**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL**

**TYPE CERTIFICATE DATA SHEET Nº EM-9410**

Type Certificate Holder:

**PRATT & WHITNEY CANADA, INC.**
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**CANADA**

EM-9410-03

Sheet 01

PRATT & WHITNEY

PT6A-64, PT6A-66, PT6A-66B, PT6A-66D, PT6A-67B, PT6A-67D, PT6A-67AG

25 February 2010

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 9410, 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.

**MODELS** PT6A-64; PT6A-67B; PT6A-67D; PT6A-67AG

**TYPE** A free turbine turbo-propeller propulsion engine incorporating a multi-stage compressor driven by a single-stage turbine and a two-stage free turbine driving the propeller shaft through planetary reduction gearing.

**RATINGS** (See Notes 2, 3 and 4)

| Maximum continuous at sea level | PT6A-64 | PT6A-67B | PT6A-67D | PT6A-67AG |
|---|---|---|---|---|
| Equivalent shaft, hp | 747 | 1 272 | 1 285 | 1 294 |
| Shaft, hp | 700 | 1 200 | 1 214 | 1 220 |
| Thrust, lb | 119 | 181 | 178 | 184 |
| Output, rpm (maximum) | 2 000 | 1 700 | -- | -- |
| Gas gen. rpm (maximum) | 39 000 | -- | -- | -- |

| | | PT6A-64 | PT6A-67B | PT6A-67D | PT6A-67AG |
|---|---|---|---|---|---|
| **RATINGS (Cont.)** | | | | | |
| | Takeoff (5 min. at sea level) | | | | |
| | Equivalent shaft, hp | 747 | 1 272 | 1 353 | 1 430 |
| | Shaft, hp | 700 | 1 200 | 1 279 | 1 350 |
| | Thrust, lb | 119 | 181 | 186 | 200 |
| | Output, rpm (maximum) | 2 000 | 1 700 | -- | -- |
| | Gas gen. rpm (maximum) | 39 000 | -- | -- | -- |
| | Maximum Reverse | | | | |
| | Shaft hp | 700 | 900 | -- | -- |
| | Output, rpm (maximum) | 1 900 | 1650 | -- | -- |
| **LIMITATIONS** | Maximum Continuous °C (°F) | | | | |
| | Maximum interturbine temp (ITT) | 800 (1 472) | -- | 780 (1 436) | 800 (1 472) |
| | Maximum air inlet temp (AIT) for rated power | 57.2 (135) | 45.0 (113) | 46.1 (115.0) | 33.6 (92) |
| | Takeoff (5 min) °C (°F) | | | | |
| | Maximum interturbine temp (ITT) | 800 (1 472) | -- | -- | 800 (1 472) |
| | Maximum air inlet temp (AIT) for rated power | 57.2 (135) | 51.7 (125) | 47.8 (118.0) | 26.1 (79) |
| | Starting (5 sec) °C (°F) | | | | |
| | Maximum interturbine temp (ITT) | 1 000 (1 832) | -- | -- | -- |
| **FUEL TYPE** | Fuels conforming to the current PWC specifications CPW 204 (refer to Service Bulletin 14004) or CPW 46, and later revisions. Refer to the Installation Manual for further details. | | | | |
| **OIL, LUBRICATION** | Oils conforming to PWC specification No. PWA 521 Type II. Refer to PWC Service Bulletin Number 14001 and current revisions for acceptable lubricants. | | | | |
| **TEMPERATURE LIMITS** | | See Note 2 | -- | -- | -- |
| **PRESSURE LIMITS** | | See Note 3 | -- | -- | -- |
| **EQUIPMENT** | Fuel pump, fuel control unit, ignition system without power source, propeller governor and fuel heater are included as standard equipment as shown in the approved Parts List. For additional information refer to Installation Manual. For output drive specifications and C.G. location, refer to Installation Manual. | | | | |

