Civil Aviation Authority
United Kingdom

TYPE-CERTIFICATE DATA SHEET

UK.TC.E.00119

for

CF34-8 Series Engines

Type Certificate Holder

GENERAL ELECTRIC COMPANY

GE AVIATION

1000 Western Avenue

Lynn, Massachusetts 01910

United States of America

Model(s):

CF34-8C1	CF34-8E2A1
CF34-8C5	CF34-8E5
CF34-8C5A1	CF34-8E5A1
CF34-8C5B1	CF34-8E5A2
CF34-8C5A2	CF34-8E6
CF34-8C5A3	CF34-8E6A1
CF34-8E2	

Issue: 01

Date of issue: 08 November 2024

TABLE OF CONTENTS

Section 1 General (All Models)

I. General

This Type-Certificate Data Sheet (TCDS) is the concise definition of the type-certificated product accepted and or approved by the CAA in the UK for the affected types and models.

This TCDS includes:

1. Details of the type design that affect the TCDS that have been approved or accepted by the CAA in the UK from 01 January 2021.

2. Details of the type design that affected the TCDS and were approved or accepted by EASA before 01 January 2021, and were incorporated into EASA TCDS IM.E.053 at Issue 03 dated 09 January 2020 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement.

Section 2 CF34-8Series Engines

I. General

1. Type / Variant or Models

Type	Models
CF-34-8	CF34-8C1
	CF34-8C5
	CF34-8C5A1
	CF34-8C5B1
	CF34-8C5A2
	CF34-8C5A3
	CF34-8E2
	CF34-8E2A1
	CF34-8E5
	CF34-8E5A1
	CF35-8E5A2
	CF34-8E6
	CF34-8E6A1

2. Type Certificate Holder

GENERAL ELECTRIC COMPANY
GE AVIATION
1000 Western Avenue
Lynn, Massachusetts 01910
United States of America

3. Manufacturer

GENERAL ELECTRIC COMPANY

4. Date of Application at FAA (Certificating Authority)

Models	**Application Date**
CF34-8C1	01 May 1997
CF34-8C5	31 May 2000
CF34-8C5A1	31 May 2000
CF34-8C5B1	31 May 2000
CF34-8C5A2	31 May 2000
CF34-8C5A3	31 May 2000
CF34-8E2	31 May 2000
CF34-8E2A1	31 May 2000
CF34-8E5	31 May 2000
CF34-8E5A1	31 May 2000
CF35-8E5A2	31 May 2000
CF34-8E6	31 May 2000
CF34-8E6A1	31 May 2000

5. Type Certification date at FAA (Certificating Authority)

Models	Issued/Amended date
CF34-8C1	30 November 1999
CF34-8C5	12 April 2002
CF34-8C5A1	12 April 2002
CF34-8C5B1	12 April 2002
CF34-8C5A2	12 April 2002
CF34-8C5A3	12 April 2002
CF34-8E2	12 April 2002
CF34-8E2A1	12 April 2002
CF34-8E5	12 April 2002
CF34-8E5A1	12 April 2002
CF35-8E5A2	12 April 2002
CF34-8E6	12 April 2002
CF34-8E6A1	12 April 2002

6. Date of Application at CAA (Validating Authority)

Models	Application Date
CF34-8C1	11 January 2024
CF34-8C5	11 January 2024
CF34-8C5A1	11 January 2024
CF34-8C5B1	11 January 2024
CF34-8C5A2	11 January 2024
CF34-8C5A3	11 January 2024
CF34-8E2	11 January 2024
CF34-8E2A1	11 January 2024
CF34-8E5	11 January 2024
CF34-8E5A1	11 January 2024
CF35-8E5A2	11 January 2024
CF34-8E6	11 January 2024
CF34-8E6A1	11 January 2024

Application for CAEP/11 Compliance.

7. Type Certification date at CAA (Validating Authority)

Models	Approval date
CF34-8C1	08 November 2024
CF34-8C5	08 November 2024
CF34-8C5A1	08 November 2024
CF34-8C5B1	08 November 2024
CF34-8C5A2	08 November 2024
CF34-8C5A3	08 November 2024
CF34-8E2	08 November 2024
CF34-8E2A1	08 November 2024
CF34-8E5	08 November 2024
CF34-8E5A1	08 November 2024
CF35-8E5A2	08 November 2024
CF34-8E6	08 November 2024
CF34-8E6A1	08 November 2024

Application approval for CAEP/11 compliance.

