

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E00083EN	TCDS NUMBER E00083EN REVISION: 3 DATE : August 14, 2015 PRATT & WHITNEY CANADA. MODELS: PW210S, PW210A
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Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E00083EN) 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, Corp.
 1000 Marie-Victorin
 Longueuil, Quebec
 Canada J4G 1A1

I. MODELS	PW210S	PW210A																													
TYPE	Twin spool free turbine turboshaft engine controlled by a Full Authority Digital Electronic Control (FADEC), with one mixed flow and one centrifugal flow compressor driven by a single Turbine, annular reverse-flow combustor and a reduction gearbox driven by Power Turbines.																														
POWER RATINGS	SHAFT HORSEPOWER RATINGS [kW] See NOTE 4																														
30 sec. OEI	1123.4 [837]	---																													
2 min. OEI	1091.3 [814]	---																													
Flat 30 sec. and 2 min. OEI	---	1214.3 (905.5)																													
Continuous. OEI	1027.1 [766]	1030.8 (768.6)																													
Maximum Take-Off	802.5 [599]	875.4 (652.8)																													
30 min. Hover	802.5 [599]	875.4 (652.8)																													
Maximum continuous	802.5 [599]	824.6 (614.9)																													
FUEL TYPE	Refer to Section 5 of the Installation Manual for fuel pressure and temperature limits. Fuel types and additives conforming to the specifications listed in applicable P&WC Maintenance Manual are approved for use.																														
OIL TYPE	Refer to the Installation Manual Table 2-1 for oil pressure and temperature limits. Oil types, brand and additives conforming to the specifications listed in applicable P&WC Maintenance Manual are approved for use.																														
OIL Capacity	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Liters</u></th> <th style="text-align: center;"><u>Imperial Gallons</u></th> <th style="text-align: center;"><u>U.S. Gallons</u></th> </tr> </thead> <tbody> <tr> <td>PW210S:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total:</td> <td style="text-align: center;">4.85</td> <td style="text-align: center;">1.067</td> <td style="text-align: center;">1.281</td> </tr> <tr> <td>Useable:</td> <td style="text-align: center;">1.05</td> <td style="text-align: center;">0.231</td> <td style="text-align: center;">0.277</td> </tr> <tr> <td>PW210A:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total:</td> <td style="text-align: center;">5.78</td> <td style="text-align: center;">1.271</td> <td style="text-align: center;">1.527</td> </tr> <tr> <td>Useable:</td> <td style="text-align: center;">1.53</td> <td style="text-align: center;">0.336</td> <td style="text-align: center;">0.404</td> </tr> </tbody> </table>				<u>Liters</u>	<u>Imperial Gallons</u>	<u>U.S. Gallons</u>	PW210S:				Total:	4.85	1.067	1.281	Useable:	1.05	0.231	0.277	PW210A:				Total:	5.78	1.271	1.527	Useable:	1.53	0.336	0.404
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LEGEND: "-" INDICATES "SAME AS PRECEDING MODEL"
 "---" NOT APPLICABLE

EQUIPMENTS/
COMPONENTS

Electronic Engine Control, Fuel Control Unit (includes fuel pumps, filter and Permanent Magnet Alternator), Air Cooled Oil Cooler, Fuel Oil Heat Exchanger, oil filter, IGV actuator, ignition system (airframe powered) and sensors are included as per approved Parts List.

Required equipment includes Chip Detector or other metallic debris detecting device. For additional information including dimensions, weight and CG, optional and aircraft provided equipment drive specifications, refer to Installation Manual

ELECTRICAL SYSTEM

The ECS sensors provide signals for cockpit display of Rotor Speed, Torque, ITT, Oil Pressure, Temperature and Impending Bypass; Fuel Low Pressure and Impending Blockage; Exceedances; Cautions; OEI Use and Timer; Engine Out and ECS Faults, refer to FADEC Interface Control Document for details.

Refer to Section 8 of the Installation Manual for HIRF and Lightning qualification and conformance. Refer to Electrical drawing appended to Installation Manual and FADEC Interface Control Document for functional and electrical descriptions.

CERTIFICATION BASIS:

For PW210S: Title 14 of the Code of Federal Regulations (14 CFR Part 33) effective February 1, 1965, Amendments 33-1 through 33-30 and 2 Special conditions:

- 33-008-SC: for on ground engine operation in auxiliary power unit (APU) mode
- 33-009-SC: for 30-minutes all engines operating (AEO) hovering power engine rating

For PW210A: Title 14 of the Code of Federal Regulations (14 CFR Part 33) effective February 1, 1965, Amendments 33-1 through 33-30 and 2 Special Conditions:

- 33-009-SC: for 30 minuted all engines operating (AEO) hovering power engine rating
- 33-016-SC: for Flat 30 second and 2 minute One Engine Inoperative (OEI) Rating

TYPE CERTIFICATE E00083EN

<u>MODEL</u>	<u>APPLICATION</u>	<u>ISSUED/ REVISED</u>	<u>DELETED</u>
PW210S	September 27, 2005	December 5, 2011	
PW210A	February 13, 2013	August 14, 2015	

TYPE DESIGN DEFINITION

Configuration of the PW210S engine is defined by Engine Assembly Drawing 30L0022.

Configuration of the PW210A engine is defined by Engine Assembly Drawing 30L1860.

