
Type Acceptance Report

TAR 98/14 – Revision 1

GIPPSLAND GA200 Series

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. ICAO TYPE CERTIFICATE DETAILS	1
3. TYPE ACCEPTANCE DETAILS	2
4. NZCAR §21.43 DATA REQUIREMENTS	3
5. ADDITIONAL NEW ZEALAND REQUIREMENTS	5
ATTACHMENTS	6
APPENDIX 1	6

Executive Summary

New Zealand Type Acceptance has been granted to the Gippsland Aeronautics GA200 Series based on validation of CASA Type Certificate number VA519. 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 §21.191, 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(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 98/14 was granted in the Restricted 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 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. ICAO Type Certificate Details

Type Certificate:	VA519
Issued by:	Civil Aviation Safety Authority
Manufacturer:	GIPPSLAND AERONAUTICS Pty. Ltd.
	Note: The name changed to GippsAero Pty Ltd as of 6 May 2010
TC Holder:	GA200 Pty Ltd [Since Revision 9 dated 08.08.2006]
Model:	GA200C
MCTOW	1524 kg (3360 lb.)

Max. No. of Seats: 2

Noise Standard: Not Applicable

Engine: Lycoming IO-540-K1A5 or
Lycoming IO-540-K1C5 modified in accordance with Edge
Aviation EO No. EA001001 Issue 3
Type Certificate: 1E4
Issued by: Federal Aviation Administration

Propeller: Hartzell HC-C2YR-1BF/F8475R
Type Certificate: P-920
Issued by: Federal Aviation Administration

3. Type Acceptance Details

The application for New Zealand type acceptance was from the NZ agent and importer Patchett Ag-Air Ltd dated 2 February 1998. The first-of-type example was the second production aircraft serial number 200C9827, registered in New Zealand as ZK-EMD. (The prototype aircraft serial number 200C9723 has been flying in NZ as VH-AMU.)

Type Acceptance Certificate No.98/14 was granted to the GA200C in the Restricted Category on 9 September 1998 at the original maximum take-off weight of 1315 kg. Type acceptance at the increased MCTOW of 1524 kg was granted on 17 February 1999, based on validation of CASA Certificate of Type Approval number 83-6.

The GA200C is a development of the original GA200 at the instigation of the NZ agent. It has a larger volumetric capacity hopper (1050 litres), and associated with that a revised fuselage structure and a fuel injected 300 hp engine with constant speed propeller. The GA200C incorporates the Option 1 extended wing tips as standard and has a modified fuel system with gravity fed sump tank. Initially certification was achieved at the same weights as for the GA200 and at the same 250 hp in the standard category. Gippsland subsequently certificated the GA200C at a higher weight and with a slight increase in structural speeds. (To provide for the possible installation of an IO-580 engine.) The changed airworthiness limitations were originally going to be applied to a proposed GA200C-1 model, but that designation has now been dropped.

This report was raised to Revision 1 under CAAWork Request 13/21B/6 to note the change in manufacturer and TC holder and the re-issue of the Australian type certificate. The opportunity was also taken to update the report to the current format. The last production example of the GA200 Series was serial number 200C-0345.

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) ICAO Type certificate:

Type Certificate VA519 Issue 1 dated 8 August 2006

Type Certificate Data Sheet VA519 Revision 11 dated 28 September 2011

- Model GA200 approved 1 March 1991
- Model GA200C approved 3 April 1998

Supersedes:

Australian CTA Number 83-6 Issue 2 dated 3 April 1998

Certificate of Type Approval Data Sheet No.83-6 at Revision 6 dated 3 April 1998

Certificate of Type Approval Data Sheet No.83-6 at Revision 7 dated 6 Dec. 1998

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Gippsland Aeronautics GA-200C is Australian Civil Aviation Order (CAO) 101.16 Issue 2, including Amendments 27, 46 and 52, CAO 101.17 Issue 3, CAO 101.22 Issue 4 including Amendment 72, and FAR Part 23 at Amendment 36. (ANO 101.16 and 101.17 are airworthiness certification requirements for aircraft less than 5700 kg MAUW of Australian manufacture and imported, respectively. ANO 101.22 are airworthiness requirements for aircraft in the Normal, Utility and Aerobatic categories.) The original TCDS stated “Flight criteria are to meet the requirements of Appendix B, for application of figure 7-1 of CAM 8, November 15, 1951, as amended through January 20, 1956.” The GA200C is certificated in the Restricted/Agricultural category as compliance has not been shown with FAR §23.221 Spinning requirements at the higher power. (In accordance with the provisions of FAA Advisory Circular AC 21.25-X).

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as FAR 23 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:*

CASA Letter Ref. File F93/1462 dated 25 February 1997 – Compliance with FAR §23.562 is satisfied by means of equivalent safety on the basis of weight and stall speed below 49 KCAS, in accordance with the simplified small airplane compliance provisions of AC 23-15.

(iv) *Airworthiness Limitations:*

See Chapter 4 Airworthiness Limitations in the Service Manual

Note a Fatigue Life extension is available for certain GA200C aircraft by incorporation of the modifications contained in SB-GA200-2011-06.

