



TYPE-CERTIFICATE DATA SHEET

No. IM.E.026

for

GP7200 Series Engines

Type Certificate Holder

Engine Alliance LLC

411 Silver Lane
East Hartford, CT 06118
United States of America

For Models:

GP7270
GP7272
GP7277



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I. General

1. Type/ Model

Type: GP7200
Models: GP7270, GP7272, GP7277

2. Type Certificate Holder

Engine Alliance LLC
411 Silver Lane
East Hartford, CT 06118
United States of America

3. Manufacturers

GE Aviation One Neumann Way Cincinnati, Ohio 45215 United States of America Production Certificate No. 108	Pratt & Whitney Division United Technologies Corporation East Hartford, Connecticut 06108 United States of America Production Certificate No. 2
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4. Date of Application

GP7270, GP7277: 08 April 2003
GP7272: 15 May 2012

5. EASA Type Certification Date

GP7270, GP7277: 19 April 2007
GP7272: 04 April 2014

II. Certification Basis

1. State of Design Authority Certification Basis

Refer to FAA ETCDS E00072EN

2. Reference Date for determining the applicable airworthiness requirements

05 February 2003



3. EASA Certification Basis

- 3.1 Airworthiness Standards: CS-E, effective 24 October 2003
- 3.2 Special Conditions: None
- 3.3 Equivalent safety findings: ESF1 - CS-E 790(a)(1) – “Ingestion of Rain and Hail – Large Hailstones”
- 3.4 Deviations: None
- 3.5 Environmental protection requirements: CS-34 Issue dated 23.10.2003 in accordance with ICAO Annex 16 Volume II, Third Edition, including Amendment 7, as applicable 17 November 2011, The NOx Standard is in accordance with Part III, Chapter 2, § 2.3.2, d) (CAEP/6) for GP7277
§ 2.3.2, e) (CAEP/8) for GP7270



III. Technical Characteristics

1. Type Design Definition

For information regarding components and engine configuration, refer to the approved parts lists:

- Engine Assembly: P/N 5700600-03 and later approved P/N
- Configuration:
 - GP7270: P/N GP7270G01
 - GP7272: P/N GP7272G01
 - GP7277: P/N GP7277G01
- Electronic engine control (EEC) rating plugs:
 - GP7270: P/N 2122M76P11, P/N 2122M76P05
 - GP7272: P/N 2122M76P08, P/N 2122M76P17
 - GP7277: P/N 2122M76P29

2. Description

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

- single stage fan with large chord hollow blades, 5-stage low pressure compressor (LPC), 9-stage high pressure compressor (HPC)
- annular combustion chamber
- 2-stage high pressure turbine (HPT), 6-stage low pressure turbine (LPT)
- dual channel full authority digital engine control (FADEC) and electronic overspeed protection (EOS)

3. Equipment

The engine pneumatic starter and the engine vibration monitoring unit (EVMU) are part of the engine type design. Refer to the engine part list for details.

4. Dimensions

Overall Length (Fan Spinner to Aft Flange)	Nominal Diameter (Fan Case)	Maximum Radial Projection (Drain Mast)
4920	3143	1979

5. Dry Weight

6718 kg

The engine dry weight is defined as the dry weight of the basic engine with Engine Alliance supplied engine build-up (EBU) components. The Engine Alliance supplied EBU includes: hydraulic filter and pressure switch, intermediate pressure check valve, fan inlet temperature sensor, and inlet anti-icing valve and ducts.



6. Ratings

	GP7270	GP7272	GP7277
Take-Off	33244 daN (74735 lb.)	34016 daN (76470 lb.)	35715 daN (80290 lb.)
Maximum Continuous	32681 daN (73470 lb.)	32681 daN (73470 lb.)	32850 daN (73850 lb.)

(see notes 1 and 2)

7. Control System

The software is part of the engine Type Design and includes at initial engine certification:

Part Number	Description
2043M94P03	GP Board - Operating System
2043M94P04	GP Board - Memory Loader
2043M94P05	Application Memory Loader
2043M94P06/07	Software Operating System

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

Fuel: General Electric specification No. D50TF2 revision S21 or later approved revision and applicable revision of Engine Alliance Service Bulletin EAGP7-73-1 define the fuel requirements and provides a listing of approved fuels and fuel additives for use in the GP7200 series turbofan engine.

