Type Acceptance Report

TAR 9/21B/12

CESSNA 120/140

TABLE OF CONTENTS

Executive Summary

New Zealand Type Acceptance has been granted to the Cessna 120 and 140 based on validation of FAA Type Certificate number A-768. There are no special requirements for import. (Type acceptance only includes the engine/propeller combinations in this report.)

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(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.9/21B/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:	Cessna Aircraft Company
Type Certificate:	A-768
Issued by:	Federal Aviation Administration
Model(s):	120, 140
MCTOW	1450 lb. [Landplane] 1556 lb. [Seaplane]
Max. No. of Seats:	2
Noise Standard:	Not Applicable

Engines: Continental C85-12 or C85-12F

Type Certificate: E233
Issued by: Federal Aviation Administration

Continental C90-12F or C90-14F (1948 Model)

Type Certificate: E252
Issued by: Federal Aviation Administration

Propellers: Sensenich 74FC-47 (or any other approved fixed pitch wooden propeller which meets specified limits per the TCDS)

Type Certificate: P-170
Issued by: Federal Aviation Administration

Sensenich M76AK-2 or M74CK-2

Type Certificate: 1P2
Issued by: Federal Aviation Administration

McCauley 1A90-CF or 1A90-CH or 1B90-CM

Type Certificate: P-842
Issued by: Federal Aviation Administration

Note: Individual approved engine/propeller combinations are as listed on the TCDS. Other propeller types are specified on the TCDS, but have not been included in this type acceptance application.

3. Type Acceptance Details

The application for New Zealand type acceptance of the Cessna 120 was from the importer Mr F G Vernon, dated 5 January 2009. The first-of-type example was serial number 11759, registered ZK-XTX. The 120/140 is a two-seat high-wing strut-braced light aircraft.

Type Acceptance Certificate No. 9/21B/12 was granted on 30 January 2009 to the Cessna Models 120 and 140 based on validation of FAA Type Certificate number A-768. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The Model 140 was an all-new single-engine design introduced by Cessna after WWII, with all-metal monococque construction except for fabric-covered wings. The Model 120 was an economy version without flaps or rear-quarter window, and with less standard equipment and no electrical system.

The Cessna Model 120 was previously type accepted in New Zealand in 1983, but this was only applicable to serial number 11102, registered as ZK-FFK.

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 A-768

Type Certificate Data Sheet number A-768 at Revision 34 dated March 31, 2003
– Model 140 approved March 21, 1946
– Model 120 approved March 28, 1946

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:
The certification basis of the Cessna 120/140 is CAR 4a. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Appendix C, as CAR 4a was the basic standard for Normal Category Airplanes at that time and is listed in Advisory Circular 21-1A. 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

(ii) Compliance Listing:
Not Applicable

(4) Certification Compliance Listing:

Model 120 – Type Inspection Report

Cessna Report No. 620 – Model 140 – Basic Data
Model 140 – Type Inspection Report

(5) Flight Manual: C.A.A.-Approved Airplane Flight Manual – Model 120 and 140 Landplane (C85) – CAA Accepted as AIR 3081

C.A.A.-Approved Airplane Flight Manual – Model 120 and 140 Landplane or Skiplane (C90) – CAA Accepted as AIR 3082

(6) Operating Data for Aircraft:

(i) Maintenance Manual:
Publication D138-1-13 – Maintenance Manual Cessna 100 Series 1953-1962

(ii) Current service Information:
Service Bulletins

(iii) Illustrated Parts Catalogue:
Publication P104-12 – Parts Catalog 1946-49 Model 120 and 140

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

All Cessna publications are now available directly to the CAA through the Cessna website: http://techpubs.cessna.com/

(8) Other information:

P123-13 – Cessna 120/140 Owners Manual (1946-48)

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	***To be determined on an individual aircraft basis***
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 §04a.2640	
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 §04a.510(a) Not Applicable CAR §04a.510(b) CAR §04a.511(a) CAR §04a.510(h) CAR §04a.510(c) CAR §04a.510(d)	(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 CAR §04a.510(f) N/A – Fixed-Pitch N/A – less than 250 hp ***Compliance to be determined*** N/A – Fixed undercarriage ***Compliance to be determined***
91.511	Night VFR Instruments and Equipment		***Operating Rule – Compliance to be determined by operator***	
91.513	VFR Communication Equipment		***Operating Rule – Compliance to be determined by operator***	
91.517	IFR instruments and Equipment		***Operating Rule – Compliance to be determined by operator***	
91.519	IFR Communication and Navigation Equipment		***Operating Rule – Compliance to be determined by operator***	
91.523	Emergency Equipment: (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 C126 406 MHz after 22/11/2007		***Operating Rule – Compliance to be determined by operator***	
91.531	Oxygen Indicators - Volume/Pressure/Delivery		***Operating Rule – Compliance to be determined by operator***	
91.533	Oxygen for Non-Pressurised Aircraft		Not Fitted as Standard	
91.541	SSR Transponder and Altitude Reporting Equipment		***Operating Rule – Compliance to be determined by operator***	
91.543	Altitude Alerting Device - Turbojet or Turbofan		Not Applicable – Not turbo jet or turbofan powered	
91.545	Assigned Altitude Indicator		***Operating Rule – Compliance to be determined by operator***	
A.15	ELT Installation Requirements		***To be determined on an individual aircraft basis***	

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		***Operating Rule – Compliance to be determined by operator***
135.357	Additional Instruments (Powerplant and Propeller)		***Operating Rule – Compliance to be determined by operator***
135.359	Night Flight	Landing light, Pax compartment	***Operating Rule – Compliance to be determined by operator***
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses	***Operating Rule – Compliance to be determined by operator***
135.363	Emergency Equipment (Part 91.523 (a) and (b))		***Operating Rule – Compliance to be determined by operator***
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

Attachments

The following documents form attachments to this report:

Photographs first-of-type example Cessna 120 s/n 11759 ZK-XTX
Cessna Drawing 0400002 – Three View Model 120
Copy of FAA Type Certificate Data Sheet Number A-768

Sign off

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David Gill	Checked – Peter Gill
Team Leader Airworthiness	Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
120 (s/n 11102)	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
120, 140	F G Vernon	9/21B/12	30 January 2009