TYPE-CERTIFICATE DATA SHEET

No. IM.E.051

for
PW305&PW306 Series engines

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

For Models:

PW305
PW305A
PW305B
PW306A
PW306B
PW306C
PW306D
PW306D1

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I. General

1. Type/ Model

PW305&306 series / PW305, PW305A, PW305B, PW306A, PW306B, PW306C, PW306D, PW306D1

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. Date of Application

PW306A	PW306B	PW306C	PW306D	PW306D1
19 June 1997	19 June 1997	2 April 2002	27 November 2012	19 January 2015

Note : Application for European Certification of the PW305, PW305A and PW305B engine models has been made to individual EASA Member States before EASA has been established.

5. EASA Type Certification Date

PW305	PW305A	PW305B
16 April 1992	29 September 1995	2 September 1993

PW306A	PW306B	PW306C	PW306D	PW306D1
15 June 1999	15 June 1999	20 August 2003	19 March 2014	17 November 2015

EASA Type Certification for the PW305, PW305A, and PW305B is granted, in accordance with article 3 paragraph 1 (a)(i) of EU Commission Regulation EC 748/2012, based on an German validation letter. The same applies to the PW306A, PW306B and PW306C engine models but in addition following the JAA Validation Recommendation for the PW306 models.

II. Certification Basis

1. State of Design Authority Certification Basis

See Transport Canada TCDS E-22

2. Reference Date for determining the applicable airworthiness requirements

PW305	PW 305A	PW305B

13 January 1988	13 January 1988	13 January 1988

PW306A	PW 306B	PW306C	PW306D	PW306D1
13 January 1988	13 January 1988	13 January 1988	13 January 1988	13 January 1988

3. EASA Certification Basis

According to Article 2 1. of Commission Regulation EC 748/2012, and the process of EASA Certification of the PW306D model, the EASA Certification Basis has been determined as shown below:

3.1. Airworthiness Standards

3.1.1 PW305, PW305A, PW305B:

Canadian Airworthiness Manual (CAM), Chapter 533 change 1, dated 1 January 1987 plus Additional Airworthiness Requirement 533.101 "Electronic Engine Control Systems"

3.1.2 PW306A, PW306B, PW306C, PW306D, PW306D1

JAR-E change 7 dated 24 January 1986 plus E790 (Ingestion of Rain and Hail), E800 (Bird Strike and Ingestion), E570(b)(1) (Oil System), E840 (Rotor Integrity), E890 (Thrust Reverser Tests), E1030 (Time Limited Dispatch for PW306B, PW306C, PW306D, PW306D1) of CS-E, Initial Issue plus E50, E150(c)(1), E530(h) of JAR-E change 8 plus E850 of JAR-E change 9

3.2. Special Conditions (SC)
none

3.3. Equivalent Safety Findings
none

3.4. Deviations
none

3.5. Environmental Protection

3.5.1 PW305, PW305A, PW305B, PW306A, PW306B, PW306C, PW306D, PW306D1

- Fuel Venting : CS-34.1
- Smoke Number: CS-34.2

3.5.2 PW306A, PW306B

Emissions: CS34.2 in accordance with Amendment 7 of ICAO Annex 16 Volume II
Compliance with NOx regulation of ICAO Annex 16 Volume II Part III Chapter 2, §2.3.2(d) (CAEP/6)

III. Technical Characteristics

1. Type Design Definition

PW305: Engine Assembly Parts List No. 30B1042 and TDBD 1057
PW305A: Engine Assembly Parts List No. 31B4067 and TDBD 1065
PW305B: Engine Assembly Parts List No. 31B4892 and TDBD 1082
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 and TDBD 39178
PW306D: Engine Assembly Parts List No. A30B7118-01 and TDBD 106469
PW306D1: Engine Assembly Parts List No. A30B7450-01 and TDBD 133309

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

	PW305, PW305A, PW305B
Overall Length	2058mm
Overall Diameter	927mm

	PW306A	PW306B	PW306C	PW306D/ PW306D1
Overall Length	1892mm	1888mm	1923mm	1923mm
Overall Diameter	1147mm	1138mm	1139mm	1139mm

5. Dry Weight

PW305, PW305A, PW305B: 452.5 kg, PW306A: 522,1 kg PW306B: 522,1 kg, PW306C: 521,6 kg, PW306D, PW306D1: 524,4 kg excluding all fluids and buyer furnished equipment .

