
Type Acceptance Report

TAR 19/21B/26

PRATT & WHITNEY CANADA PT6B-36/37 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Pratt & Whitney Canada PT6B-36 Series and PT6B-37A turboshaft engines based on validation of Transport Canada Type Certificate number E-20. 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.19/21B/26 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-20
Issued by: Transport Canada
Production Approval: Certificate of Approval Number 4-58

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

- (i) Models: PT6B-36, PT6B-36A, PT6B-36B
PT6B-37A

3. Application Details and Background Information

The Pratt and Whitney Canada (PWC) PT6B-37 Series was initially type accepted as part of the Agusta A119 helicopter. The initial application for New Zealand type acceptance of the PT6B-36 Series was from Oceania Aviation Ltd, dated 6 May 2019. The PT6B is a lightweight free turbine turboshaft engine in the 1000 shaft horsepower class with an offset reduction gearbox and a freewheeling clutch and power turbine governor, intended for single or multiple engine installations on small to medium helicopters.

Type Acceptance Certificate Number 19/21B/26 was granted on 24 May 2019 to the PWC PT6B-36 Series engine based on validation of Transport Canada Type Certificate E-20. There are no special requirements for import for any engine variant.

The PT6B Series is derived directly from the PT6T-3B and PT6T-3D power sections with an offset output gearbox, including clutch system. The basic engine configuration is exactly the same as that of the PT6T and PT6A turboprop versions. This is a two-shaft configuration consisting of a multi-stage compressor driven by a single-stage compressor turbine and an independent shaft coupling the power turbine to the output shaft through the offset reduction gearbox.

The only production application of the PT6B-36 Series has been on the Sikorsky S-76B helicopter, and has been developed through several versions with improved performance. The PT6B-37 had a different reduction ratio for the Agusta A119 Koala, and was subsequently developed into the PT6B-37A with an automatic fuel control and an electronic power turbine governor with a manual back-up. Although the PT6B-37 is still listed on the type certificate, PWC advise that it is inactive and no longer in service.

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-20

Type Certificate Data Sheet number E-20 at Issue 7 dated September 08, 2006

- Model PT6B-36 approved September 14, 1984
- Model PT6B-36A approved July 17, 1986
- Model PT6B-36B approved May 1, 1992
- Model PT6B-37 approved August 6, 1997
- Model PT6B-37A approved July 23, 1999

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the PT6B-36 is FAR Part 33 effective February 1, 1965 with Amendments 33-1 to 33-9, plus Canadian Special Requirements recorded in Transport Canada “Minutes of Initial Type Board Meeting” with covering letter to Pratt and Whitney dated March 5, 1984.

For the PT6B-37 additional requirements were recorded in the “Minutes of Meeting, PT6B-37 Engine Type Board Meeting, held at Transport Canada, Ottawa, 16 October 1996” and Transport Canada Issue Paper P-1 dated December 11, 1996. For the PT6B-37A certification basis FAR Part 33 paragraph §33.28 at Amendment 15 was added for the Digital Electronic Control.

FAR Part 33 is the basic airworthiness design 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:*

PT6B-36:

Pratt & Whitney Canada PT6B-36 Engine Initial Type Board Meeting – February 8, 1984 – Minutes: Details some points of concern on requirements interpretation and various means of compliance that were agreed at the meeting, plus some additional BCAR requirements to expedite UK CAA type certification.

PT6B-37:

M.M. #27141 – Minutes of Meetings – PT6B-37 Engine Type Board Meeting Held at Transport Canada – Ottawa, 16 October 1996: This detailed a number of action items arising from the meeting regarding a range of additional requirements to show compliance with.

Transport Canada Issue Paper P-1 – FAR 33.87 Integral Clutch: The PT6B-37 has an overrunning clutch in the reduction gearbox, which is not considered under Part 33. As part of the Block Test at least 200 start-up engagements must be performed from the driven side.

(iii) *Equivalent Level of Safety Findings:*

Nil

(iv) *Airworthiness Limitations:*

See the Airworthiness Limitations Section of the applicable Maintenance Manual.

(3) Environmental Certification:

Not Applicable

(4) Certification Compliance Listing:

Pratt & Whitney Canada Inc. – Engineering Report No. 1279 No Rev – PT6B-36
Civil Certification Compliance Report – August 1984

Pratt & Whitney Canada Inc. – Engineering Report No. 2505 No Rev – PT6B-36B
Civil Certification Compliance Report – April 1992

Means of Compliance Table PT6B-36 Series Engine

Pratt & Whitney Canada Inc. – Engineering Report No. 3812 Rev 2– PT6B-37
Civil Certification Compliance Report – July 1997

Pratt & Whitney Canada Inc. – Engineering Report No. 4613 No Rev and Rev A–
PT6B-37A Civil Certification Compliance Report – July 1999/September 2006

Pratt & Whitney Canada Inc. – Engineering Report No. 4613 – PT6B-37A Engine
– Canadian Type Approval Compliance Plan – July 1999

Means of Compliance Table PT6B-37A Engine

Transport Canada Issue Paper PT6B-37A G-1 – Basis of Approval – Applicable
Airworthiness Standards – Revision 1 dated July 7, 1999

(5) Flight Manual:

Not Applicable.

(6) Operating Data for Engine:

(i) *Maintenance Manual:*

Maintenance Manual: Model PT6B-36, 36A, -36B Engines – Part Number 3034442

Maintenance Manual: Model PT6B-37A Engine – Part Number 3053102

Overhaul Manual: Model PT6B-36, 36A, -36B Engines – Part Number 3034443

Overhaul Manual: Model PT6B-37A Engines – Part Number 3053103

Installation Manual – PT6B-36 Engines – Engineering Report ER3861

Installation Manual – PT6B-37A Turboshaft Engine – P/N 3133813 (ER4623)

(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:*

Illustrated Parts Catalog: Model PT6B-36 Series Engines – Part Number 3034444

Illustrated Parts Catalog: Model PT6B-37A Engine – Part Number 3053104

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

See letter from PWC Publications Customer Service Rep. Dated March 8, 2007

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-20

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Greg Baum
Team Leader Product Certification

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
PT6B-37	Agusta S.p.A.	7/21B/20	19 April 2007
PT6B-37A	Agusta S.p.A.	8/21B/2	29 October 2007
PT6B-36, -36A, -36B	Oceania Aviation Ltd	19/21B/26	24 May 2019