
Type Acceptance Report

TAR 7/21B/35 – Revision 3

PRATT & WHITNEY CANADA PW305/306 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Pratt & Whitney Canada PW305/PW306 Series turbofans based on validation of Transport Canada Type Certificate number E-22. There are no special requirements for import.

Applicability is limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for installation on a NZ-registered aircraft. Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(b).

NOTE: The information in this report is correct as at the date of issue. The report is only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest State-of-Design Type Certificate Data Sheet.

1. Introduction

This report details the basis on which Type Acceptance Certificate No.7/21B/35 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer: Pratt & Whitney Canada Corporation
Type Certificate: E-22
Issued by: Transport Canada
Production Approval: Certificate of Approval Number 4-58

(b) Models Covered by the Part 21B Type Acceptance Certificate:

- (i) Models: PW305, PW305A, PW305B
PW306A, PW306B, PW306C
PW306D, PW306D1

3. Application Details and Background Information

The initial application for New Zealand type acceptance of the PW306A was from the manufacturer, dated 20 March 2007. The PW300 series, which is covered by several different type certificates, is a two-spool front-fan turbojet available in a range of thrust ratings from 4600 lb to 8000 lb, and is intended for business jet applications. This report covers the PW305/306 Series covered by type certificate E-22.

Type Acceptance Certificate Number 7/21B/35 was granted on 26 July 2007 to the Model PW306A based on validation of Transport Canada Type Certificate E-22.

The first of the PW300 series was the PW305 rated at 5225 lb. thrust and certified in August 1990, which was fitted to the BAe1000. This was followed by the PW305A for the Learjet 60, flat-rated at 4679 lb. which can be maintained to higher ambient temperatures through a new Electronic Engine Control (EEC). The improved PW305B with 5266 lb. thrust was developed with modified EEC software and increased turbine inlet temperature. From January 1993 all PW305 were converted or delivered as the new model. PW305/A/B versions can all be converted from one to another by Service Bulletin.

The PW306 Series is a higher thrust development with a redesigned fan and first stage high pressure compressor, and hot section modifications to accommodate increased gas path temperatures. The PW306A with a thrust rating of 6040 lb. was selected for the Gulfstream G200, while the 6050 lb. PW306B version was chosen for the Fairchild Dornier 328JET.

Revision 1 to Type Acceptance Certificate Number 7/21B/35 was issued under CAA Work Request number 10/21B/8 to add the PW306C model, which is flat rated to 5770 lbs. The application was from the manufacturer, Pratt & Whitney Canada, and was in support of type acceptance of the Cessna 680 Citation Sovereign. Type acceptance of the PW306C was granted on 12 October 2009.

Revision 2 to this report was raised to add the PW306D and PW306D1 models, which are both rated at 5907 lbs thrust, and are used on the Cessna Models 680+ and 680A Latitude, respectively. The PW306D1 is identical to the PW306D except for the EEC/EDU software. Type acceptance of the PW306D and D1 was granted on 7 March 2016.

Revision 3 to this report was raised to add the earlier Models PW305, PW305A, PW305B, and the PW306B. Type acceptance of the PW305 Series was granted on 10 March 2017.

There are no special requirements for import for any engine variant.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents:

(1) State-of-Design Type certificate:

Transport Canada Type Certificate Number E-22

Transport Canada Type Certificate Data Sheet no. E-22 at Issue 15 dated 28.01.15

- Model PW305 approved August 30, 1990
- Model PW305A approved November 23, 1992
- Model PW305B approved January 8, 1993
- Model PW306A approved November 22, 1995
- Model PW306B approved December 2, 1998
- Model PW306C approved June 21, 2002
- Model PW306D approved April 18, 2013
- Model PW306D1 approved December 18, 2014

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the PW305/306 is Canadian Airworthiness Manual, Chapter 533 Change 1 dated 1 January 1987. This is equivalent to FAR Part 33, Amendment 11, dated 25 March 1986. This is the basic standard for aircraft engines called up under Part 21 Appendix C. There are no non-compliances and no special conditions have been prescribed by the Director under §21.23. The engines have also been shown to meet the requirements of JAR-E Change 7. The PW306 Series also comply with CSR 533.76 for Bird Ingestion, CSR 533.77 for Ice Ingestion, and CSR 533.78 for Water and Hail Ingestion, and the Additional Airworthiness Requirement 533.101 for Electronic Engine Control Systems.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*

Nil

(iv) *Airworthiness Limitations:*

See the Airworthiness Limitations Section of the applicable Maintenance Manual.

(3) Environmental Certification:

The engines comply with Canadian Airworthiness Manual 516 subchapter B at change 516-05 for gaseous emissions. (Equivalent to ICAO Annex 16 Volume II, and FAR Part 34)

(4) Certification Compliance Listing:

Technical Note #925 – PW300 Series Engine Civil Certification Compliance Plan
Supplement 1 – PW305A Engine
Supplement 2 – PW305B Engine

Pratt & Whitney Canada Engineering Report No. 4160 – PW306A Engine Civil Certification Compliance Plan – November 1998

Pratt & Whitney Canada Engineering Report No. 4161 – PW306B Engine Civil Certification Compliance Plan – November 1998

Pratt & Whitney Canada Engineering Report No. 5222 – PW306C Engine Civil Certification Compliance Plan – May 2002

Pratt & Whitney Canada Engineering Report No.8205 – PW306D Engine Civil Certification – Section II – Compliance Plan (as correlated to PW306C Compliance Report)

Pratt & Whitney Canada Engineering Report No.8493 – PW306D1 Engine Civil Certification – Section II – Transport Canada Civil Aviation Compliance Plan & Record

(5) Flight Manual: N/A

(6) Operating Data for Engine:

(i) *Maintenance Manual:*

PW305, 305A and 305B Maintenance Manual P/N 30B1402

PW306A Maintenance Manual P/N 30B1412

PW306B Maintenance Manual P/N 30B4132

PW306C Maintenance Manual P/N 30B4422

PW306D and 306D1 Maintenance Manual P/N 30B7302

(ii) *Current service Information:*

PWC Service Bulletins, Spares Parts Bulletins and Service Information Letters are available on the Pratt and Whitney Canada website.

(iii) *Illustrated Parts Catalogue:*

PW305A, 305A and 305B IPC P/N 30B1403

PW306A IPC P/N 30B1414

PW306B IPC P/N 30B4134

PW306C IPC P/N 30B4424

PW306D and PW306D1 IPC P/N 30B7304

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

CAA 2171 from Senior Project Manager dated 23 March 2007 (PW306A)

CAA 2171 from PW300 Senior Project Engineer dated 21-7-09 (PW306C)

See P&WC/Transport Canada Coordination Memo number PW300-15-020 (PW306D/D1) – PWC now provides CAA access to technical publications on their website: <https://eportal.pwc.ca>

Attachments

The following documents form attachments to this report:

Copy of Transport Canada Type Certificate Data Sheet Number E-22

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Charlie Morris
Airworthiness Engineer Avionics

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
PW306A	Pratt & Whitney Canada Corp.	7/21B/35	26 July 2007
PW306C	Pratt & Whitney Canada Corp.	10/21B/8	12 October 2009
PW306D, 306D1	Pratt & Whitney Canada Corp.	16/21B/2	7 March 2016
PW305A, B, C PW306B	Pratt & Whitney Canada Corp.	17/21B/14	10 March 2017