# Type Acceptance Report TAR 96/15 – Revision 3 CESSNA 172 Series

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### **Executive Summary**

New Zealand Type Acceptance has been granted to the Cessna Model 172 Skyhawk Series based on validation of FAA Type Certificate number 3A12. 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. 96/15 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: Textron Aviation Inc. (s/n 172S11615 and on)

Cessna Aircraft Company (up to July 29, 2015)

Type Certificate: 3A12

Issued by: Federal Aviation Administration

Production Approval: Delegation Option Manufacturer No. CE-1

FAA Production Certificate No.4

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

(i) Model: 172, 172A, 172B, 172C, 172D

172E, 172F, 172G, 172H

MCTOW: 2200 lb. [ 998 kg]

2250 lb. [1020 kg] – Model 172C

2300 lb. [1043 kg] - Model 172D thru 172H

Max. No. of Seats: 4

Noise Standard: Not Applicable

**Engine**: Continental O-300-A, O-300-B, O-300-C, O-300-D

Type Certificate: FAA E-253

**Propeller**: McCauley 1A170

Type Certificate: FAA P-857

Sensenich M74DR or 74DR or 74DC Type Certificate: FAA P-886

McCauley 1C172/MDM or EM 7652, 53, or 55

Type Certificate: FAA P-910

(ii) Model: 172I, 172K, 172L, 172M, 172N, 172P

MCTOW: 2300 lb. [1043 kg]

Max. No. of Seats: 4

Noise Standard: FAR Part 36 (Model 172N on)

**Engine**: Lycoming O-320-E2D

Lycoming O-320-H2AD (Model 172N) Lycoming O-320-D2J (Model 172P) Type Certificate: FAA E-274

**Propeller**: McCauley 1C172/MTM 7653 or 1C160/CTM 7553

McCauley 1A160/DTM 7553 or 1C160/DTM 7553 or 7557

Type Certificate: FAA P-910

(iii) **Model:** 172Q

MCTOW: 2550 lb. [1156 kg]

Max. No. of Seats: 4

Noise Standard: FAR Part 36

Engine: Lycoming O-360-A4N

Type Certificate: FAA E-286

**Propeller**: McCauley 1A170E/JFA 7658

Type Certificate: FAA P-857

(iv) **Model:** 172R, 172S

MCTOW: 2450 lb. (1111 kg) – Model 172R

2550 lb. (1156 kg) – Model 172S

Max. No. of Seats: 4

Noise Standard: FAR Part 36

**Engine**: Lycoming IO-360-L2A

Type Certificate: FAA 1E10

**Propeller**: McCauley IC235/LFA7570 – Model 172R

Type Certificate: FAA P12EA

McCauley 1A170E/JHA7660 - Model 172S

Type Certificate: FAA P-857

NOTES: 1. See the FAA TCDS for applicability of engine and propeller models.

2. See Advisory Circular 21-1 Appendix 2 for the New Zealand type acceptance status of engines and propellers.

### 3. Application Details and Background Information

There have been many examples of the Cessna 172 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 first application for New Zealand type acceptance under Part 21B was for the Model 172R, from the manufacturer dated 10 August 1996. The first-of-type examples were serial numbers 17280092 and 17280093, registered ZK-NPJ and ZK-OUI respectively. The Cessna Model 172 is a fixed-gear single-engine four-seat high-wing all-metal light aeroplane.

Type Acceptance Certificate Number 96/15 was granted on 4 February 1997 to the Cessna Model 172R based on validation of FAA Type Certificate 3A12. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 to include the 172R/S models equipped with the new NAV III option. The application was from the manufacturer dated 15 March 2005. The opportunity was also taken to update the report to the latest format and include the 172S which was previously covered separately by TAR 99/1. The application for New Zealand type acceptance of this model was from the manufacturer dated 5 June 1998. The 172S is nearly identical to the 172R except the engine power has been increased to 180 hp by the simple process of raising the maximum RPM to 2700 and fitting a new propeller. The MTOW is increased to 2550 lb. The 172R can be up-rated to 172S specification by embodiment of Cessna Modification Kit MK172-72-01, although this is only applicable to certain serial numbers. (The same process can also be achieved by STC.)