II. Certification Basis

1. Reference Date for determining the applicable airworthiness requirements.

Models	Application Date
CF34-8C1	01 May 1997
CF34-8C5	01 May 1997
CF34-8C5A1	01 May 1997
CF34-8C5B1	01 May 1997
CF34-8C5A2	01 May 1997
CF34-8C5A3	01 May 1997
CF34-8E2	01 May 1997
CF34-8E2A1	01 May 1997
CF34-8E5	01 May 1997
CF34-8E5A1	01 May 1997
CF35-8E5A2	01 May 1997
CF34-8E6	01 May 1997
CF34-8E6A1	01 May 1997

2. State of Design Airworthiness Authority Type Certification Data Sheet Number

FAA TCDS E00063EN

3. State of Design Airworthiness Authority Certification Basis

Refer to FAA TCDS E00063EN

4. UK CAA Certification Basis

4.1 Airworthiness Standards

Models	Airworthiness Standards
CF34-8C1	- JAR-E Change 9 – 21 October 1994 plus Orange Paper E/96/1 effective 8 August 1996 - Orange Paper OP/E/97/01 30 December 1997 - NPA-E-20 Birds 23 December 1996 - NPA-E-27 Inclement Weather 16 September 1997
CF34-8C5/-8C5A1/-8C5B1/-8C5A2/-8C5A3/-8E2/-8E2A1/-8E5/-8E5A1/-8E5A2/-8E6/-8E6A1	- JAR-E Change 10 -dated 15 August 1999 - NPA-E-20 Birds – 3 December 1999

4.2 Special Conditions (SC)

SC1: Transient Overtemperature – CF34-8C1

4.3 Equivalent Safety Findings (ESF)

JAR-E 890 (b) (1) – Thrust Reverser Endurance Test

4.4 Deviations

None

4.5 Environmental Protection requirements:

In accordance with Article 9 of Assimilated Regulation (EU) 2018/1139, as amended, meeting the requirement of ICAO Annex 16 Volume II, Amendment 10 applicable 01 January 2021.

NOx standard in accordance with ICAO Annex 16 Volume II, Part III, Chapter 2, $ 2.3.2 e) (CAEP/8).

Maximum nvPM mass concentration levels in compliance with ICAO Annex 16 Volume II, 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

As defined by the applicable GE Model Lists

(See Note 6)

2. Description

Dual rotor, axial flow, high bypass ratio turbofan with single stage fan, ten stage axial compressor, annular combustion chamber, two stage high pressure turbine, four stage low pressure turbine, exhaust nozzle, starter, and a full authority digital engine control (FADEC). On the CF34-8E engine models only, a thrust reverser and aft core cowl is included in the engine type design.

3. Equipment

Equipment is included in Type Design Definition.

4. Dimensions

	CF34-8C1	**CF34-88C5 models**	**CF34-8E models**
Overall length	387cm (152.3 inches)	385 cm (151.6 inches)	308 cm (121.2 inches)
Overall Diameter	154.1cm (60.66 inches)	154.1 cm (60.66 inches)	159.2 cm (62.65 inches)

5. Dry Weight

	CF34-8C1	**CF34-88C5 models**	**CF34-8E models**
Weight	1,227 kg (2,704 lb)	1,261 kg (2,780 lb)	1,428 kg (3,147.6 lb)

6. Ratings

Rating (see Note 2)		**CF34-8C1**	**CF34-8C5**	**CF34-8C5A1**	**CF34-8C5B1**	**CF34-8C5A2**
Thrust kN (lb)	Maximum Take-off (5 min) (see Notes 3 and 4)	61.34 (13790)	64.54 (14510)	64.54 (14510)	61.34 (13790)	64.54 (14510)
	Normal Take-off (5 min) (see Notes 3 and 4)	56.36 (12670)	59.43 (13360)	60.63 (13630)	59.36 (12670)	62.50 (14050)
	Maximum Continuous	59.05 (13277)	60.84 (13680)	60.84 (13680)	59.06 (13280)	60.84 (13680)
Flat rate ambient temperature °C(°F)	Maximum Take-off	30 (86.0)	30 (86.0)	30 (86.0)	30 (86.0)	30 (86.0)
	Maximum continuous	25 (77)	30 (86)	30 (86)	25 (77)	30 (86)