IMPORT REQUIREMENTS: 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:

- (1) This engine conforms to its United States Type Design (Type Certificate Number E00083EN) and is in a condition for safe operation.
- (2) This engine has been subjected by the manufacturer to a final operational check and is in a proper state of airworthiness.

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."

NOTES

I. MODELS	PW210S	PW210A
NOTE 1.	ENGINE ROTOR SPEED LIMITS (RPM)	
Gas Generator Speed Ng Maximum		
30 sec. OEI	52,400	---
2 min. OEI	51,900	---
Flat 30 sec. and 2 min. OEI	---	51,360
OEI Overshoot (5 seconds)	+255	+255
Continuous OEI	51,000	50,430
Maximum Take-Off	51,000	50,100
30 min. Hover	51,000	50,100
Maximum continuous	50,400	49,200
Transient (20 seconds)	51,900	50,430
Minimum Idle	29,063	29,063
APU mode	29,063	---
Power Turbine Speed NP Maximum	28,692(**)	28,120(***)
Transient (20 seconds)	31,211	30,293
Output shaft Speed Maximum		
Continuous	6,514	15,372
Transient (20 seconds)	7,085	16,560
	** Refer to Installation Manual for NPT limit when Torque is less than 65.8 ft*lbs (89.2 N*m) *** Refer to Installation Manual for NPT limit when Torque is less than 24.6 ft*lbs (33.4 N*m)	
NOTE 2.	ENGINE INDICATED TURBINE TEMPERATURE LIMITS (°C/°F)	
30 sec. OEI	1006/1843	---
2 min. OEI	980/1796	---
Flat 30 sec. and 2 min. OEI	---	1020/1868
OEI Overshoot (5 seconds)	+ 5/9	+ 5/9
Continuous. OEI	924/1695	941/1726
Maximum Take-Off	924/1695 (*)	930/1706
30 min. Hover	924/1695	930/1706
Maximum continuous	886/1627	886/1594
Transient (20 seconds)	980/1796	941/1726
Starting	825/1517	825/1517
	(*) Refer to Installation Manual for Initial Take-off limit setting	

NOTE 3.	ENGINE OUTPUT SHAFT TORQUE LIMITS (ft*lb) [N*m]	
30 sec. OEI	920.6 [1248]	---
2 min. OEI	894.3 [1212]	---
Flat 30 sec. and 2 min. OEI	---	430 (583)
OEI Overshoot (5 seconds)	+33 [+44.6]	---
Continuous. OEI	841.7 [1142]	365 (494.9)
Take-Off (5-min)	657.6 [892]	310 (420.3)
30 min. Hover	657.6 [892]	310 (420.3)
Maximum continuous	657.6 [892]	292 (395.9)
Transient (20 seconds)	894.3 [1212]	473 (641.3)

- NOTE 4.** The engine ratings are based on dry sea level static ICAO standard atmospheric conditions with no accessory loads and no airbleed.
- The quoted ratings are obtainable on a test stand with specified fuel and oil, and using the exhaust duct and intake bell mouth specified in the Installation Manual.
- NOTE 5.** The conditions for starting, running or stopping the engine with the output shaft locked by an aircraft provided rotor brake are specified in the Installation Manual .
- NOTE 6.** Certain engine parts are life limited. Life limits are listed in Airworthiness Limitation Section of Maintenance Manual.
- NOTE 7.** Required inspections after any use of 30 seconds or 2 minutes OEI power rating, or Flat Rated 30 second and 2 minute OEI Rating, are contained in the Airworthiness Limitation Section of Maintenance Manual.
- NOTE 8.** The engines meet the requirements of 14 CFR §§ 33.68, 33.76, 33.77 and 33.78 when installed in accordance with the Pratt & Whitney Canada Installation Manual Instructions
- NOTE 9.** The Electronic Engine Control Unit has not been fire tested and therefore must not be installed in a designated fire zone.
- NOTE 10.** HIRF/Lightning protection and Electromagnetic Interference (EMI) emitted by the EEC System including, cables, are specified in the Installation Manual, Section 8.
- NOTE 11.** The engines can be operated with certain detected FADEC faults in accordance with Time Limited Dispatch (TLD) policy. Aircraft considerations are contained in the Installation Manual, and time limits are contained in the Airworthiness Limitations Section of the Maintenance Manual..
- NOTE 12.** The software contained in the Electronic Engine Control has been designed, developed, tested and documented in accordance with the provision of the critical Category, Level A of RTCA/DO178B and the CPLD meet Level A of RTCA/DO254
- NOTE 13.** Approved Publications:
- | | |
|--|----------------------|
| PW210S: | |
| Installation Manual | P/N 30L2170 (ER6421) |
| FADEC Interface Control Document | ER 6368 |
| Airworthiness Limitation Section of Maintenance Manual | P/N 30L0892 |
| PW210A: | |
| Installation Manual | P/N 30L2274 (ER7434) |
| FADEC Interface Control Document | P/N 30L2141 (ER7436) |
| Airworthiness Limitation Section of Maintenance Manual | P/N 30L2392 |

NOTE 14.ICA:**PW210S:**

Maintenance Manual

P/N 30L0892

Overhaul Manual

P/N 30L0893

PW210A:

Maintenance Manual

P/N 30L2392

Overhaul Manual

P/N 30L2393

NOTE 15.

Deleted.

NOTE 16.

Service bulletins, structural repair manuals, vendor manual, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is Transport Canada-approved, are acceptable by the FAA and are considered FAA-approved unless otherwise noted. These approvals pertain to the type design only.

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