
Type Acceptance Report

TAR 18/21B/33

CESSNA 320/335/340 Series

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. AIRCRAFT CERTIFICATION DETAILS	2
3. APPLICATION DETAILS AND BACKGROUND INFORMATION	5
4. NZCAR §21.43 DATA REQUIREMENTS	6
5. NEW ZEALAND OPERATIONAL RULE REQUIREMENTS	8
ATTACHMENTS	9
APPENDIX 1	9

Executive Summary

New Zealand Type Acceptance has been granted to the Cessna Models 320, 335 and 340 Series based on validation of FAA Type Certificate number 3A25. There are no special requirements for import.

All models listed under the FAA type certificate have been type accepted in New Zealand, 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.)

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. 18/21B/33 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 covers all models included on the State-of-Design type certificate which have been granted type acceptance in New Zealand. Appendix 1 details which models have been type accepted in accordance with the provisions of CAR Part 21B and which were certificated prior to that under NZCAR Section B.9 and are now type accepted under the transitional arrangements of Part 21 Appendix A(c).

2. Aircraft Certification Details

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

Manufacturer: Cessna Aircraft Company

Type Certificate Holder: Textron Aviation Inc. (since July 29, 2015)
Type Certificate: 3A25
Issued by: Federal Aviation Administration

Production Approval: Delegation Option Manufacturer No. CE-3
Production Certificate No. 312.

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

- (i) **Model:** 320, 320-1, 320A, 320B, 320C
- MCTOW: 4900 lb. [2223 kg] – Model 320
5200 lb. [2358 kg]
- Max. No. of Seats: 5
- Noise Standard: Not Applicable
- Engine:** Continental TSIO-470-B, -C or -D
Type Certificate: FAA 3E3
- Propeller:** Hartzell HC-A2XF-2/8433
Type Certificate: FAA P-908
McCauley D2AF34C54/84HF – Model 320C
Type Certificate: FAA P5EA
- (ii) **Model:** 320D, 320E, 320F
- MCTOW: 5200 lb. [2358 kg] – Model 320D
5300 lb. [2404 kg]
- Max. No. of Seats: 5
- Noise Standard: Not Applicable
- Engine:** Continental TSIO-520-B or -BB
Type Certificate: FAA E8CE
- Propeller:** McCauley D2AF34C71/84JF
Type Certificate: FAA P5EA
McCauley 3AF32C87/82NC-4 or 3AF32C72/82N-4
Type Certificate: FAA P22EA

	McCauley 3AF32C504/82NEA-4 Type Certificate: FAA P57GL
(iii) Model:	340, 340A
MCTOW:	5975 lb. [2710 kg] 5990 lb. [2717 kg] – Model 340A
Max. No. of Seats:	6
Noise Standard:	FAR Part 36 (Model 340A)
Engine:	Continental TSIO-520-K or –KB Continental TSIO-520-N or -NB – Model 340A Type Certificate: FAA E8CE
Propeller:	McCauley D2AF34C71/84JF Type Certificate: FAA P5EA McCauley 3AF32C87/82NC-4 McCauley 3AF32C93/82NC-5.5 or 6.5 – Model 340A Type Certificate: FAA P22EA McCauley 3AF32C504/82NEA-4 McCauley 3AF32C505/82NEA-5.5 or 6.5 – Model 340A Type Certificate: FAA P57GL
(iv) Model:	335
MCTOW:	5990 lb. [2717 kg]
Max. No. of Seats:	6
Noise Standard:	FAR Part 36
Engine:	Continental TSIO-520-EB Type Certificate: FAA E8CE
Propeller:	McCauley 3AF32C87/82NC-5.5 Type Certificate: FAA P22EA McCauley 3AF32C504/82NEA-5.5 Type Certificate: FAA P57GL

3. Application Details and Background Information

There have been examples of the Model 320 and 340 in New Zealand prior to 1995 when Part 21 was introduced, and those particular model years or serial number ranges were therefore deemed to have a type acceptance certificate under the transitional arrangements of Part 21 Appendix A(c). The type certificate holder, Textron Aviation Inc., has now applied for New Zealand type acceptance of all models and variants on the type certificate not covered by the existing type acceptance. The Model 320 is a twin-engined low-wing unpressurised all-metal five seat light aircraft with retractable undercarriage.

