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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2014-0940; Directorate Identifier 2014-NE-15-AD; Amendment 39-18162; AD 2015-10-06]**

**RIN 2120-AA64**

**Airworthiness Directives; Lycoming Engines Reciprocating Engines (Type Certificate Previously Held by Textron Lycoming Division, AVCO Corporation)**

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Lycoming TIO-540-AJ1A reciprocating engines. This AD was prompted by several reports of cracked engine exhaust pipes. This AD requires inspection of the engine exhaust pipes for cracks and replacement of the turbocharger mounting bracket. We are issuing this AD to prevent failure of the exhaust system due to cracking, which could lead to uncontrolled engine fire, harmful exhaust gases entering the cabin resulting in crew incapacitation, and damage to the airplane.

**DATES:** This AD is effective July 2, 2015.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of July 2, 2015.

**ADDRESSES:** For service information identified in this AD, contact Lycoming Engines, 652 Oliver Street, Williamsport, PA 17701; phone: 800-258-3279; fax: 570-327-7101; Internet: [www.lycoming.com/Lycoming/SUPPORT/TechnicalPublications/ServiceBulletins.aspx](http://www.lycoming.com/Lycoming/SUPPORT/TechnicalPublications/ServiceBulletins.aspx). 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. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0940.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0940; 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.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Lycoming TIO-540-AJ1A reciprocating engines. The NPRM published in the Federal Register on February 2, 2015 (80 FR 5489). The NPRM was prompted by several reports of cracked engine exhaust pipes. The NPRM proposed to require inspection of the engine exhaust pipes for cracks and replacement of the turbocharger mounting bracket. We are issuing this AD to prevent failure of the exhaust system due to cracking, which could lead to uncontrolled engine fire, harmful exhaust gases entering the cabin resulting in crew incapacitation, and damage to the airplane.

**Related Service Information Under CFR Part 51**

We reviewed Lycoming Engines Mandatory Service Bulletin No. 614A, dated October 10, 2014. This service bulletin describes procedures for exhaust system inspection and turbocharger mounting bracket replacement. It also provides for the return of the turbocharger mounting bracket to Lycoming. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section of this AD.

**Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM (80 FR 5489, February 2, 2015) or on the determination of the cost to the public.

**Conclusion**

We reviewed the relevant data and determined that air safety and the public interest require adopting this AD as proposed.

**Costs of Compliance**

We estimate that this AD affects about 111 engines installed on airplanes of U.S. registry. We also estimate that it will take about 8 hours per engine to comply with this AD. The average labor rate is \$85 per hour. Parts replacement will cost about \$6,782 per engine. Based on these figures, we estimate the cost of this AD on U.S. operators to be \$828,282. Our cost estimate is exclusive of 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

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 to the extent that it justifies making a regulatory distinction, 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 adding the following new airworthiness directive (AD):



**2015-10-06 Lycoming Engines (Type Certificate previously held by Textron Lycoming Division, AVCO Corporation):** Amendment 39-18162; Docket No. FAA-2014-0940; Directorate Identifier 2014-NE-15-AD.

**(a) Effective Date**

This AD is effective July 2, 2015.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all Lycoming TIO-540-AJ1A reciprocating engines listed by engine serial number (S/N) in Figure 1 to paragraph (c) of this AD and to any TIO-540-AJ1A reciprocating engine with a replacement turbocharger mounting bracket installed that was purchased between April 5, 2012 and May 29, 2014.

**Figure 1 to Paragraph (c)–Lycoming TIO-540-AJ1A Engine S/Ns**

L-6748-61E	L-13828-61E	L-13832-61E	L-13843-61E
L-13817-61E	L-13831-61E	L-13833-61E	L-13847-61E
L-13819-61E	L-13823-61E	L-13839-61E	L-13855-61E
L-13856-61E	L-13947-61E	L-14011-61E	RL-2551-61E
L-13857-61E	L-13948-61E	L-14013-61E	RL-2848-61E
L-13866-61E	L-13949-61E	L-14014-61E	RL-3450-61E
L-13867-61E	L-13950-61E	L-14015-61E	RL-4138-61E
L-13873-61E	L-13960-61E	L-14017-61E	RL-7243-61E
L-13882-61E	L-13961-61E	L-14024-61E	RL-7512-61E
L-13883-61E	L-13962-61E	L-14025-61E	RL-8435-61E
L-13884-61E	L-13967-61E	L-14026-61E	RL-8767-61E
L-13885-61E	L-13973-61E	L-14028-61E	RL-8914-61E
L-13886-61E	L-13975-61E	L-14034-61E	RL-8979-61E
L-13895-61E	L-13976-61E	L-14054-61E	RL-9399-61E
L-13896-61E	L-13979-61E	L-14055-61E	RL-9466-61E

