U. S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
TYPE CERTIFICATE DATA SHEET  
E00093EN

TCDS NUMBER E00093EN
Pratt & Whitney Canada Corporation
MODELS: PW814GA, PW815GA
Date: February 24, 2017

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E00093EN) 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 Corporation  
1000 Boulevard Marie-Victorin  
Longueuil, QC, Canada J4G 1A1

| 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 five-stage low pressure turbine that directly drives a two-stage low pressure compressor, and a single stage high bypass ratio fan. The high pressure compressor has eight axial stages driven by a two-stage cooled high pressure turbine. |

MODELS:

PW814GA | PW815GA

| RATINGS (See NOTE 1) | | |
|----------------------|----------------------|
| SEA LEVEL STATIC THRUST (lb.) | | |
| Takeoff (5 minutes) (See NOTE 2) | 15,429 | 16,011 |
| Maximum Continuous | 14,155 | 15,568 |
| FLAT RATING AMBIENT TEMPERATURE | | |
| Takeoff | 33°C / 91°F | 33°C / 91°F |
| Maximum Continuous | 28°C / 82°F | 28°C / 82°F |
| FADEC Hardware PN | 33B3787 | -- |
| Data Storage Unit PN (Ratings Plug) | 33B3212 | 33B6719 |

COMPONENTS/CONFIGURATION For information regarding components and engine configuration, refer to: Installation Drawing 33B1172
MODELS: (cont.)

<table>
<thead>
<tr>
<th>PRINCIPAL DIMENSIONS</th>
<th>PW814GA</th>
<th>PW815GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Room temperature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (flange to flange, in.)</td>
<td>105.8</td>
<td>--</td>
</tr>
<tr>
<td>Length (fan spinner face to aft tail cone, in.)</td>
<td>130.44</td>
<td>--</td>
</tr>
<tr>
<td>Nominal diameter (fan case, in.)</td>
<td>50.0</td>
<td>--</td>
</tr>
<tr>
<td>Maximum radial projection (in.) (at drain mast)</td>
<td>83.9</td>
<td>--</td>
</tr>
<tr>
<td>CENTER OF GRAVITY (in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axial engine station, relative to A-flange (in.):</td>
<td>55.3</td>
<td>--</td>
</tr>
<tr>
<td>Vertical, relative to engine centerline (in.):</td>
<td>-1.9</td>
<td>--</td>
</tr>
<tr>
<td>Lateral, relative to centerline (in.):</td>
<td>0.5 starboard</td>
<td>--</td>
</tr>
</tbody>
</table>

WEIGHT * (DRY)

| Basic engine (lbs.) | 3,135.7 | -- |

FUEL

Engine Maintenance Manual 33B1390 defines the fuels requirements and provides a listing of approved fuels and fuel additives for use in the PW800 series turbofan engine.

LUBRICATING OILS

Engine Maintenance Manual 33B1390 provides a listing of approved turbine oils for use in the PW800 series turbofan engine.

CERTIFICATION BASIS

14 CFR, Part 33, effective February 1, 1965, as amended by 33-1 through 33-33

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:

PW814GA, PW815GA

TYPE CERTIFICATE NUMBER E00093EN

<table>
<thead>
<tr>
<th>MODEL</th>
<th>APPLICATION</th>
<th>ISSUED/AMENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW814GA</td>
<td>May 25, 2011</td>
<td>February 24, 2017</td>
</tr>
<tr>
<td>PW815GA</td>
<td>May 25, 2011</td>
<td>February 24, 2017</td>
</tr>
</tbody>
</table>
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:
Maximum permissible Indicated Turbine Temperatures (ITT) are as follows:

Takeoff (5 minutes)*                              965 degC / 1769 degF
Maximum Continuous                             950 degC / 1742 degF

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

Indicated Turbine Temperatures (ITT) at start-up                             965 degC / 1769 degF

Oil outlet temperature:
Continuous operation:    135 degC / 275 degF. Maximum oil temperature 146 degC / 295 degF for up to 20 minutes. Total operation between 135 degC / 275 degF and 155 degC / 310 degF cannot exceed 10 minutes. See Installation and Operating Manual, 33B1410 for details.

Minimum oil temperature at idle, before takeoff power operation:   10 degC / 50 degF
Minimum fuel temperature (less than 0 C ambient temperature) for ground operation is 8 degC / 46 degF.

Fuel Temperatures:                   See Installation and Operating Manual, P/N 33B1410
Component Temperatures:             See Installation and Operating Manual, P/N 33B1410
(All Models) (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 140 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 185 psig.

