
Type Acceptance Report

TAR 95/10 – Revision 1

STINSON 108 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Stinson 108 “Voyager” Series based on validation of FAA Type Certificate number 767. There are no special requirements for import.

This type acceptance certificate applies to all the Models on the FAA type certificate except the Model 108-5, which is a non-factory version with a larger 335 hp engine installed under Univair SB.269. Data to support this version has not been supplied, as the conversion is not a common one. All other versions detailed in Section 2 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.)

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. 95/10 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.

2. Aircraft Certification Details

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

Manufacturer: Stinson Division, Consolidated Vultee Aircraft Corp.
Type Certificate: A-767
Issued by: Federal Aviation Administration
Type Cert. Holder: Univair Aircraft Corporation

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

(i) **Model:** 108, 108-1, 108-2, 108-3

MCTOW: 2150 lb. [975 kg] – Model 108
2230 lb. [1011 kg] – Models 108-1, 108-2
2235 lb. [1014 kg] – 108, 108-1, 108-2 Seaplane
2400 lb. [1088 kg] – Model 108-3
2500 lb. [1134 kg] – 108-3 Seaplane

Max. No. of Seats: 4

Noise Standard: Not Applicable

Engine: Franklin 6A4-150-B31, -B3 or -B4 (Model 108, 108-1)
Franklin 6A4-165-B3 or -B4 (Model 108-2, 108-3)
Type Certificate: E-238
Issued by: Federal Aviation Administration

Propeller: Sensenich 76JA-53 or 76JR-53

Or any other suitable fixed pitch wooden propeller which meets diameter and static RPM limits

See TCDS A-767 for additional propeller options

Notes: 1. Refer to FAA TCDS A-767 for specific applicability of engine and propeller combinations to individual aircraft models.
2. Refer to Advisory Circular 21-1 Appendix 2 for the New Zealand type acceptance status of any engines and propellers listed in the TCDS.

3. Application Details and Background Information

The application for New Zealand type acceptance of the Stinson 108 Series was from the importer Mr Rex Evans by CAA Form 24021/02 dated 9-10-95. The first-of-type examples were a Model 108-3 serial number 108-3585, registered ZK-STN and a Model 108-2 serial number 108-2317, registered ZK-VGR. The Stinson 108 is a four-seat high-wing single-engine light aircraft with fixed tailwheel undercarriage and conventional steel-tube and fabric construction.

Type Acceptance Certificate Number 95/10 was granted on 27 November 1995 to the Stinson 108 Series based on validation of FAA Type Certificate A-767. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

Type History

The Stinson 108 was a development of the pre-war models 105 and 10, enlarged to carry four people and with a 150hp engine. The 108-1 increased MTOW from 2150 to 2230 lb., while the 108-2 saw the introduction of the 165 hp engine. The 108-3 is the same as the -2 except for larger fuel tank, MTOW increased to 2400 lb., and larger vertical tail with rudder trim tab (to replace the rudder bungee used on the -2.)

The Stinson Division of Convair was sold to the Piper Aircraft Corporation on 1 Dec 1948. The Stinson 108 type certificate was sold to Univair in the early 1960s, who continue to support the type with parts and data. A Univair STC to install a 200 hp Lycoming engine is apparently quite popular.

This report was raised to Revision 1 to update the format.

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:

FAA Type Certificate Number No.767, Reissued April 29, 1966

FAA Type Certificate Data Sheet no. A-767 at revision 28 dated 1 October 2011

- Models 108 and 108-1 approved July 19, 1946

- Model 108-2 approved May 18, 1948

- Model 108-3 approved September 17, 1948

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Stinson 108 Series is Part 3 of the Civil Air Regulations. No amendment state or effective date for CAR 3 is stated on the TC or the TCDS. (However this is typical for aircraft of this period.)

This is an acceptable certification basis in accordance with NZCAR Part 21B Para 21.41, as CAR 3 is the predecessor to FAR 23 which is the basic standard for Standard Category Airplanes called up under Appendix C. There are no non-compliances listed on the TCDS and no 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:

Not applicable.

(4) Certification Compliance Listing:

The Type Certificate holder, Univair Corporation supplied an Index of Engineering Reports for the 108 Series.

