Type Acceptance Report

TAR 96/09 – Revision 1

CESSNA F150/F152 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Cessna F150/F152 and Aerobat Series based on validation of FAA Type Certificate number A13EU. There are no special requirements for import.

All models listed under the FAA type certificate have been type accepted in New Zealand, and 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. 96/09 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 models in New Zealand; and

(b) Identify any special conditions for import applicable to any models 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:

Type Certificate Holder: Cessna Aircraft Company (since December 11, 2006)

Type Certificate: A23EU
Issued by: Federal Aviation Administration

Production Approval: Not Applicable

(b) Other State-of-Manufacture Type and Production Certificates:

Manufacturer: Reims Aviation S.A.

Original TC: Certificat de Navigabilite de Type Numero 38
(Fiche de Navigabilite Numero 107)
Issued by: DGAC France

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

(i) **Models:** F150F, F150G, F150H, F150J
F150K, FA150K, F150L, FA150L
F150M, FA150M

MCTOW: 1600 lb. [726 kg]

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Continental O-200-A
Type Certificate: E-252
Issued by: Federal Aviation Administration

Propeller: Sensenich 69CK
Type Certificate: P-904
Issued by: Federal Aviation Administration

McCauley 1A100/MCM or 1A101/DCM
McCauley 1A101/GCM, /HCM, /PCM, /MCM
McCauley 1A102/OCM
Type Certificate: P-918
Issued by: Federal Aviation Administration

(ii) **Models:** FRA150L, FRA150M

MCTOW: 1650 lb. [748 kg]

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Rolls Royce Continental O-240-A
Rolls Royce Continental O-240-E [FRA150M]
Type Certificate: E11EU
Issued by: Federal Aviation Administration

Propeller: McCauley 1A135/BRM
Type Certificate: P-842
Issued by: Federal Aviation Administration

(iii) **Models:** F152, FA152

MCTOW: 1670 lb. [757 kg]

Max. No. of Seats: 2

Noise Standard: FAR Part 36

Engine: Lycoming O-235-L2C or -N2C
Type Certificate: E-223
Issued by: Federal Aviation Administration

Propeller: McCauley 1A103/TCM
Type Certificate: P50GL
Issued by: Federal Aviation Administration

3. Application Details and Background Information

The applicant for New Zealand type acceptance of the 1980 FA152 was from the importer of the First-of-Type example, Ms Elly Blanche, by Form 24021/02 dated 8 August 1996. The first-of-type example was serial number 0379 registered ZK-JST. The Cessna F150/F152 series is a two-seat high-wing all-metal single-engine light training aircraft.

Type Acceptance Certificate No.96/09 was granted on 13 September 1996 to the 1982 Reims Aviation FA152 based on validation of DGAC Type Certificate number 38. There are no special requirements for import into New Zealand.

Revision 1 to this report added all the other variants and model years of the F150/F152 Series not previously included. This was at the request of the type certificate holder, who has provided access to all technical publications.

Reims Aviation was a French company that manufactured US-designed Cessna aircraft under license, using a kit of parts supplied by Cessna. These included the F150, F152, F172, F177RG, F182, F337, F406 and their variants. These aircraft were identical to the US-built aircraft, but because they were produced in France they were given DGAC Type Certificates. Reims-produced models had the same designation as the Cessna model, except for the addition of an F prefix. The certification basis of the FA152 was stated on the French TCDS as AIR 2052 with amendments at 5.11.65. However it is known that the French type certificate was issued on the basis of the FAA type certificate. Reims Aviation stated the first-of-type aircraft, S/N 0379, was eligible for certification under A13EU, although only TC 38 was referenced on the aircraft dataplate.

The Reims FRA150 model, for which there is no Cessna equivalent, was a version with a 130 hp engine and was developed for Reims by Miles Aviation & Transport (R & D) Ltd and approved by the UK CAA, and subsequently adopted under the DGAC type certificate. A new flight manual was approved for the model, and there were amendments to the MM and IPC. The FAA TCDS just calls up the same year A150 Flight Manual, which presumably had a Supplement to cover the new engine. The O-240 engine could also be fitted to the FA150 model under a Reims modification. For the 1972-77 years Reims only produced the FRA150 version of the Aerobat. No FA150M at all were manufactured. (See Cessna Service Newsletter 94-6 serialisation list.) The DGAC type certificate also has a Model FRA150N which was approved on 6 June 1977. This was clearly overtaken by the Model 152, as there are no production examples of the FRA150N listed.)

Following the bankruptcy of Reims Aviation Cessna assumed responsibility for all the license-built models except the F406, and the DGAC type certificates were transferred back to the FAA as State-of-Design.