Rating (see Note 2)		**CF34-8C5A3**	**CF34-8E2**	**CF34-8E2A1**	**CF34-8E5**	**CF34-8E5A1**
Thrust kN (lb)	Maximum Take-off (5 min) (see Notes 3 and 4)	64.54 (14510)	59.16 (13300)	59.16 (13300)	64.54 (14510)	64.54 (14510)
	Normal Take-off (5 min) (see Notes 3 and 4)	64.54 (14510)	55.20 (12410)	59.16 (13300)	59.70 (13420)	62.50 (14050)
	Maximum Continuous	60.84 (13680)	55.78 (12540)	55.78 (12540)	60.14 (13520)	60.14 (13520)
Flat rate ambient temperature °C(°F)	Maximum Take-off	30 (86)	30 (86)	30 (86)	30 (86)	30 (86)
	Maximum continuous	30 (86)	30 (86)	30 (86)	30 (86)	30 (86)

Rating (see Note 2)		**CF34-8E5A2**	**CF34-8E6**	**CF34-8E6A1**
Thrust kN (lb)	Maximum Take-off (5 min) (see Notes 3 and 4)	64.54 (14510)	62.50 (14050)	62.50 (14050)
	Normal Take-off (5 min) (see Notes 3 and 4)	64.54 (14510)	59.67 (13420)	62.50 (14050)
	Maximum Continuous	60.14 (13520)	60.14 (13520)	60.14 (13520)
Flat rate ambient temperature °C(°F)	Maximum Take-off	30 (86)	30 (86)	30 (86)
	Maximum continuous	30 (86)	30 (86)	30 (86)

7. Control System

The engine is equipped with a Full Authority Digital Engine Control (FADEC) system. Software is verified to level A according to RTCA Document DO-178B.

System		Component
Fuel Metering Unit	Woodward Governor	4120T01
Fuel Authority Digital Engine Control (FADEC)	BEA Systems (previously Lockhead/Martin)	4120T00
Configuration Plug	Hardware	
	Engine Rating	2041M41
	Engine Configuration	M42
	N1 Trim Setting	M43
Ignition System	2 Ignition Exciters - Unison	9328M66
	2 Ignition Plugs Federal Mogul/Champion	4096T33

8. Fluids

8.1 Fuel:

Fuel conforming to GE Jet Fuel Specification No. D50TF2 is applicable for all models. See GEK 105094 (CF34-8C1/-8C5) and GEK112034 (CF34-8E). Operating Instructions, for specific fuels approved per the subject specifications.

8.2 Oil:

Oil conforming to GE Specification No. D50TF1 is applicable for all models. See GEK 105094 (CF34-8C1 & CF34-8C5) and GEK 112034 (CF34-8E models). Operating Instructions, for specific oils approved per the subject specifications.

9. Aircraft Accessory Drives

Accessory	Location on AGB Axis	Speed rpm	Power (rated),kW(HP)	Direction of rotation (facing AGB)	Torque Static/Continuous/ Overload, Nm (lb-in)	Max. Acc. Wt, kg (lb)	Overhung Movement Nm (lb-in)	Shear Torque, Nm (lb-in)
Lube & Scavenge Oil Pump	Axis-C Fwd	7898	4.47 (6)	CCW	33.9 (300) (*1) /5.4 (48) / NA	4.67 (10.3)	3.73 (33)	84.7-96.0 (750-850)
IDG	Axis-C Fwd	7898	55.78 (74.8) (*2)	CW	76.3 (675) (*1) / 67.5 (597) / 127.6 (1129) (5 min) (*4) 181.4 (1605) (5 sec) (*4)	36.83 (81.2) (*6)	81.3 (720) Maximum	355.2-412.2 (3144-3648)
Air Turbine Starter	Axis-D Aft	12234	NA	CW	238.6 (2112), 474.6 (4200) (*3) / NA / NA	12.56 (27.7)	12.8 (123)	711.8-847.4(6300-7500)
Hydraulic Pump CF34-8E Starter	Axis-G Fwd	4825	22.37 (30)	CW	64.7 (573) (*1) (*5) / 44.3 (392) / 75.7 (670)	6.30 (13.9) (dry)	4.34 (38.4)	226.4 (2004) Maximum
Hydraulic Pump CF34-8C	Axis-G Fwd	4825	22.37 (30)	CW	64.7 (573) (*1) (*5) / 44.3 (392) / 75.7 (670)	6.67 (14.7) (dry)	4.91 (43.5)	226.4 (2004) Maximum
Alternator	Axis-E Aft	8103	2.98 (4)	CCW	NA/NA/NA	1.36 (3.0)	0.29 (2.6)	NA
Fuel Pump	Axis-E Aft	8319	29.83 (40)	CW	20.34 (180) (*1)/ 34.23(303)/ NA	10.4 (23)	12.77 (113)	141.80-155.91 (1255-1380)

