

U. S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E00072EN	TCDS NUMBER E00072EN ENGINE ALLIANCE MODELS: GP7200 Series: GP7270 GP7277 January 11, 2006
--	---

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E00072EN) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE (TC) HOLDER: Engine Alliance
 411 Silver Lane
 East Hartford, CT 06118

TYPE	Axial-airflow, dual-spool, turbofan engine, single stage fan, five-stage low-pressure compressor, nine-stage high-pressure compressor, single annular combustor, two-stage high-pressure turbine, six-stage low-pressure turbine.
------	---

MODELS:	GP7270	GP7277
----------------	---------------	---------------

RATINGS (See NOTE 1)		
SEA LEVEL STATIC THRUST (lb.)		
Maximum Continuous	73,470	73,850
Takeoff (5 minutes) (See NOTE 2)	74,735	80,290
FLAT RATING AMBIENT TEMPERATURE		
Maximum Continuous	25°C / 77°F	--
Takeoff	30°C / 86°F	--
Electronic Engine Control Rating Plug (Part Number)	2122M76P11	2122M76P29

COMPONENTS/CONFIGURATION	For information regarding components and engine configuration, refer to the approved parts list: <div style="text-align: center;"> GP7270 P/N GP7270G01 GP7277 P/N GP7277G01 </div> P/N 5700600-01 defines both engine model assemblies.
--------------------------	--

*

PAGE	1	2	3	4	5
REVISION	-	-	-	-	-

LEGEND: "--" INDICATES "SAME AS PRECEDING MODEL" "---" NOT APPLICABLE
--

MODELS: (cont.)		GP7270	GP7277
PRINCIPAL DIMENSIONS (Room temperature)			
Length (flange to flange, in.)		185.782 ± 0.099	--
Length (fan spinner face to aft flange, in.)		193.722	--
Nominal diameter (fan case, in.)		123.740	--
Maximum radial projection (in.) (at drain mast)		77.901	--
CENTER OF GRAVITY (in.)			
Axial engine station: relative to A-flange		213.500 ± 1.0	--
Vertical, relative to engine centerline:		-0.600 ± 0.5	--
Lateral, relative to centerline:		0.190 ± 0.5	--
WEIGHT * (DRY) Basic engine (lbs)		14,798	--
<p>* The engine dry weight is defined as the dry weight of the basic engine with EA supplied engine build-up (EBU) components. The EBU includes: hydraulic filter and pressure switch, intermediate pressure check valve, fan inlet temperature sensor, and inlet anti-icing valve and ducts. The following buyer furnished equipment (BFE) are not part of the basic engine weight: variable frequency generator, two (2) hydraulic pumps, one high pressure valve, pressure regulating valve, nacelle inlet cowl, fan cowls and associated hardware, thrust reverser assembly including activation system, attachment hardware and associated electrical harnesses, aft pylon fairing and attachment hardware, forward engine mount, rear engine mount, and attachment hardware (thrust links).</p>			
FUEL	Engine Alliance Service Bulletin EA-GP7-73-1 defines the fuels requirements and provides a listing of approved fuels and fuel additives for use in the GP7200 series turbofan engine.		
LUBRICATING OILS	Engine Alliance Service Bulletin EA-GP7-79-1 provides a listing of approved turbine oils for use in the GP7200 series turbofan engine.		