Type Acceptance Certificate Number 99/1 was granted on 30 October 1998 to the Cessna Model 172S based on validation of FAA Type Certificate 3A12. There are no special requirements for import into New Zealand.

The report was raised to Revision 2 to include the Block Point Change 2008 (BP2008) aircraft. Under this production update on the Models 172R/S the KAP140 autopilot has been replaced with the Garmin GFC-700 AFCS and a new Flight Manual is used. Other changes include vibrometer fuel senders, LED position/ground recognition lights, improved pedestal lighting and Garmin G1000 software updates. The application for type acceptance was from the manufacturer dated 11/1/08.

Revision 3 to this report added the 1983-84 Cessna 172Q not previously included, and updated the format to list all other type certificated variants. This was at the request of the type certificate holder, who has provided access to all technical publications.

The Cessna 172 started life as a tricycle landing gear variant of the proposed Cessna 170C, which had been developed with the Continental O-300 engine and enlarged and squared off vertical tail. It went through the typical Cessna yearly model update, with the swept back tail introduced on the 1960 172A, and the" omni-vision" rear window came on the 1963 172D. A major change was the introduction of the Lycoming four-cylinder engine on the 172I. Tapered steel tube landing gear was fitted to the 1971 172L, and the drooped (cambered) wing leading edge introduced on the 1973 172M.

The first example of the Cessna 172 Skyhawk in New Zealand was serial number 28480 registered ZK-BQG in May 1956.

### 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 3A12

FAA Type Certificate Data Sheet number 3A12 at Revision 84 dated July 29, 2015

- Model 172 approved November 4, 1955
- Model 172A approved July 16, 1959
- Model 172B approved June 14, 1960
- Model 172C approved July 18, 1961
- Model 172D approved June 19, 1962
- Model 172E approved June 27, 1963
- Model 172F approved April 21, 1964
- Model 172G approved June 15, 1965
- Model 172H approved June 7, 1966
- Model 172I approved December 15, 1967
- Model 172K approved May 9, 1968
- Model 172L approved May 13, 1970
- Model 172M approved May 12, 1972
- Model 172N approved May 17, 1976
- Model 172P approved May 13, 1980
- Model 172Q approved October 15, 1982
- Model 172R Approved June 21, 1996
- Model 172S Approved May 1, 1998

### (2) Airworthiness design requirements:

### (i) Airworthiness Design Standards:

The certification basis of the Cessna 172 Series up to the Model 172P is Part 3 of the Civil Air Regulations effective May 15, 1956, as amended by 3-1 through 3-12. From the 1979 Model 172N on FAR §23.1559 effective March 1, 1978 was added. In addition, from the 1985 172P on, FAR §23.1545(a) Amendment 23-23 dated December 1, 1978. For the 172Q FAR §25.951(b)(2) Amendment 23-15 effective October 31, 1974 was also added.

The certification basis of the Cessna 172R is FAR Part 23 effective February 1, 1965, including Amendments 23-1 through 23-6, plus later amendment dates for individual paragraphs as detailed on the TCDS. (In a Position paper dated 02 June 1995 the FAA requested Cessna update the certification basis of the Model 172R from the CAR 3 requirements used for the original type approval to some level of FAR 23. During negotiations on the matter the FAA offered to allow Cessna to choose any level of FAR 23, down to the subparagraph level, which the 172R could meet without unduly changing the design of the aircraft over that already planned. The FAA also agreed not to impose additional or later requirements on the 172R unless they believed that it was necessary for the safety of the aircraft.)

The certification basis for aircraft with the Garmin G1000 Integrated Cockpit System (ICS) was updated individually by FAR 23 paragraph, again as detailed on the TCDS. In addition Special Condition 23-159-SC was applied. For aircraft with the GFC-700 AFCS two further paragraphs were updated to a later Amendment.

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and AC 21-1A, because FAR 23 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:

172R and 172S:

Special Condition 23-159-SC [FAA Docket No. CE219] Protection of Systems for High Intensity Radiated Fields (HIRF) – Defines the HIRF environment for which no adverse effect on critical function performance must be demonstrated. This may be by test, analysis, models or similarity, or any combination of these.

