



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2024-2721; Project Identifier AD-2024-00610-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 certain high-pressure turbine (HPT) stage 1 and HPT stage 2 disks were manufactured from powder metal material suspected to contain iron inclusion. This proposed AD would require replacement of affected HPT stage 1 and HPT stage 2 disks with parts eligible for installation. 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) under Docket No. FAA-2024-2721; 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](mailto: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 the ADDRESSES section. Include “Docket No. FAA-2024-2721; Project Identifier AD-2024-00610-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 revise 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 of the detection of iron inclusion in an HPT stage 2 disk manufactured from the same powder metal material used to manufacture certain HPT stage 1 and HPT stage 2 disks for GE Model CF6-80E1A2, CF6-80E1A3, CF6-80E1A4, and CF6-80E1A4/B engines. Further investigation by the manufacturer revealed that the iron inclusion is attributed to deficiencies in the manufacturing process and may cause reduced material properties and a lower fatigue life capability, which may result in premature fracture and uncontained failure. The manufacturer also informed the FAA that additional risk assessments determined that there were no failed events associated with the discovery of this iron inclusion material on these engines, but concluded that replacement of the affected HPT stage 1 and HPT stage 2 disks is necessary to prevent any future failed events. The exposure of certain HPT stage 1 and HPT stage 2 disks to iron inclusion, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the airplane.

### **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 replacement of affected HPT stage 1 and HPT stage 2 disks with parts eligible for installation. Because affected operators are already aware of the proposed corrective action and have already performed the actions proposed in this AD, the FAA has determined that the compliance time to replace the affected HPT stage 1 and HPT stage 2 disks before further flight is appropriate.

## Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect one engine installed on an airplane 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
Replace HPT stage 1 disk	8 work-hours x \$85 per hour = \$680	\$1,228,800 (prorated)	\$1,229,480	\$1,229,480
Replace HPT stage 2 disk	8 work-hours x \$85 per hour = \$680	\$201,600 (prorated)	\$202,280	\$202,280

### 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-2024-2721; Project Identifier AD-2024-00610-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 (GE) Model CF6-80E1A2, CF6-80E1A3, CF6-80E1A4, and CF6-80E1A4/B engines with an installed high-pressure turbine (HPT) stage 1 disk or HPT stage 2 disk 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 HPT Stage 1 and HPT Stage 2 Disks**

Part Name	P/N	S/N
HPT stage 1 disk	1863M36G06	GWN0GP27
HPT stage 1 disk	1863M36G06	GWN0GPM8
HPT stage 1 disk	1863M36G06	GWN0GP26
HPT stage 1 disk	1863M36G06	TMT5SW61
HPT stage 1 disk	1863M36G06	TMT5SW59
HPT stage 1 disk	1863M36G06	TMT5SW64
HPT stage 1 disk	1863M36G06	TMT5SW82
HPT stage 1 disk	1863M36G06	GWN0GPMG
HPT stage 2 disk	1778M72P05	BTB77100
HPT stage 2 disk	1778M72P05	MUNLD123
HPT stage 2 disk	1778M72P05	MUNLD122
HPT stage 2 disk	1778M72P05	MUN5B794
HPT stage 2 disk	1778M72P05	BTB77102

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by a manufacturer investigation that revealed certain HPT stage 1 and HPT stage 2 disks were subject to iron inclusion introduced during the manufacturing process. The FAA is issuing this AD to prevent fracture and potential uncontained failure of certain HPT stage 1 and HPT stage 2 disks. The unsafe condition, if not addressed, could result in uncontained debris 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**

(1) Before further flight after the effective date of this AD, remove any affected HPT stage 1 disk having P/N 1863M36G06 and S/N GWN0GP27 from service and replace with a part eligible for installation.

(2) Before further flight after the effective date of this AD, remove any affected HPT stage 2 disk having P/N 1778M72P05 and S/N BTB77100 from service and replace with a part eligible for installation.

(3) For affected HPT stage 1 disks identified in Table 1 to paragraph (c) of this AD that are not included in paragraph (g)(1) of this AD, at the next piece part exposure or before the affected HPT stage 1 disk exceeds 8,600 cycles since new (CSN), whichever occurs first after the effective date of this AD, remove the affected HPT stage 1 disk from service and replace with a part eligible for installation.

(4) For affected HPT stage 2 disks identified in Table 1 to paragraph (c) of this AD that are not included in paragraph (g)(2) of this AD, at the next piece part exposure or before the affected HPT stage 2 disk exceeds 12,000 CSN, whichever occurs first after the effective date of this AD, remove the affected HPT stage 2 disk from service and replace with a part eligible for installation.

## **(h) Definitions**

For the purpose of this AD:

(1) A “part eligible for installation” is any HPT stage 1 disk or HPT stage 2 disk that does not have a P/N and S/N identified in Table 1 to paragraph (c) of this AD.

(2) A “piece part exposure” is when the affected part is removed from the engine and completely disassembled.

## **(i) Grace Period for HPT Stage 1 Disk Replacement**

For affected HPT stage 1 disks having greater than 8,550 CSN on the effective date of this AD, the replacement required by paragraph (g)(3) of this AD may be deferred up to 50 flight cycles after the effective date of this AD.

**(j) 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 AIR-520 Continued Operational Safety Branch, send it to the attention of the person identified in paragraph (k) 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.

**(k) Additional 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.

**(l) Material Incorporated by Reference**

None.

Issued on January 21, 2025.

Suzanne Masterson,  
Deputy Director, Integrated Certificate Management Division,  
Aircraft Certification Service.

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