
Type Acceptance Report

TAR 2/21B/5 – Revision 2

Piper PA-18 and PA-19 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Piper PA-18 and PA-19 (L-18C) Series based on validation of FAA Type Certificate number 1A2. 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).

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. 2/21B/5 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. State-of-Design Type Certificate Details

Manufacturer: Piper Aircraft Corporation
Type Certificate: 1A2
Issued by: Federal Aviation Administration

Model: PA-19 (Army L-18C)

MCTOW 1500 lb. (680 kg.)

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Continental C90-8F/12F
Type Certificate: E3IN
Issued by: Federal Aviation Administration

Propeller: Sensenich W72GK50 or other fixed-pitch wood
Type Certificate: P-170
Issued by: Federal Aviation Administration

McCauley 1B90
Type Certificate: P-842
Issued by: Federal Aviation Administration

Sensenich M76AK-2
Type Certificate: 1P2
Issued by: Federal Aviation Administration

Model: PA-18"135"

MCTOW 1500 lb. (680 kg.)

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Lycoming O-290-D2
Type Certificate: E-229
Issued by: Federal Aviation Administration

Propeller: Sensenich W74FM52 or other fixed-pitch wood
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: PA-18S"105"

MCTOW 1500 lb. (680 kg.)

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Lycoming O-235-C1

Type Certificate: E-223

Issued by: Federal Aviation Administration

Propeller: McCauley 1B90

Type Certificate: P-842

Issued by: Federal Aviation Administration

Sensenich M76AM-2

Type Certificate: 1P2

Issued by: Federal Aviation Administration

Any fixed-pitch wood rated for engine power and speed

3. Type Acceptance Details

The application for New Zealand type acceptance of the Model L-18C was from the owner, Mr David Marwick, dated 1 November 2001. The first-of-type example was serial number 18-1626, registered ZK-KEZ. The PA-18/19 Super Cub is a high wing tandem two-seat fixed undercarriage light aircraft, of conventional steel-tube construction with fabric covering.

Type Acceptance Certificate Number 2/21B/5 was granted on 12 November 2001 to the Piper L-18C (PA-19) based on validation of FAA Type Certificate 1A2. 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 PA-18-135 variant. (There have been two previous examples of the PA-18A-135 in New Zealand, one of which is still active.) The first-of-type example was serial number 18-2717 registered ZK-PSC. Type acceptance was granted on 31 January 2013.

Revision 2 was raised to add the PA-18S"105" variant. The first-of-type example was serial number 18-2404 registered ZK-KSS. Type acceptance was granted on 22 December 2015.

The first model of the Piper Super Cub was the PA-19. The type record states the PA-19 is basically a Model PA-11 with a rectangular wing centre section and a PA-14 rudder, substantiated for the Utility Category. The aircraft was designed primarily for US Army use and therefore had allowances for additional equipment over the PA-11. There were three prototype aircraft, serials 19-1 through 19-3, although these were subsequently considered as equipment trials aircraft rather than military prototypes. Although the TCDS lists the L-18C as a PA-19 all production aircraft have 18-xxxx serial numbers.

The civil PA-18 Super Cub is the same as the PA-19, except that the transparent cockpit enclosure on the Army model L-18C is covered in fabric. (A military version of the PA-18 "125" was designated L-21A.) The various versions of the PA-18 are the same except for the different engine installation. The PA-18S Series are the seaplane version of the same model. However the PA-18S"105" (Special) was the same as the basic Model PA-18S except for modifications specifically for use in military training. (See the TCDS Note 3 for details.) The PA-18A Series were specialised versions intended for agricultural use, with the fuselage modified to accept the fitting of a hopper or related accessories in the rear seat area.

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 1A2

FAA Aircraft Specification number 1A2 at Revision 38 dated August 7, 2006

- Model PA-19 (Army L-18C) approved April 1, 1949
- Model PA-18 approved November 18, 1949
- Models PA-18S and PA-19S approved May 9, 1950
- Model PA-18"125" approved September 1, 1950
- Models PA-18"135" and PA-18A"135" approved April 25, 1952
- Model PA-18"105" and PA-18S"105" approved November 24, 1952
- Models PA-18"150" and PA-18A"150" approved October 1, 1954

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Piper PA-18/19 is CAR 3, as amended November 1, 1949. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as CAR 3 is the predecessor to FAR Part 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. 620 – Substantiation of Model PA-19 for Utility Category – 28/1/49

Includes: Addendum No.1 Substantiation for O-235-C1 Engine Installation – 22/7/49

Addendum No.2 Substantiation for O-290-D Engine Installation – 17/8/50

Copies of Official Flight Tests – Piper Models PA-18 and PA-18A

(5) Flight Manual: Airplane Flight Manual – Piper PA-18 and PA-19 – Continental Engine Installation – Section I of Report 623 C.A.A. Approved 1 April 1949 – CAA Accepted as AIR 2845

