
Type Acceptance Report

TAR 4/21B/21 – Revision 1

Vulcanair P.68 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the P.68 Series based on validation of ENAC Type Certificate number A 365. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.177, 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(2).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.4/21B/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; 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 also notes the status of all models included under the foreign type certificate which have been granted type acceptance in New Zealand. Models covered by the type acceptance certificate issued under Part 21B are listed in Section 2 of this report. Models which were accepted prior to that under NZCAR Section B.9 are listed in Appendix 1.

2. Foreign Type Certificate Details

Manufacturer:	Vulcan Air S.p.A. [s/n 401 and on] Partenavia Costruzioni Aeronautiche S.p.A. [prior to s/n 401]
Type Certificate: Issued by:	Certificato di Omologazione del Tipo di Aeromobile No. A 365 Ente Nazionale per l'Aviazione Civile
Model(s):	P.68 B "Victor"
MCTOW	1960 kg (4387 lb.) [1990 kg. for P.68B aircraft up to S/N 207 with airspeed limits per TCDS Note 7]
No. of Seats:	6 (7 if S.B.29 is incorporated)
Noise Standard:	FAR 36 with Amdts 36-1 thru 36-9 [ICAO Annex 16 Volume 1 Chapter 10] – 77.6 dB(A)

Model(s): P.68 C

MCTOW 1990 kg (4387 lb.) [2084 kg. (4594 lb.) when equipped with Kit Part Number 68/051 per S.B.79]

Noise Standard: Accepted as the same as the P.68B on the basis of similarity

Engine: Lycoming IO-360-A1B

Type Certificate: 1E10
Issued by: Federal Aviation Administration

Propeller: Hartzell HC-C2YK-2C()F/FC7666A-4

Type Certificate: P-920
Issued by: Federal Aviation Administration

Model(s): P.68C-TC

MCTOW 1990 kg (4387 lb.) [4594 lb. with Kit P/N 68/051 per S.B.79]

Noise Standard: FAR 36 with Amdts 36-1 thru 36-9 [ICAO Annex 16 Vol.1 Ch.10] 78.2 dB(A) @ 1990 kg (FOCA); 83.16 dB(A) @ 2084 kg (ENAC)

Engine: Lycoming TO-360-C1A6D or TIO-360-C1A6D

Type Certificate: E26EA E16EA
Issued by: Federal Aviation Administration

Propeller: Hartzell HC-C2YK-2C()F/FC7666A-4

Type Certificate: P-920
Issued by: Federal Aviation Administration

3. Type Acceptance Certificate

The application for New Zealand type acceptance of the new production P.68C (s/n 412 and up) was from the manufacturer dated Feb 03, 2004. The first-of-type example was serial number 414, registered ZK-TZY. The P.68 Series is a high-wing twin piston-engine all-metal up to seven passenger light aircraft. The P.68B was the first series production version. The P.68C derivative is very similar except that it is six inches longer in the nose to accommodate installation of a radar and has other detail internal changes.

Type Acceptance Certificate No. 4/21B/21 was granted on 31 March 2004 to the Vulcanair Model P.68C Series based on validation of ENAC Type Certificate No. A 365. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 to include the P.68C-TC variant. The application was from the importer, Mr A Gilbert, dated 1 November 2005. Type acceptance was granted on 28 February 2006. The first-of-type example was serial No.371-44-TC registered ZK-TCP.

The P.68B has been flying in New Zealand since 1977, while the P.68C was first imported in January 1995 and certificated in accordance with the old NZCAR Section B.9, based on validation of RAI Type Certificate number A 151. (See TAR 5/94) A new type acceptance application was required because ENAC has issued a new Type Certificate A 365 to cover the P.68 Series following the demise of the original Partenavia company and transfer of the type certificate to Vulcanair. This was done only for administrative reasons to recognise the change of holder and the technical content is identical. The manufacturer advised Type Certificate A 151 has been superseded by A 365, although it has not been formally deleted.

