



**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL**

**TYPE CERTIFICATE DATA SHEET Nº EM-9813**

Type **Certificate Holder:**

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**CANADA**

EM-9813-02

Sheet 01

PRATT & WHITNEY  
CANADA

PW545A, PW545B  
**PW545C**

**28 April 2009**

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 9813, 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.

**MODEL** PW545A, PW545B, **PW545C**

**TYPE** Twin spool with a low pressure compressor consisting of a single stage integrally bladed fan and one axial boost stage, a high pressure compressor consisting of two axial stages and one centrifugal compressor stage, one stage high pressure turbine, three stage low pressure turbine, annular reverse-flow combustor and full length annular bypass duct.

<b>RATINGS</b>		PW545A	PW545B	<b>PW545C</b>
	Thrust rating			
	Maximum continuous at sea level daN (lb)	1 500 (3 372)	--	--
	Takeoff (5 min.) at sea level daN (lb) (See Note 8)	1 758 (3 952)	1 832 (4 119)	--

RATINGS (Cont.)		PW545A	PW545B	PW545C
Engine Speed limitations, rpm				
Takeoff N1		13 034 (100%)	--	--
Maximum Continuous N1		13 034 (100%)	--	--
Transient (20 seconds) N1		13 295 (102%)	--	--
Takeoff N2		33 289 (101.8%)	33 622 (102.8%)	--
Maximum Continuous N2		33 289 (101.8%)	33 622 (102.8%)	--
Transiente (20 seconds) N2		33 681(103%)	34 008 (104%)	--
Flight Idle minimum		16 841 (51.5%)	17 396 (53.2%)	17 723 (54.2%)
Interturbine Temperature °C (°F)				
Takeoff (5 min)		720 (1 328)	740 (1 364)	--
Maximum continuous		720 (1 328)	--	--
Transient (20 seconds)		760 (1 400)	780 (1 436)	--
Starting (5 seconds)		720 ( 1 328)	740 (1 364)	--
(Also see Installation Manual)				
<b>OIL INLET TEMPERATURE °C (°F)</b>				
Maximum		121 (250)	--	--
Minimum		-40 (-40)	--	--
Transient maximum 545A: (120 sec)		135 (275)	#	#
Transient maximum 545B and 545C: (400 sec)		#	135 (275)	--
(Also see Installation Manual)				
<b>MAXIMUM ACCESSORY TEMP.</b>	The engine compartment shall be ventilated as necessary to keep the air temperature surrounding accessory components from exceeding the limits defined in the Installation Manual (See Note 7).			
<b>BLEED AIR</b>	<p>A. High compressor bleed. Maximum external bleed air available is: 63 ppm (pounds per minute) at sea level, decreasing linearly to 39 ppm at 40 000 ft, then decreasing linearly to 38 ppm at 45 000 ft.</p> <p>B. During starting: Bleed air not permitted</p> <p>C. Bleed air contamination meets: Para 3.1.2.11.3 of MIL-E-5007E</p>			

**EQUIPMENT**

Equipment such as the fuel control unit, EEC, flow divider, fuel pump, fuel filter, provision for fuel flowmeter, and fire shield for rear engine mount are standard equipments as shown in the Approved Parts List. For output drive specification, accessory drives, principal dimensions, weights, inertias and C.G. locations, refer to Installations Manual

**FUEL****Fuel Bleed**

Fuel from pump delivery may be extracted to drive jet or turbine pumps in the airplane fuel system. Refer to Installation Manual.

**Fuel Pressure**

Refer to Installation Manual.

**Fuel temperature**

Maximum fuel pump inlet temperature for starting and operating is 57°C (135°F) at sea level; minimum inlet temperature for the PW545A and PW545B is -44°C (-48°F) and for the PW545C is -41°C (-43°F), for typical kerosene type fuels. Refer to Installation Manual for additional information.

**Fuel type (See Note 2)**

Fuels and additives conforming with the specifications additives are listed in P&WC Maintenance Manual (See Note 5) are approved for use.

**OIL LUBRICATION**

	PW545A	PW545B	PW545C
Oil Pressure psig			
Minimum at ground & flight idle – min. / max.	25 - 140	25 - 160	--
Maximum Continuous and Takeoff – min. / max.	35 - 140	45 - 160	--
Transient (20 seconds) – min.	0	--	--
Transient (120 seconds) – min. / max.	20 - 250	#	#
Transient (400 seconds) – min. / max.	#	20 - 250	--
Oil Tank Capacity			
Total capacity (liters)	7.09	--	--
Imperial quarts	6.23	--	--
U.S. quarts	7.49	--	--
Usable capacity (liters)	4.23	--	--
Imperial quarts	3.72	--	--
U.S. quarts	4.47	--	--

Oil Type - Oils conforming to the Specifications listed in P&WC Maintenance Manual are approved for use.