CW - Clockwise

CCW - Counterclockwise

Accessory Speeds are based on Core Speed: 17000 rpm

(*1) -40 Degree C (-40 Degree F) SLS

(*2) HP is constant over the operating range with slight variations due to changes in efficiency. HP extraction is 55.8 kW (74.8 HP) at 7898 rpm (pad speed) and 54.8 kW (73.5 HP) at 4618 rpm (pad speed). The 5-minute overload rating is 61.7 kW (82.7 HP) and the 5 second overload rating is 87.7 kW (117.6 HP)

(*3) 238.6 Nm (2112 in-lbs) at 15 Degree C (59 Degree F) SLS, 474.5 Nm (4200 in-lbs) at -40 Degree C (-40 Degree F) SLS

(*4) Overload at 4618 rpm (pad speed)

(*5) 64.7 Nm (573 in-lbs) at 626 rpm (pad speed)

(*6) Includes oil and V band coupling.

10. Maximum Permissible Air Bleed Extraction: (see Note 5)

	Maximum Demonstrated Bleed Air (% of Total Compressor Mass flow)		
Location	CF34-8C1	CF34-8C5	CF34-8E
Compressor Stage 6	8	8	8
Compressor Stage 10 (compressor Discharge)	12.75	12.75	12.0
Maximum Allowable Bleed	NA	12.75	12

IV. Operating Limitations

1. Temperature Limits

1.1 Exhaust Gas Temperature °C (°F)

Maximum permissible temperatures are as follows:

Inter-turbine temperature (T45),°C (°F)

The inter-turbine temperature is measured by 5 probes (5 thermocouples), or 10 probes (20 thermocouples) mounted in the low pressure turbine casing.

** For the CF34-8C1, Take-off and maximum continuous T45 limits may be exceeded transiently as a result of OBV actuation provided T45 does not exceed 1021°C (1869°F) for 30 seconds, and does not exceed a temperature limit that ramps from 1021°C (1869°F) to 979°C (1794°F) over the next 30 seconds, as defined in GE Operating Instructions ~ GEK105094. The total number of transient occurrences as a result of OBV actuation above a T45 of 979°C (1794°F) is limited to a maximum of 10 occurrences as defined in GE Engine Manual GEK 105091.

The 2-minute inter-turbine temperature (T45) limits (2 minutes out of 5 minutes take-off time), are intended to cover engine T45 overshoot characteristics which occur during engine stabilisation at constant Take-off thrust.

Refer to GE Engine Manual GEK 105091 (CF34-8C1/-8C5), for inspection requirements when limits are exceeded.

	CF34-8C1	**CF34-8C5**	**CF34-8C5A1**	**CF34-8C5B1**
Maximum Take-off (5 minutes)	960 (1760)	990 (1814)	990 (1814)	990 (1814)
Maximum Take-off (2 min. out of a total of 5 minutes)	979 (1794)	1006 (1843)	1006 (1843)	1006 (1843)
Normal Take-off (5 minutes)	920 (1689)	947 (1736)	957 (1754)	948 (1738)
Maximum Take-off (2 min. out of a total of 5 minutes)	939 (1723)	963 (1765)	973 (1783)	964 (1767)
Maximum Continuous	927 (1701)	960 (1760)	960 (1760)	960 (1760)
At start up, ground	815 (1499)	815 (1499)	815 (1499)	815 (1499)
2 sec transients	955 (1751)	NA	NA	NA
5 sec transients	927 (1701)	NA	NA	NA
At start up, air, assisted	815 (1499)	815 (1499)	815 (1499)	815 (1499)
2 sec transients	1010 (1850)	NA	NA	NA
5 sec transients	993 (1819)	NA	NA	NA
At start up, air, windmill	927 (1701)	927 (1701)	927 (1701)	927 (1701)
2 sec transients	1010 (1850)	NA	NA	NA
10 sec transients	960 (1760)	NA	NA	NA