Legend: -- Same as preceding; # Does not apply

| | | PT6A-64 | PT6A-67B | PT6A-67D | PT6A-67AG |
|---|---|---|---|---|---|
| **AIR BLEED** | Maximum External (%) | 7.5 | 8.0 | 5.25 | -- |
| | Maximum During start (lb/min) | 1.5 | -- | -- | -- |
| **GAS GENERATOR OVERSPEED** | Maximum, rpm | 39 000 | -- | -- | -- |
| **PROPELLER OVERSPEED** | Maximum, rpm | 2 205 | 1 870 | -- | -- |
| **OUTPUT TORQUE** | Maximum Allowable, Nm (lb.ft) | 3 024 (2 230) | 5 028 (3 708) | 5 356 (3 950) | 5 654 (4 170) |
| **OUTPUT SHAFT** | Type | Flanged | -- | -- | -- |
| | No. of bolt holes | 8 | 12 | -- | -- |
| | No. of dowels | 2 | -- | -- | -- |
| | Dia. Of bolts holes, in | 0.589/0.599 | -- | -- | -- |
| | P.C.D., in | 4.25 | 5.1250 | -- | -- |
| | Reduction ratio | 0.0663:1 (Np:Nf) | 0.0568:1 (Np:Nf) | -- | -- |
| | Rotation | Standard* | Standard* | | |
| | * Standard rotation = Clockwise facing forward | | | | |
| **DIMENSIONS** | Principal Dimensions at Room Temp. / in / nominal | | | | |
| | Diameter | 18.3 | -- | -- | -- |
| | Length | 69.7 | 76.0 | 74.2 | 75.2 |
| **WEIGHT** | Weight / dry / lb / including external eng. accessories | | | | |
| | Standard rotation | 474.3 | 538.2 | 533.7 | 523.1 |
| **MODEL** | PT6A-66D, PT6A-66, PT6A-66B | | | | |

Legend: -- Same as preceding; # Does not apply

**TYPE**

A free turbine turbo-propeller propulsion engine incorporating a multi-stage compressor driven by a single-stage turbine and a two-stage free turbine driving the propeller shaft through planetary reduction gearing.

| **RATINGS** (See Notes 2, 3 and 4) | Maximum continuous at sea level | PT6A-66D | PT6A-66 | PT6A-66B |
|---|---|---|---|---|
| | Equivalent shaft, hp | 905 | -- | 1 010 |
| | Shaft, hp | 850 | -- | 950 |
| | Thrust, lb | 137 | 138 | 150 |
| | Output, rpm (maximum) | 2 000 | -- | -- |
| | Gas gen. rpm (maximum) | 39 000 | -- | -- |
| | Takeoff (5 min. at sea level) | | | |
| | Equivalent shaft, hp | 905 | -- | 1 010 |
| | Shaft, hp | 850 | -- | 950 |
| | Thrust, lb | 137 | 138 | 150 |
| | Output, rpm (maximum) | 2 000 | -- | -- |
| | Gas gen. rpm (maximum) | 39 000 | -- | -- |
| | Maximum Reverse | | | |
| | Shaft, hp | 800 | -- | -- |
| | Output, rpm (maximum) | 1 900 | -- | -- |
| **LIMITATIONS** | Maximum Continuous $^{o}$C ($^{o}$F) | | | |
| | Maximum interturbine temp (ITT) | 840 (1 544) | 830 (1 526) | 840 (1 544) |
| | Maximum air inlet temp (AIT) for rated power | 70 (158) | 57.2 (135) | 64 (147) |
| | Takeoff (5 min) $^{o}$C ($^{o}$F) | | | |
| | Maximum interturbine temp (ITT) | 850 (1 562) | 830 (1 526) | 850 (1 562) |
| | Maximum air inlet temp (AIT) for rated power | 70 (158) | 57.2 (135) | 64 (147) |
| | Starting (5 sec) $^{o}$C ($^{o}$F) | | | |
| | Maximum interturbine temp (ITT) | 1 000 (1 832) | -- | -- |

