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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2011-0547; Directorate Identifier 2011-NE-13-AD; Amendment 39-16757; AD 2011-15-10]

RIN 2120-AA64

#### Airworthiness Directives; Superior Air Parts and Lycoming Engines (Formerly Textron Lycoming) Fuel-Injected Engines

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

**ACTION:** Final rule; request for comments.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Superior Air Parts and Lycoming (formerly Textron Lycoming) fuel-injected engines. This AD requires removing from service, certain fuel servos. This AD was prompted by an accident involving a Piper PA32R-301. We are issuing this AD to correct the unsafe condition on these products.

**DATES:** This AD is effective August 16, 2011.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of August 16, 2011.

We must receive comments on this AD by September 15, 2011.

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact AVStar Fuel Systems, Inc., 1365 Park Lane South, Jupiter, FL 33458; phone: 561-575-1560; Web site: [www.avstardirect.com](http://www.avstardirect.com). You may

review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803. 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 street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Neil Duggan, Aerospace Engineer, Atlanta Certification Office, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5576; fax: 404-474-5606; e-mail: [neil.duggan@faa.gov](mailto:neil.duggan@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On August 10, 2010, a Piper PA32R-301 airplane crashed after reporting a loss of engine power. The subsequent investigation by the National Transportation Safety Board suspects a faulty fuel servo, Bendix model RSA-10ED1. AVStar Fuel Systems (AFS) had overhauled the fuel servo using a new AFS diaphragm, part number (P/N) AV2541803. The diaphragm failed after 19 flight hours (FH) since new due to suspected manufacturing defects. AVStar Fuel Systems produces diaphragms, P/Ns AV2541801 and AV2541803 under a parts manufacturing authorization (PMA). Diaphragms produced from specific lot numbers could have stud threads that don't meet design, incomplete braze between the stud and hub, and studs made from lower temper material. Diaphragms from these lots could fail in fatigue prematurely. About 261 diaphragms, P/Ns AV2541801 and AV2541803, might still be service inside either AFS new or overhauled servos of any manufacturer (Bendix or Precision). Other overhaul facilities may also have purchased AFS diaphragms between the dates of May 21, 2010, and October 19, 2010, and used these diaphragms in their overhauls. This condition, if not corrected, could result in an in-flight engine shutdown due to a failed fuel servo diaphragm and damage to the airplane.

### **Relevant Service Information**

We reviewed AFS Mandatory Service Bulletin (MSB) AFS-SB6, Revision 2, dated April 6, 2011. The MSB provides P/Ns and serial numbers (S/Ns) of affected servos.

### **FAA's Determination**

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

### **AD Requirements**

This AD requires, within 5 FH after the effective date of this AD, removing your fuel servo if AFS Diaphragm P/N AV2541801 or AV2541803 was installed at any time after May 20, 2010, as specified in AFS MSB AFS-SB6, Revision 2, dated April 6, 2011.

## Differences Between the AD and the Service Information

AVStar Fuel Systems MSB AFS-SB6, Revision 2, dated April 6, 2011, doesn't specify a compliance time and recommends limiting special flight permits to delivery to a service location. This AD requires performing the required actions within 5 FH and prohibits special flight permits.

## FAA's Justification and Determination of the Effective Date

An unsafe condition exists that requires the immediate adoption of this AD. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because of the compliance requirement of 5 FH. Therefore, we find that notice and opportunity for prior public comment are impracticable and that good cause exists for making this amendment effective in less than 30 days.

## Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, we invite you to send any written data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2011-0547 and Directorate Identifier 2011-NE-13-AD at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this AD.

## Costs of Compliance

We estimate that this AD affects 60,000 engines installed on aircraft of U.S. registry. We also estimate that it will take about 0.5 work-hour per engine to perform the inspection, 2.0 work-hours per engine to remove the servo from 261 engines with discrepant AFS Diaphragm P/N AV2541801 or AV2541803 installed and that the average labor rate is \$85 per work-hour. We estimate the parts cost to be \$565 per servo. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$2,736,735.

