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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2025-3434; Project Identifier AD-2025-00473-E; Amendment 39-23175; AD 2025-21-03]

RIN 2120-AA64

Airworthiness Directives; CFM International, S.A. Engines

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule; request for comments.

SUMMARY:

The FAA is adopting a new airworthiness directive (AD) for certain 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 reports of two in-flight shutdowns and subsequent investigation by the manufacturer that revealed cracks in the high-pressure turbine (HPT) rotor stage 1 blades. This AD requires initial and repetitive borescope inspections (BSIs) of the HPT rotor stage 1 blades. Depending on the results of the BSIs, this AD requires either additional BSIs at reduced intervals or replacement of the HPT rotor stage 1 blades. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective December 29, 2025.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of December 29, 2025.

The FAA must receive comments on this AD by January 26, 2026.

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*. 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* under Docket No. FAA-2025-3434; 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 street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For CFM material identified in this AD, contact CFM, 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 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.

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:

Comments Invited

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments using a method listed under the **ADDRESSES** section. Include "Docket No. FAA-2025-3434; Project Identifier AD-2025-00473-E" at the beginning of your comments. The most helpful comments reference a specific portion of the final rule, 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 final rule 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,* including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

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 AD 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 AD, 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 AD. Submissions containing CBI should be sent to Mehdi Lamnyi, 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 of reports of two in-flight shutdowns on airplanes powered by CFM LEAP-1A engines operating extensively in the Middle East and North Africa (MENA) region. A subsequent investigation by the manufacturer revealed that the engine failures were due to cracks in the HPT rotor stage 1 blades. After investigation, the manufacturer determined that engines operating in the MENA region are susceptible to accelerated HPT rotor stage 1 blade deterioration and airfoil distress at earlier cycle times due to the build-up of dust. As result, the FAA issued AD 2022-17-12, Amendment 39-22150 (87 FR 53651, September 1, 2022) (AD 2022-17-12) to address that unsafe condition in the MENA region. Further analysis revealed that these same engines are susceptible to similar accelerated deterioration and airfoil distress when operating in the South Asia region. This condition, if not addressed, could result in failure of the engine, in-flight shutdown, loss of thrust control, and consequent loss of control of the airplane.

The FAA is issuing this AD to address the unsafe condition on these products.

FAA's Determination

The FAA is issuing this AD because the agency determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Material Incorporated by Reference Under 1 CFR Part 51

The FAA reviewed CFM Service Bulletin (SB) LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00, dated July 30, 2025, which specifies procedures for performing repetitive BSIs of the HPT rotor stage 1 blades on LEAP-1A engines operating in the South Asia region, and depending on the inspection results, recording and reporting any unserviceable findings, inspecting the sister engine's HPT rotor stage 1 blades, or removing an unserviceable HPT rotor stage 1 blades from service.

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.

AD Requirements

This AD requires initial and repetitive BSIs of the HPT rotor stage 1 blades and, depending on the results of the inspections, additional BSIs at reduced intervals or replacement of the HPT rotor stage 1

blades. This AD also requires a BSI of the HPT rotor stage 1 blades installed on the sister engine of the same airplane if certain criteria are met.

This AD will require similar inspections, compliance times, and corrective actions as AD 2022-17-12 except for the initial inspection threshold which is specific to operations within the South Asia region.

Interim Action

The FAA considers this AD to be an interim action. The unsafe condition is still under investigation by the manufacturer and, depending on the results of that investigation, the FAA may consider further rulemaking action.

Justification for Immediate Adoption and Determination of the Effective Date

Section 553(b) of the Administrative Procedure Act (APA) (5 U.S.C. 551 *et seq.*) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for "good cause," finds that those procedures are "impracticable, unnecessary, or contrary to the public interest." Under this section, an agency, upon finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

The FAA justifies waiving notice and comment prior to adoption of this rule because no domestic operators are affected by this AD. It is unlikely that the FAA will receive any adverse comments or useful information about this AD from any U.S. operator.

Accordingly, notice and opportunity for prior public comment are unnecessary, pursuant to 5 U.S.C. 553(b). In addition, for the foregoing reason(s), the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days.

Regulatory Flexibility Act

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because FAA has determined that it has good cause to adopt this rule without prior notice and comment, RFA analysis is not required.

Costs of Compliance

The FAA estimates that this AD affects 0 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

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
BSI of the HPT rotor stage 1 blades	4 work-hours × $85 per hour = $340	$0	$340	$0

The FAA estimates the following costs to do any necessary further corrective actions and replacements 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 additional inspections or replacements.

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replacement of the HPT rotor stage 1 blades	150 work-hours × $85.00 per hour = $12,750	$988,200	$1,000,950
BSI of the HPT rotor stage 1 blades (on the sister engine)	4 work-hours × $85 per hour = $340	0	340

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, and

(2) Will not affect intrastate aviation in Alaska.

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:

2025-21-03 CFM International, S.A.: Amendment 39-23175; Docket No. FAA-2025-3434; Project Identifier AD-2025-00473-E.

(a) Effective Date

This airworthiness directive (AD) is effective December 29, 2025.

(b) Affected ADs

None.

