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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0557; Project Identifier AD-2020-00541-E; Amendment 39-21269; AD 2020-20-13]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2018-15-04 for certain General Electric Company (GE) CF6-80A, CF6-80A1, CF6-80A2, CF6-80A3, CF6-80C2A1, CF6-80C2A2, CF6-80C2A3, CF6-80C2A5, CF6-80C2A5F, CF6-80C2A8, CF6-80C2B1, CF6-80C2B1F, CF6-80C2B2, CF6-80C2B2F, CF6-80C2B4, CF6-80C2B4F, CF6-80C2B5F, CF6-80C2B6, CF6-80C2B6F, CF6-80C2B6FA, CF6-80C2B7F, CF6-80C2D1F, CF6-80C2L1F, and CF6-80C2K1F model turbofan engines. AD 2018-15-04 required ultrasonic inspection (UI) of high-pressure turbine (HPT) stage 1 and stage 2 disks. This AD retains the required inspections while expanding the population of affected HPT disks. This AD was prompted by an uncontained failure of an HPT stage 2 disk and the manufacturer's determination to expand the population of affected HPT disks. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective November 12, 2020.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of November 12, 2020.

ADDRESSES: For service information identified in this final rule, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: aviation.fleetsupport@ae.ge.com; website: www.ge.com. 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-2020-0557.

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-2020-0557; 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: Scott Stevenson, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7132; fax: 781-238-7199; email: Scott.M.Stevenson@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2018-15-04, Amendment 39-19336 (83 FR 43739, August 28, 2018) (“AD 2018-15-04”). AD 2018-15-04 applied to certain GE CF6-80A, CF6-80A1, CF6-80A2, CF6-80A3, CF6-80C2A1, CF6-80C2A2, CF6-80C2A3, CF6-80C2A5, CF6-80C2A5F, CF6-80C2A8, CF6-80C2B1, CF6-80C2B1F, CF6-80C2B2, CF6-80C2B2F, CF6-80C2B4, CF6-80C2B4F, CF6-80C2B5F, CF6-80C2B6, CF6-80C2B6F, CF6-80C2B6FA, CF6-80C2B7F, CF6-80C2D1F, CF6-80C2L1F, and CF6-80C2K1F model turbofan engines. The NPRM published in the Federal Register on June 8, 2020 (85 FR 35024). The NPRM was prompted by an uncontained failure of an HPT stage 2 disk and the manufacturer's determination to expand the population of affected HPT disks. The NPRM proposed to retain the required inspections of AD 2018-15-04, while expanding the population of affected HPT disks. 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 AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Update the No-Reporting Requirements

Delta Air Lines (DAL) requested that the FAA update paragraph (h) of this AD to include a no-reporting requirement with respect to Accomplishment Instructions, paragraph 3.A.(3), of GE CF6-80A Service Bulletin (SB) 72-0869 R02, dated May 29, 2019 (“GE SB 72-0869 R02”). DAL reasoned that paragraph (h) of the NPRM contains a no-reporting requirement for the Accomplishment Instructions, paragraphs 3.A.(2)(c) and 3.A.(2)(f), of GE CF6-80C2 SB 72-1562 R04, dated May 29, 2019 (“GE SB 72-1562 R04”); but fails to include a no-reporting requirement associated with the Accomplishment Instructions, paragraph 3.A.(3), of GE SB 72-0869 R02.

The FAA disagrees. Paragraph (g)(1) of this AD requires a UI of the HPT stage 1 and 2 disks on affected CF6-80C2 model turbofan engines using the Accomplishment Instructions, paragraph 3.A.(2), of GE SB 72-1562 R04. Within paragraph 3.A.(2) of GE SB 72-1562 R04 are instructions that include reporting certain information to GE. Therefore, the FAA found it necessary to indicate in this AD that these reporting instructions are not required. Paragraph (g)(2) of this AD requires the use of paragraph 3.A.(2) of GE SB 72-0869 R02, which does not include reporting instructions to perform the UI. This AD does not require the use of paragraph 3.A.(3) of GE SB 72-0869 R02 and, as such, the addition of a no-reporting requirement for that paragraph is unnecessary.

