



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1991; Project Identifier AD-2023-00700-E]

RIN 2120-AA64

Airworthiness Directives; CFM International, S.A. 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 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 proposed AD was prompted by a report of multiple aborted takeoffs and air turn-backs (ATBs) caused by high-pressure compressor (HPC) stall, which was induced by high levels of non-synchronous vibration (NSV). Additional manufacturer investigation revealed that wear on the No. 3 bearing spring finger housing can lead to high levels of NSV. This proposed AD would require initial and repetitive calculations of the levels of NSV, inspection of the stage 2 high-pressure turbine (HPT) nozzle assembly honeycomb and HPT stator stationary seal honeycomb and, depending on the results of the calculations and inspections, replacement of certain parts. This proposed AD would also require replacement of the No. 3 bearing spring finger housing. 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-2023-1991; 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.

Material Incorporated by Reference:

- For service information identified in this NPRM, 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.

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 relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2023-1991; Project Identifier AD-2023-00700-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, 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 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 by the engine manufacturer of three aborted takeoffs and two ATBs caused by HPC stall. Additional manufacturer investigation revealed that wear on the No. 3 bearing spring finger housing can lead to high levels of NSV, which could induce HPC stall. As a result of its investigation, the manufacturer published service information that specifies procedures for addressing this situation. This condition, if not addressed, could result in engine power loss at a critical phase of flight such as takeoff or climb, loss of engine thrust control, reduced controllability of the airplane, and loss of 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.

Related Service Information under 1 CFR Part 51

The FAA reviewed CFM Service Bulletin (SB) LEAP-1A-72-00-0504-01A-930A-D, Issue 001, dated June 14, 2023. This service information identifies affected No. 3 bearing spring finger housings and specifies procedures for monitoring NSV during engine operation. This service information also specifies procedures for replacing the No. 3 bearing spring finger housings, inspecting the stage 2 HPT nozzle assembly honeycomb and HPT stator stationary seal honeycomb, and replacing the stage 2 HPT nozzle assembly honeycomb and HPT stator stationary 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 ADDRESSES.

Proposed AD Requirements in this NPRM

This proposed AD would require repetitive calculations of the levels of NSV and, depending on the results of the calculations, replacement of the No. 3 bearing spring finger housing. This proposed AD would require, following the removal and replacement of the No. 3 bearing spring finger housing, inspection of the stage 2 HPT nozzle assembly honeycomb and HPT stator stationary seal honeycomb for rubs and, depending on findings, replacement of the stage 2 HPT nozzle assembly honeycomb and HPT stator stationary seal. This proposed AD would also require replacement of the No. 3 bearing spring finger housing, regardless of calculated level of NSV, at a certain time.

Interim Action

The FAA considers that this proposed AD would be an interim action. The design approval holder is currently developing a modification to address this issue. The FAA may consider additional rulemaking on this subject.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 48 engines installed on airplanes of U.S. registry. The FAA estimates that 33 engines installed on

airplanes of U.S. registry would require replacement of the No. 3 bearing spring finger housing.

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
Calculate NSV data	1 work-hour x \$85 per hour = \$85	\$0	\$85	\$4,080
Replace No. 3 bearing spring finger housing	17 work-hours x \$85 per hour = \$1,445	\$64,590	\$66,035	\$2,179,155

The FAA estimates the following costs to do any necessary replacement and inspection that would be required based on the results of the proposed calculation. The agency has no way of determining the number of aircraft that might need these replacements and inspections:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Inspect stage 2 HPT nozzle assembly honeycomb and HPT stator stationary seal honeycomb	4 work-hours x \$85 per hour = \$340	\$0	\$340
Replace stage 2 HPT nozzle assembly honeycomb	8 work-hours x \$85 per hour = \$680	\$58,536	\$59,216
Replace HPT stator stationary seal	8 work-hours x \$85 per hour = \$680	\$6,855	\$7,535

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:

CFM International, S.A.: Docket No. FAA-2023-1991; Project Identifier AD-2023-00700-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 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 with an installed No. 3 bearing spring finger housing having part number (P/N) 2629M62G01 and a serial number identified in Table 1 or Table 2 of CFM Service Bulletin (SB) LEAP-1A-72-00-0504-01A-930A-D, Issue 001, dated June 14, 2023 (CFM SB LEAP-1A-72-00-0504-01A-930A-D).

(d) Subject

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compressor Section.

