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## **I. General**

**1. Type/Models:** PW306A, PW306B, PW306C

**2. Type Certificate Holder:**

Pratt and Whitney Canada Corp.  
1000 Marie-Victorin  
Longueuil, Quebec  
Canada J4G 1A1

**3. Manufacturer:** Pratt and Whitney Canada Corp.

**4. Certification Application Date:**

PW306A	PW306B	PW306C
19 June 1997	19 June 1997	2 April 2002

**5. EASA Certification Reference Date:**

PW306A	PW 306B	PW306C
13 January 1988	13 January 1988	13 January 1988

**6. EASA Certification Date:**

PW306A	PW306B	PW306C
15 June 1999	15 June 1999	20 August 2003

EASA Type Certification for the PW306A, PW306B and PW306C engine models is granted, in accordance with article 2 paragraph 3 (a)(i) of EU Commission Regulation EC 1702/2003, based on a German validation letter issued following the JAA Validation Recommendation.

## **II. Certification Basis**

**1. Transport Canada Certification Basis:** See Transport Canada TCDS E-22

**2. EASA Certification Basis:**

According to Article 2a 1.(a)(i) of (EC) 375/2007, the EASA Certification Basis for each model is taken over from the JAA Joint Validation Basis as shown below.

### **2.1 Airworthiness Standards:**

#### **2.1.1 PW306A, PW306B, PW306C**

- JAR-E change 7 dated 24 January 1986 plus NPA-E-27 dated 16.09.197 – Inclement Weather plus NPA-E-20 dated 23.12.1996 – Birds plus E50, E150(c)(1), E530(h) of JAR-E change 8 plus E850 of JAR-E change 9

2.2 Special Conditions: none

2.3 Deviations: C3-2 2.2.1(c) & C4-2 2.2.1(c) – Oil Scavenge Pump Inlet Strainers

2.4 Equivalent Safety Findings:

2.4.1 PW306A, PW306B, PW306C

- C3-4 22.1 – Rotor Integrity

2.4.2 PW306A, PW306B, PW306C

- C3-4 24.2.2 - Thrust Reverser Endurance Tests

2.5 Environmental Standards:

2.5.1 PW306A, PW306B

- Emissions and Fuel Venting : ICAO Annex 16, Volume II, 2nd Edition, 1993.

2.5.2 PW306C

- Emissions and Fuel Venting : Amendment 3 to ICAO Annex 16, Volume II, 2nd Edition, 1999.

### **III. Technical Characteristics**

#### **1. Type Design Definition:**

PW306A: Engine Assembly Parts List No. A31B5180-01 and TDBD 13652

PW306B: Engine Assembly Parts List No. A30B3100-01 and TDBD 13813

PW306C: Engine Assembly Parts List No. A30B4258-01

#### **2. Description:**

Dual spool turbofan engine consisting of a 4-stage axial and single stage centrifugal high pressure compressor driven by a two stage high pressure turbine. The single stage wide chord fan is driven by a 3-stage low pressure turbine, annular combustion chamber, accessory gearbox and Full Authority Digital Engine Control (FADEC).

#### **3. Equipment:**

Approved Equipment is included in the type design definition – see Installation Manual.

#### **4. Dimensions:**

	PW306A	PW306B	PW306C
Overall Length	1892mm	1888mm	1923mm
Overall Diameter	1147mm	1138mm	1139mm

## 5. Dry Weight:

PW306A: 522,1 kg PW306B: 522,1 kg, PW306C: 521,6 kg excluding all fluids and buyer furnished equipment .

## 6. Ratings:

Rating		PW306A	PW306B	PW306C
Thrust, daN	Take-off (5 minutes)	2687	2691	2567
	Maximum Continuous	2687	2691	2567

Take off ratings quoted valid up to 31,7°C (PW306A); 35°C (PW306B); 33°C (PW306C), maximum continuous ratings to 26,7°C (PW306A); 35°C (PW306B); 33°C (PW306C)

## 7. Control System:

Engine control system includes a Dual Channel FADEC

## 8. Fluids

### 8.1 Fuel:

For approved fuel types refer to relevant Maintenance Manual.

### 8.2 Oil:

For approved oil types and additives refer to relevant Maintenance Manual.