Support for the AD

The Boeing Company, FedEx Express, United Airlines Engineering, and the Air Line Pilots Association, International, expressed support for the AD.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD 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 GE CF6-80C2 SB 72-1562 R04, dated May 29, 2019. The SB describes procedures for UI of CF6-80C2 turbofan engine HPT stage 1 and 2 disks. The FAA also reviewed GE CF6-80A SB 72-0869 R02, dated May 29, 2019. The SB describes procedures for UI of CF6-80A turbofan engine HPT stage 2 disks. 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 1,512 engines installed on airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
UI of HPT disk	10 work-hours × \$85 per hour = \$850	\$0	\$850	\$1,285,200

The FAA estimates the following costs to do any necessary replacements that are required based on the results of the inspection. The FAA has no way of determining the number of aircraft that might need these replacements:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replace CF6-80C2 HPT stage 1 disk	0.25 work-hours × \$85 per hour = \$21.25	\$799,700	\$799,721.25
Replace CF6-80C2 HPT stage 2 disk	0.25 work-hours × \$85 per hour = \$21.25	\$364,600	\$364,621.25
Replace CF6-80A HPT stage 2 disk	0.25 work-hours × \$85 per hour = \$21.25	\$344,000	\$344,021.25

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

The FAA has 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) 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.

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:
 - a. Removing Airworthiness Directive (AD) 2018-15-04, Amendment 39-19336 (83 FR 43739, August 28, 2018); and
 - b. Adding the following new AD:



2020-20-13 General Electric Company: Amendment 39-21269; Docket No. FAA-2020-0557; Project Identifier AD-2020-00541-E.

(a) Effective Date

This AD is effective November 12, 2020.

(b) Affected ADs

This AD replaces AD 2018-15-04, Amendment 39-19336 (83 FR 43739, August 28, 2018).

(c) Applicability

This AD applies to General Electric Company (GE) CF6-80A, CF6-80A1, CF6-80A2, CF6-80A3, CF6-80C2A1, CF6-80C2A2, CF6-80C2A3, CF6-80C2A5, CF6-80C2A5F, CF6-80C2A8, CF6-80C2B1, CF6-80C2B1F, CF6-80C2B2, CF6-80C2B2F, CF6-80C2B4, CF6-80C2B4F, CF6-80C2B5F, CF6-80C2B6, CF6-80C2B6F, CF6-80C2B6FA, CF6-80C2B7F, CF6-80C2D1F, CF6-80C2L1F, and CF6-80C2K1F model turbofan engines with high-pressure turbine (HPT) disks with serial numbers listed in Tables 1 and 2 of Appendix A in GE CF6-80C2 Service Bulletin (SB) 72-1562 R04, dated May 29, 2019; and Table 1 of Appendix A in GE CF6-80A SB 72-0869 R02, dated May 29, 2019.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by an uncontained failure of an HPT stage 2 disk and the manufacturer's determination to expand the population of affected HPT disks. The FAA is issuing this AD to prevent failure of the HPT stage 1 disk (CF6-80C2 engines) and the HPT stage 2 disk (CF6-80C2 and CF6-80A engines). The unsafe condition, if not addressed, could result in an uncontained HPT disk release, damage to the engine, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) After the effective date of this AD, perform an ultrasonic inspection (UI) for cracks in HPT stage 1 and stage 2 disks on the CF6-80C2 turbofan engine at each piece-part exposure using the Accomplishment Instructions, paragraph 3.A.(2), of GE CF6-80C2 SB 72-1562 R04, dated May 29, 2019.

(2) After the effective date of this AD, perform a UI for cracks in HPT stage 2 disks on the CF6-80A turbofan engine at each piece-part exposure using the Accomplishment Instructions, paragraph 3.A.(2), of GE CF6-80A SB 72-0869 R02, dated May 29, 2019.

(3) If any disk fails the inspection required by paragraphs (g)(1) and (2) of this AD, replace the disk before further flight.

(h) No Reporting Requirements

The reporting requirements specified in the Accomplishment Instructions, paragraphs 3.A.(2)(c) and 3.A.(2)(f), of GE CF6-80C2 SB 72-1562 R04, dated May 29, 2019, are not required by this AD.

(i) Definition

For the purpose of this AD, “piece-part exposure” of the HPT stage 1 or stage 2 disk is the separation of that HPT disk from its mating rotor parts within the HPT rotor module (thermal shield and HPT stage 1 and stage 2 disk, respectively).

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO 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 (k) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(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.

(k) Related Information

For more information about this AD, contact Scott Stevenson, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7132; fax: 781-238-7199; email: Scott.M.Stevenson@faa.gov.

(l) 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) CF6-80C2 Service Bulletin (SB) 72-1562 R04, dated May 29, 2019.

(ii) GE CF6-80A SB 72-0869 R02, dated May 29, 2019.

(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; email: aviation.fleetsupport@ae.ge.com; website: www.ge.com.

(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, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on September 24, 2020.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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