
Type Acceptance Report

TAR 3/21B/26 – Revision 1

Aeronca/Champion 7 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Aeronca/Champion 7 Series based on validation of FAA Type Certificate number A-759. 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.3/21B/26 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 in New Zealand; and
- (b) Identify any special conditions for import applicable to any model 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. Foreign Type Certificate Details

Manufacturer:	Aeronca Aircraft Corporation [Until July 19, 1954] Champion Aircraft Corporation [Until March 15, 1971] Bellanca Aircraft Corporation [Until November 1, 1982] Champion Aircraft Company [Until October 11, 1988]
TC Holder:	American Champion Aircraft Corp. [Since May 10, 1989]
Type Certificate:	A-759
Issued by:	Federal Aviation Administration
Model:	7AC
MCTOW	1220 lb.

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Continental A-65-8

Type Certificate: E-205
Issued by: Federal Aviation Administration

Propeller: McCauley 1B90CM (See TCDS for multiple options)

Type Certificate: x
Issued by: Federal Aviation Administration

Model: 7GCBC

MCTOW 1650 lb. (1800 lb. for aircraft with 7-1545 wings)

Max. No. of Seats: 2

Noise Standard: FAR Part 36, Appendix G (s/n 1198-80 and up)

Engine: Lycoming O-320-A2B or -C2B or -A2D (See TCDS for options)

Type Certificate: E-274
Issued by: Federal Aviation Administration

Propeller: McCauley 1C172AGM72 (See TCDS for multiple options)

Type Certificate: P-910
Issued by: Federal Aviation Administration

3. Type Acceptance Certificate

The application for New Zealand type acceptance of the 7AC was from the importer, dated 7 February 2003. The first-of-type example was serial no. 7AC-5384, registered ZK-KCO. The Aeronca 7AC is a tandem two-seat high wing monoplane. The fuselage is of welded-steel tube construction with fabric covering. The 7AC strut-braced wing has a wooden spar and alloy ribs, while later production models have aluminium spars.

Type Acceptance Certificate No. 3/21B/26 was granted on 4 April 2003 to the Aeronca Model 7AC based on validation of FAA Type Certificate A-759. 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 to include the 1994 and later production model of the 7GCBC. (All aircraft produced since March 1, 1979 are required to have a Flight Manual). The applicant was Mr Andrew Hope and the first of type example was serial number 1335-2002 registered ZK-CIT. Type acceptance was granted on 1 March 2006.

The current type certificate holder is the American Champion Aircraft Corporation of Rochester, Wisconsin. They still offer new-build examples of the Model 7 Citabria and Model 8 Scout and Super Decathlon. They were contacted and confirmed the Service Manual is the only applicable publication, plus Service Letters for the Aeronca series.

The Aeronca Model 7AC Champion was the first of the 7 series, which were subsequently developed into a wide range of models with bigger engines and aerobatic capability. A large number of the 7AC were produced in the general aviation boom period immediately following world war two. One example serial number 7AC-1593 was imported into NZ in 1951 as ZK-AWF, and de-registered in 1965 after being destroyed in an accident. Type acceptance had therefore lapsed and was required under the new Rules.

4. Type Data

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents:

(1) Type certificate:

- FAA Aircraft Specification Number A-759 at Revision 66 dated August 25, 1997
 - Model 7AC approved October 18, 1945
 - Model 7EC approved November 30, 1949
 - Model 7ECA approved August 5, 1964
 - Model 7GCAA approved July 30, 1965
 - Model 7GCBC approved December 3, 1965

(2) Airworthiness design requirements:

The certification basis of the Aeronca 7 Series is Part 4(a) of the Civil Air Regulations effective as amended to April 7, 1950, except paragraph 4a.532(m). Two paragraphs of FAR Part 23 were added for some later models, including the 7GCBC. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as CAR 4a was subsequently superseded by CAR 3 which is the predecessor of FAR 23. The latter 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.

(3) Certification compliance listing:

A Type Record was prepared and assessed when the aircraft was first imported, based on Aeronca Reports supplied by DGCA Australia. These were returned after a detailed summary was prepared under Job. No. 346. The following were retained:
Aeronca Report 7A-A-0 – Manufacturer’s Flight Test Model 7AC – Rev.D 7/11/47
Aeronca Report 7A-P-0 – Group Drawing List – Model 7A completed Dec 1, 1944

Champion Aircraft Corp. Report 7E-A-0 – Manufacturers Flight Tests Model 7EC

Champion Aircraft Corp. Report 7ECA-W-1 – Weight and Balance Model 7ECA
CAC Report 7ECA-S-14 – Analysis – Engine Mount Model 7ECA
CAC Report 7ECA-S-O – Basic Data and Substantiation – Model 7ECA

