
Type Acceptance Report

TAR 7/21B/31 – Revision 2

Champion 8KCAB/GCBC

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. ICAO TYPE CERTIFICATE DETAILS	1
3. TYPE ACCEPTANCE CERTIFICATE	4
4. TYPE DATA	5
5. ADDITIONAL NEW ZEALAND REQUIREMENTS	7
ATTACHMENTS	8
APPENDIX 1	8

Executive Summary

New Zealand Type Acceptance has been granted to the Champion Models 8KCAB and 8GCBC based on validation of FAA Type Certificate number A21CE. There are no special requirements for import.

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(b).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.7/21B/31 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.

2. ICAO Type Certificate Details

TC Holder:	American Champion Aircraft Corp. FRA Enterprises, Inc. [Until May 30, 1989] Tetelestai Inc. [Until December 27, 1988] Champion Aircraft Inc. [Until October 11, 1988] Bellanca Aircraft Corporation [Until November 1, 1982]
Type Certificate:	A21CE
Issued by:	Federal Aviation Administration
MODEL:	8KCAB
MCTOW	1800 lb. [816 kg] (Can be increased to 1950 lb. Normal Category per SL 423)
Max. No. of Seats:	2
Noise Standard:	FAR Part 36 amended through 36-24

Engines: Lycoming IO-320-E1A/B (must be modified per STC SE7CE) or
Lycoming AEIO-320-E1B or E2B

Type Certificate: 1E12
Issued by: Federal Aviation Administration

Lycoming AEIO-360-H1A or H1B

Type Certificate: 1E10
Issued by: Federal Aviation Administration

Propellers: Hartzell HC-C2YL-4/C7663-4, HC-C2YL-4F/FC7663-4 or
HC-C2YL-4BF/FC7663-4 [150 hp]

Hartzell HC-C2YR-4CF/F7666A-2 [180 hp]

Type Certificate: P-920
Issued by: Federal Aviation Administration

Sensenich 74DM6S8-0 [150 hp]

Type Certificate: P-886
Issued by: Federal Aviation Administration

MT-Propeller MTV-15-B-C/C188-34 [180 hp]

Type Certificate: P23BO / P.098
Issued by: FAA Import / EASA

MT-Propeller MTV-9-B-C/C188-18b [180 hp]

Type Certificate: P24NE / LBA 32.130/065
Issued by: FAA Import / EASA

MODEL: 8GCBC

MCTOW 2150 lb. [975 kg]

Max. No. of Seats: 2

Noise Standard: FAR Part 36 amended through 36-9

Engines: Lycoming O-360-C1A/E/G or -2A/E

Type Certificate: E-286
Issued by: Federal Aviation Administration

Lycoming IO-390-A1B6

Type Certificate: E00006NY
Issued by: Federal Aviation Administration

Propellers: McCauley 1A200HFA80
Type Certificate: P-874
Issued by: Federal Aviation Administration

Hartzell HC-C2YK/R-1BF/F7666A
Type Certificate: P-920
Issued by: Federal Aviation Administration

Hartzell HC-C3YR-1RF/F7282
Type Certificate: P25EA
Issued by: Federal Aviation Administration

MT-Propeller MTV-15-B/203-58
Type Certificate: P23BO / P.098
Issued by: FAA Import / EASA

MT-Propeller MTV-9-B/190-18a
Type Certificate: P24NE / LBA 32.130/065
Issued by: FAA Import / EASA

3. Type Acceptance Certificate

The application for New Zealand type acceptance of the 8KCAB was from the importer Mr R E Fry, dated 14 February 2007. The first-of-type example was serial number 741-95, registered ZK-REF. The Model 8 Decathlon is a tandem two-seat aerobatic strut-braced high-wing monoplane with fabric-covered steel-tube fuselage and fixed undercarriage.

Type Acceptance Certificate No. 7/21B/31 was granted on 12 June 2007 to the Champion Model 8KCAB based on validation of FAA Type Certificate A21CE. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 under Work Request 9/21B/18 to include more recent production aircraft which use a later Flight Manual. The First-of-Type example was serial number 1087-2009 registered ZK-DCL. Type acceptance was granted on 16 June 2009.

Revision 2 was issued under Work Request 12/21B/11 to add the Model 8GCBC Scout. The First-of-Type example was serial number 398-98 registered ZK-TRF. Type acceptance was granted on 10 April 2012.

The Model 8KCAB Decathlon was developed from the Citabria as a fully aerobatic aircraft with a semi-symmetric airfoil capable of inverted flight and negative-g manoeuvres. The aircraft is called the Super Decathlon when fitted with the 180 hp engine. This is standard on later production aircraft, which also have all-metal wings. The Model 8GCBC Scout is a non-aerobatic utility version, derived from features of the Decathlon and the Citabria.

4. Type Data

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) Type certificate:

FAA Type Certificate Number A21CE

FAA Type Certificate Data Sheet no. A21CE at Revision 15 dated Sept 13, 2011
– Model 8KCAB approved October 16, 1970
– Model 8GCBC approved April 30, 1974

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Champion Model 8 is FAR 23 dated February 1, 1965 as amended by 23-1 and 23-6. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, because FAR Part 23 is the basic standard for Normal Category Airplanes called up under Part 21 Appendix C. There are no non-compliances and no special conditions have been prescribed by the Director under §21.23.