4. Type Data

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents: (* means previously held or supplied under TAR 5/94)

(1) Type certificate:

ENAC Aircraft Type Certificate No. A 365 issued 25 Novembre 1998

- Model P.68B approved 24th May 1974
- Model P.68C approved 23rd July 1979
- Model P.68C-TC approved 29th April 1980

ENAC Specifica Omologazione del Tipo di Aeromobile (TCDS) SO / A 365 Rev.1

(2) Airworthiness design requirements:

The certification basis of the Models P.68 B and C is FAR Part 23 effective 1 February 1965, including Amendments 1 through 6. Subparts E through G were upgraded to Amendment 18 for the Model P.68C-TC. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as FAR 23 is the basic airworthiness 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.

(3) Certification compliance listing:

Report of Conformity to the FAR 23 Normes – P68 & P68B Victor – 8-11-74 *
 Report BM/58 Application for Increased Maximum Weight P68 Victor – 7-12-72 *
 Report BM/62 Fatigue Life Evaluation P68B Victor – dated 8-11-74 *

Report BM/68C-07 Report of Compliance with FAR 23 Amdt 6 – dated 19-7-1979
 and Appendix A Fuel Tank Modification and Weight Envelope C.G. – 20-11-79 *

Report BM/68C-19 R.A.I. Compliance Report Part 223 (FAR 23) – dated 21-03-80
 Report BM/68C-14 Flight Test Report – Turbocharged TO-360-C1A6D Installation
 Report BM/68C-21 R.A.I. Flight Tests – A/C P88C/TC – updated 12.6.1980

(4) Environmental Certification:

mt-propeller noise certification report dated 29.05.1995 on P.68B @ 1960 kg (The manufacturer advises this was approved by the LBA, and accepted by ENAC as valid for the P.68C, because the two models are essentially the same.)

FOCA Noise Report on P.68C-TC@ 1990 kg dated 23.04.93. (The manufacturer advised that noise tests had also been carried out by ENAC at 2084 kg. EASA Approval Number: EASA A.C. 01128 dated 18th July 2005 refers.)

(5) Flight manual:

Flight Manual P68 B Victor – Publication NOR10.707-21 – RAI-Approved with letter No.115.831/T dated 24-5-1974 – CAA Approved as AIR 2865 (up to s/n 152)

Flight Manual P68 B Victor – Publication NOR10.707-9 – RAI-Approved with letter No.148.015/T dated 23-5-1978 – CAA Approved as AIR 2028

Flight Manual P68C 2nd Issue – Publication NOR10.707-1 – RAI-Approved with letter No.158229/T dated July 23, 1979 – CAA Approved as AIR 2516

Flight Manual P68 C 4th Issue – Publication NOR10.707-1B - ENAC-Approved with letter No.02/171243/SPA dated May 7, 2002 – CAA Accepted as AIR 2856 (Applicable from s/n 412 inclusive onwards)

Flight Manual P68C-TC 2nd Issue – Publication NOR10.707-2 - RAI-Approved with letter No.195867/T dated 26.11.83 – CAA Accepted as AIR 2939

- (6) Illustrated Parts Catalogue: NOR 10.711-9 P68B Parts Catalog *
- NOR10.711-1 P68C Parts Catalog *
- (includes Suppl. NOR10.775-5 issued April 2002)
- NOR10.711-2 P68C-TC Parts Catalog

(7) Maintenance manual and service data for aircraft:

NOR10.709-9 Maintenance Manual P68 & P68B Victor *

NOR10.709-1B P68C Maintenance Manual *

(includes MM Supplement NOR10.771-17 for S/N 412 inclusive onwards, plus Suppl. NOR10.771-4B Heating System s/n 402 on and Suppl. NOR10.771-26)

