

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E00053EN	TCDS NUMBER E00053EN REVISION: 6* DATE: 2/2/2016 PRATT & WHITNEY CANADA MODELS: PW530A PW535E PW535A PW535B
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Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E00053EN 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: Pratt & Whitney Canada, Inc.
 1000 Marie-Victorin
 Longueuil, Québec
 Canada J4G 1A1

MODELS I. TYPE	PW530A	PW535A	PW535B	PW535E
	Twin spool turbofan with single stage integrally bladed fan, one axial low compressor stage (PW535A and PW535B), two axial high compressor stages and one centrifugal compressor stage, one stage high pressure turbine, two stage low pressure turbine, annular reverse-flow combustor and full length annular bypass duct.			
THRUST RATING, POUNDS (See NOTE 1)				
Maximum continuous as sea level	2,843	3400	--	3360
Maximum Take-off (See Note: 16)	---	---	---	3360
Takeoff (5 min., See NOTE 8) at sea level	2,887	3400	--	3360
ENGINE SPEED LIMITATIONS, RPM (Refer to Installation Manual for transients)				
Max steady state low rotor (N1)	15,750	15,850	--	--
Max steady state high rotor (N2)	32,150	33,970	--	--
Flight Idle (minimum N2) (See NOTE 15)	15,880	17,975	18,140	18,717

INTERTURBINE TEMPERATURE MODELS:	°F / °C			
	PW530A	PW535A	PW535B	PW535E
Maximum Take-off (See NOTE 16)	---	---	---	725
Takeoff (5 min.)	1292 / 700	--	--	--
Maximum continuous	1292 / 700	--	--	680
Starting (5 sec.)	1364 / 740	--	--	--
Transient (20 sec.)	1364 / 740	--	--	765

(Also see Installation Manual)

OIL INLET TEMPERATURE MODELS	°F / °C			
	PW530A	PW535A	PW535B	PW535E
Maximum	250 / 121	270 / 132.2	--	See Install manual
Minimum	-40 / -40	--	--	See Install manual
Transient maximum	275 / 135 (120 sec.)	285 / 140.5 (200 sec.)	--	See Install manual

MAXIMUM ACCESSORY TEMP	The engine compartment shall be ventilated as necessary to keep the air temperature surrounding accessory components from exceeding the limits defined in the applicable Installation Manual.
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LEGEND: "- -" INDICATES "SAME AS PRECEDING MODEL" "---" NOT APPLICABLE NOTICE: ALL PAGES ARE REFORMATTED. SIGNIFICANT CHANGES ARE BLACK-LINED IN THE LEFT MARGIN.
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AIR BLEED, MODELS:	PW530A	PW535A	PW535B	PW535E
A. High compressor bleed. Maximum external bleed air available is:	45 pounds per hour (pph) at sea level, decreasing linearly to 36 pph at 20,000 ft altitude, then decreasing linearly to 28 pph at 40,000 ft, then decreasing linearly to 27 pph at 45,000 ft.	71 pph at sea level, decreasing linearly to 54 pph at 32,000ft altitude, then decreasing linearly to 28 pph at 45,000 ft altitude.	See Installation Manual	See Installation Manual
B. During starting, bleed shall not exceed that taken by a:	0.3 - inch diameter orifice throat	--	--	See Installation Manual
C. Bleed air contamination meets:	Para 3.18 of MIL-E-5007C	Para 3.1.2.11.3 of MIL-E-5007C	--	See Installation Manual

FUEL / ALL MODELS Fuel Bleed	Fuel from pump delivery may be extracted to drive jet or turbine pumps in the airplane fuel system. Refer to appropriate Installation Manual.
Fuel Pressure	Refer to Installation Manual.
Fuel Temperature	Maximum fuel pump inlet temperature for starting and operating is 135°F(57°C) at sea level; minimum inlet temperature is -48°F(-44°C)(PW530A) or -43°F(-41°C)(PW535A, PW535B), for typical kerosene type fuels. Refer to Installation Manual for additional information.
Fuel type (Also see NOTE 2)	Fuels conforming to specification CPW204. Approved fuels and additives are listed in P&WC Maintenance Manual P/N 30J1112 (PW530A) or P/N3044952 (PW535A) or P/N3071822 (PW535B)

FUEL COMPONENTS	INTEGRAL FUEL PUMP / CONTROL	FUEL FLOW DIVIDER
PW530A	PWC P/N 31J2347-03	PWC P/N 31J1529-02
PW535A	PWC P/N 3042081-04	PWC P/N 3052780-02
PW535B	PWC P/N 3071682-02	INTEGRAL WITH FUEL PUMP / CONTROL
PW535E	See Installation Manual	See Installation Manual

