



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 21-177

Issued: 02 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 05 – Time Limits / Maintenance Checks – Airworthiness Limitations Section – Implementation

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 ALS: CFM International (CFMI) Airworthiness Limitations Section (ALS), Chapter 05 of LEAP-1A Engine Shop Manual (ESM) SM.21, data modules as listed in Appendix 1 of this AD.



SB 72-0413: CFMI Service Bulletin (SB) LEAP-1A-72-00-0413-01A-930A-D Issue 003.

SB 72-0463: CFMI SB LEAP-1A-72-00-0463-01A-930A-C Issue 001.

Affected parts: LEAP-1A Stages 6-10 Compressor Rotor Spools, High Pressure Turbine (HPT) Rotor Interstage Seals, Stage 2 HPT Rotor Disks, Stage 1 Low Pressure Turbine (LPT) Disks, Stage 2 LPT Disks, Stage 3 LPT Disks, and Stage 4 LPT Disks, having a Part Number (P/N) and serial number (s/n) listed in the SBs.

The AMP: The approved Aircraft Maintenance Programme (AMP) on the basis of which the operator or the owner ensures the continuing airworthiness of each operated engine. For engines installed on aeroplanes operated in Europe, compliance with the approved AMP is required by Commission Regulation (EU) [1321/2014](#), Part M.A.301, paragraph 3.

New and/or more restrictive tasks and limitations: This includes all tasks and limitations that are new and all tasks and limitations for which a threshold or interval was reduced, which were introduced into the ALS, or published in SB 72-0463 (as defined in this AD), since the previous ESM Chapter 05 data modules issues that are currently incorporated in the AMP (see Note 1 of this AD).

Note 1: For an affected part, the life limit as published in SB 72-0463 must be used, superseding the life limit as published in the ALS.

Reason:

The airworthiness limitations for the LEAP-1A engines, which are approved by EASA, are currently defined and published in the LEAP-1A ESM SM.21, Chapter 05, including reference to certain CFMI SBs. These instructions have been identified as mandatory for continued airworthiness. Failure to accomplish these instructions could result in an unsafe condition.

Since the original issue of the ALS, life limits and maintenance tasks for newly designed parts have been introduced in the ALS, as defined in this AD.

In addition, following investigations related to material anomalies in certain critical parts, it has been determined that the affected parts, as defined in this AD, may have subsurface anomalies developed during the manufacturing process, resulting in a lower life capability.

This condition, if not detected and corrected, could lead to failure of the 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, CFMI issued/updated the following documents:

- the ALS, identifying the life limits and their applicability, by reference to SB 72-0413;
- SB 72-0413, listing by P/N and s/n affected parts for which a reduced life limit, as specified in the ALS, is applicable;
- SB 72-0463, defining a reduced life limit applicable for a batch of Stage 4 LPT Disks, as identified in the SB 72-0463 itself. Appendix 2 of this AD provides a list of those Stage 4 LPT disks and the applicable life limit.



For the reasons described above, this AD requires accomplishment of the actions specified in the ALS, SB 72-0413 and SB 72-0463, as defined in this AD.

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

Required as indicated, unless accomplished previously:

Maintenance Tasks and Replacement of Life Limited Parts:

(1) From the effective date of this AD, accomplish the following actions, as specified in the ALS, SB 72-0413 and SB 72-0463, as applicable to engine model and depending on engine configuration:

- (1.1) Replace each component before exceeding the applicable life limit (see Note 1 of this AD), and
- (1.2) Within the thresholds and intervals, accomplish all applicable maintenance tasks.

Corrective Action(s):

(2) In case of finding discrepancies during accomplishment of any task as required by paragraph (1) of this AD, within the compliance time specified in the ALS, accomplish the applicable corrective action(s) in accordance with the applicable CFMI maintenance documentation. If no compliance time is identified in the ALS, accomplish the applicable corrective action(s) before next flight. If a detected discrepancy cannot be corrected by using existing CFMI instructions, before next flight, contact CFMI for approved instructions and accomplish those instructions accordingly.

AMP Revision:

(3) Within 12 months after the effective date of this AD, revise the AMP by incorporating the tasks and limitations and the associated thresholds and intervals described in the ALS, SB 72-0413 and SB 72-0463, as applicable to engine model and depending on engine configuration (see Note 1 of this AD).