CERTIFICATION BASIS	<p>1. 14 CFR, Part 33, effective February 1, 1965, as amended by 33-1 through 33-20 with the following equivalent level of safety (ELOS) findings:</p> <ul style="list-style-type: none"> • 33.27, Rotor Integrity, par. (c), ELOS No. 8040-ELOS-05-NE-04 • 33.77, Foreign Object Ingestion-Ice, par. (c) and (e), ELOS No. 8040-ELOS-05-NE-05 • 33.78, Rain and Hail Ingestion, par. (a)(1), ELOS No. 8040- ELOS-05-NE-06 <p>2. 14 CFR, Part 34, effective September 10, 1990, as amended by 34-1 through 34-3. In addition, 40 CFR Part 87, effective December 19, 2005.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>MODEL</u></th> <th style="text-align: left;"><u>APPLICATION</u></th> <th style="text-align: left;"><u>ISSUED/AMENDED</u></th> <th style="text-align: left;"><u>DELETED</u></th> </tr> </thead> <tbody> <tr> <td>GP7270</td> <td>02/05/2003</td> <td>12/29/2005</td> <td>---</td> </tr> <tr> <td>GP7277</td> <td>02/05/2003</td> <td>12/29/2005</td> <td>---</td> </tr> </tbody> </table>	<u>MODEL</u>	<u>APPLICATION</u>	<u>ISSUED/AMENDED</u>	<u>DELETED</u>	GP7270	02/05/2003	12/29/2005	---	GP7277	02/05/2003	12/29/2005	---
<u>MODEL</u>	<u>APPLICATION</u>	<u>ISSUED/AMENDED</u>	<u>DELETED</u>										
GP7270	02/05/2003	12/29/2005	---										
GP7277	02/05/2003	12/29/2005	---										
PRODUCTION BASIS (All Models)	<p>Production Certificate No. 2 for engines produced by Pratt & Whitney (P&W) Production Certificate No. 108 for engines produced by General Electric Aircraft Engines (GEAE).</p> <p>The Engine Alliance (EA) is a partnership between GEAE and P&W. With respect to the benefits of type certification for production, GEAE and P&W function as licensees of EA.</p>												

NOTES

NOTE 1: Nameplate thrust values are defined at sea level static, standard pressure (14.696 psia), up to the flat rating ambient temperature, with 100% inlet recovery, no fan or compressor customer bleed, no horsepower extraction from BFE, and the production flight exhaust ((fan duct assembly comprised of left half, P/N 40113476-987G01, and right half, P/N 40113476-987G02) and primary nozzle (P/N L12192)).

The nameplate ratings were derived using engine performance cycle simulations JV3.14.32.A and JV3.14.32.B for the maximum continuous and takeoff thrust ratings, respectively.

NOTE 2: The normal 5 minute takeoff rating may be extended to 10 minutes for engine out contingency.

NOTE 3. TEMPERATURES	GP7270	GP7277
Maximum permissible Turbine Exhaust Gas Temperatures (EGT) * are as follows: Takeoff (5 minutes) (See NOTE 2) Maximum Continuous	1002°C / 1836°F 970°C / 1778°F	-- --
* Measured by two sets of four dual-element thermocouple probes installed at the leading edge of the low pressure turbine stage 2 vanes.		
Turbine Exhaust Gas Temperatures at start-up, Ground Flight	745°C / 1373°F 865°C / 1589°F	-- --
Oil outlet temperature: Continuous operation Transient operation (limited to 20 minutes)	163°C / 325°F 177°C / 350°F	-- --
Minimum oil temperature at idle, before takeoff power operation:	50°C / 122°F	--
Fuel Temperatures (All Models)	See Installation and Operating Manual, EA-0126-01	

NOTE 4. ROTOR SPEEDS	GP7270	GP7277
Maximum permissible Low Pressure Rotor (N1)	2,738 rpm	--
Minimum Low Pressure Rotor (N1), Ground Idle Flight Idle (See Note 10)	450 rpm 620 rpm	-- --
Maximum permissible High Pressure Rotor (N2)	13,060 rpm	--
Minimum High Pressure Rotor (N2), Ground Idle Flight Idle	6,974 rpm 7,279 rpm	-- --
Power setting, power checks, and control of engine thrust output are based on N1.		

NOTE 5. PRESSURES			
Fuel pressure limits	Fuel pressure at the engine fuel pump inlet during operation shall be maintained at greater than or equal to 5 psi above the true vapor pressure of the fuel, but less than or equal to 100 psi above absolute ambient pressure, with a vapor/liquid ratio of zero. The maximum allowable pressure at the fuel pump inlet after shutdown is 100 psig.		
Oil pressure limits	N2 Speed (rpm)	Minimum Oil Pressure (psig)	Maximum Oil Pressure (psig)
	6,620	25	50
	10,500	62	---
	13,060	101.8	143.9
Oil supply pressure is measured relative to sump/vent pressure.			
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.			