(e) Unsafe Condition

This AD was prompted by a report of multiple aborted takeoffs and air turn-backs caused by high-pressure compressor (HPC) stall, which was induced by high levels of non-synchronous vibration (NSV), and an additional manufacturer investigation that revealed wear on the No. 3 bearing spring finger housing. The FAA is issuing this AD to prevent HPC stall. The unsafe condition, if not addressed, could result in engine power loss at a critical phase of flight such as takeoff or climb, loss of engine thrust control, reduced controllability of the airplane, and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) Within 125 flight cycles (FCs) after the effective date of this AD and thereafter at intervals not to exceed 125 FCs, calculate the NSV data in accordance with

the Accomplishment Instructions, paragraphs 5.A.(1) and 5.A.(3), or 5.B.(1) and 5.B.(3) of CFM SB LEAP-1A-72-00-0504-01A-930A-D.

(2) If, during any calculation required by paragraph (g)(1) of this AD, the NSV data exceeds the limits specified in the Accomplishment Instructions, paragraph 5.A.(4)(a)1 or 5.B.(4)(a)1 of CFM SB LEAP-1A-72-00-0504-01A-930A-D, discontinue the calculations required by paragraph (g)(1) of this AD and within 150 FCs of performing the calculation:

(i) Remove from service the No. 3 bearing spring finger housing having P/N 2629M62G01 and a serial number identified in Table 1 or Table 2 of CFM SB LEAP-1A-72-00-0504-01A-930A-D and replace with a part eligible for installation.

(ii) Inspect the stage 2 high-pressure turbine (HPT) nozzle assembly honeycomb for rubs in accordance with the Accomplishment Instructions, paragraphs 5.A.(4)(a)3b1 or 5.B.(4)(a)3b1) of CFM SB LEAP-1A-72-00-0504-01A-930A-D.

(iii) Inspect the HPT stator stationary seal honeycomb for rubs in accordance with the Accomplishment Instructions, paragraphs 5.A.(4)(a)3b2) or 5.B.(4)(a)3b2) of CFM SB LEAP-1A-72-00-0504-01A-930A-D.

(3) If, during the inspection required by paragraph (g)(2)(ii) of this AD, the stage 2 HPT nozzle assembly honeycomb fails to meet the serviceability criteria referenced in the Accomplishment Instructions, paragraphs 5.A.(4)(a)3b1) or 5.B.(4)(a)3b1) of CFM SB LEAP-1A-72-00-0504-01A-930A-D, before further flight, replace the stage 2 HPT nozzle assembly honeycomb.

(4) If, during the inspection required by paragraph (g)(2)(iii) of this AD, the HPT stator stationary seal honeycomb fails to meet the serviceability criteria referenced in the Accomplishment Instructions, paragraphs 5.A.(4)(a)3b2) or 5.B.(4)(a)3b2) of CFM SB LEAP-1A-72-00-0504-01A-930A-D, before further flight, replace the HPT stator stationary seal.

(5) At the next piece-part exposure after the effective date of this AD, but before exceeding 9,900 cycles since new, replace the No. 3 bearing spring finger housing having P/N 2629M62G01 and a serial number identified in Table 1 of CFM SB LEAP-1A-72-00-0504-01A-930A-D with a part eligible for installation.

(h) Terminating Action

Replacement of the No. 3 bearing spring finger housing having P/N 2629M62G01 and a serial number identified in Table 1 or Table 2 of CFM SB LEAP-1A-72-00-0504-01A-930A-D with a part eligible for installation, as specified in paragraphs (g)(2)(i) and (g)(5) of this AD, constitutes terminating action for the calculations required by paragraph (g)(1) of this AD.

(i) Definition

For the purpose of this AD, a “part eligible for installation” is a No. 3 bearing spring finger housing that does not have P/N 2629M62G01 and a serial number identified in Table 1 or Table 2 of CFM SB LEAP-1A-72-00-0504-01A-930A-D.

(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 the branch office, send it to the attention of the person identified in paragraph (k) of this AD and email it 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.

(3) For service information that contains steps that are labeled as Required for Compliance (RC), the following provisions apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, that are required by paragraph (g) of this AD must be done to comply with this AD. An AMOC is required for any deviations to RC steps required by paragraph (g) of this AD, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(k) Related 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.

(l) 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-72-00-0504-01A-930A-D, Issue 001, dated June 14, 2023.

(ii) [Reserved]

(3) For service information 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 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 service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on October 3, 2023.

Ross Landes, Deputy Director for Regulatory Operations,
Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2023-22373 Filed: 10/10/2023 8:45 am; Publication Date: 10/11/2023]