
Type Acceptance Report

TAR 1/21B/14 – Revision 1

PILATUS PC-6 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Pilatus PC-6/B Turbo-Porter Series based on validation of FOCA Type Certificate number F56-10. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Section 2, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.191, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) 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. 1/21B/14 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; and
- (c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

The report 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 details the type acceptance history under CAR Part 21B and which models were certificated prior to that under NZCAR Section B.9 and are now type accepted under the transitional arrangements of Part 21 Appendix A(c).

2. Aircraft Certification Details

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

Manufacturer: Pilatus Aircraft Limited
Type Certificate: Certificat de Type No. F 56-10
Issued by: Swiss Confederation – Federal Office for Civil Aviation
Production Approval: CH.21G.0002

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

- (i) **Model:** PC-6/B1-H2
MCTOW: 2200 kg (4850 lb.)
Max. No. of Seats: 11
Noise Standard: ICAO Annex 16
Engine: Pratt & Whitney Canada PT6A-20/A/B or PT6A-6/C20
Type Certificate: E-6
Issued by: Transport Canada
Propeller: Hartzell HC-B3-TN3C/D
Type Certificate: P15EA
Issued by: Federal Aviation Administration
- (ii) **Model:** PC-6/B2-H2, PC-6/B2-H4
MCTOW: 2200 kg (4850 lb.) – H2 Index
2800 kg (6173 lb.) – H4 Index
Max. No. of Seats: 11
Noise Standard: ICAO Annex 16
Engine: Pratt & Whitney Canada PT6A-27
Type Certificate: E-6
Issued by: Transport Canada
Propeller: Hartzell HC-B3-TN3D
Type Certificate: P15EA
Issued by: Federal Aviation Administration

3. Application Details and Background Information

The first application for New Zealand type acceptance of the Pilatus PC-6 under Part 21B was for the Model PC-6/B1-H2 from the aircraft importer, the Lyver Partnership, dated 3 March 2001. The first-of-type example was serial no. 693 registered ZK-JMP. There have been previous examples on the NZ Register, but none were current as at 1.7.95 and the type was not covered by the transitional arrangements of Part 21 Appendix A paragraph (c). (ZK-PTP s/n 656 was operated by Air Safaris from 1978 until exported in 1987, while Mount Cook Airlines used ZK-FZB s/n 634 from 1981 until 1989. S/n 628 was also here briefly as a demonstrator in 1971 as ZK-DFJ.)

The Pilatus PC-6 Porter is a strut-braced high-wing single-engined all-metal utility aircraft with fixed tricycle undercarriage and STOL flight characteristics.

Type Acceptance Certificate No. 1/21B/14 was granted on 14 March 2001 to the Pilatus PC-6/B1-H2 based on validation of FOCA Type Certificate 56-10. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

There have been examples of the Model PC-6/B2-H2 since s/n 809 was registered as ZK-MCK in January 1982. However this and all other examples of this model have subsequently been upgraded to the PC-6/B2-H4. Registration of the three Mount Cook Airlines ski-planes has been continuous and therefore the Model is covered by the transitional arrangements of Part 21 Appendix A paragraph (c).

The PC-6 “Porter” 11-seat STOL utility aircraft was originally flown with a 340 hp Lycoming GSO-480 piston engine, later uprated to a 350 hp IGO-540. The first turbine version was the PC-6/A “Turbo-Porter” with a 523 shp Turbomeca Astazou II, while the definitive version has been the PC-6/B Series with Pratt & Whitney Canada PT-6A engine. Originally developed by Fairchild in the US, the most common sub-variants are the PC-6/B1 with the 550 shp Take-off rating PT6A-20 and the PC-6/B2 with the PT6A-27 with a continuous rating of 550 shp. The PC-6/C has the 575 shp AiResearch TPE331 turboprop. Further sub-variants depend on the maximum gross weight “index”. No index means 1960 kg MCTOW, while H1 indicates 2016 kg and H2 signifies 2200 kg MCTOW. (See SB 32A) The later (1985) H4 index, applicable only to the PC-6/B2 means a MCTOW increased to 2800 kg, and can be accomplished per SB 149A. (The retrofit conversion requires an enlarged dorsal fin, door and under fuselage strengthening, landing gear shock-absorber change, revised torque and RPM limits and extended composite wingtips.) The last production Pilatus PC-6 Porter (MSN 1019) was delivered in December 2022.