### (iii) Equivalent Level of Safety Findings:

172 through 172P:

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.

### 172R and 172S:

Induction System Icing Protection - The system does not literally comply with FAR \$23.1093. Cessna showed compliance by flight test with the fuel injector impact tubes closed off and the engine induction filter blocked over 50% of area to simulate ice. Stabilised flight was achieved for at least 30 min. Appropriate procedures were included in the Pilot's Operating Handbook.

Throttle and Mixture Controls - FAR \$23.1143(g) and \$23.1147(b) at Amendment 43 specifies that attachments must be designed so that the flight can continue and land if the controls separate. (Usually a spring device is used.) This was to account for poor reliability. Cessna proposed a design with compensating elements which included features less likely to separate in flight (ball bearing rod ends and oversized washers); mandatory inspection intervals and procedures; and replacement criteria.

### BP2008 172R and 172S:

ACE 07-09 Anti-Collision Light System – FAR §23.1401(d) at Amendment 23-11 requires a red light. This ELOS was granted to use white strobe lights which meet all the requirements of the rule except for colour. The strobe light has been previously accepted under STC and PMA, and later amendments of the Rule allow red or white. However the certification basis could not be amended to include this later Amendment, as it also required a four-fold increase in light emission intensities.

ACE 07-10 Aviation White Colour Requirement – FAR §23.1397(c) specifies navigation light intensities, colour specifications and field of coverage. Calculations for colours and intensity are derived for incandescent lights, and may not be applicable to LED technology. Cessna requested an ELOS for the new LED rear position light, using requirements of TSO C30c to define the colour.

### (iv) Airworthiness Limitations:

See the Airplane Maintenance Manual.

### (3) Aircraft Noise and Engine Emission Standards:

### (i) Environmental Standard:

The Model 172N has been certificated for noise under FAR Part 36, including Amendments 36-1 through 36-5. This was updated to Amendment 36-12 for the 172P and 172Q, and Amendment 36-21 for the 172R and 172S.

# (ii) Compliance Listing: See Advisory Circular 36-1H Appendix 7 and Flight Manuals (Section 4).

Model:	MTOW:	Engine:	Propeller:	RPM:	Noise L	evels
		J	'		MdbA	CdbA
172N	2300	O-320-H2AD	1C160/DTM 7557	2700	74.3	73.8
172P	2400	O-320-D25	1C160/DTM7557	2700	74.3	73.8
172Q	2550	O-360-A4N	1A170E/JFA7658	2700	74.9	dB(A)

Structural Dynamics Report No.D-172R-31 172R Take Off Noise Certification 73.3 dB(A) FAR 36 Appx.G [Amdt 36-21] – 76.3 dB(A) ICAO Annex 16 Ch.10 [Amdt.4]

Structural Dynamics Report No.D-172S-31 172S Take Off Noise Certification 75.1 dB(A) FAR 36 Appx.G [Amdt 36-21] – 78.2 dB(A) ICAO Annex 16 Ch.10 [Amdt.4]

### (4) Certification Compliance Listing:

Cessna 172Reports: 8000: Basic Data; 8001: Wing Analysis; 8002: Fuselage Analysis; 8003: Horizontal Tail Analysis; 8004: Vertical Tail Analysis; 8007: Landing Gear Analysis; 8009: Control System Analysis; 8010: Misc. Analysis

Cessna Report No. 8024-2: Ground Vibration Test Results, Model 172A Cessna Report No. S-172C-31: Equipment Weight Report, Model 172C Cessna Report S-172D-34: Substantiation of Model 172D Utility Category Cessna Report S-172E-0: Model 172E – Basic Data

Cessna Report S-172F-26-2: Ground Vibration Test Results and Flutter Analysis Cessna Report S-172G-33: Structures Substantiation Summary, 172G Cessna Report S-172H-33: Structures Substantiation Summary, 172H Report No. DM 172I-0: Basic Certification of the 172I with Lycoming 0-320-E2D Cessna Report No. DM-172K-0: Certification of 1970 Changes, Model 172K

