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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2020-0222; Project Identifier AD-2019-00116-E; Amendment 39-21195; AD 2020-16-11]**

**RIN 2120-AA64**

### **Airworthiness Directives; Continental Aerospace Technologies, Inc. (Type Certificate Previously Held by Continental Motors, Inc.) Reciprocating Engines**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for all Continental Aerospace Technologies, Inc. model GTSIO-520-C, GTSIO-520-D, GTSIO-520-H, GTSIO-520-K, GTSIO-520-L, GTSIO-520-M, GTSIO-520-N, IO-550-G, IO-550-N, IO-550-P, IO-550-R, IOF-550-N, IOF-550-P, IOF-550-R, TSIO-520-BE, TSIO-550-A, TSIO-550-B, TSIO-550-C, TSIO-550-E, TSIO-550-G, TSIO-550-K, TSIO-550-N, TSIOF-550-D, TSIOF-550-J, TSIOF-550-K, and TSIOF-550-P reciprocating aviation gasoline (AvGas) engines with a certain cross-flow cylinder assembly installed. This AD was prompted by reports of in-flight engine failures due to fractured cross-flow cylinder assemblies. This AD requires visual inspection and, depending on the results of the inspection, modification or replacement of the cross-flow cylinder assembly. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective September 21, 2020.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of September 21, 2020.

**ADDRESSES:** For service information identified in this final rule, contact Continental Aerospace Technologies, Inc., 2039 South Broad Street, Mobile, Alabama 36615; phone: 251-436-8299; website: <http://www.continentalmotors.aero>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0222.

## **Examining the AD Docket**

You may examine the AD docket on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0222; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is 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:** Boyce Jones, Aerospace Engineer, Atlanta ACO Branch, FAA, 1701 Columbia Avenue, College Park, Georgia 30337; phone: 404-474-5535; fax: 404-474-5606; email: [boyce.jones@faa.gov](mailto:boyce.jones@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all Continental Aerospace Technologies, Inc. model GTSIO-520-C, GTSIO-520-D, GTSIO-520-H, GTSIO-520-K, GTSIO-520-L, GTSIO-520-M, GTSIO-520-N, IO-550-G, IO-550-N, IO-550-P, IO-550-R, IOF-550-N, IOF-550-P, IOF-550-R, TSIO-520-BE, TSIO-550-A, TSIO-550-B, TSIO-550-C, TSIO-550-E, TSIO-550-G, TSIO-550-K, TSIO-550-N, TSIOF-550-D, TSIOF-550-J, TSIOF-550-K, and TSIOF-550-P reciprocating AvGas engines with a certain cross-flow cylinder assembly installed. The NPRM published in the Federal Register on April 17, 2020 (85 FR 21336). The NPRM was prompted by reports of in-flight engine failures due to fractured cross-flow cylinder assemblies. The NPRM proposed to require visual inspection of the cross-flow cylinder assembly and, depending on the results of the inspection, modification or replacement of the cross-flow cylinder assembly. The FAA is issuing this AD to address the unsafe condition on these products.

### **Comments**

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comment received on the NPRM and the FAA's response to the comment.

### **Request To Revise Compliance**

An individual commenter requested that the FAA revise the beginning of paragraph (g)(2), Required Actions, of this AD from “If the engine has 500 engine operating hours or greater on the effective date of this AD . . .” to “If the engine has 500 engine operating hours or greater after the effective date of this AD . . .” The commenter reasoned that the AD, as written, could allow aircraft operated exclusively under 14 CFR part 91 with fewer than 500 engine operating hours on the effective date of the AD to fly for an unlimited number of engine operating hours until the next annual inspection, as the 100-hour inspection is not required for part 91 operations.