Legend: -- Same as preceding; # Does not apply

| | | | | |
|---|---|---|---|---|
| **FUEL TYPE** | Fuels conforming to the current PWC specifications CPW 204 or CPW 46, and later revisions. Refer to the Installation Manual for further details. For approved fuels, refer to P&WC Service Bulletin 14004 and 14504. | | | |
| **OIL, LUBRICATION** | Oils conforming to the PWC specification No. PWA 521 Type II. For approved Brands, refer to PWC Service Bulletin Number 14001, and later revisions. | | | |
| | | PT6A-66D | PT6A-66 | PT6A-66B |
| **TEMPERATURE LIMITS** | | See Note 2 | -- | -- |
| **PRESSURE LIMITS** | | See Note 3 | -- | -- |
| **EQUIPMENT** | Fuel pump, fuel control unit, ignition system without power source, propeller governor and fuel heater are included as standard equipment as shown in the approved Parts List. For additional information refer to Installation Manual. For output drive specifications, accessory drives, principle dimensions and C.G. location, refer to Installation Manual. | | | |
| **AIR BLEED** | Maximum External (%) | 7.5 | -- | -- |
| | Maximum During start (lb/min) | 1.5 | -- | -- |
| **GAS GENERATOR OVERSPEED** | Maximum, rpm | 39 000 | -- | -- |
| **PROPELLER OVERSPEED** | Maximum, rpm | 2 205 | -- | -- |
| **OUTPUT TORQUE** | Maximum Allowable, Nm (lb.ft) | 3 024 (2 230) | -- | 3 383 (2 495) |
| **OUTPUT SHAFT** | Type | Flanged | -- | -- |
| | No. of bolt holes | 8 | -- | -- |
| | No. of dowels | 2 | -- | -- |
| | Dia. Of bolts holes, in | 0.589 / 0.599 | -- | -- |
| | P.C.D., in | 4.250 | -- | -- |
| | Reduction ratio | 0.0663:1 (Np:Nf) | -- | -- |
| | Rotation | Standard* | Standard* or reverse | -- |

Legend: -- Same as preceding; # Does not apply

* Standard rotation = Clockwise facing forward

**IMPORT REQUIREMENTS**

Each engine imported separately and/or spare parts must be accompanied by an export airworthiness approval issued by Transport Canada (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 ANAC approved type design.

**CERTIFICATION BASIS**

PT6A-64 / 67B / 67D / 67AG / 66:
RBAC 33 (Brazilian Requirements for Aeronautical Certification), which endorses the FAR 33 effective 1 February 1965, including Amendments 33-1 through 33-10 inclusive.
PT6A-66B / 66D:
RBAC 33 (Brazilian Requirements for Aeronautical Certification), which endorses the FAR 33 effective 1 February 1965, including Amendments 33-1 through 33-20 inclusive.

| Model | Application | Issued TC |
|---|---|---|
| PT6A-64 | 07 April 1994 | 25 Aug. 1994 |
| PT6A-67B | 07 April 1994 | 25 Aug. 1994 |
| PT6A-67D | 07 May 1996 | 07 March 1997 |
| PT6A-67AG | 14 Oct. 1997 | 24 May 1999 |
| PT6A-66D | 06 Dec. 2006 | 23 Apr. 2007 |
| PT6A-66 | 25 Mar. 2009 | 25 Feb. 2010 |
| PT6A-66B | 25 Mar. 2009 | 25 Feb. 2010 |

**NOTES:**

**NOTE 1** Maximum Permissible Engine Operating Speeds (rpm):

| | PT6A-64 | PT6A-67B/-67D | PT6A-66/-66B | PT6A-67AG | PT6A-66D |
|---|---|---|---|---|---|
| Gas generator rotor speed Takeoff | 39 000 | -- | -- | -- | -- |
| Maximum continuous | 39 000 | -- | -- | -- | -- |
| Transient | 39 000 | -- | -- | -- | -- |
| | | | | | |
| Power turbine rotor speed Takeoff | 29 984 | 29 894 | 30 145 | 28 894 | 30 145 |
| Maximum continuous | 29 894 | -- | 30 145 | 29 894 | 30 145 |
| Transient | 32 883 | -- | 33 235 | 32 883 | 33 235 |

Legend: -- Same as preceding; # Does not apply

**NOTE 2** Maximum Permissible Temperatures, °C (°F)

| | PT6A-64 | PT6A-67B | PT6A-67D | PT6A-67AG | PT6A-66D | PT6A-66 | PT6A-66B |
|---|---|---|---|---|---|---|---|
| Interturbine temperature (ITT) | | | | | | | |
| Takeoff | 800 (1 472) | -- | -- | -- | 850 (1 562) | 830 (1 526) | 850 (1 562) |
| Maximum continuous | 800 (1 472) | -- | 780 (1 436) | 800 (1 472) | 840 (1 544) | 830 (1 526) | 830 (1 544) |
| Starting (5 seconds) | 1000 (1 832) | -- | -- | -- | -- | -- | -- |
| Air inlet temperature (AIT) | | | | | | | |
| Takeoff | 57.22 (135) | 51.70 (125) | 48.00 (118) | 26.1 (79) | 70 (158) | 57.22 (135) | 63.9 (147) |
| Maximum continuous | 57.22 (135) | 45.00 (113) | 46.11 (115) | 33.6 (92) | 70 (158) | 57.22 (135) | 63.9 (147) |
| Oil temperature | | | | | | | |
| Oil Temperature Limits, °C (°F) | | | | | | | |
| Takeoff | 104 (219) | 110 (230) | -- | -- | 104 (219) | 110 (230) | -- |
| Transient | 110 (230) | -- | -- | -- | -- | -- | -- |
| Maximum continuous | 104 (219) | 110 (230) | -- | -- | 104 (219) | -- | -- |
| Minimum | -40 (-40) | -- | -- | -- | -- | 110 (230) | -- |

