TYPE-CERTIFICATE DATA SHEET

No. EASA.E.110

for Engine
LEAP-1A & LEAP-1C series engines

Type Certificate Holder
CFM International SA

CFM International SA
2, boulevard du Général Martial Valin
75015 Paris
France

For Models:

LEAP-1A23
LEAP-1A24
LEAP-1A24E1
LEAP-1A26
LEAP-1A26CJ
LEAP-1A26E1
LEAP-1A29
LEAP-1A29CJ
LEAP-1A30
LEAP-1A32
LEAP-1A33
LEAP-1A33B2
LEAP-1A35A

LEAP-1A32X
LEAP-1A33X
LEAP-1A33B2X
LEAP-1A35AX

LEAP-1C28
LEAP-1C30
LEAP-1C30B1

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I. General

1. Type / Models

LEAP-1A & LEAP-1C	LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, LEAP-1A26E1, LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, LEAP-1A35A LEAP-1A32X, LEAP-1A33X, LEAP-1A33B2X, LEAP-1A35AX LEAP-1C28, LEAP-1C30, LEAP-1C30B1

2. Type Certificate Holder

CFM International SA
2, boulevard du Général Martial Valin
75015 Paris
France

Design Organisation Approval No.: EASA.21J.086

3. Manufacturers

Safran Aircraft Engines Production Organisation Approval FR.21G.0007 10 allée du Brévent - CE 1420 - Courcouronnes 91019 Evry Cedex France	GE Production Certification No. 108 One Neumann Way Cincinnati - Ohio 45215 United States of America

(See note 4)

4. Date of Application

LEAP-1A35A	06 February 2012
LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26E1, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2	24 November 2015
LEAP-1C28, LEAP-1C30, LEAP-1C30B1	01 December 2015
LEAP-1A26CJ, LEAP-1A29, LEAP-1A29CJ	26 July 2017
LEAP-1A32X, LEAP-1A33X, LEAP-1A33B2X, LEAP-1A35AX	19 June 2020

5. EASA Type Certification Date

LEAP-1A35A	20 November 2015
LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26E1, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2	11 March 2016
LEAP-1C28, LEAP-1C30, LEAP-1C30B1	21 December 2016
LEAP-1A26CJ, LEAP-1A29, LEAP-1A29CJ	30 May 2018
LEAP-1A32X, LEAP-1A33X, LEAP-1A33B2X, LEAP-1A35AX	10 July 2024

II. Certification Basis

1. Reference Date for determining the applicable airworthiness requirements:
20 November 2012 (3 years prior to initial Type Certification date according to Part 21.A.17)

2. EASA Certification Basis

2.1. Airworthiness Standards
CS-E amendment 3 (23 December 2010)

2.2. Special Conditions (SC)
SC1: Fan Blade Containment - Woven Composite Fan Blade
SC2: 30 Seconds Transient Over-Temperature Approval

2.3. Equivalent Safety Findings (ESF)
ESF1: CS-E 740 Endurance Tests – Alternative Schedule
ESF2: CS-E 840 Rotor Integrity – High Pressure Turbine Stage 2 Rotor Compliance

2.4. Deviations
None

2.5. Environmental Protection

LEAP-1A35A, LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, LEAP-1A26E1, LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, LEAP-1C28, LEAP-1C30, LEAP-1C30B1, LEAP-1A32X, LEAP-1A33X, LEAP-1A33B2X, LEAP-1A35AX.	CS-34 Amendment 4 as implemented by ED Decision 2021/011/R (applicable 25 July 2021), ICAO Annex 16 Volume II, Amendment 10 applicable 1 January 2021 as implemented into EU legislation 27 April 2021. • NOx standards in accordance with ICAO Annex 16 Volume II, Part III, Chapter 2, §2.3.2 e)2)i) (CAEP/8). • HC, CO standards in accordance with ICAO Annex 16 Volume II, Part III, Chapter 2, §2.3.2. • Maximum nvPM mass concentration levels in compliance with Part III, Chapter 4, paragraph 4.2.2.1. nvPM mass and number emissions in compliance with Part III, Chapter 4, paragraph 4.2.2.2 a) 1) and 4.2.2.2 b) 1) (CAEP/11 In-Production standard).

