactured new, rebuilt, overhauled, or had a crankshaft installed after January 1, 1997, according to Supplement No. 1 to Lycoming MSB No. 569A, dated May 27, 2009.

**(d) Unsafe Condition**

This AD results from Lycoming Engines discovering that the March 1, 1997 start date of affected engine models in Lycoming MSB No. 569A, is incorrect. This AD also results from the need to include the IO-390, AEIO-390, and AEIO-580 series engine models having affected crankshafts. We are issuing this AD to prevent failure of the crankshaft, which will result in total engine power loss, in-flight engine failure, and possible loss of the aircraft.

**(e) Compliance**

You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

**(f) Engines For Which Action Is Required**

If you did not previously comply with AD 2006-20-09 or with MSB No. 569A, do the following:  
(1) If Table 1, Table 2, Table 3, or Table 4 of Lycoming MSB No. 569A, dated April 11, 2006, lists your engine serial number (S/N), and Table 5 of MSB No. 569A, dated April 11, 2006, lists your crankshaft S/N, replace the affected crankshaft with a crankshaft that is not listed in Table 5 of MSB No. 569A at the earliest of the following:

- (i) The time of the next engine overhaul as specified in Lycoming Service Instruction No. 1009AU, dated November 18, 2009; or
- (ii) The next separation of the crankcase, or

(iii) No later than 12 years from the time the crankshaft first entered service or was last overhauled, whichever is later.

(2) If Table 1, Table 2, Table 3, or Table 4 of Lycoming MSB No. 569A, dated April 11, 2006, does not list your engine S/N, and Table 5 of MSB No. 569A does list your crankshaft S/N (an affected crankshaft was installed as a replacement), replace the affected crankshaft with a crankshaft that is not listed in Table 5 of MSB No. 569A at the earliest of the following:

(i) The time of the next engine overhaul as specified in Lycoming Service Instruction No. 1009AU, dated November 18, 2009; or

(ii) The next separation of the crankcase, or

(iii) No later than 12 years from the time the crankshaft first entered service or was last overhauled, whichever is later.

#### **(g) Credit for Previous Actions**

(1) If you previously complied with AD 2006-20-09 (71 FR 57407, September 29, 2006), no further action is required.

(2) If you previously accomplished Lycoming MSB No. 569A, no further action is required.

(3) If Lycoming Engines manufactured new, rebuilt, overhauled, or repaired your engine, or replaced the crankshaft in your engine before January 1, 1997, and you have not had the crankshaft replaced, no further action is required.

(4) If Table 1, Table 2, Table 3, or Table 4 of Lycoming MSB No. 569A, dated April 11, 2006, lists your engine S/N, and Table 5 of MSB No. 569A, dated April 11, 2006, does not list your crankshaft S/N, no further action is required.

(5) For engine model TIO-540-U2A, S/N L-4641-61A, no action is required.

#### **(h) Prohibition Against Installing Certain Crankshafts**

After the effective date of this AD, do not install any crankshaft that has a S/N listed in Table 5 of Lycoming MSB No. 569A, dated April 11, 2006, into any engine.

#### **(i) Alternative Methods of Compliance (AMOC)**

The Manager, New York Aircraft Certification Office, may approve AMOCs to this AD. Use the procedures in 14 CFR 39.19 to make your request. AMOCs approved for AD 2002-19-03 (67 FR 59139, September 20, 2002) and AD 2006-20-09 (71 FR 57407, September 29, 2006) are approved as AMOCs for this AD.

#### **(j) Related Information**

For more information about this AD, contact Norm Perenson, Aerospace Engineer, New York Aircraft Certification Office, FAA, Engine & Propeller Directorate, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 516-228-7337; fax: 516-794-5531; email: norman.perenson@faa.gov.

#### **(k) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the following service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use the following service information to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on October 24, 2012.

(i) Lycoming Service Instruction No. 1009AU, dated November 18, 2009.

(ii) Lycoming Mandatory Service Bulletin, Supplement No. 1 to Service Bulletin No. 569A, dated May 27, 2009.

(4) The following service information was approved for IBR on November 3, 2006 (71 FR 57407, September 29, 2006).

(i) Lycoming Mandatory Service Bulletin No. 569A, dated April 11, 2006.

(ii) Reserved.

(5) For service information identified in this AD, contact Lycoming, 652 Oliver Street, Williamsport, PA 17701; phone: 570 323-6181; fax: 570-327-7101, or on the Internet at [www.Lycoming.Textron.com](http://www.Lycoming.Textron.com).

(6) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(7) You may view this service information at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on August 27, 2012.

Colleen M. D'Alessandro,  
Assistant Manager, Engine & Directorate,  
Aircraft Certification Service.