**NOTE 3** Pressure Limits

a) Fuel pressure

Fuel pressure and fuel temperature limitations are shown in the engine Installation Manual.

b) Oil pressure

Oil Pressure Limits:

| | PT6A-64 | PT6A-67B | PT6A-67D | PT6A-67AG | PT6A-66D | PT6A-66 | PT6A-66B |
|---|---|---|---|---|---|---|---|
| Takeoff (psig) | | | | | | | |
| Maximum continuous (psig) | 100-135 | 90-135 | -- | -- | 100-135 | 90-135 | -- |
| Transient (psig) | 100-135 | 90-135 | -- | -- | 100-135 | 90-135 | -- |
| Minimum inflight (psig) | 40-200 | -- | -- | -- | -- | -- | -- |
| | 60 | -- | -- | -- | -- | -- | -- |

Note: Gas generator speed 27 000 rpm or above and oil temperature 60~71°C (140~160°F)

**NOTE 4** The engine ratings are based on dry sea level static ICAO standard atmospheric conditions. No external accessory loads and no air bleed. The quoted ratings are obtained on a test stand with the specified fuel and oil, without intake ducting and utilizing the exhaust port and intake defined in the approved Installation Manual.

**NOTE 5** Accessory Drive Provisions all Models

| Drive | Rotation(1) | Speed Ratio | | Torque | | Moment |
|---|---|---|---|---|---|---|
| | | Power Turbine | Gas Generator | Continuous lb.in | Static lb.in | Overhang lb.in |
| Tachometer,accessory gearbox | CCW | 0.112 | | 7 | 100 | 10 |
| Starter/generator | CW | 0.293 | | 170 | 1 600 | 250 |
| Vaccum pump | CCW | 0.102 | | 60 | 800 | 25 |
| Hydraulic pump | CCW | 0.204 | | 150 | 800 | 25 |
| Aircraft Accessory Drive | CW | 0.321 | | 135 | 800 | 25 |
| Tachometer,reduction gearbox | CW | | 0.1264*/0.1405 | 7 | 100 | 10 |
| Propeller overspeed governor | CW | | 0.1264*/0.1405 | 50 | 850 | 25 |
| Power turbine overspeed | CW | | 0.1264*/0.1405 | 50 | 850 | 25 |

Legend: -- Same as preceding; # Does not apply

(1) Direction of shaft rotation, facing engine pad:
CCW = Counterclockwise
CW = Clockwise

Gas generator speed (Ng) 100% = 37 468 rpm

Power turbine speed (Np):
PT6A-67B; -67D; -67AG: Np 100% = 29 894 rpm (propeller shaft speed = 1 700 rpm)
PT6A-64; -66D; -66; -66B: Np 100% = 33 235rpm (propeller shaft speed = 2 000 rpm)

* For the PT6A-64; -66; -66B and 66D series only.

**NOTE 6** Approved Publications:

a) Applicable Maintenance Manuals (Pratt & Whitney Canada part numbers) are: Models PT6A-67B/-67D, P/N 3038336; Model PT6A-64, P/N 3038321; Model PT6A-67AG, P/N 3036132; Model PT6A-66D, P/N 3070902; Models PT6A-66/-66B, P/N 3036122. Until the applicable Maintenance Manual is available, engines shall be maintained in accordance with Pratt & Whitney Canada Preliminary Maintenance Instructions.

b) Applicable Overhaul Manuals (Pratt & Whitney Canada part numbers) are: Models PT6A-67B/67D P.N 3038337; Model PT6A-64, P/N 3038322; Model PT6A-67AG, P/N 3036133; Model PT6A-66D, P/N 3070903; Models PT6A-66/-66B, P/N 3036123 Until the applicable Overhaul Manual is available, all overhauls must be performed by Pratt & Whitney Canada in accordance with "new engine" standards.

