



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2024-1883; Project Identifier AD-2023-01120-E; Amendment 39-23038; AD 2025-10-04]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all General Electric Company (GE) Model CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, and CF34-10E7-B engines with certain part-numbered high-pressure turbine (HPT) shroud/low pressure turbine (LPT) nozzle assemblies installed. This AD was prompted by a report of failed retention features of the inner and outer support air ducts (commonly referred to as spoolies) discovered during engine disassembly. This AD requires a visual inspection of the combustion case for wear and gouges, repair if necessary, and rework of the affected HPT shroud/LPT nozzle assemblies to add a positive retention of the support air duct. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2024-1883; 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.

Material Incorporated by Reference:

- For GE material identified in this AD, contact GE, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: ge.com.

- You may view this material 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 (817) 222-5110. It is also available at regulations.gov under Docket No.FAA-2024-1883.

FOR FURTHER INFORMATION CONTACT: Alexei Marqueen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7178; email: alexei.t.marqueen@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all GE Model CF34-10E2A1, CF34-10E6, CF34-10E6A1, CF34-10E7, and CF34-10E7-B engines with an installed HPT shroud/LPT nozzle assembly having part number (P/N) 2205M38G01, 2205M38G02, 2205M38G03, 2205M38G04, or 2205M38G05. The NPRM was published in the *Federal Register* on July 10, 2024 (89 FR 56674). The NPRM was prompted by a report from the manufacturer that during disassembly, the retention features of the inner and outer support air ducts on GE Model CF34-10E series engines were found to have failed. The retention features include a retaining ring, which becomes plastically deformed during installation. Vibrations loosen the retaining ring until it disengages. With the retaining ring disengaged, the outer support air duct has no radial constraint, and releases and migrates due to gravity, impacting the inner wall of the combustion case causing case wall damage. If this damage has been repaired in the past and after the repair the support air duct liberates and causes more damage, then the remaining wall thickness is not sufficient to sustain the loading from a fan-blade-out or other extreme event. In the

NPRM, the FAA proposed to require a visual inspection of the combustion case for wear and gouges, repair if necessary, and rework of the affected HPT shroud/LPT nozzle assemblies to add a positive retention of the support air duct.

The FAA issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to all GE Model CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, and CF34-10E7-B engines with an installed HPT shroud/LPT nozzle assembly having P/N 2205M38G01, 2205M38G02, 2205M38G03, 2205M38G04, or 2205M38G05. The SNPRM was published in the *Federal Register* on January 23, 2025 (90 FR 7998). The SNPRM was prompted by comments received on the NPRM from GE and Japan Airlines requesting the addition of GE Model CF34-10E5 and CF34-10E5A1 engines to the applicability of the NPRM. In response to these comments, the FAA determined that additional model engines are affected by the unsafe condition and, as a result, should be added to the applicability paragraph of this AD. The SNPRM proposed to require a visual inspection of the combustion case for wear and gouges, repair if necessary, and rework of the affected HPT shroud/LPT nozzle assemblies to add a positive retention of the support air duct. The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from one individual commenter. The following presents the comments received on the SNPRM and the FAA's response to the comments.

Request to Evaluate Economic Impact on Small Entities

An individual commenter requested that the FAA evaluate the economic impact of compliance with the proposed AD, particularly on smaller operators, and explore cost-effective solutions like alternative repair procedures or extended compliance windows where safety permits. The commenter also recommended that the FAA consider additional guidance on streamlined approval processes for alternative methods of compliance (AMOCs) in order to allow for flexibility in addressing wear and damage while maintaining rigorous safety standards. The commenter noted that the estimated cost

of compliance, particularly in cases requiring full combustion case replacement, could impose a financial burden on affected carriers.

The FAA acknowledges the commenter's concerns and notes that flexibility in compliance with an AD is allowed through a request for an AMOC, allowed through the procedures in paragraph (i) of this AD. The unsafe condition addressed in this AD includes failure of the combustion case, which could result in possible engine separation and loss of the airplane. Inspections and repairs are therefore necessary to detect and repair any wear and gouges on the combustion case before they lead to structural failure. The FAA did not change this AD as a result of this comment.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, this AD is adopted as proposed in the SNPRM. None of the changes will increase the economic burden on any operator.