There have been previous examples of the FRA150L [ZK-FWW and ZK-TDI] and the F152 [ZK-JCP] on the New Zealand Civil Aircraft Register.

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 A13EU

FAA Type Certificate Data Sheet A13EU at Revision 15 dated August 22, 2014
- Model F150F approved May 27, 1965
- Model F150G approved December 22, 1966
- Model F150H approved October 13, 1967
- Model F150J approved September 5, 1968
- Models F150K and FA150K approved January 8, 1970
- Models F150L and FA150L approved December 17, 1970
- Model FRA150L approved February 9, 1972
- Models F150M, FA150M and FRA150M approved November 21, 1974
- Models F152 and FA152 approved June 24, 1977

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:
The certification basis of the Reims Cessna F150/F152 Series under FAA Type Certificate A13EU is Part 3 of the Civil Air Regulations dated May 15, 1956, as amended by 3-4. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as CAR 3 was the predecessor to FAR 23 which is the basic standard for Normal Category Airplanes called up under Appendix C. There are no non-compliances and no special conditions have been prescribed by the Director under §21.23.

(ii) Special Conditions:
Nil

(iii) Equivalent Level of Safety Findings:
1977 Model 150 and 152:
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 presented in the Pilot's Operating Handbook is available to the pilot. ASI calibration data must be predicated on flight test.

(iv) Airworthiness Limitations:
Nil

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:
The Models 152 and A152 have been certificated under FAR Part 36, including Amendments 36-1 through 36-5.

(ii) Compliance Listing:
Report ET-78-131 – Noise Level Certification for Light Propeller Driven Aircraft per FAR 36 (Amdt. 1-10)/Model 152/A152 – Corrected Noise Level 66.3 dB(A)

Report ET-82-12 – Flyover Noise Analysis for FAA Certification Model 152/A152

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

Model:	MTOW:	Engine:	Propeller:	RPM:	Noise Levels:	
					MdbA	CdbA
152	1670	O-235-L2C	1A102/TCM6955	2600	79.6	79.9
152/A152	1670	O-235-L2C	1A103/TCM6958	2600	79.6	79.6

(4) Certification Compliance Listing:

The DGAC type certificate was issued on the basis of the FAA type certificate for the identical type design, so no separate certification process was followed.

ARB Airworthiness Approval Note No.11671 – Cessna FRA150L – Modification No. MAT/M/FA.150L/RR.014 – Installation of Rolls Royce O-240A Engine

(5) Flight Manual:

Under the FAA TC the Reims built aircraft use the Owners Manual corresponding to the equivalent Cessna Model and Year, which was listed on the DGAC TCDS.

CAA AIR Number:	***Cessna Publication:***	***Cessna Title:***	***Reims applicability***
AIR 2426	D326-13	Model 150F (1966) OM	s/n F150-0001 thru F150-0067
AIR 2427	D397-13	Model 150G (1967) OM	s/n F150-0068 thru F150-0219
AIR 2428	D518-13	Model 150H (1968) OM	s/n F150-0220 thru F150-0389
AIR 2600	D624-13	Model 150J (1969) OM	s/n F150-0390 thru F150-0529
AIR 3663	D727-13	Model 150K (1970) OM	s/n F150-0530 thru F150-0658
AIR 3664	D836-13	Model 150L (1971) OM	s/n F150-0659 thru F150-0738
AIR 3665	D901-13	Model 150L (1972) OM	s/n F150-0739 thru F150-0863
AIR 238	D962-13	Model 150L (1973) OM	s/n F150-0864 thru F150-1013
AIR 3666	D1013-13	Model 150L (1974) OM	s/n F150-1014 thru F150-1143
AIR 254	D1033-13	Model 150M (1975) OM	s/n F150-1144 thru F150-1248
AIR 2621	D1055-13	Model 150M (1976) POH	s/n F150-1249 thru F150-1338
AIR 2622	D1080-13	Model 150M (1977) POH	s/n F150-1339 thru F150-1428
AIR 3056	D740-13	Model A150K (1970) OM	s/n FA150-0001 to FA150-0081
AIR 3667	D839-13	Model A150L (1971) OM	s/n FA150-0082 to FA150-0120
AIR 2049	D1107-13	Model 152 (1978) POH	s/n F152-1429 thru F152-1528
AIR 2745	D1136-13PH	Model 152 (1979) POH	s/n F152-1529 thru F152-1673
AIR 2746	D1170-13PH	Model 152 (1980) POH	s/n F152-1674 thru F152-1808
AIR 2156	D1190-13PH	Model 152 (1981) POH	s/n F152-1809 thru F152-1893
AIR 2180	D1210-13PH	Model 152 (1982) POH	s/n F152-1894 thru F152-1928
AIR 2197	D1229-13PH	Model 152 (1983) POH	s/n F152-1929 thru F152-1943
AIR 2246	D1249-13PH	Model 152 (1984) POH	s/n F152-1944 thru F152-1952
AIR 3040	D1270-13PH	Model 152 (1985) POH	s/n F152-1953 thru F152-1980

