



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1208; Project Identifier AD-2023-00325-E]

RIN 2120-AA64

Airworthiness Directives; General Electric Company 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 certain General Electric Company (GE) Model CF6-80E1A2, CF6-80E1A3, CF6-80E1A4, and CF6-80E1A4/B engines. This proposed AD was prompted by a manufacturer investigation that revealed that a certain forward outer seal and certain high-pressure turbine rotor (HPTR) stage 1 disks and rotating seals were manufactured from material suspected to contain iron inclusion, which may cause reduced material properties and a lower fatigue life capability. This proposed AD would require the replacement of the affected forward outer seal, HPTR stage 1 disks, and rotating seals. 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 [regulations.gov](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.

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) by searching for and locating Docket No. FAA-2023-1208; 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, any comments received, and other information. The street address for Docket Operations is listed above.

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:

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 ADDRESSES. Include “Docket No. FAA-2023-1208; Project Identifier AD-2023-00325-E” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to [regulations.gov](https://www.regulations.gov), including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked

submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Alexei Marqueen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA was notified by the manufacturer that a certain forward outer seal and certain HPTR stage 1 disks and rotating seals on Model CF6-80E1A2, CF6-80E1A3, CF6-80E1A4, and CF6-80E1A4/B engines were made from billets manufactured from material that are suspected to contain iron inclusion. Such iron inclusion may cause premature fracture and subsequent uncontained failure. The FAA has determined that the operators with affected HPTR stage 1 disks have proactively removed these parts from service. As a result, the proposed compliance time for removal and replacement of the affected HPTR stage 1 disks is before further flight. This condition, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the aircraft.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Proposed AD Requirements in this NPRM

This proposed AD would require the removal of a certain forward outer seal and certain HPTR stage 1 disks and rotating seals from service and replacement with parts eligible for installation.

Interim Action

The FAA considers that this proposed AD would be an interim action. This unsafe condition is still under investigation by the manufacturer and, depending on the results of

that investigation, the FAA may consider further rulemaking action.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 1 engine installed on airplanes of U.S. registry. This engine would require replacement of the rotating seal. The FAA estimates that there are no engines installed on airplanes of U.S. registry that would require replacement of the forward outer seal or HPTR stage 1 disk.

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
Replace HPTR stage 1 disk	8 work-hours x \$85 per hour = \$680	\$1,479,623 (pro-rated)	\$1,480,303	\$0
Replace rotating seal	8 work-hours x \$85 per hour = \$680	\$732,517 (pro-rated)	\$733,197	\$733,197
Replace forward outer seal	8 work-hours x \$85 per hour = \$680	\$1,290,000 (pro-rated)	\$1,290,680	\$0

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 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) 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 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:

General Electric Company: Docket No. FAA-2023-1208; Project Identifier AD-2023-00325-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) 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 Model CF6-80E1A2, CF6-80E1A3, CF6-80E1A4, and CF6-80E1A4/B engines with an installed forward outer seal, high-pressure turbine rotor (HPTR) stage 1 disk, or rotating seal having a part number (P/N) and serial number (S/N) identified in Table 1 to paragraph (c) of this AD.

Table 1 to Paragraph (c) – *Affected Forward Outer Seal, HPTR Stage 1 Disks, and Rotating Seals*

Part Name	P/N	Part S/N
Forward outer seal	1778M70P03	NCU65340
HPTR stage 1 disk	1863M36G06	TMT5TD23
		TMT5TD26
		TMT5TD27
Rotating seal	1778M69P06	BTB20610
		BTB20611
		BTB20612
		BTB26650

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by a manufacturer investigation that revealed that a certain forward outer seal and certain HPTR stage 1 disks and rotating seals were manufactured from material suspected to contain iron inclusion, which may cause reduced material properties and a lower fatigue life capability. The FAA is issuing this AD to prevent fracture and subsequent uncontained failure of a certain forward outer seal and certain HPTR stage 1 disks and rotating seals. The unsafe condition, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the aircraft.

(f) Compliance

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

(g) Required Actions

(1) At the next piece-part exposure of the affected forward outer seal or before the affected forward outer seal exceeds 5,400 cycles since new (CSN), whichever occurs first

after the effective date of this AD, remove the affected forward outer seal from service and replace with a part eligible for installation.

(2) At the next piece-part exposure of the affected rotating seal or before the affected rotating seal exceeds 5,200 CSN, whichever occurs first after the effective date of this AD, remove the affected rotating seal from service and replace with a part eligible for installation.

(3) Before further flight after the effective date of this AD, remove the affected HPTR stage 1 disk from service and replace with a part eligible for installation.

(h) Definitions

(1) For the purpose of this AD, a “part eligible for installation” is any forward outer seal, HPTR stage 1 disk, or rotating seal that does not have a P/N and S/N identified in Table 1 to paragraph (c) of this AD.

(2) For the purpose of this AD, “piece-part exposure” is when the affected part is removed from the engine and completely disassembled.

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

(k) Material Incorporated by Reference

None.

Issued on June 2, 2023.

Michael Linegang, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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