(ii) *Special Conditions/Equivalent Level of Safety Findings:*

Nil

(iii) *Airworthiness Limitations:*

See 8KCAB Service Manual Section XII and SM-701 Section 4

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The Model 8KCAB has been certificated against the noise standards of FAR Part 36, including Amendments 36-1 through 36-24, while the Model 8GCBC meets Part 36, including Amendments 36-1 through 36-9.

(ii) *Compliance Listing:*

The noise characteristics for the 8KCAB measured in accordance with Part 36 Appendix F is 67.2 dB(A) at full throttle 2700 – See AFM Section 2.1.22

The noise level for the 8GCBC per Part 36 Appendix F is 73.0 dB(A) at 2550 RPM with either the Hartzell or McCauley propellers, while for the MT propeller under Part 36 Appendix G it was 82.9 dB(A) [2-blade propeller] and 79.1 dB(A) [3-blade propeller] at 2700 RPM – See AFM Section 2.13

(4) Certification Compliance Listing:

Model 8KCAB Report Index

Model 8GCBC Report Index

(5) Flight Manual:

FAA-Approved Airplane Flight Manual Champion Model 8KCAB With Lycoming Engine AEIO-360-H1A Beginning with S/N 644-91 – CAA Accepted as AIR 3008

FAA-Approved Airplane Flight Manual American Champion Model 8KCAB with Lycoming Engine AEIO-360-H1B (180 HP) – CAA Accepted as AIR 3093

FAA-Approved Airplane Flight Manual American Champion Model 8GCBC with Lycoming Engine (s/n 394-98 and up) – CAA Accepted as AIR 3208

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

(i) *Maintenance Manual:*

ACA Service Manual for Super Decathlon 8KCAB 1991 and Newer

8GCBC Service Manual – Document SM-701 (model years 1991 and up)

(ii) *Current service Information:*

American Champion Aircraft Corporation Service Letters/Helps and Hints

(iii) *Illustrated Parts Catalogue:*

ACA Parts Manual for Model 8KCAB – Applicable to 1990 Model years and up

8GCBC Parts Manual – Document PM-701 (model years 1994 and up)

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

Revisions will be available on the ACA website. (See email dated 8 June 2007)

Subscription service for Model 8GCBC publications from ATP

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	<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 (for the Model 8KCAB) 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	Fitted as Standard (See Flight Manual Section 2.1.9)
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) – Std.Eqpt.* N/A – No Mach limitations FAR §23.1303(b) – Std.Eqpt.* FAR §23.1303(c) – Std.Eqpt.* FAR §23.1305(a)(1) – Std.Eqpt.* FAR §23.1305(a)(4) – Std.Eqpt.* FAR §23.1305(a)(2) – Std.Eqpt.*
91.511 Night	(1) Turn and Slip (2) Position Lights	Fitted as Standard* FAR §23.1385 – Std. Eqpt.*
	* See Flight Manual Section 4.6 Equipment List	
91.513	VFR Communication Equipment	<i>Operational requirement – To be determined as applicable</i>
91.517	IFR Instruments and Equipment	Not Applicable – Not approved for IFR Flight
91.519	IFR Communication and Navigation Equipment	Not Applicable – Not approved for IFR Flight
91.523 Emrgcy Eqpmt.	(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 – To be determined as applicable</i> <i>Operational requirement – To be determined as applicable</i> Not Applicable – Less than 20 passenger seats Not Applicable – Less than 61 passenger seats
91.529	ELT - TSO C91a or C126 after 1/4/97 (or replacement)	<i>Operational requirement – To be determined as applicable</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	<i>Operational requirement – To be determined as applicable</i>
91.533	Oxygen for Non-Pressurized Aircraft Above FL100 – Supplemental, Therapeutic for crew, Pax	Not fitted as standard (Service Ceiling in the Flight Manual is 16,000 feet)
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational requirement – To be determined as applicable</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Not approved for IFR Flight
91.545	Assigned Altitude Indicator	Not Applicable – Not approved for IFR Flight
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

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	FAR §23.785
135.357	Additional Instruments (Powerplant and Propeller)	FAR §23.1305
135.359	Night Flight	<i>Operational requirement – To be determined as applicable</i>
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses
135.363	Emergency Equipment (Part 91.523 (a) and (b))	<i>Operational requirement – To be determined 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

Attachments

The following documents form attachments to this report:

Photographs first-of-type example 8KCAB serial no.741-95 ZK-REF
Three-view drawing Champion Model 8KCAB Super Decathlon
Copy of FAA Type Certificate Data Sheet Number A21CE

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Greg Baum
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
8KCAB (s/n 644-91 and up)	R E Fry	7/21B/31	29 June 2007
8KCAB (s/n 934-03 and up)	R S Ballinger	9/21B/18	16 June 2009
8GCBC (s/n 394-98 and up)	L S Phillips	12/21B/11	10 April 2012