



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2024-0030; Project Identifier AD-2023-01066-E; Amendment 39-22722; AD 2024-07-02]

RIN 2120-AA64

#### Airworthiness Directives; CFM International, S.A. Engines

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for CFM International, S.A. (CFM) Model LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, LEAP-1A26E1, LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, and LEAP-1A35A engines. This AD was prompted by detection of melt-related freckles in the billet, which may reduce the life of certain high-pressure turbine (HPT) rotor interstage seals. This AD requires removing the affected HPT rotor interstage seals from service and replacing with a part eligible for installation. 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-2024-0030; 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 service information identified, contact CFM International, S.A., GE Aviation Fleet Support, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45215; phone: (877) 432-3272; email: aviation.fleetsupport@ge.com.

- You may view this service information 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-2024-0030.

**FOR FURTHER INFORMATION CONTACT:** Mehdi Lamnyi, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7743; email: mehdi.lamnyi@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 CFM Model LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, LEAP-1A26E1, LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, and LEAP-1A35A engines. The NPRM published in the *Federal Register* on January 11, 2024 (89 FR 1847). The NPRM was prompted by detection of melt-related freckles in the billet, which may reduce the life of certain HPT rotor interstage seals. In the NPRM, the FAA proposed to require removing the affected HPT rotor interstage seals from service and replacing with a part eligible for installation. The FAA is issuing this AD to address the unsafe condition on these products.

**Discussion of Final Airworthiness Directive**

**Comments**

The FAA received no comments on the NPRM or on the determination of the costs.

## **Conclusion**

The FAA reviewed the relevant data 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 NPRM.

## **Related Service Information under 1 CFR Part 51**

The FAA reviewed CFM Service Bulletin LEAP-1A-72-00-0492-01A-930A-D, Issue 001-00, dated April 6, 2023, which provides the serial numbers of the affected HPT rotor interstage seals and specifies procedures for replacement of the HPT rotor interstage seal. 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.

## **Costs of Compliance**

The FAA estimates that this AD affects 1 engine installed on an airplane 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
Remove HPT rotor interstage seal	225 work-hours x \$85 per hour = \$19,125	\$168,000	\$187,125	\$187,125

### 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:

**2024-07-02 CFM International, S.A.:** Amendment 39-22722; Docket No. FAA-2024-0030; Project Identifier AD-2023-01066-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 CFM International, S.A. (CFM) Model LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, LEAP-1A26E1, LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, and LEAP-1A35A engines.

#### **(d) Subject**

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

#### **(e) Unsafe Condition**

This AD was prompted by detection of melt-related freckles in the billet, which may reduce the life of certain high-pressure turbine (HPT) rotor interstage seals. The FAA is issuing this AD to prevent failure of the HPT rotor interstage seal. The unsafe condition, if not addressed, could result in release of uncontained debris, 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**

For engines with an affected HPT rotor interstage seal installed, before exceeding the applicable threshold specified in Table 1 of paragraph 3.E., Compliance, of CFM Service Bulletin (SB) LEAP-1A-72-00-0492-01A-930A-D, Issue 001-00, dated April 6, 2023 (CFM SB LEAP-1A-72-00-0492-01A-930A-D, Issue 001-00), or at the next HPT rotor module exposure, whichever occurs first after the effective date of this AD, remove the affected HPT rotor interstage seal from service and replace it with a part eligible for installation.

### **(h) Definitions**

(1) For the purpose of this AD, an “affected HPT rotor interstage seal” is any HPT rotor interstage seal having part number 2466M68P02 and a serial number listed in Table 1 of paragraph 3.E., Compliance, of CFM SB LEAP-1A-72-00-0492-01A-930A-D, Issue 001-00.

(2) For the purpose of this AD, a “part eligible for installation” is any HPT rotor interstage seal having a serial number that is not listed in Table 1 of paragraph 3.E., Compliance, of CFM SB LEAP-1A-72-00-0492-01A-930A-D, Issue 001-00.

(3) For the purpose of this AD, an “HPT rotor module exposure” is an engine shop visit during which the HPT rotor assembly is fully removed from the engine core.

### **(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 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) Additional Information**

For more information about this AD, contact Mehdi Lamnyi, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7743; email: mehdi.lamnyi@faa.gov.

**(k) Material Incorporated by Reference**

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

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

(i) CFM International, S.A. Service Bulletin LEAP-1A-72-00-0492-01A-930A-D, Issue 001-00, dated April 6, 2023.

(ii) [Reserved]

(3) For service information, contact CFM International, S.A., GE Aviation Fleet Support, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45215; phone: (877) 432-3272; email: aviation.fleetsupport@ge.com.

(4) You may view this service information at 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](http://www.archives.gov/federal-register/cfr/ibr-locations) or email [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov).

Issued on March 27, 2024.

Victor Wicklund,  
Deputy Director, Compliance & Airworthiness Division,  
Aircraft Certification Service.

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