European Union Aviation Safety Agency

Airworthiness Directive

AD No.: 2023-0108

Issued: 26 May 2023

Note: This Airworthiness Directive (AD) 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.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I Part M.A.301, or Annex Vb Part ML.A.301, as applicable, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I Part M.A.303, or Annex Vb Part ML.A.303, as applicable] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

CFM INTERNATIONAL S.A.

Type/Model designation(s):

LEAP-1A engines

Effective Date: 09 June 2023

TCDS Number(s): EASA.E.110

Foreign AD: Not applicable

Supersedure: None

ATA 72 – Engine – Forward Outer Seal, High Pressure Compressor Stages 6-10 Compressor Rotor Spools and High Pressure Turbine Rotor Stage 1 Disks – Replacement

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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 (s/n).

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-72-00-0470-01A-930A-D Issue 003, CFM SB LEAP-1A-72-00-0493-01A-930A-D Issue 002 and CFM SB LEAP-1A-72-00-0496-01A-930A-D, as applicable.

The SB tables: Tables 1 and 2 of CFM SB LEAP-1A-72-00-0470-01A-930A-D issue 003; Tables 1 and 2 of CFM SB LEAP-1A-72-00-0493-01A-930A-D issue 002; and Tables 1 through 9 (inclusive) of CFM SB LEAP-1A-72-00-0496-01A-930A-D.

Affected part: Forward outer seals, high pressure compressor (HPC) Stage 6-10 spools (compressor rotor stages 6-10 spools) and high pressure turbine (HPT) rotor stage 1 disks (HPT stage 1 disks), having a part number (P/N) and s/n as listed in the SB tables.

Serviceable part: Any forward outer seal, HPC Stage 6-10 spool or HPT rotor stage 1 disk, eligible for installation, that is not an affected part.

Groups: Group 1 engines are those that have an affected part installed.
Group 2 engines are those that do not have an affected part installed.

Reason:

Three HPT rotor disks from a different engine type have been found to contain iron inclusions. This has been attributed to specific deficiencies in the manufacturing process. Iron inclusion may lead to reduced mechanical properties and failure of an affected part prior to achieving its approved life as published in the Airworthiness Limitations Section of the Engine Manual. Following investigations, it has been determined that also other parts, including forward outer seals and HPC Stage 6-10 spools, were manufactured using the same processes, and may also have reduced mechanical properties due to iron inclusion.

This condition, if not corrected, could lead to failure of affected parts, possibly resulting in high energy debris release, with consequent damage to, and reduced control of, the aeroplane.

To address this potential unsafe condition, CFM published the SB to provide replacement instructions and lists of the affected parts.

For the reason described above, this AD requires replacement of the affected parts and prohibits (re)installation.

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

Required as indicated, unless accomplished previously:

Replacement:

(1) For Group 1 engines: Within the compliance time as specified in Table A of this AD, replace each affected part with a serviceable part in accordance with the instructions of the SB.

Note 1: The cycles since new (CSN) specified in the SB tables are those accumulated by the affected part since its first installation on an engine.

Note 2: The engine shop manual provides an acceptable method to determine the remaining cycles available for an affected part which has been operated on different engine models / thrust ratings.

Table A – Affected Part Replacement

Compliance Time (**A** or **B**, whichever occurs first)	
A	Within the compliance time as specified in the SB tables, as applicable (see Notes 1 and 2 of this AD), or within 50 engine cycles after the effective date of this AD, whichever occurs later
B	During the next piece-part exposure after the effective date of this AD

Parts Installation:

(2) Do not install an affected part on any engine, as required by paragraph (2.1) or (2.2) of this AD, as applicable.

(2.1) For Group 1 engines: After replacement of each affected part on an engine as required by paragraph (1) of this AD.

(2.2) For Group 2 engines: From the effective date of this AD.

Ref. Publications:

CFM SB LEAP-1A-72-00-0470-01A-930A-D Issue 003 dated 03 March 2023.

CFM SB LEAP-1A-72-00-0493-01A-930A-D Issue 002 dated 17 November 2022.

CFM SB LEAP-1A-72-00-0496-01A-930A-D original issue (Issue 001) dated 07 March 2023.

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

Remarks:

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.

2. This AD was posted on 29 March 2023 as PAD 23-038 for consultation until 26 April 2023. The Comment Response Document can be found in the EASA Safety Publications Tool, in the compressed (zipped) file attached to the record for this AD.

3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.

4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, 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 AD 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.

5. For any question concerning the technical content of the requirements in this AD, please contact: CFM International S.A., Customer Support Centre, Telephone: +33 1 64 14 88 66, Fax: +33 1 64 14 87 65, E-mail: cfm.csc@safrangroup.com,

   or

   CFM Inc., GE Aviation Fleet Support, Telephone: +1 513-552-3272 or +1 877-432-3272, E-mail: aviation.fleetsupport@ge.com.