NOR10.769-1 CMM with IPC of Aircraft Passenger Seat for P68C/-TC/Observer

NOR10.709-2 Appendix – Maintenance Manual P68C-TC

S.B., S.L., S.I., available on website www.vulcanair.com

(8) Agreement from manufacturer to supply updates of data in (4), (5) and (6):

CAA2171 (P68C) from Vulcanair Head of Design Organisation dated Feb.03, 2004

CAA2171 (P68C-TC) from Chief of Office of Airworthiness dated 13.12.05

(9) Other information:

List of Certified Changes to Type Design for P68C Aircrafts

FAA Type Certificate A31EU/TCDS No.A31EU at Rev. 14 dated May 30, 2000

NOR10.779-1 Type Design Change Register

5. Additional New Zealand Requirements

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 is a prerequisite for the grant of a type acceptance 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

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	Seating and Restraints	FAR §23.785
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	FAR §23.1303(a) – Fitted as Std.* N/A – No Mach limitations FAR §23.1303(b) – Fitted as Std.* FAR §23.1303(c) – Fitted as Std.* FAR §23.1305(a) – **VM1000 FAR §23.1305(d) – **VM1000 FAR §23.1305(b) – **VM1000
		(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter
		N/A – Air-cooled engines FAR §23.1305(c) – **VM1000 FAR §23.1305(h) – **VM1000 FAR §23.1305(f) – **VM1000 FAR §23.699(a)(2) – FM §7.5 N/A – Fixed undercarriage FAR §23.1351(d) Fitted as Std.*
		* See §2.18 Kinds of Equipment List in Flight Manual Section 2 Limitations (See also NOR10.775-5 Section 31-12-00 for standard VFR and IFR instrument panel configurations) ** For s/n 412 and up engine operating parameters are displayed on the VM1000 Engine Displays panel
91.511 Night	(1) Turn and Slip (2) Position Lights	Fitted as Std – See FM Fig. 7-7 FAR §23.1385 – Fitted as Std. (See Flight Manual Section 7.9)
		(3) Anti-collision Lights (4) Instrument Lighting
		FAR §23.1401 – May be fitted per Mod. P68/23 FAR §23.1381 – Fitted as Std.
91.513	VFR Communication Equipment	<i>Operational requirement – To be determined as applicable</i>
91.517	IFR Instruments and Equipment	<i>Operational requirement – To be determined as applicable</i>
91.519	IFR Communication and Navigation Equipment	<i>Operational requirement – To be determined as applicable</i>
91.523 Emrgcy 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	Not Applicable – Less than 10 passenger seats Not Applicable – Less than 10 passenger seats 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	<i>Operational requirement – To be determined as applicable</i>
91.533	Oxygen for Non-Pressurised Aircraft	<i>Operational requirement – To be determined as applicable</i>
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational requirement – To be determined 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 – To be determined 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 and Restraints – Shoulder harness flight-crew seats	<i>Operating Rule – Compliance to be determined by Operator</i>
135.357	Additional Instruments (Powerplant and Propeller)	FAR 23 is an Appendix C airworthiness standard
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))	<i>Operating Rule – Compliance to be determined by Operator</i>
135.367	Cockpit Voice Recorder	Not Applicable – Only required for 2-crew large helicopters
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

Attachments

The following documents form attachments to this report:

- Photographs first-of-type example P.68C s/n 414 ZK-TZY
- Three-view drawing Vulcanair Model P.68 "Victor"
- Copy of ENAC Type Certificate Data Sheet Number SO/ A 365

Sign off

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David Gill
Team Leader Airworthiness

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Checked – AWE3
Date: 28 February 2006

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
P.68 B	AC 21-1.6/NZCAR Part 21 Appendix A(c)		
P.68 C	AC 21-1.6/NZCAR Part 21 Appendix A(c)		
P.68 C (s/n 412 on)	Vulcanair S.p.A.	4/21B/21	31 March 2004
P.68 C-TC	Mr A C K Gilbert	6/21B/11	28 February 2006