III. Technical Characteristics

1. Type Design Definition

Engine type is identified by an engine model list including an identification plug reference:

LEAP-1A	Engine model list
LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26CJ, LEAP-1A26E1, LEAP-1A29, LEAP-1A29CJ, LEAP-1A30, LEAP-1A32, LEAP-1A33, LEAP-1A33B2, LEAP-1A35A LEAP-1A32X, LEAP-1A33X, LEAP-1A33B2X, LEAP-1A35AX.	LEAP-1AxxGyy xx denotes model rating yy denotes model configuration group number Refer to the latest revision of CFM Service Bulletin LEAP-1A 72-0220

Model	Engine identification plug reference	Model	Engine identification plug reference
LEAP-1A23	2531M61P54	LEAP-1A32	2531M61P14
LEAP-1A24	2531M61P62	LEAP-1A33	2531M61P22
LEAP-1A24E1	2531M61P58	LEAP-1A33B2	2531M61P24
LEAP-1A26	2531M61P34	LEAP-1A35A	2531M61P02
LEAP-1A26CJ	2531M61P46	LEAP-1A32X	2943M04P80
LEAP-1A26E1	2531M61P30	LEAP-1A33X	2943M04P29
LEAP-1A29	2531M61P26	LEAP-1A33B2X	2943M04P57
LEAP-1A29CJ	2531M61P42	LEAP-1A35AX	2943M04P12
LEAP-1A30	2531M61P06	-	-

LEAP-1C	Engine model list
LEAP-1C28, LEAP-1C30, LEAP-1C30B1	LEAP-1CxxGyy xx denotes model rating yy denotes model configuration group number Refer to the latest revision of CFM Service Bulletin LEAP-1C 72-0007

Model	Engine identification plug reference	Model	Engine identification plug reference
LEAP-1C28	2531M61P30	LEAP-1C30B1	2531M61P23
LEAP-1C30	2531M61P22	-	-

2. Description

Dual rotor, axial flow, high bypass ratio turbofan engine:

- single stage fan, 3-stage low pressure compressor (LPC), 10-stage high pressure compressor (HPC)
- annular combustion chamber
- 2-stage high pressure turbine (HPT), 7-stage low pressure turbine (LPT)
- dual channel full authority digital engine control (FADEC)

The LEAP-1C engine Type Certificate includes the thrust reverser. This thrust reverser is actuated by an Electrical Trust Reverser Actuation System (ETRAS) including a digital Thrust Reverser Control Unit (TRCU).
The left-hand engine thrust reverser includes a translating O-duct SIN 95000 with applicable Part numbers BCL0005-04-0 and up**.**
The right-hand engine thrust reverser includes a translating O-duct SIN 95000 with applicable Part numbers BCL0006-04-0 and up.

3. Equipment

The engine starter is part of the engine type design. Refer to the engine model list for details.

4. Dimensions (mm)

	LEAP-1A..G01	LEAP-1A..G02 and up	LEAP-1C..G01 and up
Length (fan case forward flange to turbine rear frame aft flange)	3328	3328	-
Length (fan cowl hinge beam front to centre vent tube end)	-	-	4505
Width (maximum envelope)	2543	2533	2659
Height (maximum envelope)	2368	2362	2714

5. Weight (kg)

Weight of the basic engine, including basic engine equipment, as given in the applicable engine "Installation Manual" document:

	LEAP-1A..G01	LEAP-1A..G02 and up	LEAP-1C..G01	LEAP-1C..G02 and up
With fluids (oil, fuel)	2990	3008	-	-
Without fluids (oil, fuel), including thrust reverser	-	-	3935	3929

6. Ratings (daN)

LEAP-1A Take-Off Thrust (daN)					
LEAP-1A23	LEAP-1A24 LEAP-1A24E1	LEAP-1A26 (*) LEAP-1A26CJ (*) LEAP-1A26E1 (*)	LEAP-1A29 (*) LEAP-1A29CJ	LEAP-1A30 LEAP-1A32 LEAP-1A33 LEAP-1A33B2 LEAP-1A35A	LEAP-1A32X (*) LEAP-1A33X (*) LEAP-1A33B2X (*) LEAP-1A35AX (*)
10680	10680	12064	13029	14305	14305

