
Type Acceptance Report

TAR 13/21B/17 – Revision 1

Pratt & Whitney Canada PW617 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Pratt & Whitney Canada (P&WC) PW617 Series turbofan engine based on validation of Transport Canada Type Certificate number E-37. There are no special requirements for import.

Applicability is limited to the Models and/or serial numbers detailed in Section 2, 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(c).

NOTE: The information in this report was correct as at the date of issue. The report is generally 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 revision of the State-of-Design Type Certificate Data Sheet referenced herein.

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 13/21B/17 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.

The report also notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. Appendix 1 lists the New Zealand type acceptance history.

2. Product Certification Details

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

Manufacturer: Pratt & Whitney Canada Corp. *(since 1999)*
Type Certificate: E-37
Issued by: Transport Canada
Production Approval: Certificate of Approval Number 4-58

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

(i) **Model:** PW617F-E
Max Thrust: 1820 lb.
Max. Take-off Thrust: 1695 lb.
Max. Continuous: 1598 lb.

(ii) **Model:** PW617F1-E
Max Thrust: 1891 lb.
Max. Take-off Thrust: 1728 lb.
Max. Continuous: 1701 lb.

3. Application Details and Background Information

The application for New Zealand type acceptance of the PW617F-E was from P&WC dated 17 January 2013 submitted through Transport Canada. The PW617F-E is a high bypass ratio twin spool turbofan engine with a maximum thrust rating of 1820 lbs intended for small business jet applications.

Type Acceptance Certificate No. 13/21B/17 was granted on 1 May 2013 to the Model PW617F-E based on validation of Transport Canada Type Certificate E-37. There are no special requirements for import into New Zealand. As part of the type acceptance two engineers from the CAA Aircraft Certification Unit visited Pratt & Whitney Canada in Toronto, Canada for a certification validation visit.

This report was raised to Revision 1 to add the PW617F1-E, after application from the manufacturer dated 27 October 2020. Type Acceptance of the Model PW617F1-E was granted on 15 December 2020.

The PW617F-E uses a low-speed rotor spool consisting of a single-stage low pressure (LP) compressor driven by a single-stage low pressure turbine. The high speed rotor spool comprises a two-stage high pressure (HP) compressor (with both a mixed flow and centrifugal rotor) driven by a single-stage high pressure turbine. The combustor is of the reverse flow type with hybrid (start flow and main burn flow) fuel nozzles fed by an internal fuel manifold. A fuel oil heat exchanger and an air-cooled oil cooler are part of the basic configuration. The engine features a full-length bypass duct incorporating a forced exhaust mixer, and full authority dual channel FADEC control.

The PW617F-E is the third member of the PW600 series to be certificated, following the PW610F-A (950 lbs maximum thrust, type certificate E-35, used on the Eclipse 500 aircraft), and the PW615F-A (1450 lbs maximum thrust, type certificate E-34, used on the Cessna Citation Mustang.) It is certificated for installation on multiple engine installations only and is used on the Embraer EMB-500 Phenom 100. The PW617F1-E is a higher thrust version of the exact same engine achieved by an N2 redline limit increase, a software revision, and a change to the Fuel Metering Unit maximum stop setting.

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, or were already held by the CAA:

(1) ICAO Type certificate:

Transport Canada Type Certificate Number E-37 dated September 9, 2008

Transport Canada TCDS Number E-37 at Issue 5 dated October 31, 2016
– Model PW617F-E approved September 9, 2008
– Model PW617F1-E approved September 26, 2016

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the PW617 Series is Canadian Airworthiness Manual, Chapter 533 at Change 8. This is equivalent to FAR Part 33 up to and including Amendment 33-20. 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.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*

Nil

(iv) *Airworthiness Limitations:*

Service life values for life limited rotor components are defined in the Airworthiness Limitation Manual P/N 3072699 *

(3) Environmental Certification:

(i) *Certification Standards:*

The PW617 Series complies with Canadian Airworthiness Manual 516 at Change 516-07, "Aircraft Engine Emissions" which refers to ICAO Annex 16 Volume II. (Compliance has also been shown with FAR 34 at all amendments up to and including 34-3.)

(ii) *Compliance Listing:*

P&WC Engineering Report Number 6566 Section II – PW617F-E Engine Certification Smoke and Gaseous Emissions Test Report Revision A dated August 2008. (Report not held by the CAA – extracts are contained in Report ER8265.)

(4) Certification Compliance Listing:

P&WC Engineering Report No. 8265 – PW617F-E Engine Description and Certification Compliance for New Zealand, dated April 2013

P&WC Engineering Report No. 10853 – PW617 Series Engines Description and Certification Compliance for the Civil Aviation Authority (CAA) of New Zealand, dated September 2020 – Includes:
 Appendix A: PW617F-E Method of Compliance Summary
 Appendix B: PW617F1-E Method of Compliance Summary

(5) Flight Manual: N/A

(6) Operating Data for Engine:

(i) *Maintenance Manual:*

PW617F-E / PW617F1-E Line Maintenance Manual P/N 3072696 *

PW617F-E / PW617F1-E Maintenance Manual P/N 3072162 *

PW617F-E / PW617F1-E Overhaul Manual P/N 3072163 *

(ii) *Current service Information:*

PW617F-E / PW617F1-E Service Bulletins, Spare Part Bulletins, Tool Service Bulletins and Service Information Letters *

(iii) *Illustrated Parts Catalogue:*

PW617F-E / PW617F1-E Illustrated Parts Catalog P/N 3072164

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

* Access provided to P&WC website Technical Publications

Attachments

The following documents form attachments to this report:

Copy of Transport Canada Type Certificate Data Sheet Number E-37

Sign off



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 David Gill
 Team Leader Aircraft Inspection



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 Checked – Tim Dutton
 Flight Test Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
PW617F-E	Pratt & Whitney Canada Corporation	13/21B/17	1 May 2013
PW617F1-E	Pratt & Whitney Canada Corporation	21/21B/11	15 December 2020