

Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 21-186

Issued: 22 December 2021

Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.

All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation date indicated].

Design Approval Holder's Name:

CFM INTERNATIONAL S.A.

Type/Model designation(s):

LEAP-1A engines

Effective Date: [TBD - standard: 14 days after AD issue date]

TCDS Number(s): EASA.E.110

Foreign AD: Not applicable

Supersedure: None

ATA 72 – Engine – High Pressure Turbine Rotor Stage 1 Blade and Stator Stage 1 Nozzles – Inspection

Manufacturer(s):

SAFRAN Aircraft Engines, formerly SNECMA (France); General Electric Aviation (United States)

Applicability:

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, all serial numbers.

These engines are known to be installed on, but not limited to, certain Airbus A319, A320 and A321 aeroplanes.

Definitions:

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

The SB: CFM International (CFM) Service Bulletin (SB) LEAP-1A-72-00-0461-01A-930A-D issue 002.

Affected parts: High Pressure Turbine (HPT) rotor stage 1 blade Part Number (P/N) 2747M92P01, P/N 2553M91G03, P/N 2553M91G05, P/N 2553M91G06, P/N 2553M91G07 and P/N 2553M91G08;

and HPT stator stage 1 nozzles P/N 2464M08G05, P/N 2464M08G06, P/N 2464M08G09, P/N 2464M08G10, P/N 2464M08G11 and P/N 2464M08G12.

Critical departures: Take-off accomplished in the Middle East and North African (MENA) region, as defined in the SB.

Groups: Group 1 are LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, and LEAP-1A35A engines. Group 2 are LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, and LEAP-1A26E1 engines.

Reason:

Occurrences of cracking of affected parts have been reported on engines operated extensively in the MENA region.

This condition, if not detected and corrected, could lead to failure of the affected parts, possibly resulting in in-flight shut-down and reduced control of the aeroplane.

To address this potential unsafe condition, CFM issued the SB, as defined in this AD, providing instructions to accomplish borescope inspections (BSI) of affected parts, in addition to those already included in the recommended maintenance schedule.

For the reasons described above, this AD requires repetitive inspections of affected parts and, depending on findings, corrective actions.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Inspections:

- (1) For engines having an affected part stage 1 blade installed, which, on the effective date of this AD, has accumulated more than 800 critical departures: Accomplish the actions as specified in paragraph (1.1) or (1.2), as applicable:
 - (1.1) For Group 1 engines: Within the threshold as identified in Table 1 of this AD, as applicable, and, thereafter, at intervals not exceeding 150 cycles, inspect the affected parts in accordance with the instructions of the SB.
 - (1.2) For Group 2 engines: Within the threshold as identified in Table 2 of this AD, as applicable, and, thereafter, at intervals not exceeding 300 cycles, inspect the affected parts in accordance with the instructions of the SB.

Table 1 – Group 1 Engines – Initial Inspection (see Note 1 of this AD)

Cycles	Threshold
1 650 or less	Before exceeding 1 750 cycles
More than 1 650	Within 100 cycles after the effective date of this AD



Table 2 – Group 2 Engines – Initial Inspection (see Note 1 of this AD)

Cycles	Threshold
2 500 or less	Before exceeding 2 600 cycles
More than 2 500	Within 100 cycles after the effective date of this AD

Note 1: Unless otherwise stated, the cycles specified in Table 1, Table 2, Table 3 and Table 4 of this AD are those accumulated since new by the HPT rotor stage 1 blade which has accumulated the highest number of cycles since new.

- (2) For engines having affected part stage 1 blades installed, none of which, on the effective date of this AD, has accumulated more than 800 critical departures: Upon exceeding 800 critical departures for an affected part stage 1 blade of an engine, accomplish the actions as specified in paragraph (2.1) or (2.2), as applicable:
- (2.1) For Group 1 engines: Within the threshold as identified in Table 3 of this AD, as applicable, and, thereafter, at intervals not exceeding 150 cycles, inspect the affected parts in accordance with the instructions of the SB.
- (2.2) For Group 2 engines: Within the threshold as identified in Table 4 of this AD, as applicable, and, thereafter, at intervals not exceeding 300 cycles, inspect the affected parts in accordance with the instructions of the SB.