LEAP-1A Maximum Continuous Thrust (daN)				
EAP-1A23	LEAP-1A24 LEAP-1A24E1	LEAP-1A26 LEAP-1A26CJ LEAP-1A26E1 LEAP-1A29 LEAP-1A29CJ	LEAP-1A30 LEAP-1A32 LEAP-1A33 LEAP-1A33B2 LEAP-1A35A	LEAP-1A32X(*) LEAP-1A33X(*) LEAP-1A33B2X(*) LEAP-1A35AX(*)
10458	10676	11868	14096	11054

LEAP-1C Take-Off Thrust (daN)			
LEAP-1C28	LEAP-1C30 LEAP-1C30B1	-	-
12998	13714	-	-

LEAP-1C Maximum Continuous Thrust (daN)			
LEAP-1C28	LEAP-1C30 LEAP-1C30B1	-	-
12793	13322	-	-

(See notes 2 and 3)

Engine models which have the same approved ratings in standard static conditions will provide different level of thrust at altitude and/or high temperature conditions. This is controlled by the engine identification plug. Power management will vary take-off and maximum continuous thrust as a function of aircraft speed, altitude, and temperature as defined and agreed with the aircraft type certificate holder.

(*) For the models LEAP-1A26, -1A26CJ, -1A26E1 (for A319 aircraft only), LEAP-1A29 (for A320 aircraft) and all XLR models (LEAP-1A32X, -1A33X, -1A33B2X and -1A35AX), when the Go-Around thrust logic is active, the available Go-Around thrust is less than or equal to rated Take-Off thrust. Maximum continuous thrust is set to not exceed go-around thrust. This is defined and agreed with the aircraft type certificate holder.

7. Control System

The software is part of the engine Type Design – At initial certification:

	LEAP-1A35A	LEAP-1A23, -1A24, -1A24E1, -1A26, -1A26E1, -1A30, -1A32,	LEAP-1A26CJ, -1A29, -1A29CJ	LEAP-1A32X, -1A33X, -1A33B2X, -1A35AX
Factory Loadable Software P/N	2500M34P03	2500M34P03	2500M34P03 2500M34P04 2500M34P05 2500M34P06 2500M34P08	2500M34P03 2500M34P04 2500M34P05 2500M34P06 2500M34P08
Application Software	2590M00P02	2590M00P03	2590M00P07	2590M00P13
Health Monitoring Software P/N	2590M01P01	2590M01P01	n/a	n/a
Prognostic Health Management P/N	n/a	n/a	2784M64P01	2784M64P08
Open Multimedia Applications Platform	n/a	n/a	2590M01P05 2590M01P06	2590M01P09 2590M01P10
Pressure Sub Systems (PSS) Software P/N	2474M65P05	2474M65P05	2474M65P05	2474M65P08

	LEAP-1C28, -1C30, -1C30B1	-	-
Factory Loadable Software P/N	2500M35P03 2500M35P04	-	-
Application Software P/N	2590M02P01	-	-
Health Monitoring Software P/N	2590M03P01	-	-
Pressure Sub Systems (PSS) Software P/N	2474M65P05	-	-
TRCU Operating Software P/N	According to SCI SK-0000492539-16	-	-
TRCU Application Software P/N	262074891-0230	-	-

8. Fluids (Fuel, Oil, Coolant, Additives)

Fuel and fuel additives: Refer to the latest revision of CFM Service Bulletin LEAP-1A S/B 73-0001 and CFM Service Bulletin LEAP-1C S/B 73-0001.

Oil: Refer to the latest revision of CFM Service Bulletin LEAP-1A S/B 79-0001 and CFM Service Bulletin LEAP-1C S/B 79-0001.