Report No. DM-172N-0: Approval of 1979 Model Changes to the 172N Landplane

Airworthiness Rpt. 172-95-001 Master Compliance Checklist – Model 172R Airworthiness Rpt. 172-97-003 Master Compliance Checklist, 172S Skyhawk

Airworthiness Report No. PR-172-001 Master Compliance Checklist, NAV III (G1000 EFIS) Model 172R/172S Skyhawk – dated 21/2/05 (Section 4.0 includes Index of Titles for Data used in 172R/172S EFIS MCC)

DO Manufacturer Flight Test Report No. DM172R-29 Approval of the Garmin G1000 in the Cessna 172R

Delegation Option MFTR No. DM172S-29 Approval of G1000 ICS in 172S

McCauley Compliance Check Sheet Report 1C235/LFA FAA 8110-3 form dated 11/8/95 (Vibration Approval)

FAA 8110-3 form dated 11/8/95 (Approval Basis)

McCauley Compliance Check Sheet Report – Model 1A170/JHA dated 3/27/98 FAA 8110-3 form dated 3/27/98 (Vibration Approval) FAA 8110-3 form dated 5/4/98 (Approval Basis

### (5) Flight Manual:

CAA AIR Number:	Cessna Publication:	Title:
AIR 3121	P130A-13	Model 172 (1956) Owner's Manual
AIR 2950	P181-13	Model 172 (1957-1958) Owner's Manual
AIR 3013	P168-13	Model 172 (1959) Owner's Manual
AIR 3060	P188-13	Model 172A (1960) Owner's Manual
AIR 3032	D880-13	Model 172B (1961) Owner's Manual
AIR 25	D124-13	Model 172C (1962) Owner's Manual
AIR 2341	D157-13	Model 172D (1963) Owner's Manual
AIR 2304	D209-13	Model 172E (1964) Owner's Manual
AIR 2342	D615-13	Model 172F (1965) Owner's Manual
AIR 2343	D616-13	Model 172G (1966) Owner's Manual
AIR 2344	D638-13	Model 172H (1967) Owner's Manual
AIR 3121	D584-13	Model 172I (1968) Owner's Manual
AIR 3125	D625-13	Model 172K (1969) Owner's Manual
AIR 3126	D742-13	Model 172K (1970) Owner's Manual
AIR 3127	D837-13	Model 172L (1971) Owner's Manual
AIR 3130	D902-13	Model 172L (1972) Owner's Manual
AIR 2179	D964-13	Model 172M (1973) Owner's Manual
AIR 2771	D1016-13	Model 172M (1974) Owner's Manual
AIR 2772	D1036-13	Model 172M (1975) Owner's Manual
AIR 2000	D1057-13	Model 172M (1976) Pilot's Operating Handbook
AIR 3213	D1082-13	Model 172N (1977) Pilot's Operating Handbook
AIR 3212	D1109-13	Model 172N (1978) Pilot's Operating Handbook
AIR 3215	D1138-13PH	Model 172N (1979) Pilot's Operating Handbook
AIR 2125	D1172-13PH	Model 172N (1980) Pilot's Operating Handbook
AIR 2149	D1192-13PH	Model 172P (1981) Pilot's Operating Handbook
AIR 2182	D1212-13PH	Model 172P (1982) Pilot's Operating Handbook
AIR 2198	D1231-13PH	Model 172P (1983) Pilot's Operating Handbook
AIR 3673	D1247-13PH	Model 172Q (1983) Pilot's Operating Handbook
AIR 2228	D1251-13PH	Model 172P (1984) Pilot's Operating Handbook
AIR 3674	D1252-13PH	Model 172Q (1984) Pilot's Operating Handbook
AIR 2250	D1272-13PH	Model 172P (1985) Pilot's Operating Handbook
AIR 3857	D1273-13PH	Model 172Q (1985) Pilot's Operating Handbook
AIR 2367	D1297-13PH	Model 172P (1986) Pilot's Operating Handbook

172R Pilot's Operating Handbook and FAA Approved Flight Manual P/N 172RPHUS00 Issued 2 Dec 1996 – CAA Accepted as AIR 2575

172S Pilot's Operating Handbook and FAA Approved Flight Manual P/N 172SPHUS00 Issued 8 July 1998 – CAA Accepted as AIR 2633

