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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-23269; Directorate Identifier 2005-NE-50-AD; Amendment 39-14525; AD 2006-06-16]

RIN 2120-AA64

Airworthiness Directives; Lycoming Engines (Formerly Textron Lycoming) AEIO-360, IO-360, O-360, LIO-360, and LO-360 Series Reciprocating Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Lycoming Engines (formerly Textron Lycoming) AEIO-360, IO-360, O-360, LIO-360, and LO-360 series reciprocating engines. This AD requires replacing certain crankshafts. This AD results from a crankshaft failure in a Lycoming LO-360-A1H6 reciprocating engine. We are issuing this AD to prevent failure of the crankshaft, which could result in total engine power loss, in-flight engine failure, and possible loss of the aircraft.

DATES: This AD becomes effective April 27, 2006. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of April 27, 2006.

ADDRESSES: You can get the service information identified in this AD from Lycoming, 652 Oliver Street, Williamsport, PA 17701; telephone (570) 323-6181; fax (570) 327-7101, or on the Internet at <http://www.Lycoming.Textron.com>.

You may examine the AD docket on the Internet at <http://dms.dot.gov> or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

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; telephone (516) 228-7337; fax (516) 794-5531.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to certain Lycoming Engines (formerly Textron Lycoming) AEIO-360, IO-360, O-360, LIO-360, and LO-360 series reciprocating engines. We published the

proposed AD in the Federal Register on December 27, 2005 (70 FR 76431). That action proposed to require replacing certain crankshafts within 50 hours time-in-service or 6 months after the effective date of this AD, whichever is earlier.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Offices between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

We provided the public the opportunity to participate in the development of this AD. We received no comments on the proposal or on the determination of the cost to the public.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

We estimate that this AD will affect 282 engines installed on aircraft of U.S. registry. We estimate that it will take the following work hours to perform the inspection and crankshaft replacement:

Type of application	Work-hours per engine	Number of engines affected
Constant-Speed Propeller	86	251
Fixed-Pitch Propeller	84.5	31

We estimate the average labor rate is \$65 per work hour and that required parts for each engine will cost about \$15,300. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$5,887,957. Lycoming Engines informed us that they intend to supply the new parts at no charge and reimburse labor costs when authorized, for engine removal and reinstallation, using the current revision of Lycoming's Removal and Installation Labor Allowance Guidebook. These actions would substantially reduce the estimated cost of this AD.

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); and
- (3) 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.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

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 Federal Aviation Administration 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 adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

www.faa.gov/aircraft/safety/alerts/

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2006-06-16 Lycoming Engines (Formerly Textron Lycoming): Amendment 39-14525. Docket No. FAA-2005-23269; Directorate Identifier 2005-NE-50-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective April 27, 2006.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Lycoming Engines AEIO-360, IO-360, O-360, LIO-360, and LO-360 series reciprocating engines, manufactured new or rebuilt, overhauled, or that had a crankshaft installed after March 1, 1999. These engines are installed on, but not limited to, the following aircraft:

Engine model	Manufacturer	Aircraft model
AEIO-360-A1B6	Moravan	Z242L Zlin
	Scottish Avia	Bulldog
	Valmet	L-70 Vinka
AEIO-360-A1E6	Integrated Systems	Omega
IO-360-A1B6	Aircraft Manufacturing Factory	Mushshak
	Beech	C-24R Sierra or 200 Sierra
	Cessna	R-G Cardinal
	Korean Air	Chang Gong-91
	Lake	LA-4-200 Buccaneer
	Mooney	M-20-J
	Partenavia	P-68 Series Observer
	Saab	MFI-15 Safari or MFI-17 Supporter
	Scottish Avia	Bulldog
	Socata	TB-200
IO-360-A1B6D	Cessna	R-G Cardinal
	Mooney	M-201
	Siai Marchetti	S-205
IO-360-A3B6	Mooney	M-201
	Mod Works	Trophy 212 Conversion

Engine model	Manufacturer	Aircraft model
IO-360-A3B6D	Mooney	M20J-201
IO-360-C1C6	Piper	PA-28R-201 Arrow
	Ruschmeyer	MF-85
IO-360-B1G6	American	Blimp
IO-360-C1G6	Zeppelin	Blimp
IO-360-C1E6	Piper	PA-34-200 Seneca I
LO-360-A1G6D	Beech	76 Duchess
LO-360-A1H6	Piper	PA-44-180 Seminole
O-360-A1F6	Cessna	177 Cardinal
O-360-A1F6D	Cessna	177 Cardinal
O-360-A1G6D	Beech	76 Duchess
O-360-A1H6	Piper	PA-44-180
O-360-E1A6D	Piper	PA-44-180
O-360-F1A6	Cessna	C-172RG Cutlass RG
IO-360-C1D6	Sold as a spare engine.	
LIO-360-C1E6	Sold as a spare engine.	
LO-360-E1A6d	Sold as a spare engine.	
LIO-360-C1D6	Sold as a spare engine.	

Unsafe Condition

(d) This AD results from a crankshaft failure in a Lycoming LO-360-A1H6 reciprocating engine. We are issuing this AD to prevent failure of the crankshaft, which could result in total engine power loss, in-flight engine failure, and possible loss of the aircraft.

Compliance

(e) You are responsible for having the actions required by this AD performed within 50 hours time-in-service or 6 months after the effective date of this AD, whichever is earlier, unless the actions have already been done.

(f) If Lycoming Engines manufactured new, rebuilt, overhauled, or replaced the crankshaft in your engine before March 1, 1999, and you haven't had the crankshaft replaced, no further action is required.

(g) If Table 1 of Supplement No. 1 to Lycoming Mandatory Service Bulletin (MSB) No. 566, dated November 30, 2005, lists your engine serial number (SN), use Table 2 of Supplement No. 1 to verify if your crankshaft SN is listed.

(h) If Table 1 of Supplement No. 1 to Lycoming MSB No. 566, dated November 30, 2005, does not list your engine SN, use Table 2 of Supplement No. 1 to verify if your crankshaft SN is listed, if an affected crankshaft was installed as a replacement.

(i) If Table 2 of Supplement No. 1 to Lycoming Engines MSB No. 566, dated November 30, 2005, lists your crankshaft SN, replace the crankshaft with a crankshaft that is not listed in Table 2 of Supplement No. 1 to Lycoming MSB No. 566, dated July 11, 2005.

(j) The engine and crankshaft SNs listed in Table 1 and Table 2 of Supplement No.1 to Lycoming Engines MSB No. 566 are different from the engine and crankshaft SNs affected by Lycoming MSBs No. 552, No. 553 and No. 566; and ADs 2002-19-03 and 2005-19-11.

Prohibition Against Installing Certain Crankshafts

(k) After the effective date of this AD, do not install any crankshaft that has a SN listed in Table 2 of Supplement No. 1 to Lycoming MSB No. 566, dated November 30, 2005, into any engine.

Alternative Methods of Compliance

(l) The Manager, New York Aircraft Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Related Information

(m) None.

Material Incorporated by Reference

(n) You must use Lycoming Engines Supplement No. 1 to Mandatory Service Bulletin No. 566, dated November 30, 2005, to perform the crankshaft replacements required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Lycoming, 652 Oliver Street, Williamsport, PA 17701; telephone (570) 323-6181; fax (570) 327-7101, or go on the Internet at <http://www.Lycoming.Textron.com> for a copy of this service information. You may review copies at the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001, on the Internet at <http://dms.dot.gov>, or 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 March 15, 2006.

Peter A. White,

Assistant Manager, Engine and Propeller Directorate, Aircraft Certification Service.

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