L-13898-61E	L-13981-61E	L-14056-61E	RL-9618-61E
L-13900-61E	L-13983-61E	L-14057-61E	RL-9663-61E
L-13902-61E	L-13984-61E	L-14062-61E	RL-10098-61E
L-13907-61E	L-13993-61E	L-14063-61E	RL-10194-61E
L-13913-61E	L-13996-61E	L-14066-61E	RL-10249-61E
L-13915-61E	L-13997-61E	L-14067-61E	RL-10615-61E
L-13930-61E	L-13998-61E	L-14069-61E	RL-11011-61E
L-13931-61E	L-13999-61E	L-14071-61E	RL-12121-61E
L-13934-61E	L-14000-61E	L-14076-61E	RL-12163-61E
L-13936-61E	L-14001-61E	L-14077-61E	RL-12343-61E
L-13938-61E	L-14003-61E	RL-1726-61E	RL-13352-61E
L-13939-61E	L-14004-61E	RL-1810-61E	RL-13601-61E
L-13946-61E	L-14005-61E	RL-1862-61E	

**(d) Unsafe Condition**

This AD was prompted by several reports of cracked engine exhaust pipes. We are issuing this AD to prevent failure of the exhaust system due to cracking, which could lead to uncontrolled engine fire, harmful exhaust gases entering the cabin resulting in crew incapacitation, and damage to the airplane.

**(e) Compliance**

Comply with this AD within the compliance times specified, unless already done.

(1) For affected engines with an S/N listed in Figure 1 to paragraph (c) of this AD with 400 hours or less time since new (TSN) or time since last overhaul (TSLO), and for any TIO-540-AJ1A reciprocating engine with a replacement turbocharger mounting bracket installed that was purchased between April 5, 2012 and May 29, 2014, that has accumulated 400 hours or less time-in-service (TIS), within 25 hours after the effective date of this AD, replace the turbocharger mounting bracket with a part eligible for installation, and inspect the exhaust pipes for cracks. Use Lycoming Engines Mandatory Service Bulletin (MSB) No. 614A, dated October 10, 2014, Exhaust System Disassembly and Removal, paragraphs 1 through 22 to replace the bracket, and Exhaust System Inspection, paragraphs 1 through 5 to do the inspection.

(2) For affected engines with an S/N listed in Figure 1 to paragraph (c) of this AD with more than 400 hours TSN or TSLO, and for any TIO-540-AJ1A reciprocating engine with a replacement turbocharger mounting bracket installed that was purchased between April 5, 2012 and May 29, 2014, that has accumulated more than 400 hours TIS, replace the turbocharger mounting bracket with a part eligible for installation, and inspect the exhaust pipes for cracks at the next engine overhaul, separation of the crankcase halves, or twelve years from the effective date of this AD, whichever comes first. Use Lycoming Engines MSB No. 614A, dated October 10, 2014, Exhaust System Disassembly and Removal, paragraphs 1 through 22 to replace the bracket, and Exhaust System Inspection, paragraphs 1 through 5 to do the inspection.

**(f) Installation Prohibition**

After the effective date of this AD, do not return to service any TIO-540-AJ1A engine with a turbocharger mounting bracket that was removed from an engine identified in Figure 1 to paragraph (c) of this AD or that was purchased between April 5, 2012 and May 29, 2014.

**(g) Credit for Previous Action**

(1) If, before the effective date of this AD, you replaced the turbocharger mounting bracket with one eligible for installation you may take credit for your prior corrective action. No further turbocharger mounting bracket replacement is required.

(2) If, before the effective date of this AD, you performed the crack inspection using either of the following:

(i) Lycoming Engines MSB No. 614A, dated October 10, 2014, Exhaust System Inspection, paragraphs 1 through 5, or

(ii) Cessna Service Letter No. SEL-78-01, dated May 30, 2014, you may take credit for your prior corrective action. No further inspection is required. However, you must still replace the turbocharger mounting bracket.

**(h) Alternative Methods of Compliance (AMOCs)**

The Manager, New York Aircraft Certification Office, FAA, may approve AMOCs to this AD. Use the procedures found in 14 CFR 39.19 to make your request.

**(i) 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.

**(j) Material Incorporated by Reference**

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

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

(i) Lycoming Engines Mandatory Service Bulletin No. 614A, dated October 10, 2014.

(ii) Reserved.

(3) For Lycoming Engines service information identified in this AD, contact Lycoming Engines, 652 Oliver Street, Williamsport, PA 17701; phone: 800-258-3279; fax: 570-327-7101; Internet: [www.lycoming.com/Lycoming/SUPPORT/TechnicalPublications/ServiceBulletins.aspx](http://www.lycoming.com/Lycoming/SUPPORT/TechnicalPublications/ServiceBulletins.aspx).

(4) You may view this service information at 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.

(5) You may view this service information that is incorporated by reference 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 May 12, 2015.  
Colleen M. D'Alessandro,  
Assistant Directorate Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.