Oil: Applicable revision of Engine Alliance Service Bulletin EAGP7-79-1 provides a listing of approved oils for use in the GP7200 series turbofan engine.

9. Aircraft Accessory Drives

Drive	Rotation	Gear ratio / HP rotor	Torque (m.daN)			
			Continuous	Overload	Static	Overhung Moment
Aircraft Hydraulic Generation 1	CCW	0.3034	29.6	36 *	96	5.1
Aircraft Hydraulic Generation 2	CCW	0.3116	29.6	36 *	96	5.1
Aircraft Electrical Generation	CCW	1.6171	**	***	100	13.8

CCW = Counter Clock-Wise (facing the drive pad)

* = The engine driven hydraulic pump overload is based on 5 minutes of operation at 4 hour intervals.

** = Maximum allowable continuous torque values are equivalent to 186 kW at any engine speed at or above sea level ground idle.

*** = The following overload conditions can be accommodated:

Power (kW)	Duration Time	Recurring Time
238	5 minutes	Once per 1000 hours
238	5 seconds	Once per hour
300	5 seconds	Once per 1000 hours



10. Maximum Permissible Air Bleed Extraction (% of primary airflow)

Bleed location	Corrected Fan Speed (N1K)		
	At or below 740 rpm	From 740 rpm to 2319 rpm	At or above 2319 rpm
HPC 4 th stage	5.8 %	5.8 %	5.8 %
HPC 7 th stage	1.2 %	Linear variation between 1.2% and 0.54%	0.54 %
HPC 9 th stage	13.1 %	13.1 %	6.8 %

IV. Operating Limitations

1. Temperature Limits

1.1 Exhaust Gas Temperature (°C):

The exhaust gas temperature is measured at station T46 (stage 2 LPT nozzle vane leading edge).

	GP7270	GP7272	GP7277
Take-Off	1002	1002	1002
Maximum Continuous	970	970	970
Starting – Flight	865	865	865
Starting – Ground	745	745	745

1.2 Oil Temperature (°C):

At the scavenge pumps outlet:

Minimum before Take-Off power operation	50
Maximum Continuous	163
Maximum Transitory (20 minutes)	177

1.3 Fuel Temperature:

Refer to the applicable engine “Installation and Operating Manual” document.

1.4 Engine Equipment Temperatures:

Refer to the applicable engine “Installation and Operating Manual” document.



2. Speed Limits (rpm)

	Maximum rotational speed	Minimum rotational speed (ground idle)	Minimum rotational speed (flight idle)	Minimum rotational speed in icing condition
Low pressure rotor (N1)	2738 (111 %)	450 (19.2 %)	620 (25.1 %)	620 (25.1 %)
High pressure rotor (N2)	13060 (118.75 %)	6974 (63.4 %)	7279 (66.2 %)	-

(See note 6)

100% N1 = 2467 rpm / 100% N2 = 10998 rpm

3. Torque Limits

N/A

4. Pressure Limits

4.1 Fuel Pressure Limits:

During operation, fuel pressure at the engine fuel pump inlet shall be maintained equal or greater than 35 kPa above the true vapour pressure of the fuel, but less than 690 kPa above absolute ambient pressure, with a vapour/liquid ratio of zero. The maximum allowable pressure at the fuel pump inlet after shutdown is 690kPa.

4.2 Oil Pressure Limits (kPa):

N2 Speed (rpm)	Minimum Oil Pressure
6620	172
10500	428
13060	702

Oil pressure is measured relative to sump pressure. When the engine is running, the oil pressure varies with the rotating speed of the HP rotor (Refer to the applicable engine "Operating Instructions" document). Temporary interruption associated with negative "g" operation is limited to 15 seconds maximum. Normal oil pressure will be restored rapidly once the negative "g" effect has been eliminated.

