
Type Acceptance Report

TAR 14/21B/12

PIPER PA-22 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Piper Model PA-22 Series based on validation of FAA Type Certificate no. 1A6. 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 §21.191, 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).

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 14/21B/12 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. ICAO Type Certificate Details

Manufacturer:	Piper Aircraft Corporation
Type Certificate:	1A6
Issued by:	Federal Aviation Administration
Model(s):	PA-22
MCTOW	1800 lb.
Max. No. of Seats:	4
Noise Standard:	Not Applicable

Model(s): PA-22-135
MCTOW 1950 lb.
Max. No. of Seats: 4
Noise Standard: Not Applicable
Engine: Lycoming O-290-D [125 hp – PA-22]
Lycoming O-290-D2 [135 hp – PA-22-135]
Type Certificate: E-229
Issued by: Federal Aviation Administration
Propeller: Sensenich 74FM59
Type Certificate: P-170
Issued by: Federal Aviation Administration

3. Type Acceptance Details

The application for New Zealand type acceptance of the PA-22-135 was from the importer Mr C M Batten, dated 27 November 2013. (The Model PA-22 was also included to complete Type Acceptance of the Series.) The first-of-type example was PA-22-135 serial number 22-812, registered ZK-EZI. The PA-22 Tri-Pacer is a single-piston-engined high wing strut-braced four-seat light aeroplane with fixed tricycle undercarriage, of mixed steel tube/fabric covered construction.

Type Acceptance Certificate Number 14/21B/12 was granted on 13 December 2013 to the Piper Models PA-22 and PA-22-135 based on validation of FAA Type Certificate 1A6. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The Piper PA-22 Tri-Pacer was a tricycle-undercarriage version of the PA-20 Pacer, and development of different variants essentially paralleled that aircraft family. The first production PA-22 had a 125hp Lycoming O-290-D engine. From 1952 the Tri-Pacer was powered by a 135hp O-290-D2 engine as the PA-22"135". The PA-22-150 introduced in 1954 had a 150 HP O-320 engine and an increase in MAUW to 2000 lb. This was upgraded to the 160 HP PA-22"160" in 1957. In 1960 Piper produced an economy training version fitted with the Lycoming O-235 engine as the PA-22-108 Colt.

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:

FAA Type Certificate Number 1A6

FAA Type Certificate Data Sheet number 1A6 at Revision 34 dated August 7, 2006

- Model PA-22 approved December 20, 1950
- Model PA-22-135 approved May 5, 1952
- Model PA-22-150 approved September 3, 1954
- Model PA-22-160 approved August 27, 1957
- Model PA-22-108 approved October 21, 1960

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Piper PA-22 Series is CAR 3 effective November 1, 1949, and Amendments 3-1 through 3-6, effective June 4, 1951. This is an acceptable certification basis in accordance with NZCAR Part 21B paragraph §21.41 and Advisory Circular 21-1, 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 additional 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:*

Nil

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

Not Applicable.

(4) Certification Compliance Listing:

Piper Report No. 816 – Substantiation of Piper Model PA-22”150” Landplane for Normal Category at a Gross Weight of 2000 Pounds

Type Inspection Report – Piper PA-22”150”

Piper Engineering Report No. 1122 – Substantiation of Piper Model PA-22-108

Piper Engineering Report No. 1134 – Type Inspection Report PA-22-108

(5) Flight Manual: C.A.A.-Approved Airplane Flight Manual Piper PA-22"135" dated May 5, 1952 (aircraft with 50 lb baggage capacity) – Piper Report 675-A – CAA Accepted as AIR 3270

C.A.A.-Approved Airplane Flight Manual Piper PA-22"135" dated Oct 23, 1952 (aircraft with 100 lb baggage capacity) – Piper Report 675-B – CAA Accepted as AIR 3271

C.A.A.-Approved Airplane Flight Manual Piper Model PA-22 dated Dec 12, 1950 – Piper Report 675 – CAA Accepted as AIR 3272

(6) Operating Data for Aircraft, Engine and Propeller:

(i) *Maintenance Manual:*

(There is no published Maintenance Manual. Piper recommends AC 43.13-1 for standard repair procedures.) Inspection intervals can be found in Report 230 206.

See also Sections Three and Four – Owner's Handbook for Operation and Maintenance of The Piper Pacer (Model PA-20 135HP Airplane) and The Piper Tri-Pacer (Model PA-22 135HP Airplane) – Part No. 752 398

(ii) *Current service Information:*

Service Bulletins and Service Letters available on the Piper ftp site

(iii) *Illustrated Parts Catalogue:*

Not available

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

Service documentation is available on the Piper website

<http://www.piper.com/pages/publications.cfm>

5. Additional New Zealand Requirements

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

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 – Safety belt/Shoulder Harness	<i>To be determined on an individual aircraft basis</i>
91.507	Pax Information Signs – Smoking, safety belts fastened	N/A – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI CAR §3.655(a)(1) (2) Machmeter CAR §3.655(a)(2) (3) Altimeter CAR §3.655(a)(3) (4) Magnetic Compass CAR §3.655(b)(1)(i) (5) Fuel Contents CAR §3.655(b)(1)(iv) (6) Engine RPM CAR §3.655(b)(1)(ii) (7) Oil Pressure CAR §3.655(b)(1)(v)	(8) Coolant Temp N/A – Air-cooled engine (9) Oil Temperature CAR §3.655(b)(1)(iii) (10) Manifold Pressure N/A – Normally aspirated (11) Cylinder Head Temp. N/A – Less than 250 h.p. (12) Flap Position N/A – Not fitted to the PA-22 (13) U/c Position N/A – Fixed undercarriage (14) Ammeter/Voltmeter CAR §3.687 [Optional equipment]
91.511	Night VFR Instruments and Equipment	<i>Operating Rule – Compliance to be determined by operator</i>
91.513	VFR Communication Equipment	<i>Operating Rule – Compliance to be determined by operator</i>
91.517	IFR Instruments and Equipment	<i>Operating Rule – Compliance to be determined by operator</i>
91.519	IFR Communication and Navigation Equipment	<i>Operating Rule – Compliance to be determined by operator</i>
91.523	Emergency Equipment (a) More than 9 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily accessible 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 C126 406 MHz after 22/11/2007	<i>Operating Rule – Compliance to be determined by operator</i>
91.531	Oxygen Indicators – Volume/Pressure/Delivery	<i>Operating Rule – Compliance to be determined by operator</i>
91.533	Oxygen equipment for Non-Pressurised Aircraft	Not Fitted as Standard
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operating Rule – Compliance to be determined by operator</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Not turbo jet or turbofan powered
91.545	Assigned Altitude Indicator	<i>Operating Rule – Compliance to be determined by operator</i>
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Attachments

The following documents form attachments to this report:

Three-view drawing Piper Model PA-22 Tri-Pacer
Copy of FAA Type Certificate Data Sheet Number 1A6

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Peter Gill
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
PA-22-108	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-22-150	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-22-160	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-22, PA-22-135	C M Batten	14/21B/12	13 December 2013