

U. S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E00094EN	Pratt & Whitney MODELS: PW1217G Date: 15 May 2017 TCDS NUMBER E00094EN
--	--

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E00094EN) 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
 400 Main Street
 East Hartford, CT 06118

TYPE	High bypass ratio, axial-airflow, dual-spool, turbofan engine controlled by a Full Authority Digital Electronic Control (FADEC). The low pressure spool consists of a three-stage low pressure turbine that directly drives a two-stage low pressure compressor, and a single stage high bypass ratio fan through a fan drive gear speed reduction system. The high pressure compressor has eight axial stages driven by a two-stage cooled high pressure turbine.
-------------	--

MODELS:	PW1217G
RATINGS (See NOTE 1)	
SEA LEVEL STATIC THRUST (lb.)	
Maximum Takeoff (5 minutes) (See NOTE 2)	19,190
Normal Takeoff (5 minutes) (See NOTE 2)	17,023
Maximum Continuous	15,123
FLAT RATING AMBIENT TEMPERATURE	
Maximum Takeoff	30°C / 86°F
Normal Takeoff	30°C / 86°F
Maximum Continuous	25°C / 77°F
Data Storage Unit PN (Ratings Plug)	5326026

PAGE	1	2	3	4	5	6	7				
REV.	0	0	0	0	0	0	0				

LEGEND: "- -" INDICATES "SAME AS PRECEDING MODEL"
"..." NOT APPLICABLE
NOTE: SIGNIFICANT CHANGES ARE BLACK-LINED IN THE LEFT MARGIN.

COMPONENTS/CONFIGURATION	For information regarding components and engine configuration, refer to: Installation Drawing 5300001
--------------------------	--

MODELS: (cont.)	PW1217G
PRINCIPAL DIMENSIONS (Room temperature)	
Length (flange to flange, in.)	108.4
Length (fan spinner face to aft flange, in.)	113.5
Nominal diameter (fan case, in.)	62.0
Maximum radial projection (in.) (at EEC)	36.1
CENTER OF GRAVITY (in.)	
Axial engine station, relative to A-flange:	52.8
Vertical, relative to engine centerline:	-1.1
Lateral, relative to centerline:	-0.6
WEIGHT * (DRY) Basic engine (lbs.) (See Note 6)	3,800
FUEL	Service Bulletin PW1000G-1000-73-00-00-00AAA-930A-D defines the fuels requirements and provides a listing of approved fuels and fuel additives for use in the PW1200G series turbofan engine.
LUBRICATING OILS	Service Bulletin PW1000G-1000-79-00-00-00AAA-930A-D provides a listing of approved turbine oils for use in the PW1200G series turbofan engine.

CERTIFICATION BASIS	<p>14 CFR, Part 33, effective February 1, 1965, as amended by 33-1 through 33-34 with the following Equivalent level of safety findings:</p> <ul style="list-style-type: none"> 33.78, Rain and hail Ingestion par. (a)(1) ELOS No. TC3096EN-E-P-4 <p>The following models comply with 14 CFR part 34, amendment 5A, effective October 23, 2013. See NOTE 23 for detailed summary of the certification basis for fuel venting and exhaust emissions:</p> <p style="text-align: center;">PW1217G</p> <p>TYPE CERTIFICATE NUMBER E00094EN</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>PW1217G</td> <td>September 1, 2016</td> <td></td> <td></td> </tr> </tbody> </table>	<u>MODEL</u>	<u>APPLICATION</u>	<u>ISSUED/AMENDED</u>	<u>DELETED</u>	PW1217G	September 1, 2016		
<u>MODEL</u>	<u>APPLICATION</u>	<u>ISSUED/AMENDED</u>	<u>DELETED</u>						
PW1217G	September 1, 2016								
PRODUCTION BASIS (All Models)	Pratt & Whitney Production Certificate 02.								

NOTES

NOTE 1.**ENGINE RATINGS**

Engine ratings are based on calibrated test stand performance under the following conditions:

1. Sea level static, standard pressure (14.696 psia), up to the flat rating ambient temperature °F
2. No customer bleed or customer horsepower extraction
3. Ideal inlet, 100% ram recovery
4. Production aircraft flight cowling
5. Production instrumentation
6. Fuel lower heating value of 18,400 BTU/lb.

NOTE 2.**TEMPERATURES**

The PW1217G is designed to be operated within the Normal Take-off (NTO) regime where the normal thrust of the propulsion system is within that defined for normal operation. In instances where higher thrust is necessary, such as one engine inoperative, an increased power setting is available which is referred to as the Maximum Takeoff Power Setting (MTO). Usage of the MTO setting will require additional action as outlined in the Airworthiness Limitations manual (P/N 5305822) and the Engine Maintenance Manual (P/N 5305824).

Maximum permissible Indicated Turbine Temperatures (ITT) are as follows:

Takeoff (5 minutes)*	1,102°C / 2,015°F
----------------------	-------------------

Maximum Continuous	1,032°C / 1,890°F
--------------------	-------------------

*The normal and maximum 5 minute takeoff rating may be extended to 10 minutes for engine out contingency.

Indicated Turbine Temperatures (ITT)

at start-up	1,078°C / 1,973°F
-------------	-------------------

Oil outlet temperature:

Continuous operation: 168°C / 335°F. Maximum oil temperature 177°C / 350°F for up to 20 minutes. Total operation between 168°C / 335°F and 177°C / 350°F cannot exceed 20 minutes. See Installation and Operating Manual, PWA-8503 for details.