(c) Applicability

This AD applies to CFM International, S.A. Model (CFM) 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 with an installed high-pressure turbine (HPT) rotor stage 1 blade, having part number (P/N) 2747M92P01, P/N 2553M91G03, P/N 2553M91G05, P/N 2553M91G06, P/N 2553M91G07, or P/N 2553M91G08 and that has accumulated more than 1,100 South Asia takeoffs.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of two in-flight shutdowns due to cracks in the HPT rotor stage 1 blades. The FAA is issuing this AD to prevent failure of the HPT rotor stage 1 blades. The unsafe

condition, if not addressed, could result in failure of the engine, in-flight shutdown, loss of thrust control, and consequent loss of control of the airplane.

(f) Compliance

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

(g) Required Actions

(1) Group 1 Engines: Borescope Inspection (BSI) of HPT Rotor Stage 1 Blades

For Group 1 engines with an affected HPT rotor stage 1 blade installed:

(i) Within 100 flight cycles (FCs) after accumulating 1,100 South Asia takeoffs on the HPT rotor stage 1 blade, before the HPT rotor stage 1 blade accumulates 2,500 cycles since new (CSN), or within 100 FCs after the effective date of this AD, whichever occurs later, perform an initial BSI of the HPT rotor stage 1 blades in accordance with the Accomplishment Instructions, paragraph 5.E.(1)(c), of CFM Service Bulletin LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00, dated July 30, 2025 (CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00).

(ii) Thereafter, at intervals not to exceed 150 FCs since the last BSI, perform a repetitive BSI of the HPT rotor stage 1 blades in accordance with the Accomplishment Instructions, paragraph 5.E.(1)(c), of CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00.

(2) Group 2 Engines: BSI of HPT Rotor Stage 1 Blades

For Group 2 engines with an affected HPT rotor stage 1 blade installed:

(i) Within 100 FCs after accumulating 1,100 South Asia takeoffs on the HPT rotor stage 1 blade, before the HPT rotor stage 1 blade accumulates 5,100 CSN, or within 100 FCs after the effective date of this AD, whichever occurs later, perform an initial BSI of the HPT rotor stage 1 blades in accordance with the Accomplishment Instructions, paragraph 5.E.(1)(c), of CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00.

(ii) Thereafter, at intervals not to exceed 300 FCs since the last BSI, perform a repetitive BSI of the HPT rotor stage 1 blades in accordance with the Accomplishment Instructions, paragraph 5.E.(1)(c), of CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00.

(3) BSI Results Disposition for Group 1 and Group 2 Engines

Based on the results of the BSI required by paragraphs (g)(1) or (2) of this AD, as applicable, either re-inspect or replace, as applicable, the HPT rotor stage 1 blades set using the criteria, compliance times, and procedures as described in the Accomplishment Instructions, paragraph 5.E.(1)(e), of CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00.

(4) Conditional Inspection of the Sister Engine for Group 1 and Group 2 Engines

(i) Based on the BSI results disposition required by paragraph (g)(3) of this AD, if re-inspection or replacement of the HPT rotor stage 1 is required, within 50 FCs based on the criteria, compliance

times, and procedures described in the Accomplishment Instructions, paragraph 5.E.(1)(e), of CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00, then perform the actions required in paragraph (g)(4)(ii) of this AD.

(ii) Within 5 FCs after performing the inspection required by paragraph (g)(1) or (2) of this AD, as applicable, either inspect or replace the HPT rotor stage 1 blades on the sister engine using the procedures and compliance times in the Accomplishment Instructions, paragraph 5.E.(1)(f), of CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00. Where CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00, specifies to remove the engine, this AD requires replacement of the HPT rotor stage 1 blades.

(h) Definitions

For the purpose of this AD, the following definitions apply:

(1) Group 1 engines are CFM Model LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, and LEAP-1A35A engines.

(2) Group 2 engines are CFM Model LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, and LEAP-1A26E1 engines.

(3) A “South Asia takeoff” is any takeoff accomplished in the South Asia region, which includes the following countries: Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka.

(4) A “sister engine” refers to the other engine installed on the same airplane.

(i) Credit for Previous Actions

(1) This paragraph provides credit for the initial BSI required by paragraphs (g)(1)(i) or (2)(i) of this AD if you performed the initial BSI before the effective date of this AD using CFM Service Bulletin LEAP-1A-72-00-0485-01A-930A-D, Issue 001-00, dated September 27, 2022, or Issue 002-00, dated April 16, 2025.

(2) The inspections and corrective actions as required by paragraphs (g)(1) through (4) of this AD satisfy the requirements of paragraphs (g)(1) through (4) of AD 2022-17-12, Amendment 39-22150 (87 FR 53651, September 1, 2022) (AD 2022-17-12).

(3) The inspections and corrective actions as required by paragraphs (g)(1) through (4) of AD 2022-17-12 satisfy the requirements of paragraphs (g)(1) through (4) of this AD.

(j) No Reporting Requirement

Where CFM SB LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00, requires reporting any unserviceable findings, this AD does not require that action.

(k) 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 (l) 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.

(l) 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*.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference 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) CFM Service Bulletin LEAP-1A-72-00-0485-01A-930A-D, Issue 003-00, dated July 30, 2025.

(ii) [Reserved]

(3) For CFM material identified in this AD, 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 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 December 5, 2025.

Peter A. White,

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

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