5. Time Limited Dispatch (TLD)

Criteria pertaining to the dispatch and maintenance requirements for the FADEC engine control system are specified in the chapter 5, "Airworthiness Limitations" section of the applicable "Turbofan Engine Manual" document.

6. ETOPS

The engines are not approved for ETOPS capability in accordance with CS-E 1040.



V. Operating and Service Instructions

Installation and Operating Manual	EA-0126-05 and later approved revisions
Operating Instructions	P/N 5702515
Turbofan Engine Manual	P/N 5700147
Engine maintenance data for inclusion in the Aircraft Maintenance Manual	P/N 5700900

VI. Notes

1. 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.

2. Engine ratings are based on calibrated test stand performance, and performance calculations are based on engine cycle simulations JV3.14.32.A and JV3.14.32.B for the maximum continuous and takeoff thrust ratings, respectively. These calculations assume the following conditions:

- Static sea level standard conditions of 15°C and 101.32 kPa;
- No aircraft accessory loads or air extraction;
- No anti-icing; no inlet distortion; no inlet screen losses; and 100% inlet recovery;
- Production engine inlet and production exhaust system (fan duct assembly comprised of left half P/N 40113476-987G01 and right half P/N 40113476-987G02, primary nozzle P/N L12192).

Power setting, power check, and control of engine thrust output are based on the LP rotor speed (N1).

Take off flat rating ambient temperature limits (°C):

EEC rating plug P/N	GP 7270	GP7272	GP 7277
2122M76P11	30	N/A	N/A
2122M76P05	36	N/A	N/A
2122M76P29	N/A	N/A	30
2122M76P08	N/A	30	N/A
2112M76P17	N/A	34	N/A

3. The life limits of certain engine parts and mandatory inspections are defined in the applicable "Turbofan Engine Manual" document, chapter 5 "Airworthiness Limitations".

4. The maximum permissible engine inlet pressure distortion is specified in the applicable engine "Installation and Operating Manual" document.

5. During ground operation in icing conditions with an outside air temperature (OAT) of +3.0°C or less, periodic engine run-ups must be performed to shed ice from the spinner, fan blades, and low-pressure compressor stators. Run-ups must be to a minimum of 60 % N1 at intervals not to exceed 30 minutes, and must include taxi-out, ground holding, and taxi-in time. Refer to the applicable engine "Operating Instructions" document.



6. The minimum N1 certified for in-flight operation in icing conditions is 620 rpm.
7. The type certificate holder, Engine Alliance LLC, is a company jointly owned by GE Aviation (USA) and Pratt & Whitney (USA). With respect to the benefits of type certification for production of series engines, GE Aviation and Pratt & Whitney function as licensees of Engine Alliance LLC.
8. This engine is approved for use with Airbus thrust reverser system P/Ns (left and right) L78DR130000xxx / L78DR230000xxx and with Airbus fixed fan duct P/Ns (left and right) L78DR140000xxx / L78DR240000xxx.
9. The engine models GP7270 and GP7277 were recertified to show compliance with the NOx Standards defined in ICAO - Annex 16, Volume II, Part III, Chapter 2 paragraph 2.3.2 d (CAEP/6 NOx production rule) and in case of GP7270 and GP7272 compliance with paragraph 2.3.2 e (CAEP/8 NOx Standard).

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

ETCDS	Engine Type Certificate Data Sheet
CAEP	Committee on Aviation Environmental Protection
CS-E	Certification Specifications Engines
ECS	Environmental Control System
ETOPS	Extended Range Operation with Two-Engine Aeroplanes
FAA	Federal Aviation Administration
FADEC	Full Authority Digital Engine Control
ICAO	International Civil Aviation Organisation
MCT	Maximum Continuous
PN	Part Number
W25	Core Engine Air Mass Flow
WAI	Wing Anti-Ice

II. Type Certificate Holder Record

Not applicable

III. Change Record

Issue	Date	Changes	TC issue
Issue 05	13 October 2022	<ul style="list-style-type: none">• Transfer initial issue into the current TCDS format.• Update section regarding fuels and fuel additives in accordance with EASA Major Change approval No. 10079618.	04 April 2014

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