



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº EM-2011T02

Type Certificate Holder:

PRATT & WHITNEY DIVISION

400, Main Street
East Hartford, CT 06108
USA

EM-2011T02-00

Sheet 01

PRATT & WHITNEY

PW6122A,
PW6124A

21 February 2011

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 2011T02, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

I - MODEL

PW6122A, PW6124A

TYPE

Axial-airflow, dual spool, turbofan engine, single stage fan, four-stage low-pressure compressor, six-stage high-pressure compressor, annular combustion chamber, single-stage high-pressure turbine, three-stage low-pressure turbine.

RATINGS (See Note 6)

	PW6122A	PW6124A
Static thrust at sea level, lb.		
Takeoff, (5 minutes) (See Note 1)	22 100	23 800
Maximum continuous	20 300	20 900

		PW6122A	PW6124A
COMPONENTS	Fuel Metering Unit – Hamilton Sandstrand, P/N	5407885	--
	Fuel Pump – Hamilton Sandstrand, P/N	5405441	--
	Fuel Filter – PTI Industries, P/N or Pall Aerospace, P/N	7586460-101 AC-B093F- 2480Y1	--
	Fuel distribution valve – Hamilton Std., P/N	5401523	--
	Ignition		
	Exciter – Unison Industries, P/N	5405230	--
	Ignitors – Unison Industries, P/N	5404362	--
	PMA – Unison Industries		
	Stator, P/N	5401589	--
	Rotor, P/N	5401588	--
	Station 2.5 bld actuator – Hamilton Sandstrand, P/N	5401531	--
	Stator vane actuator – Hamilton Sandstrand, P/N	5405269	--
	PT2/TT2 probe – Goodrich, P/N	5404760	--
	ENGINE CONTROL SYSTEM	EEC – Hamilton Sandstrand, P/N	5407615
Programming Plug – Hamilton Sandstrand, P/N		5401493	--
FUEL TYPE	See Note 9	--	
OIL, LUBRICATION	See Note 10	--	
TEMPERATURE LIMITS	See Note 2	--	
PRESSURE LIMITS	See Note 3	--	
PRINCIPAL DIMENSIONS	Length (flange to flange), in.	108.208±0.037	--
	Nominal diameter (fan case), in.	62.400	--
	Maximum radial projection (at drain mast), in.	45.419	--

Legend: -- Same as preceding; # Does not apply

		PW6122A	PW6124A	
WEIGHT (DRY)	Weight of basic engines includes P&W supplied engine build-up (EBU) components, lb.	5 400	--	
CENTER OF GRAVITY	Axial engine station, in.	113.160 ± 1.0	--	
	Vertical: relative to engine centerline, in.	-2.85± -0.5	--	
	Lateral: Relative to engine centerline, in.	0.81 ± -0.5	--	
IMPORT REQUIREMENTS	Each engine imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export and/or an Airworthiness Approval Tag, respectively, issued by FAA (or a third country authority, in case of used engine imported from such country) attesting that the particular engine and/or parts were submitted to the governmental quality control before delivery and are in conformity with the ANAC approved type design. The ANAC type design corresponds to the FAA approved type design, as stated in ANAC Report V33-1050-0 dated 21 February 2011 or further revisions.			
CERTIFICATION BASIS	RBAC 33, which endorses 14CFR Part 33, effective February 1, 1965, as amended by 33-1 through 33-20, with the following FAA equivalent level of safety findings: ~ 33.27 – Rotor Integrity, par.(c), ELOS No. 8040-ELOS-04NE-04; ~ 33.77 – Foreign Object Ingestion-Ice, par.(c), ELOS No. 8040-8-1-002; ~ 33.87 – Endurance Test, par.(a)(3) and (b)(1), ELOS No. 8040-ELOS-04-NE-03. RBAC 34, which endorses 14CFR Part 34, effective September 10, 1990, as amended by 34-1 through 34-3.	<u>Model</u> PW6122A PW6124A	<u>Application</u> 11 Dec.2010 11 Dec.2010	<u>Issued TC</u> 21 Feb.2011 21 Feb.2011
PRODUCTION BASIS	Not applicable.			

NOTES

NOTE 1 The 5 minute takeoff time limit may be extended to 10 minutes for OEI or shutdown of a multiengine aircraft.

NOTE 2	Maximum Permissible Operating Speeds for Engine Rotors (rpm)	PW6122A	PW6124A
	- Low pressure rotor (N1), rpm		
	- maximum permissible	6 350	--
	- maximum continuous (*)	6 125	--
	- minimum, ground idle	1 325	--
	- minimum, flight idle	1 700	--
	- High pressure rotor (N2), rpm		
	- maximum, steady state	18 850	--
	- maximum, transient (20 seconds)	N/A	--
	- maximum continuous (*)	18 150	--
	- minimum, ground idle	11 000	--
	- minimum, flight idle	11 000	--

(*) Controlling the engine to the Maximum Continuous Exhaust Gas Temperature will ensure that Maximum Continuous max permissible rotor speed will not be exceeded.