## 9. Aircraft Accessory Drives:

### **PW306A:**

Drive Pad	Rotation Facing Gearbox Pad	Transmission Ratio to N2	Static Torque [Nm]	Static Overhang Moment [Nm]	Static Overhung Moment [Nm]
Hydraulic Pump	CW	0,29057	180,8	16,9	14,1
Starter Generator	CW	0,45117	180,8	45,2	22,6 (86,4 starting)

CW = Clockwise facing accessory pad

### **PW306B:**

Drive Pad	Rotation Facing Gearbox Pad	Transmission Ratio to N2	Static Torque [Nm]	Static Overhung Moment [Nm]
DC Generator	CW	0,44326	186,42	22,60
AC Generator	CW	0,57895	200,00	45,19
Air Starter	CW	0,45117	372,85	49,19

CW = Clockwise facing accessory pad

**PW306C:**

Drive Pad	Rotation Facing Gearbox Pad	Transmission Ratio to N2	Static Torque [Nm]	Static Overhang Moment [Nm]	Static Overhung Moment [Nm]
Hydraulic Pump	CW	0,29057	180,8	16,9	14,1
Starter Generator	CW	0,45117	180,8	45,2	22,6 (86,4 starting)

CW = Clockwise facing accessory pad

**10. Maximum Permissible Air Bleed Extraction:**

See Installation Manual , Mechanical Installation Drawing

**IV. Operational Limits:**

**1. Temperature Limits:**

1.1 Interturbine Temperature (ITT), °C

	<b>PW306A</b>	<b>PW306B</b>	<b>PW306C</b>
Take-off (5 Minutes)	920	920	920
Maximum Continuous	920	920	920
Starting	950	950	950

1.2 Oil Temperature

Refer to Installation Manual Table 2-1.

1.3 Fuel Temperature

Refer to Section 6 of Installation Manual.

**2. Maximum Permissible Rotor Speeds:**

**PW306A / PW306B / PW306C**

	Maximum	Minimum Flight Idle
Low Pressure Rotor N1 rpm (%)	11138 (105)	--
High Pressure Rotor N2 rpm (%)	28277 (105)	17500 (65)

### 3. Pressure limits:

#### 3.1 Oil Pressure

Refer to Installation Manual Table 2-1.

#### 3.2 Fuel Pressure

Refer to Section 6 of Installation Manual.

### 4. Installation Assumptions:

The installation assumptions are quoted in the relevant Engine Installation Manual.

## V. Operating and Service Instructions

	<b>PW306A</b>	<b>PW306B</b>	<b>PW306C</b>
Engine Installation Manual	ER2996	ER4337	ER5227
Engine Maintenance Manual	30B1412	30B4132	30B4422
Engine Manual (Overhaul)	30B1413	30B2973	30B4423
FADEC Interface Control Document	ER4307	ER4607	ER5286
Service Bulletins	As required	As required	As required

## VI. Notes

**Note 1:** The engine ratings are based on dry sea-level static ICAO Standard Atmospheric Conditions, no airbleed and no external accessory loads. The engine ratings specified are obtainable on a test stand with the specified fuel and oil, without intake ducting and using exhaust duct and intake specified in the Installation Manual.

**Note 2:** Life limited parts are listed in the relevant Maintenance Manual, Airworthiness Limitations Section

**Note 3:** The software for the Electronic Engine Control has been developed and tested in accordance with provisions of level A as defined in RTCA DO 178B.

**Note 4:** The PW306A, PW306B and PW306C engines are approved for multiple engine installation only.

**Note 5:** The engine definition does not include a thrust reverser. Considerations for the installation of a thrust reverser are contained in the relevant Installation Manual.

**Note 6:** Lightning protection and electromagnetic interference information are included in the Installation Manual.

**Note 7:** The PW306B and PW306C engines can be operated with certain detected FADEC faults in accordance with TLD policy. Aircraft considerations are contained in the Installation Manual, and Time Limits are contained in the Airworthiness Limitations Section of the Maintenance Manual (see Note 9).

**Note 8:** The PW306A engine is designed to be normally used at Take-off thrust (called “normal take-off”) of 2687 daN with an ITT limit of 890°C. An automatic power increase to the certified Take-off thrust is provided in the event of one engine inoperative. The limitations stated for “normal take-off” are to ensure that the certified Take-off limitations are not exceeded in the event of an automatic power increase to take-off thrust. Refer to Installation Manual, Table 2-1.

**Note 9:** The PW306B life limited parts and time limited dispatch limits were originally contained in P/N 30B2978 Airworthiness Limitations Manual. These approved limits are now contained in the Airworthiness Limitations Section of the Maintenance Manual P/N 30B4132.

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