OIL MODELS	PW530A	PW535A	PW535B	PW535E	
OIL PRESSURE	psid	psid	psid	psid	
Min. at ground idle & above	25	--	--	See Install Manual	
Max.	160	--	--	See Install Manual	
Transient (20 seconds)	0 (20 sec.)	0 (20 sec.)	--	See Install Manual	
Transient (400 seconds)	20 - 250	20 - 270	--	See Install Manual	
OIL TYPE	Synthetic type conforming to the current PWA 521 (Type II) Specification. Approved Oil brands are listed in P&WC Maintenance Manual				
OIL TANK CAPACITY		See Install Manual	See Install Manual	See Install Manual	
Total Capacity					
Imperial quarts	4.19				
U.S. quarts	5.03				
Usable Capacity					
Imperial quarts	1.55				
U.S. quarts	1.86				

ACCESSORY DRIVES	The following apply to the accessory drives, which are provided by the engine and included in the basic engine weight.					
			SPEED RATIO TO TURBINE	MAXIMUM TORQUE (in.-lb)		MAXIMUM OVERHANG
	DRIVE	ROTATION	SHAFT	CONTINUOUS	STATIC	(in.-lb)
	DRIVEN BY HIGH ROTOR					
	Hydraulic pump	CW	.1353:1 (PW530A) .1279:1 (PW535A)	125 220	1600	40
	Starter generator	CW	.1279:1 (PW535B) .3843:1 (PW530A) .3634:1 (PW535A) .3634:1 (PW535B)	220 240 195 195	1600	210
*CW - Clockwise facing accessory pad. Refer to Installation Manual for specific engine models.						
Total accessory power limit is 22.5 hp. At 50% N2, increasing linearly to 30 hp. At 100% N2. Refer to Installation Manual for restrictions above 20,000 ft. altitude and allowable 5 minute emergency accessory power extraction. Also see NOTE 2.						

IGNITION MODELS	PW530A	PW535A	PW535B	PW535E
EXCITER	PWC P/N 31J2807-01A	PWC P/N 3052328-01	PWC P/N 31J2807-07	See Install Manual
IGNITER PLUG	PWC P/N 31J1552-01	PWC P/N 3052582-01	PWC P/N 3052582-01	

PRINCIPAL DIMENSIONS: Refer to Installation Drawing in approved Installation Manual.
 C. G. LOCATION: Refer to Installation Drawing in approved Installation Manual.

CERTIFICATION BASIS	
Models:	
PW530A	FAR 33, Amendments 1 through 15 inclusive, effective August 16, 1993, and FAR 34 effective September 10, 1990.
PW535A	FAR 33, Amendments 1 through 17 inclusive, effective July 5, 1996, including Federal Aviation Administration Exemption Number 7074 and FAR 34 effective September 10, 1990.
PW535B	FAR Part 33, effective February 1, 1965, and Amendments 33-1 through 33-20 inclusive, FAR 34-3 and Federal Aviation Administration Equivalent Level of Safety (ELOS) finding: 33.76, Bird Ingestion, para. (c), Amendment 20, ELOS No. 8040-ELOS-06-NE-01.
PW535E	FAR Part 33, effective February 1, 1965, Amendments 33-1 through 33-24, except Amendment 33-21. This model complies with 14 CFR part 34, amendment 5A, effective October 23, 2013. See Note 20 for a detailed summary of the certification basis for fuel venting and exhaust emissions.

MODEL	TYPE CERTIFICATE NUMBER E00053EN		
	APPLIED FOR	ISSUED/REVISED	DELETED
PW530A	08/25/95	04/17/96	
PW535A	03/11/97	11/18/99	
PW535B	06/20/2005	12/20/2006	
PW535E	02/19/2007	12/11/2009	

<p>IMPORT REQUIREMENTS:</p>	<p>To be considered eligible for installation on United States (U.S.) registered aircraft, each engine to be exported to the U.S. shall be accompanied by a certificate of airworthiness for export or by a certifying statement, endorsed by the exporting cognizant civil airworthiness authority which contains the following language:</p> <p>(1) This engine conforms to its Type Certificate Number and is in a condition for safe operation.</p> <p>(2) This engine has been subjected by the manufacturer to a final operational check and is in a proper state of airworthiness.</p> <p>Reference FAR Section 21.500, which provides for the airworthiness acceptance of aircraft engines manufactured outside of the U.S. and for which a U.S. type certificate has been issued. Additional guidance is contained in FAA Advisory Circular 21-23, "Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported into the United States."</p>
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NOTES