(5) Flight Manual: C.A.A. Approved Operating Limitations for the Stinson Voyager 150 (Model 108 – 1946) dated June 4, 1947 – CAA Accepted as AIR 2268

C.A.A. Approved Operating Limitations for the Stinson Voyager 150 (Model 108-1 – 1947) dated June 4, 1947 – CAA Accepted as AIR 2274

Universal Aircraft Industries FAA Approved Appendix A to CAA Approved Operating Limitations for Stinson 108 and 108-1 Landplane and 108 and 108-1 Seaplane – dated 11.5.63
(Applies to aircraft fitted with the Franklin 6A4-165-B3 engine)

CAA-Approved Stinson Model 108-2 Landplane Airplane Flight Manual dated Jan 4, 1949 – CAA Accepted as AIR 2552

CAA-Approved Stinson Model 108-3 Landplane Airplane Flight Manual dated Dec 29, 1948 – CAA Accepted as AIR 2553

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

(i) *Maintenance Manual:*

General Service Manual Stinson Model 108 Series Airplanes *

Franklin Engines Service Manual Models 6A4-150-B3, B31 & 6A4-165-B3 *

(ii) *Current service Information:*

Stinson Specifications, A.D. Notes, S.T.C.s Current through July 21, 1983 *

Stinson Service Bulletins & Letters for Stinson 108 Series *

Franklin Engines 150/160 hp Service Bulletins, Service Letters, Service News *

(iii) *Illustrated Parts Catalogue:*

Parts Catalogue for Stinson Models 1946-47-48 Voyager and Flying Station Wagon – Revised and Updated 13-9-88 by Univair Aircraft Corporation

Franklin Aircraft Engines Service Parts List Model 6A4-165-B3 *

Franklin Service Parts List Model 6A4-150-B3 and 6A4-145-A3 *

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

Univair letter dated Nov 3, 1995, undertaking to supply free of charge at CAA request copies of any Stinson technical books or Franklin manuals they publish

(8) Other information:

Catalogue – Classic Aircraft Parts and Supplies – Univair Aircraft Corporation *

Owner's Operating Manual for Stinson 108-1 Voyager 150 – 1947 *

Owner's OM for Stinson 108-2 Voyager and Flying Station Wagon – 1947 *

Owner's OM for Stinson Voyager and Flying Station Wagon – 1948 *

* Reprinted by Univair Aircraft Corporation

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

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	CAR §3.715
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	CAR §3.655(a)(1) Not Applicable CAR §3.655(a)(2) CAR §3.655(a)(3) CAR §3.672 CAR §3.655(b)(1)(iv) CAR §3.655(b)(1)(ii)
91.511	Night VFR Instruments and Equipment	<i>Operational requirement – Compliance as applicable</i>
91.513	VFR Communication Equipment	<i>Operational requirement – Compliance as applicable</i>
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 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>Operational requirement – Compliance as applicable</i>
91.531	Oxygen Indicators – Volume/Pressure/Delivery	<i>Operational requirement – Compliance as applicable</i>
91.533	Oxygen for non-Pressurised Aircraft	Not fitted as standard
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 turbo jet 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 Rule Part 135

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating / Restraints – Shoulder harness flight-crew seats	<i>Operational requirement – Compliance as applicable</i>
135.357	Additional Instruments (Powerplant and Propeller)	Has all instruments required under FAR §23.1305
135.359	Night Flight	<i>Operational requirement – Compliance as applicable</i>
135.361	IFR Operations	<i>Operational requirement – Compliance as applicable</i>
135.363	Emergency Equipment (Part 91.523 (a) and (b))	<i>Operational requirement – Compliance as applicable</i>
135.367	Cockpit Voice Recorder	N/A – Only for 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.

Attachments

The following documents form attachments to this report:

Three-view drawing Stinson Model 108 Voyager
Copy of FAA Type Certificate Data Sheet Number A-767

Sign off



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David Gill
Team Leader Aircraft Inspection



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Checked – Glen Somerville
Certification Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
108, 108-1, 108-2, 108-3	R O Evans	96/21B/13	27 November 1995

Appendix 2

3-View drawing Stinson Model 108-2