## 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, 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):



**2011-15-10 Superior Air Parts and Lycoming Engines (formerly Textron Lycoming):**  
Amendment 39-16757; Docket No. FAA-2011-0547; Directorate Identifier 2011-NE-13-AD.

**(a) Effective Date**

This AD is effective August 16, 2011.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to the Superior Air Parts engine models and Lycoming engine models listed in Table 1 of this AD with an AVStar Fuel Systems (AFS) fuel servo diaphragm, part numbers (P/Ns) AV2541801 and AV2541803, installed.

**Table 1–Affected Lycoming and Superior Air Parts Engines**

| <b>Engine Manufacturer</b> | <b>Engine Model</b>   |
|----------------------------|---|
| Lycoming Engines           | AEIO-320-D1B, -D2B, -E1A, -E1B, -E2A, -E2B  |
|                            | AIO-320-A1A, -A1B, -A2A, -A2B, -B1B, -C1B   |
|                            | IO-320-A1A, -A2A, -B1A, -B1B, -B1C, -B1E, -B1D, -B2A, -C1A, -C1B, -D1A, -D1C, -D1B, -E1A, -E1B, -E2A, -E2B, -F1A  |
|                            | LIO-320-B1A, -C1A   |
|                            | AEIO-360-A1A, -A1B, -A1B6, -A1E6, -A1C, -A1D, -A1E, -A2A, -A2B, -A2C, -B1B, -B1D, -B1F, -B1F6, -B1G6, -B2F, -B2F6, -B1H, -B4A, -H1A, -H1B   |
|                            | AIO-360-A1A, -A1B, -A2A, -A2B, -B1B   |
|                            | HIO-360-A1A, -A1B, -B1A, -B1B, -C1A, -C1B, -E1AD, -E1BD, -F1AD, -G1A  |
|                            | IO-360-A1A, -A1B, -A1B6, -A1B6D, -A1C, -A1D, -A1D6, -A1D6D, -A2A, -A2B, -A2C, -A3B6, -A3B6D, -A3D6D, -B1A, -B1B, -B1C, -B1D, -B1E, -B1F, -B1F6, -B1G6, -B2E, -B2F, -B2F6, -B4A, -C1A, -C1B, -C1C, -C1C6, -C1D6, -C1E6, -C1E6D, -C1F, -C1G6, -D1A, -E1A, -F1A, -J1AD, -J1A6D, -K2A, -L2A, -M1A, -M1B |
|                            | LIO-360-C1E6, -M1A  |
|                            | TIO-360-A1A, -A1B, -A3B6, -C1A6D  |

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IO-540-A1A5, -B1A5, -B1B5, -B1C5, -C1B5, -C1C5, -C2C, -C4B5, -C4B5D, -C4D5, -C4C5, -C4D5D, -D4A5, -D4B5, -D4C5, -E1A5, -E1B5, -E1C5, -G1A5, -G1B5, -G1C5, -G1D5, -G1E5, -G1F5, -J4A5, -K1A5, -K1A5D, -K1B5, -K1B5D, -K1C5, -K1D5, -K1E5, -K1E5D, -K1F5, -K1F5D, -K1G5, -K1G5D, -K1H5, -K1J5, -K1J5D, -K1K5, -K2A5, -L1A5, -L1A5D, -L1B5D, -L1C5, -M1A5, -M1A5D, -M1B5D, -M1C5, -M2A5D, -N1A5, -P1A5, -R1A5, -S1A5, -T4A5D, -T4B5, -T4B5D, -T4C5D, -U1A5D, -U1B5D, -V4A5D, -V4A5, -W1A5, -W1A5D, -W3A5D, -AA1A5, -AA1B5, -AB1A5, -AC1A5, -~~AE1A5~~, -AF1A5

