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# **Type Acceptance Report**

**TAR 8/21B/21**

**Pratt & Whitney Canada PW615F-A**



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## Executive Summary

New Zealand Type Acceptance has been granted to the Pratt & Whitney Canada PW615F engine based on validation of Transport Canada Type Certificate number E-34. 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).

## 1. Introduction

This report details the basis on which Type Acceptance Certificate No. 8/21B/21 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. ICAO Type Certificate Details

Manufacturer: Pratt & Whitney Canada Corporation

Type Certificate: E-34  
Issued by: Transport Canada

Model(s): PW615F-A

## 3. Type Acceptance Certificate

The application for New Zealand type acceptance of the PW615F-A engine was from the manufacturer, dated 27 November 2007. The PW600 Series is a two spool medium bypass front-fan turbojet with mixed exhaust, available in a range of thrusts for VLJ applications.

Type Acceptance Certificate No. 8/21B/21 was granted on 27 March 2008 to the Model PW615F-A based on validation of Transport Canada Type Certificate E-34. There are no special requirements for import into New Zealand.

The PW615F-A, the second in the PW600 Series rated at 1460 lb. thrust continuous up to ISA +10°, was selected to power the Cessna 510 Citation Mustang. The low speed rotor has single-stage Low Pressure (LP) Compressor and LP Turbine, with a full-span non anti-iced stator assembly. The 9.4:1 ratio high speed rotor consists of a two-stage High Pressure (HP) Compressor and a single-stage HP Turbine. The combustor is of the reverse-flow type and the engine features a full-length composite bypass duct and forced exhaust mixer.

#### 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-34

Transport Canada Type Certificate Data Sheet No. E-34 at Issue 5 dated 21.12.06  
– Model PW615F-A approved June 26, 2006

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the PW615F is Canadian Airworthiness Manual, Chapter 533 at Change 6, which is equivalent to FAR Part 33 up to 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. The engine meets Transport Canada and FAA requirements for operation in icing conditions.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*

Nil

(iv) *Airworthiness Limitations:*

See the Airworthiness Limitations Manual P/N 3072968.

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The PW615F-A complies with the Canadian Airworthiness Manual Chapter 516, subchapter B “Aircraft Engine Emissions” which refers to ICAO Annex 16 Volume II. Compliance with FAR 34 up to Amendment 34-3 has also been shown.

(ii) *Compliance Listing:*

PWC Engineering Report No. 7065 – PW615F-A Foreign Validation Smoke and Emissions – April 2008

Smoke Number: Smoke Number of 5.4 was derived from test data versus the ICAO Annex 16 [and FAR §34.21(e)(1)] limit of 50.0

Engine Emissions: Under FAR §34.21(d)(1) there are no gaseous exhaust emission requirements for engines less than 26.7 kilonewtons (6000 pounds) rated output.

(4) Certification Compliance Listing:

PW615F-A – Compliance Checklist and Reports

PWC Engineering Report No.7059 – PW615F-A Foreign Validation Engine Description and Certification Compliance – February 2008

- (5) Flight Manual: N/A
- (6) Operating Data for Engine:
  - (i) *Maintenance Manual:*  
PW615F-A Line Maintenance Manual P/N 3072691
  - (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:*  
IPC PW615F-A (Build Spec. 1163) P/N 3059714
- (7) Agreement from manufacturer to supply updates of data in (5), and (6):  
CAA 2171 from PW600 Senior Project Engineer dated 27 November 2007

**Attachments**

The following documents form attachments to this report:  
Copy of Transport Canada Type Certificate Data Sheet Number E-34

**Sign off**

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David Gill  
Team Leader Airworthiness

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Checked – Jack Stanton TLCA  
Date: 27 March 2008

**Appendix 1**

**List of Type Accepted Variants:**

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
PW615F-A	Pratt & Whitney Canada Corp.	8/21B/21	27 March 2008