Material Incorporated by Reference Under 1 CFR Part 51

The FAA reviewed GE CF34-10E Service Bulletin 72-0351 R01, dated July 17, 2019, which specifies procedures for a visual inspection of the combustion case for wear and gouges, repair if necessary, and rework of the affected HPT shroud/LPT nozzle assemblies. This material also introduces a new HPT shroud/LPT nozzle assembly P/N 2205M38G07 with welded retaining rings. This material 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 221 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
Visual inspection of the combustion case inner shell surface	8 work-hours x \$85 per hour = \$680	\$0	\$680	\$150,280
Rework of the affected HPT shroud/LPT nozzle assembly	8 work-hours x \$85 per hour = \$680	\$0	\$680	\$150,280

The FAA estimates the following costs to do any necessary repairs that would be required based on the results of the inspection. The agency has no way of determining the number of engines that might need these repairs.

On-Condition Costs

Action	Labor Cost	Parts Cost	Cost per product
Repair of the combustion case	8 work-hours x \$85 per hour = \$680	\$0	\$680
Replacement of the combustion case	8 work-hours x \$85 per hour = \$680	\$647,000	\$647,680

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

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) 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 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:

2025-10-04 General Electric Company: Amendment 39-23038; Docket No. FAA-2024-1883; Project Identifier AD-2023-01120-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric Company (GE) Model CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, and CF34-10E7-B

engines with an installed high-pressure turbine (HPT) shroud/low-pressure turbine (LPT) nozzle assembly having part number (P/N) 2205M38G01, 2205M38G02, 2205M38G03, 2205M38G04, or 2205M38G05.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by a report of failed retention features of the inner and outer support air ducts (commonly referred to as spoolies) discovered during engine disassembly. The FAA is issuing this AD to prevent failure of the combustion case. The unsafe condition, if not addressed, could result in the inner surface of the combustion case having reduced load carrying capability for fan blade out or other extreme event with possible engine separation and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) At the next engine shop visit after the effective date of this AD, do a visual inspection of the combustion case inner shell surface for wear and gouges in accordance with paragraphs 3.A.(1) and (2) of the Accomplishment Instructions in GE CF34-10E Service Bulletin (SB) 72-0351 R01, dated July 17, 2019 (GE CF34-10E SB 72-0351 R01).

(i) If any wear or gouges are found during any inspection required by paragraph (g)(1) of this AD, before further flight, repair the combustion case in accordance with Table 1 of GE CF34-10E SB 72-0351 R01.

(ii) If any wear or gouges exceed the maximum repairable limit in accordance with Table 1 of GE CF34-10E SB 72-0351 R01, before further flight, remove the combustion case from service.

(2) At the next engine shop visit after the effective date of this AD, rework the affected HPT shroud/LPT nozzle assembly, in accordance with paragraph 3.B. of the Accomplishment Instructions of GE CF34-10E SB 72-0351 R01.

(h) Definition

For the purpose of this AD, an “engine shop visit” is defined as when the HPT shroud/LPT nozzle assembly or the HPT rotor disk is removed from the engine.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, AIR-520 Continued Operational Safety 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 AIR-520 Continued Operational Safety Branch, send it to the attention of the person identified in paragraph (j) of this AD and email to: 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 Alexei Marqueen, Aviation Safety Engineer, FAA, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7178; email: alexei.t.marqueen@faa.gov.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the material listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this material as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) GE CF34-10E Service Bulletin 72-0351 R01, dated July 17, 2019.

(ii) [Reserved]

(3) For GE material identified in this AD, contact GE, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: ge.com.

(4) You may view this material 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 (817) 222-5110.

(5) You may view this material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations or email fr.inspection@nara.gov.

Issued on May 8, 2025.

Peter A. White,
Deputy Director, Integrated Certificate Management Division,
Aircraft Certification Service.

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