Type Acceptance Certificate Number 18/21B/33 was granted on 8 September 2018 to the Cessna Model 320 Series, and the Models 340, 340A and 335 based on validation of FAA Type Certificate 3A25. There are no special requirements for import into New Zealand.

The Cessna Model 320 Skyknight was a turbocharged development of the Cessna Model 310F with TSIO-470-B engines and a fourth cabin side-window. It was in production between 1961 and 1969 when it was replaced by the similar Cessna Model Turbo 310.

The Model 340 was a new design using an all-new pressurised six-seat cabin mated to the Model 414 wing, 285 hp engines and the empennage and undercarriage from the Model 310. An improved version was the 340A in 1976 which used 310 hp engines. The Cessna Model 335 is an unpressurised, lighter weight and thus lower cost development of the 340.

There has only been one Model 320 previously in New Zealand, serial number 320E-0070 registered ZK-EGN in April 1979. There have also been examples of the Model 340 (serial number 340-0251 registered ZK-DSD in April 1974) and the Model 340A (serial number 340A-0906 registered ZK-JLT in July 1983).

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 3A25

FAA Type Certificate Data Sheet no. 3A25 at Revision 26 dated July 29, 2015

- Model 320 approved May 24, 1961
- Model 320A approved May 10, 1962
- Model 320B approved May 16, 1963
- Model 320C approved April 24, 1964
- Model 320D approved April 9, 1965
- Model 320E approved July 26, 1966
- Model 320F approved May 10, 1967
- Model 340 approved October 15, 1971
- Model 340A approved November 19, 1975
- Model 335 approved October 2, 1979

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Cessna Model 320 Series Part 3 of the Civil Air Regulations effective May 15, 1956, as amended by 3-1 through 3-5. For the Model 340 this was updated to CAR 3 as amended by 3-1 through 3-5 and 3-8, except Subpart B; and FAR Part 23 Subpart B and §23.959, §23.1041 and §23.1305(p) as amended by 23-1 through 23-7.

For the Models 340A and 335 this was further updated by CAR paragraphs §3.437(a), (b), (c), (d), (f), §3.581, and §3.666 being replaced by FAR Part 23, paragraphs §23.959, §23.1041 and §23.1305(p) at Amendment 23-7; plus paragraph §23.1387(e) at Amendment 23-12; and §23.1327 at Amendment 23-23.

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 of 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:*

Models 340A and 335:

CAR 3.757 Airspeed Indicator; CAR 3.778(a) Operating Limitations – The use of indicated instead of calibrated airspeed was accepted provided the approved calibration data given in the POH is available to the pilot. ASI calibration data must be predicated on flight test.

(iv) *Exemptions:*

Model 340:

Exemption No. 1435, FAR 23.1387(d) (CAR 3.702) "Aft Position Light Vertical Angle Coverage". The trailing edge of the rudder on the sweptback vertical fin assembly projects slightly into the specified coverage dihedral angle. (A wedge of 1° laterally and 20° fore and aft, which is approximately 0.3 steradians or 0.6% of the total coverage.) Cessna contended this amount of obstruction and its location would not cause any significant change in light transmission.

(v) *Airworthiness Limitations:*

Model 340/340A Service Manual (See Note 3 on TCDS.)

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The Model 340A has been certificated for noise under FAR Part 36, including Amendments 36-1 through 36-4, while the Model 335 is at Amendment 36-10.

(ii) *Compliance Listing:*

See Advisory Circular 36-1H Appendix 7 and Flight Manuals (Section 4).

Model:	MTOW:	Engine:	Propeller:	RPM:	Noise Levels	
					MdbA	CdbA
340A	5990	TSIO-520-N	3AF32C93 (76")	2700	83.4	79.7
340A	5990	TSIO-520-N	3AF32C93 (77")	2700	82.0	76.5
335	5990	TSIO-520-EB	3AF32C87	2700	79.6	78.1

(4) Certification Compliance Listing:

Cessna Report: S-320A-0: Basic Data (Model 320A)

Cessna Report: S-320B-1: Wing Analysis

Cessna Report: S-320B-2: Fuselage Analysis

Cessna Report: S-320B-3: Horizontal Tail Analysis

Cessna Report S-320E-100: Structures Substantiation Summary

Cessna Report DM 320E-0: Model 320E Type Inspection Report

Cessna Model 340 Equipment Lists

Weight & Balance Data (Model 340)