AIR 2032 D1108-13 Model A152 (1978) POH s/n FA152-0337 thru FA152-0347
AIR 2684 D1137-13PH Model A152 (1979) POH s/n FA152-0348 thru FA152-0357
AIR 2685 D1171-13PH Model A152 (1980) POH s/n FA152-0358 thru FA152-0372
AIR 2148 D1191-13PH Model A152 (1981) POH s/n FA152-0373 thru FA152-0377
AIR 2181 D1211-13PH Model A152 (1982) POH s/n FA152-0378 thru FA152-0382
AIR 2329 D1230-13PH Model A152 (1983) POH s/n FA152-0383 thru FA152-0387
AIR 3670 D1271-13PH Model A152 (1985) POH s/n FA152-0388 thru FA152-0425

SGAC-Approved Aircraft Flight Manual Reims/Cessna FRA150L – Publication D1015-13GB – CAA Approved as AIR 2191 (s/n 0121 on)

SGAC-Approved Aircraft Flight Manual Reims/Cessna FRA150M – Publication D1056-13GB – CAA Accepted as AIR 2274 (s/n 0262 on)

(6) Operating Data for Aircraft:

(i) Maintenance Manual:
Cessna 100 Series (1953-1962) Service Manual – Publication D138-13
Cessna 100 Series (1963-1968) Service Manual – Publication D637-13
Cessna Model 150 (1969-1976) Service Manual – Publication D971-13
Cessna Model 150 (1977) Service Manual – Publication D2011-13
Cessna Model 152 (1978-1985) Service Manual – Publication D2064-13

Cessna 100 Series Continued Airworthiness Program – Publication D5133-13

(ii) Current service Information:
Service Bulletins/Service Letters

(iii) Illustrated Parts Catalogue:
Cessna Model 150 (1959-1969) Parts Catalog – Publication P438-12
Cessna Model 150 (1970-1977) Parts Catalog – Publication P691-12
Cessna Model 152 (1978-1985) Parts Catalog – Publication P692-12

(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. 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		***To be determined on an individual aircraft basis***	
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 (8) Coolant Temp	CAR3 §3.655(a)(1) N/A – No mach limitation CAR3 §3.655(a)(2) CAR3 §3.655(a)(3) CAR3 §3.655(b)(1) CAR3 §3.655(b)(4) CAR3 §3.655(b)(2) N/A – Air cooled	(9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter (15) CO indicator	N/A – less than 250 hp N/A – not turbo, not CSP N/A – less than 250 hp CAR 3 §3.338 N/A – fixed gear CAR §3.681 ***To be determined for each individual aircraft***
91.511	Night VFR Instruments and Equipment		***To be determined on an individual aircraft basis***	
91.513	VFR Communication Equipment		***To be determined on an individual aircraft basis***	
91.517	IFR Instruments and Equipment		***To be determined on an individual aircraft basis***	
91.519	IFR Communication and Navigation Equipment		***To be determined on an individual aircraft basis***	
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 9 Passengers Not Applicable – less than 9 Passengers Not Applicable – less than 20 Passengers Not Applicable – less than 61 Passengers	
91.529	ELT - TSO C126 406 MHz after 22/11/2007		***To be determined on an individual aircraft basis***	
91.531	Oxygen Indicators - Volume/Pressure/Delivery		***To be determined on an individual aircraft basis***	
91.533	Oxygen for Non-Pressurised Aircraft		***To be determined on an individual aircraft basis***	
91.541	SSR Transponder and Altitude Reporting Equipment		***To be determined on an individual aircraft basis***	
91.543	Altitude Alerting Device - Turbojet or Turbofan		Not Applicable – Not turbojet or turbofan	
91.545	Assigned Altitude Indicator		***To be determined on an individual aircraft basis***	
A.15	ELT Installation Requirements		***To be determined on an individual aircraft basis***	

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. 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 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

The following documents form attachments to this report:

Three-view drawing Reims/Cessna Model FA152
Copy of FAA Type Certificate Data Sheet Number A13EU

Sign off

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David Gill	Checked – Jason Ashworth
Team Leader Airworthiness	Team Leader Product Certification

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
FRA150L	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
FA152 (1982)	E B Groombridge	97/21B/3	13 September 1996
All others	Textron Aviation Inc.	18/21B/15	12 March 2019