172R (NAV III Avionics Option) FAA Approved AFM and POH P/N 172RPHAUS00 Issued 8 Mar 2005 – CAA Accepted as AIR 2916

172S (NAV III Avionics Option) FAA Approved AFM and POH P/N 172SPHAUS00 Issued 25 Feb 2005 – CAA Accepted as AIR 2917

172R (NAV III Avionics – GFC 700) FAA Approved AFM and POH P/N 172RPHBUS00 Issued 20 Dec 2007 – CAA Accepted as AIR 3026

172S (NAV III Avionics – GFC 700) FAA Approved AFM and POH P/N 172SPHBUS00 Issued 20 Dec 2007 – CAA Accepted as AIR 3027

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

### (i) Maintenance Manual:

Cessna 100 Series (1953-1962) Service Manual – Publication D138-1-13 Cessna 100 Series (1963-1968) Service Manual – Publication D637-13 Cessna 172 (1969-1976) Service Manual – Publication D972-13 Cessna 172 (1977-1986) Service Manual – Publication D2065-13 Cessna 172 Series (1996 and On) Maintenance Manual – Publication 172RMM Cessna Single Engine Structural Repair Manual – Publication SESR Cessna 172R/S Wiring Diagram Manual – Publication 172RWD

Direct Drive Overhaul Manual Pub.No. 60294-7 – Revisions 60294-7-5 thru 7 Service Manual 730720 for McCauley Met-L-Prop Fixed Pitch Propellers

### (ii) Current service Information:

Cessna Service Bulletins

Lycoming Service Bulletin, Letter and Instruction INDEX – SSP-494 McCauley Service Bulletins 137H, 176C, 177B, 205B McCauley Service Letters 1973-9 through 1997-3

### (iii) Illustrated Parts Catalogue:

Cessna 172/175 (1956-1962) Parts Catalog – Publication P257-12 Cessna 172 (1963-1974) Parts Catalog – Publication P529-12 Cessna 172 (1975-1986) Parts Catalog – Publication P696-12 Cessna 172R/172S (1997 and on) Parts Catalog – Publication P-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 <a href="https://www2.txtav.com">https://www2.txtav.com</a>

### (8) Other information:

Cessna Letter L417-02-96-92 – 1996 Model 172R Configuration Changes Cessna Letter L417-02-98-062 – Model 172S Skyhawk SP Differences Cessna Letter L390-05-0843 – Details of NAV III Avionics Option 172R/S Cessna Letter L-390-08-0061 – Details of Block Point Change 2008 Changes

McCauley Installation Drawing C-5465, ECN 10535 dated 11/6/95 McCauley Paint Scheme Drawing D-6629, ECN 10572 dated 12/18/95 McCauley Drawing No. C-5465 Propeller – Installation at ECN 10988 McCauley Drawing No. D-7561 Paint Scheme-Blade F/P 1A170E/JHA