<b>PRINCIPAL DIMENSIONS</b>	Refer to Installation Drawing in approved Installation Manual.		
<b>C.G. LOCATION</b>	Refer to Installation Drawing in approved Installation Manual.		
<b>IMPORT REQUIREMENTS</b>	Each engine imported separately and/or spare parts must be accompanied by an export airworthiness approvals issued by TCCA (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 <b>ANAC</b> approved type design. The <b>ANAC</b> type design corresponds to the TCCA approved type design, as stated in <b>ANAC</b> Reports V33-0690-00.		
<b>CERTIFICATION BASIS</b>	<u>For Model PW545A</u> RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the 14 CFR Part 33 Amendments 1 through 15 inclusive, effective 16 August 1993 and RBHA 34, which endorses the 14 CFR Part 34 effective 10 September 1990.	<u>Application</u> 14 August 1998	<u>Issued TC</u> 18 December 1998
	<u>For Model PW545B</u> RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the 14 CFR Part 33 Amendments 1 through 20 inclusive, effective 13 December 2000 and RBHA 34, which endorses 14 CFR Part 34, Amendment 3, effective 3 February 1999.	<u>Application</u> 30 April 2004	<u>Issued TC</u> 23 September 2004
	<u>For Model PW545A</u> RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the 14 CFR Part 33 Amendments 1 through 20 inclusive, effective 13 December 2000 and RBHA 34, which endorses 14 CFR Part 34, Amendment 3, effective 3 February 1999 and FAA Equivalent Level of Safety (ELOS) finding: 33.76 - Bird Ingestion para. (c), Amendment 20; ELOS N° 8040-ELOS-08-NE-07.	<u>Application</u> 01 October 2008	<u>Issued TC</u> 28 April 2009

**NOTES:****NOTE 1**

The engine ratings for the PW545A, PW545B and PW545C engine models are based on static sea level conditions:

- a) Compressor inlet air (dry) 25°C (77°F), at takeoff and 35°C (95°F) at Maximum Continuous.
- b) 76 cm Hg (29.92 in. Hg.)
- c) No accessory loads or air bleed.
- d) Engine intake and exhaust as described in the Department of Transport, Canada, approved Installation Manual.

**NOTE 2**

The starter/generator pad for the PW545A, PW545B and PW545C engine models may be overloaded in an emergency to a torque of 38.41 Nm (340 in.lb) for periods up to 5 minutes, subject to total accessory power not exceeding 29.84 kW (40 hp). This can recur at 4 hour intervals. Refer to Installation Manuals for restrictions above altitude of 3 048 m (10 000 feet).

**Accessory Drives**

The following apply to the accessory drives, which are provided by the engine and included in the basic engine weight:

Drive Driven by High Rotor	Rotation	Shaft	Speed Ratio to Turbine Continuous	Maximum Torque (in.lb) Static	Maximum Overhang (in.lb)
Hydraulic pump	CW	0.1280:1	225	1 600	40
Starter generator	CW	0.3633:1	240	1 600	210
Alternator (1)	CW	0.3363:1	110 / 83	1 600	250

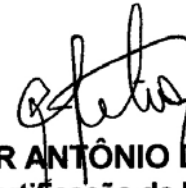
CW - Clockwise facing accessory pad.

(1) Max. Torque for the PW545A and PW545B is 110in-lbs and for the PW545C is 83 in-lbs.

Total accessory power limit is 16.8 kW (22.5 hp) at 50% N2, increasing linearly to 25.4 kW (34.5 hp) at 100% N2. Refer to Installation Manual for restrictions above 6 096 m (20 000 ft.) altitude and allowable 5 minute emergency accessory power extraction. Also See Note 2.

NOTE 3		PW545A	PW545B	PW545C
	Ignition Exciter	PWC P/N 31J2807-01A	PWC P/N 31J2807-07	--
	Unison	PWC P/N 31J1552-01	--	--
	Igniter plug	PWC P/N 31J1552-01	--	--
	Unison	PWC P/N 31J1552-01	--	--
<b>NOTE 4</b>	<p>Certain engine parts are life limited. Life limits are listed in P&amp;WC Maintenance Manuals.  PW545A: P/N 30J1272.  PW545B: P/N 30J2242.  <b>PW545C: P/N 30J2302.</b></p>			
<b>NOTE 5</b>	<p>Recommended overhaul and inspection intervals are listed in P&amp;WC Maintenance Manuals.  PW545A: P/N 30J1272.  PW545B: P/N 30J2242  <b>PW545C: P/N 30J2302.</b></p>			
<b>NOTE 6</b>	<p>Engines may be returned to Pratt &amp; Whitney Canada for re-build to new production standard.  PW545A Overhaul Manual P/N 30J1273  PW545B Overhaul Manual P/N 30J2243  <b>PW545C Overhaul Manual P/N 30J2303</b></p>			
<b>NOTE 7</b>	<p>The PW545A, PW545B and <b>PW545C</b> engine definition does not include a thrust reverser.  Considerations for the installation of a thrust reverser are contained in the Installation Manual.  PW545A Installation Manual P&amp;WC Engineering Report 3159  PW545B Installation Manual P&amp;WC Engineering Report 5715  <b>PW545C Installation Manual P&amp;WC Engineering Report 6725</b></p>			
<b>NOTE 8</b>	<p>Take-off ratings that are limited to 5 minutes duration may be used for up to 10 minutes for OEI operations without adverse effects upon engine airworthiness. Such operations are anticipated on an infrequent basis (as engine failure at take-off events are uncommon) and no limits or special inspections have been imposed.</p>			

- NOTE 9**                    Model PW545C: For L/HIRF conformance and installation requirements, refer to the Installation Manual.
- NOTE 10**                  Model PW545C: The software contained in the Electronic Engine Control for the PW545C engine has been designed, developed, tested and documented in accordance with the provisions of Critical Category Level A of RTCA/DO178B.
- NOTE 11**                  Model PW545C: The engine is equipped with a FADEC which is approved for Time Limited Dispatch (TLD). The dispatch criteria are defined in the Airworthiness Limitation Section of the Maintenance Manual.
- NOTE 12**                  Model PW545C: Flight Idle is a function of Ambient Pressure.
- NOTE 13**                  Service bulletins, structural repair manuals, vendor manuals, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is Transport Canada-approved, are accepted by the ANAC and are considered ANAC-approved unless otherwise noted. These approvals pertain to the type design only.



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