	CF34-8C5A2	**CF-8C5A3**
Maximum Take-off (5 minutes)	990 (1814)	990 (1814)
Maximum Take-off (2 min. out of a total of 5 minutes)	1006 (1843)	1006 (1843)
Normal Takeoff (5 minutes)	973 (1783)	990 (1814)
Maximum Takeoff (2 min. out of a total of 5 minutes)	989 (1812)	1006 (1843)
Maximum Continuous	960 (1760)	960 (1760)
At start up, ground	815 (1499)	815 (1499)
2 sec transients	NA	NA
5 sec transients	NA	NA
At start up, air assisted	815 (1499)	815 (1499)
2 sec transients	NA	NA
5 sec transients	NA	NA
At start up, air, windmill	927 (1701)	927 (1701)
2 sec transients	NA	NA
10 sec transients	NA	NA

	CF348E2	CF34-8E2A1	CF8E5	CF34-8E5A1
Maximum Take-off (5 minutes)	990 (1814)	990 (1814)	990 (1814)	990 (1814)
Maximum Take-off (2 min. out of a total of 5 minutes)	1006 (1843)	1006 (1843)	1006 (1843)	1006 (1843)
Normal Take-off (5 minutes)	957 (1755)	990 (1814)	949 (1740)	973 (1783)
Normal Take-off (2 minutes out of a total of 5 minutes)	973 (1784)	1006 (1843)	965 (1769)	989 (1812)
Maximum Continuous	960 (1760)	960 (1760)	960 (1760)	960 (1760)
At start up, ground	815 (1499)	815 (1499)	815 (1499)	815 (1499)
At start up, air assisted	927 (1701)	927 (1701)	927 (1701)	927 (1701)
At start up, air, windmill	927 (1701)	927 (1701)	927 (1701)	927 (1701)

	CF34-8E5A2	CF34-8E6	CF34-8E6A1
Maximum Takeoff (5 minutes)	990 (1814)	990 (1814)	990 (1814)
Maximum Takeoff (2 min. out of a total of 5 minutes)	1006 (1843)	1006 (1843)	1006 (1843)
Normal Takeoff (5 minutes)	990 (1814)	966 (1771)	990 (1814)
Normal Takeoff (2 minutes out of a total of 5 minutes)	1006 (1843)	982 (1800)	1006 (1843)
Maximum Continuous	960 (1760)	960 (1760)	960 (1760)
At start up, ground	815 (1499)	815 (1499)	815 (1499)
At start up, air assisted	927 (1701)	927 (1701)	927 (1701)
At start up, air, windmill	927 (1701)	927 (1701)	927 (1701)

1.2 Oil Temperature (measured in the oil tank) °C (°F):

	All Models
Continuous Operation	155 (311)
Transient Operation (limited to 15 minutes)	163 (325)

Transient operation above 155 (311) is limited to 15 minutes.

1.3 Fuel Inlet Temperature (at engine fuel filter inlet) °C (°F):

All Models Continuous Operation: 121 (250)
(Jet A, Jet A1, Jet B, JP8, JP5, JP4, JP4/JP5 (Mixture), Ground Operation)

2. Maximum Permissible Rotor Speeds:

		CF34-8C1	CF34-8C5/ -8E models
Maximum take-off	Low pressure rotor (N1), rpm	7360	7360
	High pressure rotor (N2), rpm	17710	17710
Normal take-off	Low pressure rotor (N1), rpm	7247	7360
	High pressure rotor (N2), rpm	17515	17710
Maximum continuous	Low pressure rotor (N1), rpm	7360	7360
	High pressure rotor (N2), rpm	17437	17470

Refer to GE Engine Manual GEK 105091 (CF34-8C1/8C5 models) and GEK 112031 (CF34-8E models) for inspection requirements when limits are exceeded.

100% N1 rotor speed is 7,400 rpm
100% N2 rotor speed is 17,820 rpm

3. Pressure Limits

3.1 Fuel Pressure

At engine pump inlet: minimum pressure of 34 kPa (5 PSID) above the true vapour pressure of the fuel with a vapour liquid ratio of zero with aircraft boost operative. Operating range 34kPa (5 PSIG) to 345 kPa (50 PSIG). At engine motive flow discharge: minimum pressure of 1034 kPa (150 PSIG) at idle or above. Operating range is 1034 kPa (150 PSIG) to 5515 kPa (800 PSIG). See GE Installation Manual GEK 105093 (CF34-BC1/BC5), and GEK 112033 (CF34-8E).