9. Aircraft Accessory Drives

LEAP-1A						
Component	Rotation direction	Speed ratio / HP rotor	Max. power or max. torque	Max. shear torque (m.daN)	Max. weight (wet) (kg)	Max. overhung moment (m.daN)
Electrical generator	CCW	0.462	129 kW	106.2	65	11.3
Hydraulic pump	CCW	0.211	14.7 m.daN	48	17.5	2.3

LEAP-1C						
Component	Rotation direction	Speed ratio / HP rotor	Max. power or max. torque	Max. shear torque (m.daN)	Max. weight (wet) (kg)	Max. overhung moment (m.daN)
Electrical generator	CCW	1.066	151 kW	86.6	65.2	13.9
Hydraulic pump	CW	0.203	14 m.daN	40.7	15.4	1.98

CW = clockwise when facing the gearbox drive pad
CCW = counter-clockwise when facing the gearbox drive pad

10. Maximum Permissible Air Bleed Extraction

LEAP-1A and LEAP-1C		
Bleed location	LP rotor speed	Airflow limit
Bypass duct	Above minimum idle	2 % of secondary airflow
HPC 4th stage	Above minimum idle	9.97% of primary airflow*
HPC 7th stage	Below 2314 rpm N1K**	2.9% of primary airflow
	Above 2314 rpm N1K**	2.45% of primary airflow
HPC 10th stage	Above minimum idle	15% of primary airflow

*Absolute maximum. Refer to the applicable Installation Manual for detailed HPC 4th stage bleed schedule.
**N1K = Temperature corrected fan rotor speed.
It is not allowed to extract air from 4th and 10th stages simultaneously.

IV. Operating Limitations

1. Temperature Limits

1.1. Exhaust Gas Temperature (°C):

The Exhaust Gas Temperature (EGT=T48) is measured at the low pressure turbine inlet.
Maximum Exhaust Gas Temperature (Indicated):

- Take-Off: 1060
- Maximum Continuous: 1025
- Ground Start: 750 (Measured 750 – Pre LEAP-1A S/B 73-0034 and pre LEAP-1C S/B 73-0003)
  750 (Measured 800 – Post LEAP-1A S/B 73-0034 and post LEAP-1C S/B 73-0003)
- Inflight Start: 875 (Starter assist or steady state windmill)
  920 (Quick windmill relight)
  970 (High power fuel cut)

All models are certified for a transitory exhaust gas temperature (EGT) exceedance at take-off of 5°C, during 30 seconds maximum. Refer to the applicable "Specific Operating Instructions" document.

1.2. Oil Temperature (°C)

Minimum for starting: minus29 (LEAP-1A Pre LEAP-1A S/B 72-0034, S/B 72-0035, S/B 72-0036 and LEAP-1C..G01)
Minimum for starting: minus40 (LEAP-1A Post LEAP-1A S/B 72-0034, S/B 72-0035, S/B 72-0036 and LEAP-1C..G02 and up)
Minimum for acceleration to take-off power: 19
Maximum steady state: 140
Maximum transient (15 minutes): 155

1.3. Fuel Inlet Temperature (°C)

Maximum steady state: 55

1.4. Engine Equipment Temperatures:

Refer to the applicable engine “Installation Manual” document for engine equipment steady state and transient skin temperature limits.

2. Speed Limits

2.1. Maximum Rotational Speeds (rpm=revolutions per minute):

Low pressure rotor (N1): 3894 (101 % - 100 % N1 is defined as 3856 rpm)
High pressure rotor (N2): 19391 (116.5 % - 100 % N2 is defined as 16645 rpm)

3. Pressure Limits

3.1. Fuel Pressure:

Minimum: 345 hPa (differential pressure)
Maximum (LEAP-1A): 4137 hPa (differential pressure)
Maximum (LEAP-1C): 3800 hPa (differential pressure)

When the engine is running, the fuel pressure at the engine pump inlet must be kept 345 hPa above the true vapour pressure of the fuel with a zero vapour/liquid ratio under normal operating conditions.

3.2. Oil Pressure:

Minimum at Idle conditions: 1200 hPa (differential pressure)
Minimum at Maximum Continuous conditions: 2000 hPa (differential pressure)

When the engine is running, the oil pressure varies with the rotational speed of the HP rotor (Refer to the applicable engine "Installation Manual" document). Deliberate operation of the engine with oil pressure below minimum is prohibited. However, aircraft "negative g" manoeuvres may cause temporary oil supply interruption. Under "negative g" operating conditions only, it is permissible to operate the engine below the minimum oil pressure for a maximum of 14 seconds before engine shutdown is required.