6. Ratings

Rating		PW305	PW305A	PW305B
Thrust, daN	Take-off (5 minutes)	2324	2081	2342
	Normal Take-off	2324	2081	2315
	Maximum Continuous	2112	2081	1994

Rating		PW306A	PW306B	PW306C	PW306D/PW306D1
Thrust, daN	Take-off (5 minutes)	2687	2691	2567	2627
	Normal Take-off	2687	-----	-----	-----
	Maximum Continuous	2687	2691	2567	2627

Take off ratings quoted valid up to 22°C (PW305), 33,9°C (PW305A), 23,5°C (PW305B), 31,7ºC (PW306A); 35°C (PW306B); 33°C (PW306C); 32°C (PW306D and PW306D1), maximum continuous ratings to 19,4°C (PW305), 20,8°C (PW305A), 26,7ºC (PW306A); 35°C (PW306B); 32°C (PW306C); 30°C (PW306D and PW306D1)

7. Control System

Engine control system includes a Dual Channel FADEC

8. Fluids (Fuel, Oil, Coolant, Additives)

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

PW305, PW305A, PW305B, PW306A:

Drive Pad	Rotation Facing Gearbox Pad	Transmission Ratio to N2	Static Torque [Nm]	Static Overhang Moment [Nm]	Continuous Load 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/PW306D/PW306D1:

Drive Pad	Rotation Facing Gearbox Pad	Transmission Ratio to N2	Static Torque [Nm]	Static Overhang Moment [Nm]	Continuous Load 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. Operating Limitations

1. Temperature Limits

1.1 Interturbine Temperature (ITT), °C

	PW305	PW305A	PW305B
Take-off (5 Minutes)	785	785	785
Normal Take-off	785	785	785
Maximum Continuous	785	785	785
Starting	680	950	680

	PW306A	PW306B	PW306C/PW306D/PW306D1
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. Speed Limits

PW305, PW305A, PW305B

	Maximum	Minimum Flight Idle
Low Pressure Rotor N1 rpm (%)	10820 (102)	--
High Pressure Rotor N2 rpm (%)	27469 (102)	17500 (65)

PW306A / PW306B / PW306C/PW306D/PW306D1

	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.

3.1 Fuel Pressure

Refer to Section 6 of Installation Manual.

4. Installation Assumptions:

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

5. Time Limited Dispatch (PW306B, PW306C, PW306D, PW306D1):

The engines have been approved for Time Limited Dispatch. The maximum rectification

period for each dispatchable state is specified in the Airworthiness Limitations Section of the Maintenance Manual.

V. Operating and Service Instructions

	PW305	PW305A	PW305B
Engine Installation Manual	ER3879	ER3879	ER3879
Engine Maintenance Manual	30B1402	30B1402	30B1402
Engine Manual (Overhaul)	30B1401	30B1401	30B1401
Operating Instructions	ER3879	ER3879	ER3879
FADEC Interface Control Document	30B1951	30B2251	30B2418
Service Bulletins	As required	As required	As required

	PW306A	PW306B	PW306C	PW306D/PW306D1
Engine Installation Manual	ER2996	ER4337	ER5227	ER5227
Engine Maintenance Manual	30B1412	30B4132	30B4422	30B7302
Engine Manual (Overhaul)	30B1413	30B2973	30B4423	30B7303
Operating Instructions **	ER2996 30B1412	ER4337 30B4132	ER5227 30B4422	ER5227 30B7302
FADEC Interface Control Docoment	ER4307	ER4607	ER5286	ER5286
Service Bulletins	As required	As required	As required	As required

** Ground & flight operating instructions include in listed (ER….) Installation Manuals

Section 3

Ground operations included in listed (30B….) Maintenance Manuals Section 71-00
Flight operations included in Aircraft Flight Manuals

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: The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable "Engine Maintenance Manual" document, "Airworthiness Limitations Section".

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 PW305, PW305A, PW305B, PW306A, PW306B, PW306C, PW306D and PW306D1 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 PW305, PW305A, PW305B, PW306A engine is designed to be normally used at Take-off thrust (called “normal take-off”). 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 8: 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.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

n/a

II. Type Certificate Holder Record

n/a

III. Change **Record**

Issue	Date	Changes	TC issue
Issue 04	17 November 2015	Addition of Model PW306D1	17 November 2015

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