## 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	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		Integrated seat belt/shoulder harness fitted – POH 7-15			
91.507	Pax Information Signs – Smoking, safety belts fastened		Not Applicable – Less than 10 passenger seats			
91.509	(1) ASI	FAR §23.1303(a) Fitted as Std	(8) Coolant Temp N/A – Air cooled engir			
Min.		– See POH Fig.7-2 Item 7	(9) Oil Temperature	FAR §23.1305(c) Fitted as Std		
VFR	(2) Machmeter	N/A – No Mach limitations		– See POH Fig.7-2 Item 1		
	(3) Altimeter	FAR §23.1303(b) Fitted as Std	(10) Manifold Pressure	Fitted as Standard – See POH		
		– See POH Fig.7-2 Item 12		Fig.7-2 Item 44		
	(4) Magnetic Compass	FAR §23.1303(c)	(11) Cylinder Head Temp.	Fitted as Standard – See POH		
	(5) Fuel Contents	FAR §23.1305(a) Fitted as Std		Fig.7-2 Item 4		
		– See POH Fig.7-2 Item 3	(12) Flap Position	FAR §23.699(a)(2) Fitted as		
	(6) Engine RPM	FAR §23.1305(d)(e) Fitted as		Std – POH Fig.7-2 Item 27		
		Std – See POH Fig.7-2 Item 10	(13) U/c Position	N/A – Fixed Undercarriage		
	(7) Oil Pressure	FAR §23.1305(b) Fitted as Std	(14) Ammeter/Voltmeter	FAR §23.1351(d) Fitted as Std		
		– See POH Fig.7-2 Item 1		– See POH Fig.7-2 Item		
91.511	Night VFR Instruments and Equipment			Operational requirement – Compliance as applicable		
91.513	VFR Communication Equipment		KX-155A Fitted as Standard – 2 <sup>nd</sup> fitted under NAV I or II			
91.517	IFR Instruments and Equipment					
	(1) Gyroscopic AH	Fitted as Std – POH page 7-44	(5) OAT	See POH Fig.7-2 Item 5		
	(2) Gyroscopic DI	Fitted as Std – POH page 7-44	(6) Time in hr/min/sec	See POH Fig.7-2 Item 5		
	(3) Gyro Power Supply	Gauge/warning annunciator	(7) ASI/Heated Pitot	Fitted as Std – POH page 7-42		
	(4) Sensitive Altimeter	Fitted as Std – POH page 7-44	(8) Rate of Climb/Descent			
91.519	IFR Communication and I	Navigation Equipment	NAV I or II Options add KI			
				n G1000 system which includes		
			as standard dual VHF Nav/O	Comm and GPS.		
91.523	Emergency Equipment:					
	(a) More Than 9 pax – Fir		Not Applicable – Less than 10 passenger seats			
		Fire Extinguishers per Table 8	Not Applicable – Less than 10 passenger seats			
		te readily accessible to crew	Not Applicable – Less than 20 passenger seats			
	• •	rtable Megaphones per Table 9	Not Applicable – Less than 61 passenger seats			
91.529	ELT – TSO C126 406 MHz after 22/11/2007		Operational requirement - Compliance as applicable			
91.531	Oxygen Indicators – Volume/Pressure/Delivery		Operational requirement – Compliance as applicable			
91.533	Oxygen for non-Pressurised Aircraft		Not fitted as standard			
91.541	SSR Transponder and Altitude Reporting Equipment		KT-76C with Mode C fitted as standard			
91.543	Altitude Alerting Device – Turbojet or Turbofan		Not Applicable – Not turbo jet or turbofan powered			
91.545	Assigned Altitude Indicator		Operational requirement - Compliance as applicable			
A.15	ELT Installation Requiren	nents	To be determined on an individual aircraft basis			

NOTE: Page and Figure references are based on the 172R Pilot's Operating Handbook 172RPHUS.

### **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		Fitted as Standard (FAR §23.785) – NOTE: Am-safe AAIR
			inflatable restraint system (airbag) has been approved for the
			172 Series under FAA STC Number SA01700LA
135.357	Additional Instruments (Powerplant and Propeller)		Certificated to FAR Part 23, including §23.1305
135.359	Night Flight	Landing light, Pax compartment	Operational requirement – Compliance as applicable
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses	Operational requirement – Compliance as applicable
135.363	Emergency Equipment (Part 91.523 (a) and (b))		Operational requirement – Compliance as applicable
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 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

### **Attachments**

Sign off

The following documents form attachments to this report:

Photographs first-of-type example 172R s/n 17280092 ZK-NPJ Three-view drawing Cessna Model 172R Skyhawk Copy of FAA Type Certificate Data Sheet Number 3A12

David Gill Checked – Kavita Vanmari Team Leader Airworthiness Airworthiness Engineer

# Appendix 1

# **List of Type Accepted Variants:**

Model:	Applicant:	CAA Work Request.	Date Granted:
172 through 172P	Advisory Circular 21-1.2/	NZCAR Part 21 App	pendix A(c)
172R	Cessna Aircraft Company	97/21B/9	4 February 1997
172S	Cessna Aircraft Company	99/21B/1	30 October 1998
172R/S – NAV III	Cessna Aircraft Company	5/21B/30	29 April 2005
172R/S - BP2008	Cessna Aircraft Company	8/21B/20	25 February 2008
172Q	Textron Aviation Inc	18/21B/32	28 September 2018