4. Time Limited Dispatch (TLD)

The engine is approved for Time Limited Dispatch in accordance with CS-E 1030. The maximum rectification period for each dispatchable state is specified in the applicable “Engine Shop Manual” document, chapter 5 “Airworthiness Limitations”.

5. ETOPS Capability

LEAP-1A: When compliant with CFM Service Bulletin LEAP-1A 71-0006, the LEAP-1A engine is approved for ETOPS capability in accordance with CS-E 1040 amendment 3 by EASA Certificate 10062224 dated 16 June 2017 for a Maximum Approved Diversion Time of 180 minutes at maximum continuous thrust plus 15 minutes at hold thrust. ETOPS does not require any special engine limitation, marking, placard, or configuration other than as instructed by the Service Bulletin. This approval does not constitute an approval to conduct ETOPS operations.

LEAP-1C: The LEAP-1C engine is not approved for ETOPS capability in accordance with CS-E 1040.

V. Operating and Service Instructions

LEAP-1A - Manuals	Refer to the latest revision of CFM Service Bulletin LEAP-1A 72-0220
Turbofan Engine Installation Manual (EIM – IM.20)	LEAP-1A..G01: CRL-2106a LEAP-1A..G02 and up: CRL-2106a_3
Installation Drawing	LEAP-1A..G01: CRL-2107a LEAP-1A..G02 and up: CRL-2107a_x
Specific Operating Instructions (SOI)	LEAP-1A: CRL-2105a (GEK 131717)

LEAP-1C - Manuals	Refer to the latest revision of CFM Service Bulletin LEAP-1C 72-0007
Turbofan Engine Installation Manual (EIM – IM.22)	LEAP-1C..G01: CRL-2106c LEAP-1C..G02: CRL-2106c_1 LEAP-1C..G03: CRL-2106c_2 LEAP-1C..G04 and up: CRL-2106c_3
Installation Drawing	LEAP-1C..G01: CRL-2107c LEAP-1C..G02 and up: CRL-2107c_x
Specific Operating Instructions (SOI)	LEAP-1C: CRL-2105c (GEK 131718)

Instructions for Continued Airworthiness (ICA)	**LEAP-1A**	**LEAP-1C**
Maintenance Manual	See Aircraft Maintenance Manual (AMM)	See Aircraft Maintenance Manual (AMM)
Fault Isolation Manual	See Aircraft Fault Isolation Manual (FIM)	See Aircraft Fault Isolation Manual (FIM)
Power Plant Build-up Manual (PPBM)	n/a	PP.22
Structural Repair Manual	n/a	See Aircraft Structural Repair Manual (SRM)
Engine Shop Manual (ESM)	SM.20	SM.22
Standard Practices Manual (SPM)	SPM.25	SPM.25
Consumable Product Manual (CPM)	CPM.25	CPM.25
Non Destructive Test Manual (NDTM)	NDTM.25	NDTM.25
Components Maintenance Manuals (CMM)	As published by CFM	As published by CFM
Service Bulletins (S/B)	As published by CFM	As published by CFM

VI. Notes

1. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable "Engine Shop Manual" document, chapter 5 "Airworthiness Limitations".

2. Engine ratings are based on calibrated test stand performance, and performance calculations are based on accepted parameter correction methods documented in the “Production Test Requirements” document. These calculations assume the following conditions:

- Sea level corner point conditions as defined in the “Production Test Requirements”;
- No aircraft accessory loads or air extraction;
- No anti-icing; no inlet distortion; no inlet screen losses; and 100% ram recovery;
- Production engine inlet and production exhaust system.

3. The take-off thrust, with the associated limits, shall not be used continuously more than 5 minutes. The duration may be extended to 10 minutes in case of engine failure in multi-engine aircraft. If the duration exceeds 5 minutes, this shall be recorded in the engine log book.

4. The type certificate holder, CFM International, is a company jointly owned by Safran Aircraft Engines (France) and GE (USA). CFM International is responsible for the certification program, the sale and the customer support activities. With respect to the benefits of type certification for production of certified engines, Safran Aircraft Engines and GE act as licensees of CFM International. The engine final assembly location is recorded on the engine identification plate. Engines produced by GE (USA) are identical to, and fully interchangeable with, engines produced by Safran Aircraft Engines (France).