Table 3 – Group 1 Engines – Initial Inspection (see Note 1 of this AD)

Cycles	Threshold
1 650 or less	Before exceeding 1 750 cycles
More than 1 650	Within 100 cycles after an affected part stage 1 blade exceeds 800 critical departures

Table 4 – Group 2 Engines – Initial Inspection (see Note 1 of this AD)

Cycles	Threshold
2 500 or less	Before exceeding 2 600 cycles
More than 2 500	Within 100 cycles after an affected part stage 1 blade exceeds 800 critical departures

Corrective Action(s):

- (3) For engines installed on twin-engine aeroplanes: If, during any inspection as required by paragraph (1) or (2) of this AD, as applicable, any discrepancy, as identified in section 5.E.1.(g) of the SB, is found on an engine (hereafter referred to as 'the first engine'), within 5 cycles after that inspection, inspect the affected parts of the second engine of that aeroplane in accordance with the instructions of the SB.



- (4) If, during the inspection as required by paragraph (3) of this AD, any discrepancy, as identified in section 5.E.1.(g)2 of the SB, is found on the second engine:
- (4.1) Within 5 cycles after the inspection of the second engine, but not exceeding any applicable limitation of the applicable Aircraft Maintenance Manual (AMM), remove from service one engine (first or second) of that aeroplane and, before release to service of that engine, contact CFM for approved repair instructions and accomplish those instructions accordingly.
 - (4.2) Accomplish the applicable corrective actions for the remaining installed engine (second or first) within the compliance time as specified in, and in accordance with the instructions of, the applicable AMM, or contact CFM for approved repair instructions and accomplish those instructions accordingly.
- (5) If, during the inspection as required by paragraph (3) of this AD, any discrepancy, as identified in section 5.E.1.(g)3 of the SB, is found on the second engine:
- (5.1) Before next flight, remove from service one engine (first or second) of that aeroplane and, before release to service of that engine, contact CFM for approved repair instructions and accomplish those instructions accordingly.
 - (5.2) Accomplish the applicable corrective actions for the remaining installed engine (second or first) within the compliance time as specified in, and in accordance with the instructions of, the applicable AMM, or contact CFM for approved repair instructions and accomplish those instructions accordingly.
- (6) If, during the inspection as required by paragraph (3) of this AD, no discrepancy, as identified in section 5.E.1.(g)2 and 5.E.1.(g)3 of the SB, is found on the second engine, accomplish the applicable corrective actions for the first engine within the compliance time as specified in, and in accordance with the instructions of, the applicable AMM, or contact CFM for approved repair instructions and accomplish those instructions accordingly.
- (7) For engines in shop: If, during any inspection as required by paragraph (1) or (2) of this AD, as applicable, any discrepancy, as identified in section 5.E.1(g) of the SB, is found on an engine, before release to service of that engine, contact CFM for approved repair instructions and accomplish those instructions accordingly.
- Credit:**
- (8) Accomplishment of a BSI of the affected parts of an engine in accordance with the instructions of Airbus A320 AMM task 72-52-00-290-803-A and task 72-00-00-290-814-A is acceptable to comply with the applicable inspection requirements of paragraph (1) or (2) of this AD, as applicable, for that engine.
- (9) Inspections and corrective action(s) accomplished on an engine before the effective date of this AD in accordance with the instructions of CFM SB LEAP-1A-72-00-0461-01A-930A-D issue 001 are acceptable to comply with the requirements of paragraph (1) to (7) of this AD, as applicable, for that engine.



Terminating Action:

(10) None.

Part(s) Installation:

(11) From the effective date of this AD, it is allowed to install an affected part on any engine provided, after that installation, the engine is inspected as required by this AD.

(12) From the effective date of this AD, following removal of an engine as required by paragraph (4.1) or (5.1) of this AD, as applicable, it is allowed to install on a twin-engine aeroplane an engine, having affected parts installed which are not new, provided that, before that installation, that engine has passed an inspection (no discrepancies found) in accordance with the instructions of the SB.

Reporting:

(13) If, during any inspection as required by paragraph (1), (2) or (3) of this AD, as applicable, any discrepancy is found on an engine, within 30 days after that inspection, or after the effective date of this AD, whichever occurs later, report the inspection results to CFM. This can be accomplished in accordance with the instructions of the SB.

Ref. Publications:

CFM SB LEAP-1A-72-00-0461-01A-930A-D Issue 001 dated 10 December 2021, and Issue 002 dated 21 December 2021.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.

Remarks:

1. This Proposed AD will be closed for consultation on 07 January 2022.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
3. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this PAD, and which may occur, or have occurred on a product, part or appliance not affected by this PAD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this PAD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
4. For any question concerning the technical content of the requirements in this PAD, please contact: CFM International S.A., Customer Support Centre, Telephone: +33 1 64 14 88 66, Fax: +33 1 64 79 85 55, E-mail: cfm.csc@safrangroup.com,

or



CFM Inc. Aviation Operations Centre, Telephone: +1 513-552-3272 or +1 877-432-3272,
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