[applicable to landplanes or skiplanes equipped with Continental C-90-12 engine]

FAA Approved Airplane Flight Manual – Piper Model PA-18“150” and PA-18A“150” (1750 Pounds Gross Weight) – Piper Report 834 issued October 1, 1954 – CAA Accepted as AIR 3189
[applicable to landplanes or skiplanes equipped with Lycoming O-320 engine]

Airplane Flight Manual – Models PA-18 “135” and PA-18A “135” Piper Report 765 – C.A.A. Approved April 25, 1952 – CAA Accepted as AIR 3236
[applicable to landplanes or skiplanes equipped with Lycoming O-290-D2 engine]

Airplane Flight Manual – Piper Model PA-18 “105” (Special) – Lycoming Engine Installation-Model O-235-C1 – Section IV of Report 623 C.A.A. Approved 24 November 1952 – CAA Accepted as AIR 3346

Airplane Flight Manual – Piper PA-18 and PA-19 – Lycoming Engine Installation – Section II of Report 623 C.A.A. Approved 15 August 1949 – CAA Accepted as AIR 3347
[applicable to landplanes and skiplanes equipped with Lycoming O-235-C1 engine]

Airplane Flight Manual – Piper PA-18 and PA-19 – Lycoming Engine Installation – Section III of Report 623 C.A.A. Approved 30 August 1950 – CAA Accepted as AIR 3348
[applicable to landplanes equipped with Lycoming O-290-D engine]

FAA-Approved Airplane Flight Manual – PA-18-150 Super Cub Piper Report VB-1382 – CAA Accepted as AIR 3349
[applicable to SN 1809001 and up]

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

(i) *Maintenance Manual:*

(There is no published Maintenance Manual. Piper recommends AC 43.13-1B for standard repair procedures.) Inspection intervals can be found in Report 230 202. See also Section VI – Owner’s Handbook for Operation and Maintenance of the Piper Super-Cub – Models PA-18–95, PA-18–135 and PA-18A–95 – Part No. 752 398

Continental C75, C85, C90 & O-200 Overhaul Manual – Form X-30010
Series C-75, C-85, C-90 & O-200 Service Parts Catalog – Form X-30011
Continental Series A, C & O-200 Operator’s Manual – Form X-30012

(ii) *Current service Information:*

Service Bulletins

(iii) *Illustrated Parts Catalogue:*

Piper Report No. 642 – Model PA-18 Parts List Breakdown – 27/9/50

Piper Report No. 698 – Model PA-18A Parts List Breakdown

(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.

CAR 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	Agricultural Aircraft – <i>Not Applicable</i>

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:

CAR Part 91 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training	<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) N/A 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)
91.511 Night	(1) Turn and Slip (2) Position Lights	Not fitted as standard CAR §3.700 – Not fitted as standard
91.517	IFR Instruments and Equipment	N/A – Not IFR certificated
91.519	IFR Communication and Navigation Equipment	N/A – Not IFR certificated
91.523 Emergency Eqpmt.	(a) More Than 10 pax - First Aid Kits per Table 7 - Fire Extinguishers per Table 8 (b) \geq 20 pax - Axe (c) \geq 61 pax - Portable Megaphones	<i>Operational Requirement – Compliance as appropriate</i> <i>Operational Requirement – Compliance as appropriate</i> N/A – Less than 20 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	Not fitted as standard
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational Requirement – Compliance as appropriate</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	N/A – Not turbo jet or turbofan powered
91.545	Assigned Altitude Indicator	N/A – Not IFR certificated
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

CAR Part 135 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating and Restraints – Shoulder harness flightcrew seats	Shoulder harness kit available as optional equipment
135.357	Additional Instruments (Powerplant / Reversible Propeller)	Instruments required by FAR 23.1305 fitted as 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>Operational Requirement – Compliance as appropriate</i>
135.367	Cockpit Voice Recorder	N/A – Only for 2-crew helicopters with more than 10 pax
135.369	Flight Data Recorder	N/A – Less than 10 passenger seats
135.371	Additional Attitude Indicator	N/A – Not turbo jet or turbofan powered

NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was exactly 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:

- Photographs First-of-Type example L-18C s/n 18-1628 ZK-KEZ
- Three-view drawing Piper Aircraft Corporation Model L-18C
- Copy of FAA Aircraft Specification No.1A2

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-18	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-18A"135"	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-18"150"	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-18A"150"	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
PA-19 (L-18C)	D G Marwick	2/21B/5	12 November 2001
PA-18"135"	S P and G J Coulter	13/21B/16	31 January 2013
PA-18S"105"	Killintime Syndicate	16/21B/19	22 December 2015