5. The LEAP-1A engine is approved for use with Aircelle thrust reverser system P/N BDL0011-12-0 for the left hand thrust reverser half and P/N BDL0051-12-0 for the right hand thrust reverser half. The LEAP-1C engine Type Certificate includes the thrust reverser.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

EASA	European Union Aviation Safety Agency
n/a	Not applicable
P/N	Part number
S/B	Service Bulletin
SIN	Significant Item Number

II. Type Certificate Holder Record

n/a

III. Change Record

TCDS Issue	Date	Changes	TC issue date
Issue 01	20 November 2015	Initial issue with LEAP-1A35A model	Initial Issue, 20 November 2015
Issue 02	11 March 2016	Addition of LEAP-1A23, LEAP-1A24, LEAP-1A24E1, LEAP-1A26, LEAP-1A26E1, LEAP-1A30, LEAP-1A32, LEAP-1A33, and LEAP-1A33B2 models	Amended, 11 March 2016
Issue 03	11 July 2016	Following approval of SOI CRL-2105a/Rev. 2 and EIM CRL-2106a_1 Issue 2/Rev.1 (certificate 10058275), correction of LEAP-1A LEAP-1A..G02 engine weight, amendment of minimum oil temperature for starting and for acceleration to take-off power, correction of note 5. Introduction of model list LEAP-1A..G03 (certificate 10058742). Snecma becomes Safran Aircraft Engines.	11 March 2016
Issue 04	21 December 2016	Addition of LEAP-1C28, LEAP-1C30, and LEAP-1C30B1 models. Amendment of minimum oil temperature for starting and for acceleration to take-off power (certificate 10059856).	Amended, 21 December 2016
Issue 05	16 June 2017	Introduction of model list LEAP-1A..G04 (certificate 10061124) and model list LEAP- 1A..G05 (certificate 10061530). LEAP-1A engine ETOPS capability approval (certificate 10062224). Amendment of note 4. Addition of note 6.	21 December 2016
Issue 06	02 November 2017	Introduction of model list LEAP-1A..G06 (certificate 10063050 R1) and model list LEAP-1A..G07 (certificate 10063617).	21 December 2016
Issue 07	30 May 2018	Addition of LEAP-1A26CJ, LEAP-1A29, and LEAP-1A29CJ models. Correction of the Environmental Protection requirements. New LEAP-1C thrust reverser translating O-duct P/N (certificate 10063756). Update of LEAP-1A..G07 Installation Drawing (certificate 10064843).	Amended, 30 May 2018

Issue 08	02 May 2019	Introduction of model list LEAP-1C..G03 (certificate 10069455 - refer to LEAP-1C S/B 72-0007). Removal of note 6 and other TCDS amendments following the publication of LEAP-1A S/B 72-0220 and LEAP-1C S/B 72-0007.	30 May 2018
Issue 09	20 December 2019	Clarification of Environmental Protection requirements. Record of compliance with CAEP/10 emissions requirements (certificate 10071263). Change in LEAP-1A ground start EGT limit (certificate 10071269). Details added for inflight start EGT limits.	30 May 2018
Issue 10	03 March 2022	Change in LEAP-1C ground start EGT limit (certificate 10075032). Addition of the Turbofan Engine Installation Manual for model list LEAP-1C..GO4 (certificate 10076935). Amendment of the LEAP-1C list of ICA.	30 May 2018
Issue 11	05 December 2022	Change in Environmental Protection requirements. Compliance with CS-E 34 amendment 4 and ICAO CAEP/11 nvPM Emissions Standards (certificate 10080771)	30 May 2018
Issue 12	24 November 2023	Removal of specific part numbers for LEAP-1C Translating O-duct and replaced with generic part numbers in section III 2 (certificate 10080806).	30 May 2018
Issue 13	06 August 2024	Addition of LEAP-1A32X, LEAP-1A33X, LEAP-1A33B2X and LEAP-1A35AX models (certificate 10084876).	Amended, 10 July 2024

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