Oil pressure limits:
Maximum:    275 psig Otherwise, 185 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

<table>
<thead>
<tr>
<th>Drive Pad</th>
<th>Rotation</th>
<th>Speed Ratio to N2</th>
<th>Torque (lb.-in.)</th>
<th>Overhung Moment (lb.-in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Pump</td>
<td>CW</td>
<td>0.1777 : 1</td>
<td>160</td>
<td>252</td>
</tr>
<tr>
<td>Integrated Drive Generator (IDG)</td>
<td>CW</td>
<td>0.3292 : 1</td>
<td>180 *</td>
<td>300 *</td>
</tr>
</tbody>
</table>

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 PW800GA engine series consist of the following engine models:

- PW814GA Gulfstream G500 reduced thrust model
- PW815GA Gulfstream G600 basic thrust model

NOTE 6. ACCESSORIES, COMPONENTS, OR SYSTEM ASSEMBLIES PROVIDED AS PART OF ENGINE TYPE DESIGN:
The engine weight is defined as the dry weight of the basic engine with P&WC supplied Standard Equipment.

NOTE 7. ACCESSORIES, COMPONENTS, OR SYSTEM ASSEMBLIES NOT PROVIDED AS PART OF ENGINE TYPE DESIGN:
Not Applicable

NOTE 8. SPECIAL ANIT-ICING OR DE-ICING REQUIREMENTS:
Not Applicable

NOTE 9. ENGINE MOUNT SYSTEM PROVISIONS:
Engine mount system provisions are specified in Installation Drawing 33B1172 and Installation and Operating Manual 33B1410.

NOTE 10. POWER BOOST, INJECTION OR AUGMENTATION SYSTEMS:
Not Applicable

NOTE 11. SPECIAL INSTALLATION REQUIREMENTS:
1) Engine design and operating limitations are defined in the Installation and Operating Manual, 33B1410.
3) The minimum N1 certified for in-flight operation in icing conditions is controlled by the Electronic Engine Control.
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, 33B1410.
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, 33B1410.
NOTE 12. MANUFACTURER’S SERVICE BULLETINS OR OTHER INSTRUCTIONS COVERING MATTERS OF INTEREST:
Service Bulletins, structural repair manuals, vendor manuals, AFMs, and overhaul and maintenance manuals, which contain a statement that the document is approved by the TCCA, are accepted by the FAA and are considered FAA approved. (These approvals pertain to the design data only).

NOTE 13. SPECIAL OPERATING PROCEDURES:
Requirements and limitations for ground operation in icing conditions are specified in the Installation and Operating Manual, 33B1410.

NOTE 14. SPECIAL REPAIR OR OVERHAUL LIMITATIONS:
Not Applicable

NOTE 15. APPLICABLE INSTALLATION, MAINTENANCE & OVERHAUL MANUALS:
Instructions for Continued Airworthiness are incomplete. The aircraft must not be issued a standard airworthiness certificate or approved for return to service until the ICA are complete and determined acceptable.
1) Installation and Operating Manual, 33B1410
2) Control System Interface Control Document, 33B1286

NOTE 16. 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 E00093EN) 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 14 CFR 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."

NOTE 17. LIFE LIMITED PART INFORMATION:
Life limits for critical components and mandatory inspection requirements are specified in the PW800GAAirworthiness Limitation Manual PN 33B1391.

NOTE 18. MILITARY MODEL INFORMATION:
Not Applicable

NOTE 19. ROTOR SPEEDS:
Maximum permissible Low Pressure Rotor (N1): 6,240 rpm
Minimum Low Pressure Rotor (N1), Ground Idle: 1,574 rpm
Flight Idle: 1,991 rpm
(See Note 11)

Maximum permissible High Pressure Rotor (N2): 24,043 rpm
Minimum High Pressure Rotor (N2), Ground Idle: 13,264 rpm
Flight Idle: 13,264 rpm

Power setting, power checks, and control of engine thrust output in all operations are based on Low Rotor Speed (N1).

NOTE 20. OUTPUT/PROPELLER SHAFT TORQUE LIMITS:
Not Applicable.

NOTE 21. BLEED AIR EXTRACTION PROVISIONS:
Maximum Permissible Bleed Air Extraction limits are specified in the Installation and Operating Manual, 33B1410.

NOTE 22. ROTOR DISK INTEGRITY AND ROTOR BLADE CONTAINMENT:
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 PW814GA and PW815GA engine models.

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)(l).

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

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

Oxides of Nitrogen (NOx) Emission Standards: 14 CFR § 34.23(b)(l); 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.

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