The FAA partially agrees. The FAA agrees that part 91 operators may fly their aircraft for an unlimited number of engine operating hours between annual inspections. Historically, the typical part 91 operator flies fewer than 100 engine operating hours per year, however. The FAA has reviewed the specific scenario outlined by the commenter and evaluated it against the associated risk assessment. The FAA disagrees with the commenter's request to revise the language in paragraph (g)(2), Required Actions, of this AD. Any aircraft with an affected engine, regardless of how they are being operated, must comply within the compliance times contained in the Required Actions section of this AD. All affected engines with fewer than 500 engine operating hours on the effective date of

this AD must perform the visual inspection of the cross-flow cylinder assembly at the next 100-hour inspection or the next annual inspection, depending on aircraft operation. All affected engines with 500 engine operating hours or greater on the effective date of this AD must perform the visual inspection of the cross-flow cylinder assembly at the next maintenance event, not to exceed 50 engine operating hours, after the effective date of the AD. The FAA did not change this AD.

**Conclusion**

The FAA reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this final rule as proposed except for minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

**Related Service Information Under 1 CFR Part 51**

The FAA reviewed Continental Aerospace Technologies, Inc. Mandatory Service Bulletin (MSB) 18-08, Revision B, dated January 13, 2020. The MSB describes procedures for inspection, modification, or replacement of the cross-flow cylinder assembly. 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.

**Costs of Compliance**

The FAA estimates that this AD affects 4,000 engines installed on airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

**Estimated Costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Visual inspection of the cross-flow cylinder assembly	2 work-hours × \$85 per hour = \$170	\$0	\$170	\$680,000

The FAA estimates the following costs to do any necessary modification or replacement of the cross-flow cylinder assembly that would be required based on the results of the visual inspection. The FAA has no way of determining the number of cross-flow cylinder assemblies that might need this modification or replacement:

**On-Condition Costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Modify the cross-flow cylinder assembly	1 work-hour × \$85 per hour = \$85	\$0	\$85
Replace the cross-flow cylinder assembly	11.5 work-hours × \$85 per hour = \$977.50	\$1,933.28	\$2,910.78

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. The FAA does not control warranty coverage for affected individuals. As a result, the FAA has included all costs in our cost estimate.

### **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.

The FAA is 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) Would not affect intrastate aviation in Alaska, and
- (3) Would 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):



**FAA**  
**Aviation Safety**

## **AIRWORTHINESS DIRECTIVE**

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)  
[www.gpoaccess.gov/fr/advanced.html](http://www.gpoaccess.gov/fr/advanced.html)

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**2020-16-11 Continental Aerospace Technologies, Inc. (Type Certificate previously held by Continental Motors, Inc.):** Amendment 39-21195; Docket No. FAA-2020-0222; Project Identifier AD-2019-00116-E.

**(a) Effective Date**

This AD is effective September 21, 2020.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Continental Aerospace Technologies, Inc. (Type Certificate previously held by Continental Motors, Inc.) model GTSIO-520-C, GTSIO-520-D, GTSIO-520-H, GTSIO-520-K, GTSIO-520-L, GTSIO-520-M, GTSIO-520-N, IO-550-G, IO-550-N, IO-550-P, IO-550-R, IOF-550-N, IOF-550-P, IOF-550-R, TSIO-520-BE, TSIO-550-A, TSIO-550-B, TSIO-550-C, TSIO-550-E, TSIO-550-G, TSIO-550-K, TSIO-550-N, TSIOF-550-D, TSIOF-550-J, TSIOF-550-K, and TSIOF-550-P reciprocating aviation gasoline (AvGas) engines, originally manufactured, rebuilt, or modified with a cross-flow cylinder assembly replacement, on or after November 1, 2014, and with a cross-flow cylinder assembly, part number (P/N) 658538, 658540, 658542, 658591, 658595, 658613, 658624, 658539, 658541, 658590, 658594, 658603, 658623, or 658630, installed.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 8530, Reciprocating Cylinder Section.

**(e) Unsafe Condition**

This AD was prompted by reports of in-flight engine failures due to fractured cross-flow cylinder assemblies. The FAA is issuing this AD to prevent failure of the engine. The unsafe condition, if not addressed, could result in failure of the engine, in-flight shutdown, and forced landing.

**(f) Compliance**

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

**(g) Required Actions**

(1) If the engine has fewer than 500 engine operating hours on the effective date of this AD, no later than the next scheduled 100-hour inspection or next scheduled annual inspection after the effective date of this AD, whichever is applicable based on the type of aircraft operation, perform a visual inspection of the cross-flow cylinder assembly using paragraphs III.1 through III.3, Action

Required, of Continental Aerospace Technologies, Inc. Mandatory Service Bulletin (MSB) 18-08, Revision B, dated January 13, 2020 (“Continental Aerospace Technologies MSB18-08B”).

(i) If the radius corner angle of the cross-flow cylinder assembly shows casting flash build-up or a sharp radius edge, modify the cross-flow cylinder assembly using paragraphs III.4 through III.8, Action Required, of Continental Aerospace Technologies MSB 18-08B; or

(ii) If a fissure, crack or physical damage is identified, remove the cross-flow cylinder assembly and replace with a part eligible for installation.

(2) If the engine has 500 engine operating hours or greater on the effective date of this AD, at the next maintenance event after the effective date of this AD, not to exceed 50 engine operating hours after the effective date of this AD, perform a visual inspection of the cross-flow cylinder assembly using paragraphs III.1 through III.3, Action Required, of Continental Aerospace Technologies MSB18-08B.

(i) If the radius corner angle of the cross-flow cylinder assembly shows casting flash build-up or a sharp radius edge, modify the cross-flow cylinder assembly using paragraphs III.4 through III.8, Action Required, of Continental Aerospace Technologies MSB 18-08B; or

(ii) If a fissure, crack or physical damage is identified, remove the cross-flow cylinder assembly and replace with a part eligible for installation.

#### **(h) Installation Prohibition**

After the effective date of this AD, do not install any cross-flow cylinder assembly having a P/N identified in paragraph (c) of this AD on any affected engine unless the cross-flow cylinder assembly has been visually inspected and modified using paragraph III, Action Required, of Continental Aerospace Technologies MSB18-08B.

#### **(i) No Reporting Requirement**

The reporting requirement in paragraph III, Action Required, of Continental Aerospace Technologies MSB18-08B is not required by this AD.

#### **(j) Definitions**

(1) For the purpose of this AD, “the next maintenance event” is the next scheduled 100-hour/annual inspection, overhaul, or the next time the airplane enters maintenance for a non-engine issue, whichever occurs first.

(2) For the purpose of this AD, “modify the cross-flow cylinder assembly” is the removal of the casting material build-up by blending the cross-flow cylinder assembly radius corner.

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

You may take credit for the visual inspection and modification that is required by paragraph (g) of this AD, if the inspection or modification was performed before the effective date of this AD using Continental Motors Aircraft Engine Service Bulletin 18-08, Revision A, dated January 11, 2019.

#### **(l) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Atlanta ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (m) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(m) Related Information**

For more information about this AD, contact Boyce Jones, Aerospace Engineer, Atlanta ACO Branch, FAA, 1701 Columbia Avenue, College Park, Georgia 30337; phone: 404-474-5535; fax: 404-474-5606; email: boyce.jones@faa.gov.

**(n) 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) Continental Aerospace Technologies, Inc. Mandatory Service Bulletin 18-08, Revision B, dated January 13, 2020.

(ii) [Reserved]

(3) For Continental Aerospace Technologies, Inc. service information identified in this AD, contact Continental Aerospace Technologies, Inc., 2039 South Broad Street, Mobile, Alabama 36615; phone: 251-436-8299; website: <http://www.continentalmotors.aero>.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759.

(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, email: [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on August 4, 2020.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2020-17874 Filed 8-14-20; 8:45 am]