NOTE 6. ACCESSORY DRIVE PROVISIONS						
Drive Pad	Rotation	Speed Ratio to N2	Torque (lb.-in.)			Overhung Moment (lb.-in.)
			Continuous	Overload	Static	
Hydraulic Pump #1	CCW	0.3034 : 1	2,615	3,190 **	8,497	450
Hydraulic Pump #2	CCW	0.3116 : 1	2,615	3,190 **	8,497	450
Variable Frequency Generator (VFG)	CCW	1.6171 : 1	*	*	8,860	1,220
Air Turbine Starter	CCW	0.935 : 1	---	---	18,600	307
CCW = Counterclockwise (facing the drive pad)						
* Maximum VFG allowable continuous torque values are equivalent to 249 horsepower at any engine speed at or above sea level ground idle.						
** The engine-driven hydraulic pump overload is based on 5 minutes of operation at 4-hour intervals.						
The following VFG overload conditions can be accommodated:						
	Horsepower	Duration Time	Recurring Time			
	319	5 minutes	Once / 1000 hours			
	319	5 seconds	Once / hour			
	402	5 seconds	Once / 1000 hours			

NOTE 7. MAXIMUM PERMISSIBLE AIR BLEEDS			
Corrected Fan Speed	High Pressure Compressor Bleed Location (percent of core engine airflow)		
	Stage 4	Stage 7	Stage 9
At or below 740 rpm	5.8%	1.2%	13.1%
740 rpm to 2,319 rpm	5.8%	*	13.1%
At or above 2,319 rpm	5.8%	0.54%	6.8%
* Linear transition between 740 rpm and 2,319 rpm			

NOTE 8: The maximum permissible engine inlet pressure distortion is specified in the Installation and Operating Manual, EA-0126-01.

NOTE 9: During ground operations in icing conditions with an outside air temperature of +37.4°F / +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 percent N1 at intervals not to exceed 30 minutes (and must include taxi-in, ground hold, and taxi-out time). See EA GP7200 Operating Instructions Manual, P/N 5702515.

NOTE 10	The minimum N1 certified for in-flight operation in icing conditions is 620 rpm.				
NOTE 11	Life limits for critical components and mandatory inspection requirements are specified in the Airworthiness Limitation Section of GP7200 Series Engine Turbofan Engine Manual (P/N 5700147).				
NOTE 12	The GP7200 series turbofan engine is certified to operate with certain faults present in the control system based on 14 CFR Part 33 and appropriate engine control system reliability requirements. The time limited dispatch configurations for the engine control system are defined in EA report GEK 112848. The allowable time limited dispatch intervals are provided in the Airworthiness Limitation Section of the GP7200 Engine Manual (P/N 5700147).				
NOTE 13	Overhaul of the GP7270 and GP7277 engine and its components is only authorized when done in accordance with procedures approved by the Type Certificate holder or Manuals accepted by the FAA.				
NOTE 14	<p>Engine Instructions for Continued Airworthiness (ICA's) are not complete.</p> <p>Aircraft with GP7270 or GP7277 installed are not eligible for airworthiness certificate until the ICA's are complete and accepted by FAA Engine Certification Office.</p> <p>The following Manuals are approved for GP7200 series engines:</p> <table data-bbox="548 936 1026 989"> <tr> <td>Installation and Operating Manual</td> <td>EA-0126-01</td> </tr> <tr> <td>Operating Instructions</td> <td>P/N 5702515</td> </tr> </table>	Installation and Operating Manual	EA-0126-01	Operating Instructions	P/N 5702515
Installation and Operating Manual	EA-0126-01				
Operating Instructions	P/N 5702515				
	END				