3.2 Oil Pressure

At idle on the ground, 172 kPa (25 PSID) minimum. At take-off 310 kPa (45 PSID) minimum to 656 kPa (95 PSID) maximum. Operating range, 172 kPa (25 PSID).
See GE Installation Manual GEK105093 (CF34-8C1 & CF34-8C5 models) and GEK 112033 (CF34-8E models).

4. Installation Assumptions:

The installation assumptions are quoted in the GE Engine Installation Manuals:

GEK105093 (CF34-8C1 & CF34-8C5 models)

GEK112033 (CF34-8E models)

5. Time Limited Dispatch

The engine is approved for Time Limited Dispatch as allowed by JAR-E 510(e)(2) and in accordance with 14 CFR Part 33, Amendment 20, Paragraphs 33.4 and 33.28. The maximum rectification period for each dispatchable state is specified in the Airworthiness Limitations Section of the applicable CF34-8C1 & CF34-8C5 Engine Manual GEK105091 and CF-34-8E Engine Manual GEK 112041.

6. ETOPS

Not applicable, not part of the engine certification basis

V. Operating and Service Instructions

	CF34-8C1 & CF34-8C5	CF34-8E models
Operating Instructions	GEK 105094	GEK 112034
Installation Manual	GEK 105093	GEK 112033
Engine Manual	GEK 105091	GEK 112041

VI. Notes

Note 1: Weight includes residual fuel and oil.

Note 2: Engine ratings are based on calibrated test stand performance, and performance calculations are based on accepted parameter correction methods documented in the production data folder. These calculations assume the following conditions:

1. Static sea level standard conditions of 15°C (59°F) and 101.32 kPa (29.92 inches Hg).
2. No aircraft accessory loads or air extraction.
3. No anti-icing; no inlet distortion; no inlet screen losses; and 100% ram recovery.
4. Inlet bellmouth and cowl system as described in GE Installation Manual GEK 105093 (CF34-8C1 & CF34-8C5 models) and GEK 112033 (CF34-8E models).
5. Specified fuel having an average lower, heating value of 43,031kJ/kg (CF34-8C1/-8C5 models); 43,147 kJ/kg (CF34-8E models) specified lube oil.

Note 3: This engine is equipped with an automatic power reserve function for take-off operation with one engine inoperative. During normal take-off, when the automatic power reserve function is activated, the engine control of the inoperative engine sends an input signal to the engine control of the operating engine. Upon receiving this signal, the engine thrust of the operating engine automatically increases from normal take-off (NTO) or lower thrust to the corresponding, pre- determined maximum take-off (MTO) thrust. If one engine is inoperable, full MTO thrust is available to the pilot at any time by throttle selection.

The engine control system also incorporates schedules that assure a fully degraded engine, during operation at the NTO of lower thrust, will achieve the specified MTO thrust without exceeding the engine operating limits when the automatic power reserve function is activated.

Note 4: The time limit at the normal take-off rating is five minutes and shall include any time accumulated above the normal take-off rating for that take-off. The 5-minute take-off time limit may be extended to 10 minutes for one engine inoperative operation in multi-engine aircraft.

Note 5: Refer to Operating Instructions GEK 105094 (CF34-8C1/8C5 models) and GEK 112034 (CF34-8E models) for engine warm-up procedure.

Note 6: Refer to Operating Instructions GEK 105094(CF34-8C1/8C5 models) and GEK 112034 (CF34-8E models) for thrust reverser operation.

Note 7: Air Bleed Extraction - maximum customer air bleed extraction is as follows: Customer bleed air is available from either Stages 6 or 10 (compressor discharge) of the compressor at all operating conditions at or above idle. (No compressor bleed is permitted below idle). Customer bleed is scheduled to switch from Stage 10 bleed at low power operation to Stage 6 bleed at high power operation as described in GE Installation Manual GEK 105093 (CF34-8C1 & CF34-8C5 models), and GEK112033 (CF34-8E models).