c) Transport Canada Service Bulletins:
- SB 14001 – defining approved Lubricating Oils
- SB 14002 – defining rotor components Service Lives for PT6A-64 / -67B / -67D / -66D / -66 / -66B.
- SB 14003 – defining operating TBO , HSI intervals and sampling escalation procedures for PT6A-67D
- SB 14004 – defining approved fuels and additives (except PT6A-67AG)
- SB 14502 – defining rotor component Service Lives for PT6A-67AG
- SB 14503 – defining operating TBO , HSI intervals and sampling escalation procedures for PT6A-67AG
- SB 14504 – defining approved fuels and additives for PT6A-67AG
- SB 14603 - defining operating TBO, HSI intervals and sampling escalation procedures for PT6A-64 / -67B / -66D.

**NOTE 7** The PT6A-64; -67B; -67D; -67AG; -66D engines may be overhauled or maintained as two modules, the gas generator module and the power section module. The separation point is the "C" flange.

| | |
|---|---|
| Gas generator module PT6A-64; -67AG | P/N 3036400 |
| Gas generator module PT6A-67B | P/N 3042300 |
| Gas generator module PT6A-67D | P/N 3044900 |
| Gas generator module PT6A-66D | P/N 3071015 |
| Gas generator module PT6A-66 | P/N 3036400 |
| Gas generator module PT6A-66B | P/N 3072313 |
| Power section module PT6A-67B | P/N 3042500 |
| Power section module PT6A-67D | P/N 3044700 |
| Power section module PT6A-64 | P/N 3045200 |
| Power section module PT6A-67AG | P/N 3039300 |
| Power section module PT6A-66D | P/N 3071018 |
| Gas generator module PT6A-66 | P/N 3036900 |
| Power section module PT6A-66B | P/N 3072314 |

**NOTE 8** These engines must meet the requirements of RBHA/FAR 33.68 for operation in icing conditions as defined in FAR 25 Appendix C when the intake system conforms with the Pratt & Whitney Canada Installation Manual instructions for internal separation of snow and icing particles. The engines also meet the requirements of RBHA/FAR 33.27 and do not require external armoring.

**NOTE 9** All models meet fuel venting requirements of SFAR 27, effective 01 February 1974, as amended by Amendments SFAR 27-1 through SFAR 27-4.

**NOTE 10** Oil tank usable volume:
1.5 U.S. gallons / 15.68 L / 1.25 imperial gallons.
Oil tank total capacity:
2.5 U.S. gallons / 9.46 L / 2.08 imperial gallons.

**NOTE 11** PT6A-67AG is a special purpose version of the PT6A-67 series of engines intended for use in agricultural aviation. This model may not be redesigned for other than agricultural operations.

**NOTE 12** 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. These approvals pertain to the type design only.

**NOTE 13** Life limits for critical rotation components are published in Pratt & Whitney Canada Service Bulletin Numbers 14002 (for -64 / -66 / -66B / -66D / -67B / -67D) and 14502 (for -67AG only).

**NOTE 14** The above models incorporate the following characteristics:

| Model | Characteristics |
|---|---|
| PT6A-64 | Derivative of the PT6A-66 with the PT6A-61 reduction gearbox. Limited to 700 shp with 2 000 rpm, standard rotation gearbox. |
| PT6A-66 | Variant model limited to 850 shp with 2 000 rpm, standard and opposite rotation gearboxes. |
| PT6A-66B | Derivative of the PT6A-66 with the PT6A-67A thermal rating. Limited to 950 shp with 2 000 rpm, standard and opposite rotation gearboxes. |
| PT6A-66D | Derivative of the PT6A-66A with the PT6A-67A thermal rating. Limited to 850 shp with 2 000 rpm standard rotation gearbox. |
| PT6A-67B | Variant model. Derivative of the basic -67 model using an upgraded reduction gearbox, flat rated at 1 200 shp. |
| PT6A-67D | Variant model. Derivative of the basic -67 model, similar to other PT6A-67R but with take-off flat rated to 1 279 shp. |
| PT6A-67AG | Variant model. Derivative of the basic -67 model, similar to other PT6A-67R but limited to 1 350 shp for special applications. |

**NOTE 15** The recommended engine operating components are published in Pratt & Whitney Canada Service Bulletin Numbers 14003 (for -67D), 14503 (for -67AG only), 14603 (for -64 / -66 / -66B / -66D / -67B / -67D).

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