- NOTE 1** The engine ratings are based on static sea level conditions:
- PW530A: Compressor inlet air (dry) 73°F, at takeoff and 59°F at max. continuous.
PW535A: Compressor inlet air (dry) 81°F at takeoff , and 67.3°F at max. continuous.
PW535B : Compressor inlet air (dry) 81°F at takeoff , and 67.3°F at max. continuous.
PW535E: See Installation Manual
- 29.92 in. Hg.
- No accessory loads or air bleed.
- Engine intake and exhaust as described in the Department of Transport, Canada, approved Installation Manual.
- NOTE 2** The starter/generator pad may be overloaded in an emergency to a torque of 340 in.-lb. for periods up to 5 minutes, subject to total accessory power not exceeding 40 hp. This can recur at 4 hour intervals. Refer to Installation Manual for restrictions above 10,000 feet altitude. Refer to the Installation manual for specific details on the PW535E.
- NOTE 3** Minimum permissible flight idle N2 is 15880 RPM (49.4%)(PW530A) or 17,975 RPM (52.9%)(PW535A) or 18,140 (53.4%)(PW535B).
- NOTE 4** Certain engine parts are life limited. These life limits are listed in P&WC Maintenance Manual P/N 30J1112 (PW530A) and P/N 3044952 (PW535A) and P/N 3071822 (PW535B).
- NOTE 5** Permissible overhaul and inspection intervals are listed in P&WC Maintenance Manual P/N 30J1112 (PW530A), P/N 3044952 (PW535A) and P/N 3071822 (PW535B) and 3072702 (PW535E).
- NOTE 6** Approved Overhaul Manuals are: P/N 30J1113 (PW530A), P/N 3044953 (PW535A), P/N 3071823 (PW535B) and P/N 3072703 (PW535E).
- NOTE 7** 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 FAA and are considered FAA-approved unless otherwise noted. These approvals pertain to the type design only.
- NOTE 8** For the PW535A and PW535B engine models, the take-off rating and its associated operating limitations may be used for up to 10 minutes in the event of engine out contingency without adverse effects upon the engine airworthiness. Their use is otherwise limited to not more than 5 minutes. Such operations are anticipated on an infrequent basis (as engine failures at take-off events are uncommon) and no limits or special inspections have been imposed.

- NOTE 9 The PW530 series engines incorporate the following characteristics:
PW530A Basic model
PW535A Similar to PW530A but with increased thrust ratings, redesigned fan, added low compressor axial booster stage, and redesigned low pressure turbine.
PW535B Similar to PW535A but with a dual channel Full Authority Digital Electronic Control.
Pw535E Similar to the PW535B but with improvements to the performance (thrust and SFC) through increased turbine inlet temperatures. The modification does not change the N1/N2, MOT, MOP limits of the PW535B.
- NOTE 10 For HIRF and lightning conformance, and installation requirements, refer to the Installation manual.
- NOTE 11 The software contained in the Electronic Engine Control for the PW535B and PW535E engines has been designed, developed, tested and documented in accordance with the provisions of Critical Category Level A of RTCA/DO178B.
- NOTE 12 The Installation Manuals for the PW500 series engines are the following:
PW530A ER3562
PW535A ER3660
PW535B ER6336
PW535E ER6639
- NOTE 13 The PW535B FADEC Interface Control Document is ER6338.
The PW535E FADEC Interface Control Document is ER6677.
- NOTE 14 The PW535B engines incorporating SB 30341 are 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 P/N 3071822. The TLD dispatchable fault configuration is defined in ER 6338-05 Part A Interface Control Document.

Model PW535B engines not incorporating SB 30341 are not approved for Time Limited Dispatch (TLD).
- NOTE 15 The PW535B and PW535E Flight Idle is a function of ambient pressure.
- NOTE 16. Model PW535E
Normal take off is equal to Maximum take off in conditions where wing anti-ice bleed is OFF and may be used for 10 minutes in emergency or OEI conditions. Maximum take off exists for wing anti-ice bleed ON conditions and is used in emergency, OEI or mono bleed situations.
- NOTE 17. Model PW535E
The engine is equipped with a FADEC which is approved for the Time Limited Dispatch (TLD). The dispatch criteria are defined in the Airworthiness Limitations Section of the Maintenance Manual P/N 3072702. The TLD dispatchable fault configuration is defined in ER 6677-01 Part A Interface Control Document.
- NOTE 18. Model PW535E
The electronic engine control has not been fire tested and therefore must not be installed in a designated fire zone.
- NOTE 19. The engine definition does not include a thrust reverser. All models except the PW535E have considerations for the installation of a thrust reverser and are contained in the Installation Manual.

NOTE 20.

The following emissions standards promulgated in 14 CFR part 34, Amendment 5A, effective October 23, 2013, and 40 CFR part 87, effective October 31, 2012, have been complied with for PW535E:

Fuel Venting Emissions Standards: 14 CFR §§ 34.10(b) and 34.11; in addition, 40 CFR §§ 87.10(b) and 87.11.

Smoke number (SN) Emissions Standards: 14 CFR § 34.23(a)(1); in addition, 40 CFR § 87.23 (c)(1).

In addition to the FAA's finding of compliance based on the certification requirements defined in this TCDS, the engine manufacturer has declared that the ICAO emissions standards identified in Annex 16, Volume II, Third Edition, Part III, Chapter 2, Section 2.2.2 for SN, and Part II, Chapter 2 for fuel venting have also been demonstrated.

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