Note 8: The maximum permissible inlet distortion is specified in GE Installation Manual GEK105093 (CF34- 8C1 & CF34-8C5 models) and GEK 112033 (CF34-8E models). Ground operational limits and procedures for operation in crosswind are specified in GE Specific Operating Instructions GEK 105094 (CF34-8C1 & CF34-8C5 models) and GEK 112034(CF34-8E models).

Note 9: This engine meets the applicable requirements for operation in icing conditions provided that for ground idle engine operation in icing conditions a minimum core speed N2 is maintained and for flight idle engine operations in icing conditions, an N2 to provide a minimum PS3 schedule as defined in GE Operating instructions GEK 105094 (CF34-8C1 & CF34-8C5 models) and GEK112031 (CF34-8E models) are maintained. The FADEC Power Management controls ground and flight idle core speeds above the minimum speed demonstrated during engine certification for operation in icing conditions. At low ambient temperatures, the minimum permissible ground and flight idle speeds correspond to N2=58.47% (9,940 rpm) which is a non-adjustable limit, pre-set in the FADEC Power Management schedules. As ambient temperatures increase, the minimum permissible core speed increases as scheduled by the FADEC Power Management based upon N2 or PS3 control schedules.

Note 10: For the CF34-8E models, the engine manufacturer supplies the Nacelle System. The following Aft Core Cowl and Thrust Reverser systems, which are a part of this Nacelle· system, have been certified for the listed engine models under this TCDS in accordance with JAR-E. The JAR-E engine type design definition is provided by:

Engine Model List	Aft Cowl Core Parts List	Thrust Reverser Parts List
CF34-8E2	15F0001	15G0001
CF34-8E2A1	15F0001	15G0001
CF34-8E5	15F0001	15G0001
CF34-8E5A1	15F0001	15G0001
CF34-8E5A2	15F0001	15G0001
CF34-8E6	15F0001	15G0001
CF34-8E6A1	15F0001	15G0001

Note 11: The type definition for the CF34-8C1/-8C5 engine models does not include the thrust reverser. Compliance with JAR-E890 was demonstrated with the thrust reverser defined by:

Model List TR CF34-8C1G01 (Left Hand Nacelle/EBU)
Model List TR CF34-8C1 G02 (Right Hand Nacelle/EBU)
Model List TR CF34-8C5G01 (Left Hand Nacelle/EBU)
Model List TR CF34-8G5G02 (Right Hand Nacelle/EBU)
Model List TR CF34-8C5A1G01 (Left Hand Nacelle/EBU)
Model List TR CF34-8G5A1G02 (Right Hand Nacelle/EBU)
Model List TR CF34-8C5B1G01 (Left Hand Nacelle/EBU)
Model List TR CF34-8C5B1G02 (Right Hand Nacelle/EBU)
Model List TR CF34-8C5A2G01 (Left Hand Nacelle/EBU)
Model List TR CF34-8C5A2G02 (Right Hand Nacelle/EBU)
Model List TR CF34-8C5A3G01 (Left Hand Nacelle/EBU)
Model List TR CF34-8C5A3G02 (Right Hand Nacelle/EBU)

Note 12: Refer to Operating Instructions GEK 105094 (CF34-8C1/8C5 models) and GEK 112034 (CF34-8E models) for thrust reverser operation.

Note 13: Life limits established for critical components, are published in GE Engine Manual GEK 105091 for CF34-8C1 & CF34-8C5 models and GEK 112031 for the CF34-8E models.

Note 14: Recommended maintenance inspection intervals are published in GE Engine Manual GEK 105091 for CF34-8C1 & CF34-8C5 models and GEK 112031 for the CF34-8E models

Note 15: The operating temperature limit for specific components and accessories specified in GE Installation Manuals GEK 105093 (CF34-8C1 & CF34-8C5 models) and GEK 112033 (CF34-8E models), must be observed when installing the engine.

Note 16: Static thrusts at sea level are rated at 30°C ambient temperature and below for takeoff and at 25°C and below for maximum continuous. The computer performance deck for calculating engine performance is as follows:

Engine Model	Computer Deck No.
CF34-8C1	L0073A5
CF34-8C5	G0175C
CF34-8C5A1	G0175C
CF34-8C581	L0073A
CF34-8C5A2	G0175C
CF34-8C5A3	G0175C
CF34-8E2	G0175D
CF34-8E2A1	G017SD
CF34-8E5	G0175D
CF34-8E5A1	G0175D
CF34-8E5A2	G017SD
CF34-8E6	G0175D
CF34-8E6A1	G0175D

Note 17. Overhaul of the CF34-8C1, CF34-8C5 (all models) and CF34-8E (all models), components is only authorised via approved component manuals.