Minimum oil temperature at idle, before takeoff power operation: 49°C / 120°F

Minimum oil temperature for ground operation: -40 °F / -40 °C

Fuel Temperatures: See Installation and Operating Manual, PWA-8503
(All Models)

Component Temperatures: See Installation and Operating Manual, PWA-8503
(All Models)

NOTE 3.**PRESSURES**

Fuel pressure limits: Fuel pressure at the engine fuel pump inlet during operation shall be maintained at not less than 5.0 psi above the true vapor pressure of the fuel but not greater than 100 psi above the absolute ambient pressure with a vapor/liquid ratio of zero. The maximum allowable pressure at the fuel pump inlet after shutdown is 121 psig.

Oil pressure limits:

Minimum: 50 psig at idle. Variable by N2 Speed off idle. See Installation and Operating Manual, PWA-8503

Maximum: 175 psig

Oil supply pressure is measured relative to main lube pressure.

Temporary interruption associated with negative “g” operation is limited to 7 seconds maximum. Normal oil pressure will be restored rapidly once the negative “g” effect has been eliminated.

NOTE 4. ACCESSORY DRIVE PROVISIONS

ACCESSORY DRIVES						
Drive Pad	Rotation	Speed Ratio to N2	Torque (lb.-in.)			Overhung Moment (lb.-in.)
			Continuous	Overload	Static	
Hydraulic Pump	CW	0.243 : 1	554	691	2700	76
Integrated Drive Generator (IDG)	CW	0.330 : 1	584*	1808*	3650	620
CW = Clockwise (facing the drive pad) * Maximum allowable continuous torque values are at any engine speed unless otherwise specified provided no destructive forces resulting from accessory torsional vibration are present. Maximum allowable continuous overhung bending moments of accessories about drive face are as shown provided no destructive forces resulting from vibration are present.						

NOTE 5. MODEL DESCRIPTION:
The PW1200G engine series consist of the following engine models:

PW1217G MITAC MRJ-200 (MRJ90)

NOTE 6. The engine weight is defined as the dry weight of the basic engine with P&W supplied Standard Equipment.

NOTE 7. Not Applicable

NOTE 8. Not Applicable

NOTE 9. Engine mount system provisions are specified in Installation Drawing 5300001 and Mount and Maneuver Load Drawing, 5300003.

NOTE 10. Not Applicable

NOTE 11. SPECIAL INSTALLATION REQUIREMENTS:

- 1) Engine design and operating limitations are defined in the Installation and Operating Manual, PWA-8503.
- 2) The PW1200G Engine Series is not eligible for Extended Twin Engine Operations, (ETOPS) Operation.
- 3) The minimum N1 certified for in-flight operation in icing conditions is 2,447 rpm. The Electronic Engine Control will prevent rotor speeds below this value while in flight.
- 4) There are no approved criteria pertaining to the engine control systems' time limited dispatch and maintenance requirements.
- 5) Lightning protection requirements and electromagnetic interference emitted by the electronic engine control system, including cables, are specified in the Installation and Operating Manual, PWA-8503.
- 6) The thrust reverser is not part of the engine type design and is certified as part of the aircraft. Information for installation of a thrust reverser is contained in the Installation and Operating Manual, PWA-8503.

- NOTE 12.** Not Applicable
- NOTE 13.** SPECIAL OPERATING PROCEDURES:
Requirements and limitations for ground operation in icing conditions are specified in the Installation and Operating Manual, PWA-8503.
- NOTE 14.** Not Applicable
- NOTE 15.** APPLICABLE INSTALLATION, MAINTENANCE & OVERHAUL MANUALS
1) Installation and Operating Manual, PWA-8503
2) Instructions for Continued Airworthiness are incomplete. The aircraft will be eligible for return to service when the ICA is complete and accepted.
- NOTE 16.** Not Applicable
- NOTE 17.** LIFE LIMITED PART INFORMATION
Life limits for critical components and mandatory inspection requirements are specified in the PW1200G Airworthiness Limitation Manual PN 5305822.
- NOTE 18.** Not Applicable
- NOTE 19.** ROTOR SPEEDS
Maximum permissible Low Pressure Rotor (N1): 12,680 rpm
- Minimum Low Pressure Rotor (N1),
Ground Idle: 2,369 rpm
Flight Idle: 2,447 rpm
(See Note 11)
- Maximum permissible High Pressure Rotor (N2): 25,160 rpm
- Minimum High Pressure Rotor (N2),
Ground Idle: 14,045 rpm
Flight Idle: 14,045 rpm
- Power setting, power checks, and control of engine thrust output in all operations are based on Low Rotor Speed (N1). Fan Speed, (NFAN) is directly proportional to Low Rotor Speed (N1) by a gear ratio of 1 : 2.409.
- NOTE 20.** Not Applicable.
- NOTE 21.** Maximum Permissible Bleed Air Extraction limits are specified in the Installation and Operating Manual, PWA-8503.
- NOTE 22.** Not Applicable.

NOTE 23.

EXHAUST EMISSIONS AND FUEL VENTING

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 the PW1217G engine model.

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

Smoke Number (SN) Emission Standards: 14 CFR § 34.21 (e)(2); in addition, 40 CFR § 87.23(c)(1).

Carbon Monoxide (CO) Emission Standards: 14 CFR § 34.21(d)(1)(ii); in addition, 40 CFR § 87.23(c)(1).

Hydrocarbons (HC) Emission Standards: 14 CFR § 34.21(d)(1)(i); in addition, 40 CFR § 87.23(c)(1).

Oxides of Nitrogen (NOx) Emission Standards: 14 CFR § 34.23(b)(1); in addition, 40 CFR § 87.23(c)(3).

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, Section 2.3.2 for CO and HC, Section 2.3.2.e. for NOx (also known as CAEP/8), and Part II Chapter 2 for fuel venting have also been demonstrated.

---END---