
Type Acceptance Report

TAR 13/21B/8

PIPER PA-20

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Executive Summary

New Zealand Type Acceptance has been granted to the Piper Model PA-20 Series based on validation of FAA Type Certificate no. 1A4. 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. 13/21B/8 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.

2. ICAO Type Certificate Details

Manufacturer:	Piper Aircraft Corporation
Type Certificate:	1A4
Issued by:	Federal Aviation Administration
Model(s):	PA-20, PA-20-135
MCTOW	1800 lb. [PA-20] 1950 lb. [PA-20-135]
Max. No. of Seats:	4
Noise Standard:	Not Applicable
Engine:	Lycoming O-290-D [125 hp – PA-20] Lycoming O-290-D2 [135 hp – PA-20-135] Type Certificate: E-229 Issued by: Federal Aviation Administration

Propeller: Sensenich 74FM59 (125 hp) or 72FM59 (135 hp)
Type Certificate: P-170
Issued by: Federal Aviation Administration

Sensenich M76AM-2
Type Certificate: 1P2
Issued by: Federal Aviation Administration

Sensenich M74DM
Type Certificate: P-886
Issued by: Federal Aviation Administration

Model(s): PA-20-115

MCTOW 1750 lb.

Max. No. of Seats: 4

Noise Standard: Not Applicable

Engine: Lycoming O-235-C1 [108 hp]
Type Certificate: E-223
Issued by: Federal Aviation Administration

Propeller: Sensenich 74FM-56
Type Certificate: P-170
Issued by: Federal Aviation Administration

McCauley 1C90-LM-7254
Type Certificate: P-842
Issued by: Federal Aviation Administration

Sensenich M76AM-2 or -3
Type Certificate: P-886
Issued by: Federal Aviation Administration

3. Type Acceptance Details

The application for New Zealand type acceptance was originally from the importer Mr D Grant, dated 24 October 2012, but this was subsequently superseded by one from the manufacturer. The first-of-type example was a Model PA-20-135 serial number 20-962, registered ZK-PEE. The PA-20 Pacer is a single-piston-engined high wing four-seat light aeroplane with fixed undercarriage and of mixed steel tube/fabric covering construction.

Type Acceptance Certificate No. 13/21B/8 was granted on 11 December 2012 to the Piper PA-20 Series based on validation of FAA Type Certificate No. 1A4. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The PA-20 was derived from the PA-16 Clipper, with the adoption of the O-290 engine and the addition of wing fuel tanks, dual pilot control wheels, flaps, revised seats, and new landing gear and horizontal tail surfaces. (The PA-16 was a four-seat version of the PA-15 Vagabond, which was a “short” wing [29.5 ft span] 65hp low-cost version of the J3 Cub.)

The initial production model PA-20 had a 125hp Lycoming O-290-D engine, while shortly after Piper introduced the PA-20"115" with the 115hp Lycoming O-235-C1 engine. (However only 23 of this model was produced.) From 1952 the Pacer was powered by a 135hp O-290-D2 engine as the PA-20"135". Production ended in 1954 after a total of 1160 examples. The corresponding PA-20S Seaplanes had lower maximum takeoff weights to match the 90% reserve buoyancy of the same floats used on the PA-16S.

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 1A4

FAA Type Certificate Data Sheet number 1A4 at Revision 24 dated August 7, 2006

- Model PA-20 approved December 21, 1949
- Model PA-20"115" approved March 22, 1950
- Model PA-20"135" approved May 5, 1952

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Piper PA-20 is CAR 3 (no date or amendment status is specified). 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 Aircraft Corporation Report No.713 – Airplane Technical Data Index PA-20

Extracts from Piper Report No. 639 – Substantiation of the Model PA-20

Extracts from Piper Report 770 – Models PA-20, PA-22 Increased Gross Weight

(5) Flight Manual: CAA-Approved Airplane Flight Manual Piper PA-20 dated Dec 21, 1949 – Piper Report 649 – CAA Accepted as AIR 3238

CAA-Approved Airplane Flight Manual Piper PA-20”135” dated May 5, 1952 (aircraft with 50 lb baggage capacity) – Piper Report 649-B – CAA Accepted as AIR 3240

CAA-Approved Airplane Flight Manual Piper PA-20”135” dated Oct 23, 1952 (aircraft with 100 lb baggage capacity) – Piper Report 649-C – CAA Accepted as AIR 3239

CAA-Approved Airplane Flight Manual Piper PA-20”115” dated March 23, 1950 – Piper Report 649-III – CAA Accepted as AIR 3241

(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 (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	CAR §3.655(a)(1) CAR §3.655(a)(2) CAR §3.655(a)(3) CAR §3.655(b)(1)(i) CAR §3.655(b)(1)(iv) CAR §3.655(b)(1)(ii) CAR §3.655(b)(1)(v)
		(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 engine CAR §3.655(b)(1)(iii) N/A – Normally aspirated N/A – Less than 250 h.p. N/A – Not fitted to the PA-20 N/A – Fixed undercarriage CAR §3.687 – Optional eqpmt
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:

- Photographs first-of-type example PA-20-135 s/n 20-962 ZK-PEE
- Three-view drawing Piper Model PA-20 Pacer
- Copy of FAA Type Certificate Data Sheet Number 1A4

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-20, PA-20 “115” PA-20”135”	Piper Aircraft, Inc.	13/21B/8	11 December 2012