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) State-of-Design Type certificate:

FOCA Type Certificate Number F56-10

FOCA Data Sheet Number F 56-10, Edition 7 dated 20 September 2006

– Model PC-6/H1-B2 approved 6 August 1966

– Model PC-6/H2-B2 approved 30 June 1970

– Model PC-6/H2-B4 approved 20 November 1985

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the PC-6 is CAR 10 and CAR 3 dated May 15, 1956 including amendments 3-1 through 3-5. In addition the PC-6/B and C variants showed compliance with the Special Conditions notified in the FAA letter of 4.1.1967. This is an acceptable certification basis in accordance with CAR Part 21 and Advisory Circular 21-1A, as CAR 3 is the predecessor to FAR 23, which is the basic standard for Normal Category Airplanes 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:*

FAA Letter Jan 4, 1967 – Attachment “A” – Special Conditions for the Type Certification of the Pilatus Models PC-6/B/B1/B2-H2

(iii) *Equivalent Level of Safety Findings:*

Nil

(iv) *Airworthiness Limitations:*

PC-6 (Except B2-H2/4): Airworthiness Limitations Document Number 02334

PC-6B/B2-H4: Document 01975: Chapter 04 – Airworthiness Limitations

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The PC-6/B has been certificated for noise in accordance with ICAO Annex 16, Chapter 6, 3rd Edition July 1978 (equivalent to FAA FAR 36, Appendix F).

(ii) *Compliance Listing:*

PC-6B/B1-H2 AFM: ICAO overflight certificated noise level: 77.2 dB(A).

PC-6B/B2-H4 AFM: ICAO overflight certificated noise level: 75.3 dB(A).

[Per FAA FAR 36 Appendix G, the certificated noise level is: 79.4 dB(A)]

(4) Certification Compliance Listing:

Porter H2 – Statics and Stress Analysis Calculations

Porter H2 – Data of Aircraft and Aerodynamics Calculations

Turbo Porter PC-6/B1-H2 Flight Report – Rpt. No. 3184

PC-6B Power Plant Control System Failure Analysis – Fairchild Stratos

Stress Analysis PT6A-6 Installation – Fairchild Stratos Corp.

Part II Type Inspection Report PC-6/B (Ref. STC SA273BA)

- (5) Flight Manual: Swiss Federal Air Office Approved Airplane Flight Manual
Model PC-6/B2-H2 – Report No. 1072-2 – Applicable up to A/C
Serial No. 824 – CAA Approved as AIR 2178

Swiss Federal Air Office Approved Airplane Flight Manual
Model PC-6/B2-H4 – Report No. 1072-20 – Applicable up to A/C
Serial No. 824 – CAA Approved as AIR 2296

Swiss Federal Air Office Approved Airplane Flight Manual
Model PC-6/B2-H4 – Report No. 1820 – Applicable from A/C
Serial No. 825 – CAA Approved as AIR 2297

Swiss Federal Air Office Approved Airplane Flight Manual
Model PC-6/B1-H2 – Report 1072-1 – CAA Accepted as AIR 2719

- (6) Operating Data for Aircraft:

(i) *Maintenance Manual:*

PC-6/B1-H2 Service Manual

(Note: includes Maintenance Schedule for all models – Report 1739)

PC-6 B2-H2/B2-H4 Aircraft Maintenance Manual – Document No. 01975

(ii) *Current service Information:*

PC-6 Service Bulletin Index – Document 01959

PC-6 Service Letter Index – Document 01960

(iii) *Illustrated Parts Catalogue:*

IPC PC-6/B1-H2, PC6/B2-H2/H4 – Document 02039

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

CAA 2171 form signed by Manager Airworthiness, and VP, Head of R & D, from
Pilatus Aircraft Limited dated 14 March 2001.

- (8) Other information:

Pilatus Engineering Report No. 6142 – Australian Porter Aircraft Life
Extension

Pilatus PC-6 Series Airplane Master Minimum Equipment List (MMEL)
Document Number: 02396

Pilatus PC-6 Series Airplane Master Maintenance and Operating Procedures
Manual (MMOP) Document Number: 02399

5. New Zealand Operational Rule Compliance

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 has been assessed as they are a prerequisite for the grant of an airworthiness certificate.

Civil Aviation Rules Part 26

Subpart B – Additional Airworthiness Requirements

Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Appendix C – Air Transport Aeroplanes – More than 9 Pax

(Standard configuration is 7 passenger seats, but the aircraft is type certificated to carry a maximum of 11 people. This is specified in the Flight Manual as one pilot and ten passengers [3x bench seats])

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
C.1	Doors and Exits	CAR 3.387(a)
C.2.1	Additional Emergency Exits – per FAR 23.807(b) effective 10 May 1993	PC-6 has pilot doors and double exits on both sides of the cabin – See PC-6/B1-H2 Specification dated March 1971
C.2.2	Emergency Exit Evacuation Equipment – Descent means	Not Applicable – Exits less than 2m from the ground
C.2.3	Emergency Exit Interior Marking – Size/self-illuminating	<i>To be determined on an individual aircraft basis if used on Air Transport operations</i>
C.3.1	Landing Gear Aural Warning – Automatic Flap Linking	Not Applicable – Fixed landing gear