NOTE 3	Maximum Permissible Temperatures, °C (°F)	PW6122A	PW6124A
	- Turbine exhaust gas temperature (*)		
	- Takeoff (5 minutes) (See Note 1)	760 (1 400)	--
	- Maximum continuous	727 (1 340)	--
	- Transient (See Note 14)		
	- At start-up		
	Ground	760 (1 400)	--
	Flight	760 (1 400)	--
	- Oil outlet temperature		
	- Continuous operation	163 (325)	--
	- Transient operation (limited to 20 minutes)	177 (350)	--
	- Fuel temperature - Refer to "Installation and Operating Manual"	--	--

(*) Measured by four thermocouples probes located at the low pressure turbine exhaust case

NOTE 4 - Fuel Pressure Limits:

At inlet to engine system pump, not less than 5 psig above the true vapor pressure of the fuel and not greater than 70 psig above absolute ambient pressure, with a vapor/liquid ratio of zero. The maximum allowable pressure at the fuel pump inlet after shutdown is 225 psig.

- Oil Pressure Limits:

Minimum	25 psig
Maximum	No Limit

Notes: Temporary interruption of oil pressure associated with negative "g" operation is limited to 30 seconds maximum. Normal oil pressure will be restored rapidly once the negative "g" effect has been eliminated. There is no maximum oil pressure limit below ground idle.

NOTE 5 Maximum Permissible Air Bleeds (*):

- PW6122A and PW6124A: 5.0 lb./sec

(*) Switching from High Pressure Compressor 8th and 11th stage bleed is controlled automatically based upon flight condition (see Installation and Operating Manual).

NOTE 6 The Sea Level Static Ratings are ideal and are based on ICAO Standard Atmosphere conditions, a Pratt & Whitney hardwall bellmouth inlet, no fan or compressor air bleed or leakage, and no load on accessory drives, an exhaust system having no internal pressure or external scrubbing losses, and fan duct and primary nozzle velocity coefficients equal to 0.998.

NOTE 7 Lightning protection requirements and electromagnetic interference emitted by the electronic engine control system, including cables, are specified in the Installation and Operating Manual, Section 5.12.

NOTE 8 Fuel and fuel additives conforming to the latest applicable issue of FAA-approved Pratt & Whitney Turbojet Engine Service Bulletin No. 2016 may be used separately or mixed in any proportions without adversely affecting the engine operation or power output.

NOTE 9 The following oils are eligible: Oils conforming to Pratt & Whitney Engine Service Bulletin No. 238, latest revision.

NOTE 10 Certain engine parts are life-limited. Limits are listed in Pratt & Whitney PW6000 series engine Turbofan Engine Manual, Part No. 5507764, Time Limit Section.

NOTE 11 The engines meet the smoke and gaseous emission requirements of RBAC 34, which endorses FAR 34.

NOTE 12 The following accessory drive provisions are incorporated:

Legend: -- Same as preceding; # Does not apply

Drive Pad	Rotation	Speed Ratio to N2	Torque (lb.-in)			Overhang (lb.-in)
			Continuous	Static	Overload	
Starter	CCW	0.545:1	*	*	*	500
IDGS	CCW	0.453:1	**	11 000	**	800
Fluid power pump (R)	CCW	0.210:1	1 300	6 500	1 936***	400

Legend:

- CCW = counterclockwise
- IDGS = Integrated Drive Generator

* Strength of starter drive shall be adequate for starter delivering maximum torque of 5 880 lb.-in. at zero rpm and 6 924 lb-in at 4 800 rpm maximum impact torque. The engine starter drive shear section is designed to shear at a static torque value of 11 280 ~ 12 972 lb.-in.

** Maximum allowable continuous torque values are equivalent to 175 horsepower at any engine speed at or above sea level idle.

The following overload conditions can be accommodated:

Horsepower	Duration Time	Recurring Time
225	5 minutes	1/1000 hours
225	5 seconds	1/hour
450	5 seconds	1/1000 hours

*** Maximum allowable for 5-minute duration recurring at 4 hour intervals minimum.

- NOTE 13** The maximum permissible engine inlet distortion limit is specified in the Installation and Operating Manual, Section 5.4, Report PWA-7707.
- NOTE 14** Limits regarding transient rotor shaft overspeed, and transient turbine exhaust gas over temperature and the number of over temperature occurrences are specified in the Maintenance Document, Part No. 5407763.
- NOTE 15** Information regarding approved fuel filter and oil filter replacement parts is in the PW6000 Series Illustrated Parts Catalog, Part No. 5407766.
- NOTE 16** The minimum N1 certified for operation in icing conditions is 1 700 rpm.

- NOTE 17** The PW6000 Series engines are certified with Time Limited Dispatch (TLD). FADEC system faults fall into four categories as follows:
1) No Dispatch; 2) Short Term Dispatch; 3) Long Term Dispatch; 4) Unlimited Dispatch.
Details on the Short and Long Term Dispatch intervals are provided in the Installation and Operating Manual, Section 5.12 and in the Chapter 5 of the PW6000 Series Engine Manual.
- NOTE 18** Overhaul of the PW6122A and The PW6124A engine and components is only authorized via approved Manuals or Type Certificate holder approved procedures.
- NOTE 19** The following Engine Manuals are approved for PW6000 Series engines:
- Installation and Operating Manual, PWA 7707
 - Engine Manual (EM), P/N 5407764
 - Clean & Inspect Manual (CI), P/N 5407765
 - Engine Maintenance Manual (MM), P/N 5407763

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