Cessna Report: S-340-110: Structures Data Summary (plus Revisions)

Cessna Report: 340-0: Type Inspection Report Basic Aircraft Configuration

Weight and Balance Data Sheets (Model 340A)

Cessna Model 340A Equipment Lists

Cessna Report: S-340-110: Structures Data Summary (Model 340)

Cessna Report: 340A-0: Type Inspection Report - Basic Aircraft Configuration

Weight & Balance Data (Model 335)

Cessna Model 335 Equipment List

Cessna Report: S-335-110: Structures Data Summary

Cessna Report: DM 335-0: Model 335 Basic Airplane Configuration

(5) Flight Manual:

CAA AIR Number:	Cessna Publication:	Title:
AIR 3825	D117-13	Model 320 (1962) Owner's Manual
AIR 3826	D146-13	Model 320A (1963) Owner's Manual
AIR 3827	D196-13	Model 320B (1964) Owner's Manual
AIR 3828	D248-13	Model 320C (1965) Owner's Manual
AIR 3829	D331-13	Model 320D (1966) Owner's Manual
AIR 2094	D395-13	Model 320E (1967) Owner's Manual
AIR 3830	D517-13	Model 320F (1968) Owner's Manual
AIR 3831	D920-13	Model 340 (1972) Owner's Manual
AIR 3832	D987-13	Model 340 (1973) Owner's Manual
AIR 3833	D1505-13	Model 340 (1974) Owner's Manual
AIR 3834	D1520-13	Model 340 (1975) Owner's Manual
AIR 3835	D1530-13	Model 340A (1976) Pilot's Operating Handbook
AIR 3836	D1543-13	Model 340A (1977) Pilot's Operating Handbook
AIR 2243	D1557-13	Model 340A (1978) Pilot's Operating Handbook
AIR 3837	D1570-13PH	Model 340A (1979) Pilot's Operating Handbook
AIR 2212	D1581-13PH	Model 340A (1980) Pilot's Operating Handbook
AIR 3838	D1591-13PH	Model 340A (1981) Pilot's Operating Handbook
AIR 3839	D1597-13PH	Model 340A (1982) Pilot's Operating Handbook
AIR 3840	D1609-13PH	Model 340A (1984) Pilot's Operating Handbook
AIR 3841	D1577-13PH	Model 335 (1980) Pilot's Operating Handbook

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

(i) *Maintenance Manual:*

Cessna 320 (1962-1965) Service Manual – Publication D247-13

Cessna 320 (1966-1968) Service Manual – Publication D508-13

Cessna 340/340A (1972-1984) Service Manual – Publication D930-13

Cessna 335 (1980) Service Manual – Publication D2522-13

(ii) *Current service Information:*

Service Bulletins

(iii) *Illustrated Parts Catalogue:*

Cessna 320 (1962-1965) Parts Catalog – Publication P301-12

Cessna 320 (1966-1968) Parts Catalog – Publication P390-12

Cessna 340 (1972-1984) Parts Catalog – Publication P653-12

Cessna 335 (1980) Parts Catalog – Publication P609-12

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

Textron Aviation Publications are now available through the Textron Aviation Technical Publications website at <https://ww2.txtav.com>

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 Rule 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 Rule Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Seating and Restraints – Safety belt/Shoulder Harness	FAR §23.785
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	FAR §23.1303(a) N/A – No Mach limitations FAR §23.1303(b) FAR §23.1303(c) FAR §23.1305(a) FAR §23.1305(d) FAR §23.1305(b)
		(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 fitted FAR §23.1305(c) FAR §23.1305(h) FAR §23.1305(f) N/A – Fixed Undercarriage FAR §23.1351
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	<i>Operational Requirement – Compliance as applicable</i> <i>Operational Requirement – Compliance as applicable</i> 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	FAR §23.785
135.357	Additional Instruments (Powerplant and Propeller)	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 then and compliance should be checked individually.
3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/135 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

The following documents form attachments to this report:

Three-view drawing Cessna Model 320 Skyknight
Copy of FAA Type Certificate Data Sheet Number 3A25

Sign off

.....
David Gill
Team Leader Airworthiness

.....
Checked – Kavita Vanmari
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
320E	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
340A (1978, 1980)	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
All other Models	Textron Aviation Inc	18/21B/33	8 September 2018