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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0792; Product Identifier 2017-NE-28-AD; Amendment 39-19336; AD 2018-15-04]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) 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 turbofan engines. This AD was prompted by an uncontained failure of a high-pressure turbine (HPT) stage 2 disk that resulted in a fire. This AD requires ultrasonic inspection (UI) of HPT stage 1 and 2 disks. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective October 2, 2018.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of October 2, 2018.

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@ge.com. You may view this service information at the FAA, Engine and Propeller Standards 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 <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0792.

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-2017-0792; 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, the

regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is Docket Operations, 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: Matthew Smith, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7735; fax: 781-238-7199; email: matthew.c.smith@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply 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 turbofan engines with HPT disks with part numbers and serial numbers (S/Ns) listed in Table 1 and 2 of Appendix A in GE Service Bulletin (SB) CF6-80C2 SB 72-1562 R03, dated January 10, 2018 and Table 1 of Appendix A in GE SB CF6-80A SB 72-0869 R01, dated October 19, 2017. The SNPRM published in the Federal Register on March 30, 2018 (83 FR 13703). We preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the Federal Register on September 7, 2017 (82 FR 42261). The NPRM proposed to require UI of HPT stage 1 and 2 disks. The NPRM was prompted by an uncontained failure of an HPT stage 2 disk that resulted in a fire. The SNPRM proposed to require the same UI of HPT stage 1 and 2 disks, remove certain engine models, and to add a new part number to the applicability of this AD. The SNPRM also proposed to revise references to the service information in this AD because, since the publication of the NPRM, GE published the list of affected HPT S/Ns in two separate SBs applicable to the CF6-80A and CF6-80C2 engines. We are issuing this AD to address the unsafe condition on these products.

Comments

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

Request To Change the Applicability

All Nippon Airways (ANA) and Japan Airlines (JAL) requested that we change the applicability, paragraph (c), to include S/Ns that are listed in revisions of GE CF6-80C2 SB 72-1562 and GE CF6-80A SB 72-0869 that have not yet been published. ANA and JAL reasoned that the SB revisions will include an updated list of affected S/Ns.

We disagree. While future SB revisions may include additional affected S/Ns, we do not require compliance based on service information that has not been published. The applicability of this AD is based on the most recently published service information. Any further change in applicability would require a notice and comment rulemaking for those affected S/Ns. We did not change this AD.

Request To Improve the UI Criteria

JAL requested that we improve the UI criteria to avoid false-positive indications resulting in rejection of disks. JAL reasoned that GE may publish a GE CF6-80C2 SB 72-1562 revision in which GE will modify the UI criteria.

We disagree. While a future SB revision may include updated UI criteria, we do not require compliance based on service information that has not yet been published. We based the UI criteria on the most recently published service information. We will review any Alternative Methods of Compliance (AMOC) requests submitted if different UI criteria, not specified in this AD, are desired. We did not change this AD.

Request To Change the Definition of “Piece-Part Exposure”

ANA requested that we change the definition of “piece-part exposure” to the separation of the HPT stage 1 or stage 2 disk from the thermal shield within the HPT rotor module.

We disagree. The current definition is sufficient to describe the piece-part exposure. We did not change this AD.

Support for the AD

Boeing Company, FedEx, and United Airlines expressed support for the SNPRM as written.

Conclusion

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

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

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

Related Service Information Under 1 CFR Part 51

We reviewed GE CF6-80C2 SB 72-1562 R03, dated January 10, 2018. The SB describes procedures for UI of CF6-80C2 turbofan engine HPT stage 1 and 2 disks. We also reviewed GE CF6-80A SB 72-0869 R01, dated October 19, 2017. 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

We estimate that this AD affects 640 HPT disks on engines installed on 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
UI of HPT disk	10 work-hours × \$85 per hour = \$850	\$0	\$850	\$544,000

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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

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):



2018-15-04 General Electric Company: Amendment 39-19336; Docket No. FAA-2017-0792; Product Identifier 2017-NE-28-AD.

(a) Effective Date

This AD is effective October 2, 2018.

(b) Affected ADs

None.

(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 turbofan engines with high-pressure turbine (HPT) disks with serial numbers listed in Table 1 and 2 of Appendix A in GE CF6-80C2 Service Bulletin (SB) 72-1562 R03, dated January 10, 2018; and Table 1 of Appendix A in GE CF6-80A SB 72-0869 R01, dated October 19, 2017.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine/Turboprop Engine–Turbine Section.

(e) Unsafe Condition

This AD was prompted by an uncontained failure of an HPT stage 2 disk. We are issuing this AD to prevent failure of the HPT stage 1 disk (CF6-80C2) and the HPT stage 2 disk (CF6-80C2 and CF6-80A). 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

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 and in HPT stage 2 disks on the CF6-80A turbofan engine at each piece-part level exposure in accordance with the Accomplishment Instructions, paragraph 3.A.(2), in GE CF6-80C2 SB 72-1562 R03, dated January 10, 2018, or the

Accomplishment Instructions, paragraph 3.A.(2) in GE CF6-80A SB 72-0869 R01, dated October 19, 2017, as applicable to the engine model.

(h) Non-Required Actions

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 R03, dated January 10, 2018, 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 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 Matthew Smith, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7735; fax: 781-238-7199; email: matthew.c.smith@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) CF6-80A Service Bulletin (SB) 72-0869 R01, dated October 19, 2017.

(ii) GE CF6-80C2 SB 72-1562 R03, dated January 10, 2018.

(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@ge.com.

(4) You may view this service information at FAA, Engine and Propeller Standards 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, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on August 21, 2018.

Karen M. Grant,
Acting Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.