Credit:

(4) If, before the effective date of this AD, the AMP has been revised to incorporate the maintenance tasks and life limitations as specified in previous issues of the ESM Chapter 05 data modules listed in Appendix 1 of this AD, that action ensures the continued accomplishment of those tasks and limitations.

Consequently, for an aeroplane to which that AMP applies, it is acceptable to accomplish the new and/or more restrictive tasks, as defined in this AD, as applicable to engine model and depending on engine configuration, within the compliance times as specified in the ALS, SB 72-0413 and SB 72-0463 (see Note 1 of this AD), as applicable, to comply with paragraph (1) of this AD.

For that AMP, it is acceptable to incorporate the new and/or more restrictive tasks, as applicable to engine model and depending on engine configuration, into the AMP to comply with paragraph (3) of this AD.



Recording AD Compliance:

- (5) When the AMP of an aeroplane has been revised as required by paragraph (3) or (4) of this AD, as applicable, that action ensures continued accomplishment of the tasks as required by paragraphs (1) and (2) of this AD for that aeroplane. Consequently, after revising the AMP, as required by paragraph (3) or (4) of this AD, it is not necessary that accomplishment of individual action is recorded for demonstration of AD compliance on a continued basis.

Ref. Publications:

CFMI LEAP-1A ESM SM.21, Chapter 05, currently at Revision 019, data modules as listed in Appendix 1 of this AD.

CFMI SB LEAP-1A-72-00-0413-01A-930A-D, Issue 003 dated 24 November 2021.

CFMI SB LEAP-1A-72-00-0463-01A-930A-C, Issue 001 dated 17 November 2021

The use of later approved revisions of the above-mentioned documents 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, Fax: +1 877-432-3329, E-mail: geae.aoc@ge.com or aviation.fleetsupport@ge.com.



Appendix 1 – LEAP-1A ESM SM.21 Chapter 05 data modules

#	Document number	Issue	Dated
1	LEAP-1A-05-00-00-01A-040A-C	002	07 April 2017
2	LEAP-1A-05-11-00-01A-040A-C	001	05 November 2015
3	LEAP-1A-05-11-01-01A-0B1B-C	004	26 March 2018
4	LEAP-1A-05-11-02-01A-0B1B-C	010	15 September 2021
5	LEAP-1A-05-11-03-01A-0B1B-C	007	15 September 2021
6	LEAP-1A-05-11-04-01A-0B1B-C	009	01 June 2021
7	LEAP-1A-05-12-00-01A-040A-C	001	05 November 2015
8	LEAP-1A-05-12-01-01A-0B1B-C	002	30 May 2018
9	LEAP-1A-05-12-02-01A-0B1B-C	003	30 May 2018
10	LEAP-1A-05-17-01-01A-0B1A-C	002	23 December 2016
11	LEAP-1A-05-21-00-01A-040B-C	001	05 November 2015
12	LEAP-1A-05-21-01-01A-281B-C	003	29 May 2019
13	LEAP-1A-05-21-02-01A-281B-C	001	05 November 2015
14	LEAP-1A-05-21-03-01A-281B-C	005	13 July 2021
15	LEAP-1A-05-21-04-01A-281B-C	001	05 November 2015
16	LEAP-1A-05-21-05-01A-281B-C	001	05 November 2015
17	LEAP-1A-05-21-06-01A-281B-C	001	05 November 2015
18	LEAP-1A-05-21-07-01A-281B-C	001	05 November 2015
19	LEAP-1A-05-21-08-01A-281B-C	001	30 June 2016
20	LEAP-1A-05-21-09-01A-281B-C	002	10 April 2018
21	LEAP-1A-05-29-00-01A-710A-C	001	05 November 2015



Appendix 2 – Reduced life limits implemented due to material anomalies as referenced in SB 72-0463.

Part Name	Part Number / Serial numbers	Engine Model Approved Lives (cycles)	
		1A23, 1A24, 1A24E1, 1A26, 1A26E1, 1A29, 1A30, 1A32, 1A33, 1A33B2, 1A35A	1A26CJ, 1A29CJ
LPT Stage 4 Disk	P/N: 362-039-520-0 s/n: PC975638, PC975635	2 500	1 400

