



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-0919; Product Identifier 2019-NE-24-AD]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all General Electric Company (GE) CF34-8C1, CF34-8C5, CF34-8C5A1, CF34-8C5B1, CF34-8C5A2, CF34-8C5A3, CF34-8E2, CF34-8E2A1, CF34-8E5, CF34-8E5A1, CF34-8E5A2, CF34-8E6, and CF34-8E6A1 turbofan engine models with a certain outer shell combustion liner (combustion outer liner shell) installed. This proposed AD was prompted by two in-flight engine shutdowns (IFSDs) that occurred as a result of failures of the combustion outer liner shell. This proposed AD would require a borescope inspection (BSI) or visual inspection of the combustion outer liner shell and, depending on the results of the inspection, possible replacement of the combustion outer liner shell. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

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 <https://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: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, 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.

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-2019-0919; 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 NPRM, the regulatory evaluation, any comments received, and other information. The street address for Docket Operations is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Michael Richardson-Bach, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7747; fax: 781-238-7199; email: michael.richardson-bach@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2019-0919; Product Identifier 2019-NE-24-AD” at the

beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. The FAA will consider all comments received by the closing date and may amend this NPRM because of those comments.

The FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about this NPRM.

Discussion

The FAA received reports of two IFSDs on GE CF34-8C and -8E turbofan engine models. These IFSDs were due to the cracking and collapsing of the combustion outer liner shell, which resulted in thermal distress of the high-pressure turbine and low-pressure turbine (LPT) including burn-through of the LPT case. This condition, if not addressed, could result in burn-through of the LPT case, engine fire, and damage to the airplane.

Related Service Information under 1 CFR part 51

The FAA reviewed GE Alert Service Bulletin (ASB) CF34-8C-AL S/B 72-A0335, dated June 27, 2019, and GE ASB CF34-8E-AL S/B 72-A0221, dated June 27, 2019. The ASBs, differentiated by GE CF34-8 turbofan engine model, describe procedures for performing a BSI of the combustion outer liner shell. 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

The FAA is proposing this AD because it 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.

Proposed AD Requirements

This proposed AD would require a BSI or visual inspection of the combustion outer liner shell and, depending on the results of the inspection, possible replacement of the combustion outer liner shell.

Costs of Compliance

The FAA estimates that this proposed AD affects 1,535 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
BSI or visually inspect the combustion outer liner shell	3 work-hours X \$85 per hour = \$255	\$0	\$255	\$391,425

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the proposed inspection. The FAA has no way of determining the number of engines that might need this replacement:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replace the combustion outer liner shell	812 work-hours X \$85 per hour = \$69,020	\$80,000	\$149,020

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.

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

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) 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.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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):

General Electric Company: Docket No. FAA-2019-0919; Product Identifier 2019-NE-24-AD.

(a) Comments Due Date

The FAA must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric Company (GE) CF34-8C1, CF34-8C5, CF34-8C5A1, CF34-8C5B1, CF34-8C5A2, CF34-8C5A3, CF34-8E2, CF34-8E2A1, CF34-

8E5, CF34-8E5A1, CF34-8E5A2, CF34-8E6, and CF34-8E6A1 turbofan engine models with an outer shell combustion liner (combustion outer liner shell) part number (P/N) 4124T04G04, P/N 4124T04G05, or P/N 5159T35G02, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7240, Turbine Engine Combustion Section.

(e) Unsafe Condition

This AD was prompted by two in-flight engine shutdowns (IFSDs) that occurred as a result of failures of the combustion outer liner shell. The FAA is issuing this AD to prevent failure of the combustion outer liner shell. The unsafe condition, if not addressed, could result in burn-through of the low-pressure turbine case, engine fire, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) For an affected engine with a combustion outer liner shell that on the effective date of this AD has accumulated 17,500 flight hours (FHs) or greater time since new (TSN), or time since repair (TSR), perform an initial borescope inspection (BSI) or visual inspection of the combustion outer liner shell within 500 engine flight hours (FHs) after the effective date of this AD.

(i) For GE CF34-8C engines, inspect using the Accomplishment Instructions, paragraphs 3.A.(4) and 3.A.(5), of GE Alert Service Bulletin (ASB) CF34-8C-AL S/B 72-A0335, dated June 27, 2019.

(ii) For GE CF34-8E engines, inspect using the Accomplishment Instructions, paragraphs 3.A.(4) and 3.A.(5), of GE ASB CF34-8E-AL S/B 72-A0221, dated June 27, 2019.

(2) For an affected engine with a combustion outer liner shell that on the effective date of this AD has accumulated 17,499 FHs or fewer TSN or TSR, within 500 engine FHs after the combustion outer liner shell has accumulated 17,500 FHs TSN or TSR, perform an initial BSI or visual inspection on the combustion outer liner shell.

(i) For GE CF34-8C engines, inspect using the Accomplishment Instructions, paragraphs 3.A.(4) and 3.A.(5), of GE ASB CF34-8C-AL S/B 72-A0335, dated June 27, 2019.

(ii) For GE CF34-8E engines, inspect using accomplishment instructions 3.A.(4) and 3.A.(5) of GE ASB CF34-8E-AL S/B 72-A0221, dated June 27, 2019.

(3) For an affected engine with a combustion outer liner shell for which it is not possible to determine the TSN or TSR, use the engine FHs since new to determine when to perform the BSI or visual inspection.

(4) After the effective date of this AD, and after the initial inspection required by paragraph (g)(1) or (2) of this AD, re-inspect the combustion outer liner shell using inspection criteria as follows:

(i) For GE CF34-8C engines, use Table 1 of GE ASB CF34-8C-AL S/B 72-A0335, dated June 27, 2019.

(ii) For GE CF34-8E engines, use Table 1 of GE ASB CF34-8E-AL S/B 72-A0221, dated June 27, 2019.

(h) Installation Prohibition

After the effective date of this AD, do not install a combustion outer liner shell with greater than 17,500 FHs TSN or TSR without first inspecting it in accordance with paragraph (g)(1) of this AD.

(i) Definitions

For the purpose of this AD, “time since repair (TSR)” is the amount of FHs accumulated on the combustion outer liner shell since performing GEK 105091 or GEK 112031, 72-44-06, REPAIR 023.

(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)(1) 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

(1) For more information about this AD, contact Michael Richardson-Bach, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7747; fax: 781-238-7199; email: michael.richardson-bach@faa.gov.

(2) For 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. You may view this referenced 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.

Issued in Burlington, Massachusetts, on January 2, 2020.

Robert J. Ganley,
Manager, Engine & Propeller Standards Branch,
Aircraft Certification Service.

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