Note 18. Effective September 10, 2010 the model designations CF34-8D1, CF34-8D3, CF34-8D5 and CF34- 8D6 were withdrawn at the request of the manufacturer. These models were originally recognised based on validations performed in several EU member states following the Validation Recommendation by the JAA. None of these models were released to revenue service.

Note 19. A suffix may be added to CF34-8 basic engine model numbers on the engine nameplate to identify minor variations in the engine configuration, installation components, or differences specific to aircraft requirements, for example, CF34-8C5/B or CF34-8C5/M.

Service Bulletin (SB) 72-A0237 describes the conversion of the base model to a suffix designation (with /B designation) and Service Bulletin (SB) 72-A0243 describes the conversion from the suffix designation (with /B designation) back to the base model.

Service Bulletin (SB) 72-0235 describes the conversion of the base model to a suffix designation (with /M designation) and Service Bulletin (SB) 72-0244 describes the conversion from suffix designation (with /M designation) back to the base model.

Only those designations and purposes listed below may be used. The SB number must be appended to the engine nameplate.

Life limits for the /B and /M minor model designations, established for critical components, are published in Authority approved GE Engine Manual GEK 105091 (CF34-8C1/8C5 models):

Designation:	Purpose:
CF34-8C5/B	Indicates use of the engine in an Alternate Mission application, with associated airworthiness limitations section life limits.
CF34-8C5B1/B	Indicates use of the engine in an Alternate Mission application, with associated airworthiness limitations section life limits.
CF34-8C5A1/B	Indicates use of the engine in an Alternate Mission application, with associated airworthiness limitations section life limits.

CF34-8C5A2/B	Indicates use of the engine in an Alternate Mission application, with associated airworthiness limitations section life limits.
CF34-8C5/M	Indicates the capability for frequent or repetitive use of the max take-off (MTO) rating with associated airworthiness limitations section life limits.
CF34-8C5A1/M	Indicates the capability for frequent or repetitive use of the max take-off (MTO) rating with associated airworthiness limitations section life limits.
CF34-8C5A2/M	Indicates the capability for frequent or repetitive use of the max take-off (MTO) rating with associated airworthiness limitations section life limits.

Note 20. Per UK CAA Major Change Certificate UK.MAJ.00365 dated 08 November 2024, the engine models CF34-8 series were recertified to show compliance with the CAEP/11 nvPM Emissions as defined in II 2.5 above.

Section 3 Administration

I. Acronyms and Abbreviations

Acronym / Abbreviation	Definition
CS-E	Certification Specifications for Engines
EASA	European Union Aviation Safety Agency
EGT	Exhaust Gas Temperature
ESF	Equivalent Safety Finding
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FADEC	Full Authority Digital Engine Control
GE	General Electric
HPC/HPT	High Pressure Compressor/Turbine
H/W	Hardware
ICAO	International Civil Aviation Organisation
IDG	Integrated Drive Generator
JAA	Joint Aviation Authorities
JAR	Joint Aviation Requirements
LPC/LPT	Low Pressure Compressor/Turbine
PMG	Permanent Magnet Generator
P/N	Part Number
SC	Special Condition
S/W	Software
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TLD	Time Limited Dispatch
VSCF	Variable Speed Constant Frequency

II. Type Certificate Holder Record

TCH Record	Period
GENERAL ELECTRIC COMPANY GE AVIATION 1000 Western Avenue Lynn, Massachusetts 01910 United States of America Design Organisation Approval No.: NA	Since initial issue

III. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
01	08 Nov 2024	- Section 1 is added to provide explanatory notes about the details of the type design that affect the TCDS, that have been approved or accepted by the CAA in the UK from 01 January 2021 and that the design changes accepted by EASA before 01 January 2021 and were incorporated into EASA TCDS IM.E.053 at Issue 03 dated 09 January 2020 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement. - Section 2 (II) (1), (2), (3), and (4) added to provide information about certifying authority and certification basis applied by the certificating authority. - Section 2 (II) (4.5) updated with regards to the compliance with applicable engine emissions requirements (CAEP/11) according to Annex Part 21.B.85 (UK CAA major change approval UK.MAJ.00365).	Issue 01 08 Nov 2024

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