CAC Report 7ECA-A-0 – Manufacturers Flight Tests Model 7ECA
Champion Aircraft Corp. Report 7ECA-S-8 – Static Tests Model 7ECA

Champion Aircraft Corp. Report 7G-W-1 – Design Weight & Balance Model 7GC
CAC Report 7G-S-O – Basic Data and Structural Analysis – Model 7GC

Report 7GCAA-S-O – Basic Data - Analysis - Substantiation – Model 7GCAA
Type Inspection Authorisation No. CA1130CE-D – Model 7GCAA
CAC Report 7GCAA-W-1 – Weight and Balance Model 7GCAA

Champion Aircraft Corp. Report 7GCB-S-O – Basic Data – Model 7GCB
Champion Aircraft Corp. Report 7GCB-S-4 – Fuselage Analysis Model 7GCB
CAC Report 7GCB-S-6 – Structural Analysis – Flap Control System Model 7GCB
Champion Aircraft Corp. Report 7GCB-S-8 – Strength & Proof Tests Model 7GCB
CAC Report 7GCB-A-10 – Flight Test Model 7GCB

CAC Report 7GCBC-S-O – Basic Data and Substantiation – Model 7GCBC
CAC Report 7GCBC-W-1 – Weight and Balance Model 7GCBC

(4) Environmental Certification:

See 7GCBC AFM: Noise level at full throttle is 69.66 dB(A)

(5) Flight manual: No Flight Manual was required for the 7AC under the original certification basis. A suitable document was therefore prepared using a standard template and CAA Accepted as AIR 2819

FAA-Approved Airplane Flight Manual Citabria Explorer 7GCBC
(s/n 1240-98 and up) – CAA accepted as AIR 2943

(6) Illustrated Parts Catalogue:

None produced for the 7AC

ACA Corp. – Parts Manual for Models 7ECA, 7GCAA, 7GCBC

(7) Maintenance manual and service data for aircraft, engine and propeller:

Service Manual 7A Aeronca Champion (Photocopy of Univair reprint)

American Champion Aircraft Corporation – Service Manual for Citabria Models
7ECA, 7GCAA, 7GCBC – 1994 Model Years and Newer

(8) Agreement from manufacturer to supply updates of data in (4), (5) and (6):

The CAA accepts no revision service is available as the 7AC is long out of production and the aircraft publications have effectively been “frozen”. Manual reprints are available from a number of sources.

(9) Other information:

American Champion Aircraft Corporation – Pilot’s Operating Handbook Citabria
Models 7ECA, 7GCAA, 7GCBC 1994 Models and Newer

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 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	Shoulder Harness if Aerobatic; >10 pax; Flight Training	P/N 3-541 safety belt (2x) fitted as standard *
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Less than ten passenger seats
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	ASI fitted as standard * N/A – No mach number limits Altimeter fitted as standard * Compass fitted as standard * Float type gauge fitted as std Tachometer fitted as standard * Oil press indicator fitted as std *
		(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 Oil temp indicator fitted as std * N/A – Naturally-aspirated engine N/A – Less than 250 h.p. N/A – Flaps not fitted N/A – Fixed landing gear N/A – No electrical system
	* See Drawing “Fixed Equip’t and Door Installation” in the Service Manual page 19	
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	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 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 C91a after 1/4/97 (or replacement)	<i>To be determined on an individual aircraft basis</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Not fitted as standard
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 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)	Aircraft has the instruments required under §23.1305
135.359	Night Flight	Landing light, Pax compartment
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses
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

Attachments

The following documents form attachments to this report:

Photographs first-of-type example Aeronca 7AC s/n 5384 ZK-KCO
Photographs first-of-type example 7GCBC s/n 1335-2002 ZK-CIT
Three-view drawing Aeronca Model 7AC Champion
Three-view drawing Champion Citabria
Copy of FAA Aircraft Specification Number A-759

Sign off

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David Gill
Team Leader Airworthiness

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Checked – AWE5
Date: 1 March 2006

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
7EC	AC 21-1.2/NZCAR	Part 21 Appendix A(c)	
7ECA (up to s/n 1294-78)	AC 21-1.2/NZCAR	Part 21 Appendix A(c)	
7GCAA (up to s/n 377-78)	AC 21-1.2/NZCAR	Part 21 Appendix A(c)	
7GCBC (up to s/n 1107-78)	AC 21-1.2/NZCAR	Part 21 Appendix A(c)	
7AC	G M Orphan	3/21B/26	4 April 2003
7GCBC (s/n 1240-98 and up)	A C Hope	6/21B/22	1 March 2006