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IGO-480-A1A6, -A1B6

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AEIO-540-D4A5, -D4B5, -D4C5, -D4D5, -L1B5D, -L1B5, -L1D5

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IVO-540-A1A

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TIO-540-A1A, -A1B, -A2A, -A2B, -A1C, -A2C, -C1A, -E1A, -F2BD, -G1A, -H1A, -J2B, -J2BD, -K1AD, -~~N2BD~~, -~~R2AD~~, -~~S1AD~~, -T2AD, -U2A, -V2AD, -W2A, -AA1AD, -~~AB1AD~~, -~~AB1BD~~ -~~AE2A~~, -AF1A, -AF1B, -AG1A, -AH1A, -AJ1A, ~~AK1A~~

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LTIO-540-F2BD, -J2B, -J2BD, -K1AD, -N2BD, -R2AD, -U2A, -V2AD, -W2A

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IO-720- A1A, -A1B, -A1BD, -B1A, -B1B, -B1BD, -C1B, -C1BD, -D1B, -D1BD, -D1C, -~~D1CD~~

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TIGO-541-B1A, -C1A, -~~D1A~~, -D1B, -E1A, -G1AD

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Superior Air Parts

IO-360-A1A1, A1A2, A2A1, A2A2, A3A1, A3A2, B1A1, B1A2, B2A1, B2A2, B3A1, B3A2, B4A1, B4A2, B5A1, B5A2, B6A1, B6A2, C1A1, C1A2, C2A1, C2A2, C2A1, C3A2, D1A1, D1A2, D2A1, D2A2, D3A1, D3A2, D4A1, D4A2, D5A1, D5A2, D6A1, D6A2, E1A1, E1A2, E2A1, E2A2, E3A1, E3A2

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#### (d) Unsafe Condition

This AD was prompted by an accident involving a Piper PA32R-301. We are issuing this AD to correct the unsafe condition on these products.

#### (e) Compliance

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

#### (f) Remove Fuel Servo

If an AFS fuel servo diaphragm P/N AV2541801 or AV2541803 was installed in your fuel servo at any time after May 20, 2010, do the following as specified AVStar Fuel Systems (AFS) Mandatory Service Bulletin (MSB) AFS-SB6, Revision 2, dated April 6, 2011:

(1) Before further flight remove the fuel servo.

(2) After the effective date of this AD, don't install any affected fuel servo containing a discrepant AVStar fuel servo diaphragm, P/N AV2541801 or AV2541803, as listed in AFS MSB AFS-SB6, Revision 2, dated April 6, 2011.

**(g) Special Flight Permit**

We will not issue a special flight permit.

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

The Manager, Atlanta Aircraft Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

**(i) Related Information**

For more information about this AD, contact Neil Duggan, Aerospace Engineer, Atlanta Certification Office, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: (404) 474-5576; fax: (404) 474-5606; e-mail: neil.duggan@faa.gov.

**(j) Material Incorporated by Reference**

(1) You must use AVStar Fuel Systems Mandatory Service Bulletin AFS-SB6, Revision 2, dated April 6, 2011, to do the actions required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference (IBR) under 5 U.S.C. 552(a) and 1 CFR part 51 of the following service information on the date specified:

(2) The Director of the Federal Register approved the incorporation by reference of AVStar Fuel Systems Mandatory Service Bulletin AFS-SB6, Revision 2, dated April 6, 2011, on September 6, 2011 under 5 U.S.C. 552(a) and 1 CFR part 51.

(3) For service information identified in this AD, contact AVStar Fuel Systems, Inc., 1365 Park Lane South, Jupiter, FL 33458; 561-575-1560; Web site: <http://www.avstardirect.com>.

(4) You may review copies of the service information at the FAA, 12 New England Executive Park, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7125.

(5) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at an NARA facility, call 202-741-6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Burlington, Massachusetts, on July 13, 2011.  
Colleen M. D'Alessandro,  
Acting Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.