Compliance with the following additional NZ operating requirements has been reviewed and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training	<i>Shoulder Harness is Optional Special Equipment</i>
91.507	Pax Information Signs - Smoking, safety belts fastened	N/A – Passenger Compartment not separated from crew
91.509 Min. VFR	(1) ASI CAR 3 paragraph §3.655(a)(1) – See MM §1.2.11 Item #22 N/A (2) Machmeter CAR 3 paragraph §3.655(a)(2) – See MM §1.2.11 Item #24 (3) Altimeter CAR 3 paragraph §3.655(a)(3) – See MM §1.2.11 Items #30 (4) Magnetic Compass CAR 3 paragraph §3.655(a)(3) – See MM §1.2.11 Items #30 (5) Fuel Contents CAR 3 para. §3.655(b)(1)(i) – See MM §1.2.11 Items #17 (6) Engine RPM CAR 3 para. §3.655(b)(1)(iv) – See MM §1.2.11 Items #11/12	(7) Oil Pressure CAR 3 para. §3.655(b)(1)(ii) – See MM §1.2.11 Item #16 (8) Coolant Temp N/A – Turbine powered (9) Oil Temperature CAR 3 para. §3.655(b)(1)(iii) – See MM §1.2.11 Item #15 (10) Manifold Pressure N/A – Turbine powered (11) Cylinder Head Temp. N/A – Turbine powered (12) Flap Position CAR 3 paragraph §3.338-1 – See MM §1.2.5.5 (13) U/C Position N/A – Fixed undercarriage (14) Ammeter/Voltmeter CAR 3 paragraph §3.687
91.511 Night	(1) Turn and Slip Fitted as Standard – See MM §1.2.11 Item #25 (2) Position Lights CAR 3 paragraph §3.700	(3) Anti-collision Lights CAR 3 paragraph §3.705 (4) Instrument Lighting CAR 3 paragraph §3.696 – See MM §1.2.10.8
91.517	IFR Instruments and Equipment	<i>Operational Requirement – Compliance as applicable</i>
91.519	IFR Communication and Navigation Equipment	<i>Operational Requirement – Compliance as applicable</i>
91.523 Emergency Eqpmt.	(a) More Than 10 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily acceptable to crew (c) More than 61 pax – Portable Megaphones per Table 9	<i>To be determined if configured for ten passenger seats</i> <i>To be determined if configured for ten passenger seats</i> Not Applicable – Less than 20 passenger seats. Not Applicable – Less than 61 passenger seats.
91.529	ELT – TSO C91a after 1/4/97 (or replacement)	<i>To be determined on an individual aircraft basis</i>
91.531	Oxygen Indicators – Volume/Pressure/Delivery	Not fitted as standard
91.533	Oxygen for Non-Pressurised Aircraft	<i>Operational Requirement – Compliance as applicable</i>
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational Requirement – Compliance as applicable</i>
91.543	Altitude Alerting Device – Turbojet or Turbofan	Not Applicable – Not turbojet or turbofan powered
91.545	Assigned Altitude Indicator	<i>Operational Requirement – Compliance as applicable</i>
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Civil Aviation Rules Part 135

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating/Restraints – Shoulder harness flight-crew seats	Required fit under NZCAR §91.505(4)(i)
135.357	Additional Instruments (Powerplant and Propeller)	PC-6 has instruments required by FAR 23.1305. (Reversible prop blade angle is indicated by control lever position)
135.359	Night Flight	Landing light, Pax compartment
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses
135.363	Emergency Equipment (Part 91.523 (a) and (b))	To be determined if used for Air Transport operations
135.367	Cockpit Voice Recorder	Only applicable to 2-crew helicopters with more than 10 pax
135.369	Flight Data Recorder	Not Applicable – Less than 10 passenger seats
135.371	Additional Attitude Indicator	Not Applicable – Not turbo jet or turbofan powered

NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was directly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.

2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.

3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

The following documents form attachments to this report:

Copy of FOCA Type Certificate Data Sheet Number F 56-10

Sign off




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David Gill
Team Leader Aircraft Inspection




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Checked –
Airworthiness Inspector

Appendix 1

List of Type Accepted Variants:

Model:	Applicant:	CAA Work Request:	Date Granted:
PC-6/H2-B2	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PC-6/H2-B4	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PC-6/H1-B2	J W & E I Lyver	1/21B/14	14 March 2001

Appendix 2

Three-view drawing Pilatus PC-6B Turbo-Porter:

