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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2013-0879; Directorate Identifier 2013-NE-30-AD; Amendment 39-18842; AD 2017-07-04]**

**RIN 2120-AA64**

#### **Airworthiness Directives; General Electric Company Turbofan Engines**

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

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

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**SUMMARY:** We are superseding Airworthiness Directive (AD) 2013-24-17 for General Electric Company (GE) GE90-110B1 and GE90-115B turbofan engines with certain high-pressure compressor (HPC) rotor stage 2-5 spools installed. AD 2013-24-17 required removing these spools from service at times determined by a drawdown plan. This AD retains the same requirements as AD 2013-24-17. This AD also adds additional part number (P/N) HPC spools to the applicability. This AD was prompted by reports of cracking on these additional spools. We are issuing this AD to correct the unsafe condition on these products.

**DATES:** This AD is effective April 21, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of April 21, 2017.

We must receive any comments on this AD by May 22, 2017.

**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 General Electric Company, One Neumann Way, Room 285, Cincinnati, OH; phone: 513-552-3272; email: geae.aoc@ge.com. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, 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-2013-0879.

### **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-2013-0879; 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:** John Frost, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7756; fax: 781-238-7199; email: [john.frost@faa.gov](mailto:john.frost@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

On November 27, 2013, we issued AD 2013-24-17, Amendment 39-17694 (78 FR 76045, December 16, 2013), (“AD 2013-24-17”), for GE GE90-110B1 and GE90-115B turbofan engines with certain HPC rotor stage 2-5 spools installed. AD 2013-24-17 required removing these spools from service at times determined by a drawdown plan. AD 2013-24-17 resulted from reports of cracks in HPC rotor stage 2-5 spool aft spacer arms. We issued AD 2013-24-17 to prevent failure of a critical life-limited rotating engine part, which could result in an uncontained engine failure and damage to the airplane.

#### **Actions Since AD 2013-24-17 Was Issued**

Since we issued AD 2013-24-17, GE found cracking on additional P/N HPC spools. These spools had not previously been thought to be affected by cracking because they had a revised coating applied in the seal teeth area. We also reviewed the risk assessment and determined that an installation prohibition was not needed, therefore, we eliminated that paragraph from this AD. In addition, GE revised its service material by issuing GE Service Bulletin (SB) GE90-100 SB 72-0659 R01, dated February 18, 2016, which we reference in the compliance section of this AD. We are issuing this AD to prevent failure of the HPC rotor stage 2-5 spools, uncontained spool release, damage to the engine, and damage to the airplane.

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

We reviewed GE Service Bulletin (SB) GE90-100 SB 72-0659 R01, dated February 18, 2016. The SB describes procedures for identification and removal from service of the affected HPC 2-5 spools. The part numbers that are listed in Appendix A of GE SB GE90-100 SB 72-0659 R01 are the original P/Ns. Spools that have been reworked may have a P/N other than that listed in Appendix A. 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.

## 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 removing certain HPC rotor stage 2-5 spools from service at times determined by a drawdown plan specified in the compliance section.

## 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 it requires compliance before further flight. 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 we did not provide you with notice and an opportunity to provide your comments before it becomes effective. 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 No. FAA-2013-0879 and Directorate Identifier 2013-NE-30-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 22 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

### Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Replacement of HPC rotor stage 2-5 spool	0 work-hours × \$85 per hour = \$0	\$229,737	\$229,737	\$5,054,214

## 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 part 39 of the Federal Aviation Regulations (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) 2013-24-17, Amendment 39-17694 (78 FR 76045, December 16, 2013), and adding the following new AD:



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**2017-07-04 General Electric Company:** Amendment 39-18842; Docket No. FAA-2013-0879; Directorate Identifier 2013-NE-30-AD.

**(a) Effective Date**

This AD is effective April 21, 2017.

**(b) Affected ADs**

This AD replaces AD 2013-24-17, Amendment 39-17694 (78 FR 76045, December 16, 2013) (“AD 2013-24-17”).

**(c) Applicability**

All GE90-110B1 and GE90-115B engines with high-pressure compressor (HPC) stage 2-5 spools, with:

(1) a part number (P/N) 351-103-106-0, 351-103-107-0, 351-103-108-0, 351-103-141-0, 351-103-142-0, 351-103-143-0, 351-103-144-0, 351-103-145-0, 351-103-146-0, 351-103-148-0, 351-103-149-0, 351-103-150-0, or 351-103-151-0; and

(2) a serial number listed in paragraph 4, Appendix A, of GE Service Bulletin (SB) GE90-100 SB 72-0659 R01, dated February 18, 2016.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compressor Section.

**(e) Unsafe Condition**

This AD was prompted by reports of cracks in HPC rotor stage 2-5 spool aft spacer arms since AD 2013-24-17. We are issuing this AD to prevent failure of the HPC rotor stage 2-5 spools, uncontained spool release, damage to the engine, and damage to the airplane.

**(f) Compliance**

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

(2) Remove from service HPC rotor stage 2-5 spools listed in paragraph 4, Appendix A, of GE SB GE90-100 SB 72-0659 R01, dated February 18, 2016, as follows:

(i) For spools that have fewer than 4,500 flight cycles since new (CSN) on the effective date of this AD, remove before exceeding 5,000 CSN.

(ii) For spools that have 4,500 CSN or more but fewer than 5,200 CSN on the effective date of this AD, remove within 500 cycles in service (CIS) but not to exceed 5,500 CSN.

(iii) For spools that have 5,200 CSN or more but fewer than 5,600 CSN on the effective date of this AD, remove within 300 CIS but not to exceed 5,800 CSN.

(iv) For spools that have 5,600 CSN or more but fewer than 5,800 CSN on the effective date of this AD, remove within 200 CIS but not to exceed 5,850 CSN.

(v) For spools that have 5,800 CSN or more but fewer than 6,000 CSN on the effective date of this AD, remove within 50 CIS but not to exceed 6,000 CSN.

(vi) For spools that have 6,000 CSN or more on the effective date of this AD, remove before the next flight.

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

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

**(h) Related Information**

For more information about this AD, contact John Frost, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7756; fax: 781-238-7199; email: john.frost@faa.gov.

**(i) 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) General Electric Company (GE) Service Bulletin GE90-100 SB 72-0659 R01, dated February 18, 2016.

(ii) Reserved.

(3) For GE service information identified in this AD, contact General Electric Company, GE-Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215, phone: 513-552-3272; fax: 513-552-3329; email: geae.aoc@ge.com.

(4) You may view this service information at FAA, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(5) 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 March 24, 2017.

Carlos A. Pestana,  
Acting Assistant Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.