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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0668; Product Identifier 2017-NE-17-AD; Amendment 39-19236; AD 2018-07-05]

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 all General Electric Company (GE) CF6-80A, -80A1, -80A2, and -80A3 turbofan engines. This AD was prompted by high cycle fatigue (HCF) cracking of the low-pressure turbine (LPT) stage 3 nozzles. This AD requires replacement of the LPT stage 3 nozzles, part numbers (P/Ns) 9290M52P05 and 9290M52P06, installed. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective May 11, 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; fax: 513-552-3329; email: geae.aoc@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-2017-0668.

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-2017-0668; 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: Herman Mak, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7147; fax: 781-238-7199; email: herman.mak@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all GE CF6-80A, -80A1, -80A2, and -80A3 turbofan engines. The NPRM published in the Federal Register on September 12, 2017 (82 FR 42752) and an NPRM correction published on September 21, 2017 (82 FR 44127). The NPRM was prompted by an LPT uncontainment on a GE CF6-80A2 engine. An investigation determined the uncontainment was the result of HCF cracking of the LPT stage 3 nozzles. The NPRM proposed to require replacement of the LPT stage 3 nozzles. 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 NPRM and the FAA's response to each comment.

Request To Change the Parts Eligible for Installation

The Boeing Company (Boeing) requested that we reference GE CF6-80A Service Bulletin (SB) 72-0749, Revision 2, dated August 31, 2016, for parts that are eligible for installation. They justified this is necessary to ensure that the correct parts are used.

We disagree. It is possible to have parts that are eligible for installation that are not listed in GE SB 72-0749. Listing eligible parts in an AD is not necessary to address the unsafe condition. We did not change this AD.

Request To Change Compliance Time

Atlas Air requested we change the compliance time to the engine's next shop visit instead of a calendar driven date requirement. Atlas Air stated that HCF cracking of the LPT stage 3 nozzles is not environmentally induced. Therefore, a calendar driven date compliance time requirement is not needed to maintain a safe condition for the engine and airplane.

We agree. We adjusted the compliance time in the AD to allow for compliance at the engine's next shop visit or within the next 36 months, after the effective date of this AD, whichever occurs later.

Supportive Comments

The Air Line Pilots Association International expressed support for this AD.

Conclusion

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

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

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

We reviewed GE CF6-80A SB 72-0749, Revision 2, dated August 31, 2016. The SB describes procedures for replacement of the LPT stage 3 nozzles.

Costs of Compliance

We estimate that this AD affects seven 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
Replacement of LPT stage 3 nozzles	0 work-hours × $85 per hour = $0	$368,260	$368,260	$2,577,820

Authority for This Rulemaking

Title 49 of the United States Code (U.S.C.) 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):

2018-07-05 General Electric Company: Amendment 39-19236; Docket No. FAA-2017-0668; Product Identifier 2017-NE-17-AD.

(a) Effective Date

This AD is effective May 11, 2018.

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric (GE) CF6-80A, -80A1, -80A2, and -80A3 turbofan engines with low-pressure turbine (LPT) stage 3 nozzles, part numbers (P/Ns) 9290M52P05 and 9290M52P06, installed.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by high cycle fatigue (HCF) cracking of the LPT stage 3 nozzles resulting in LPT uncontainment. We are issuing this AD to prevent cracking of the LPT stage 3 nozzles. The unsafe condition, if not addressed, could result in LPT uncontainment, 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

Within 36 months or during the next engine shop visit after the effective date of this AD, whichever occurs later, replace LPT stage 3 nozzles, P/Ns 9290M52P05 and 9290M52P06, with a part eligible for installation.

(h) Definition

(1) For the purpose of this AD, an engine shop visit is defined as the induction of an engine into the shop for maintenance involving the separation of any major mating engine flanges. The separation of engine flanges is not considered an engine shop visit for the following purposes:

(i) Transportation of an engine not attached to an aircraft without subsequent engine maintenance.

(ii) Removing the turbine rear frame (TRF) for repair of TRF cracking.

(iii) Removing the top or bottom high-pressure compressor (HPC) case for HPC airfoil maintenance.

(iv) Removing only the accessory gearbox and/or transfer gearbox.

(2) Reserved.

(i) 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 ECO Branch, send it to the attention of the person identified in paragraph (j) 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.

(j) Related Information

For more information about this AD, contact Herman Mak, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7147; fax: 781-238-7199; email: herman.mak@faa.gov.

(k) Material Incorporated by Reference

None.

Issued in Burlington, Massachusetts, on March 29, 2018.
Robert Ganley,
Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.