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

N/A – Certificated in the Restricted Category for agricultural operations.

(4) Certification Compliance Listing:

Gippsland Technical Report B98-00-31 GA200C Compliance Report – Issue C dated 2nd March 1998 – (includes at Appendix G – Electrical Loads Analysis)

Superseded by: Gippsland Technical Report B98-00-36 GA200C Compliance Report – Issue B dated 15 January 1999

(5) Flight Manual: Pilot's Operating Handbook and CASA-Approved Flight Manual GA200C (serial numbers 200C-9827 and subsequent, and aircraft incorporating Gippsland Engineering Release GA200-950310) – Report No. B01-01-36 – CAA Accepted as AIR 2631

Note: FM Supplement No.12 covers Agricultural Operations – New Zealand – (Imposes a V_{MO} of 110 KIAS for all weights above standard, and provides takeoff ground roll and takeoff with third party risk present distance charts for up to 1996 kg.)

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

(i) *Maintenance Manual:*

Model GA200C Service Manual – Report No. B01-00-31 Issued 2 March 1998

(ii) *Current service Information:*

Service Bulletins and Service Letters

(iii) *Illustrated Parts Catalogue:*

GA200 IPC – Report No. B01-02-01

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

CAA 2171 from M. Bathie, Engineer Gippsland Aeronautics dated 31 July 1998

CAA 2171 from GippsAero Pty Ltd Technical Writer dated 15 August 2012

(8) Other information:

Gippsland Technical Report B14-00-31 GA200C and GA200C-1 General Specifications – Issue A dated 25 May 1998 – Superseded by Issue B dated 15 January 1999 – Includes Appendix I. Report and Manual Summary

Gippsland Drawing GA200-010301 – General Assembly GA200 Aircraft Model C

5. Additional New Zealand Requirements

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	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements - Agricultural Aircraft CAM 8 Appendix B Section .35	Complies through similar provisions in FAR 23 and ANO 101.16 (See letter from Gippsland dated 31 July, 1998)

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	Fitted as standard – see FM Section 7.9
91.507	Pax Information Signs – Smoking, safety belts fastened	N/A – Agricultural aircraft
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) FM Fig. 7-1 N/A FAR §23.1303(b) FM Fig. 7-1 FAR §23.1303(c) FM Fig. 7-1 FAR §23.1305(a) Fuel gauges mounted in wing – FM Fig.7-2 FAR §23.1305(d) See FM §7.11 FAR §23.1305(b) See FM §7.11
91511 Night	(1) Turn and Slip (2) Position Lights	Turn and bank fitted as std Wingtip and rear lights fitted – See FM Section 7.16
91.517	IFR Instruments and Equipment	N/A – Not approved for IFR flight
91.523 Emergency Equipmt.	(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	N/A – Two seat aircraft operating in Restricted Category N/A N/A N/A
91.529	ELT – TSO C91a after 1/4/97 (or replacement)	Optional – Fitted to all aircraft exported to NZ – Complies with NZCAR Part 91 Appendix A15 – See fax dated 6-9-98
91.531	Oxygen Indicators – Volume/Pressure/Delivery	N/A – Oxygen system not fitted
91.541	SSR Transponder and Altitude Reporting Equipment	<i>To be complied with as required for operational reasons</i>
91.543	Altitude Alerting Device – Turbojet or Turbofan	N/A – Piston engined
91.545	Assigned Altitude Indicator	N/A – Not approved for IFR flight
A.15	ELT Installation Requirements	Additional stiffener added to fuselage cross tube to comply with A.15 structural requirements

Civil Aviation Rules Part 137

Subpart F – Instruments and Equipment

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
137.255	Shoulder harness for all crew seats	Fitted as standard – See Flight Manual Section 7.9
137.257	Additional instruments - slip indicator	Turn and bank indicator fitted as standard (See FM Fig. 7-1)
137.259	Additional equipment	hopper upper level indication Hopper contents window visible in the cockpit
	Placards	Hopper jettison gear Emergency dump position available (See FM Supplement 3)
	Passenger locations	N/A – Readily visible from the outside of the aircraft
	Hopper maximum loadings, jettison times	see Flight Manual Section 2 Limitations Paragraph 2.15

Appendix D – Instruments and Equipment Airworthiness Design Standards

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
D.1	Seating and Restraints	The aircraft has been certificated against FAR 23.561(b) and 23.562 at Amendment 23-36, plus Australian requirements which specify a forward load of 25g. (See letter from Gippsland dated 31 July 1998)
D.2	Hopper Permitted Maximum Load	<i>To be determined on an individual aircraft basis</i> Flight Manual placarded Structural Limit is 544 kg at 3.8 g. MCTOW is 1524 kg while empty weight of ZK-EMD was 808 kg
D.3	Hoppers and Spray Tanks	‘the hopper (which is forward mounted) has been tested in those conditions with loads of 3600 lbs which is over 1.5 (G) times the volumetric capacity’ See letter from Gippsland dated 31 July 1998
D.4	Hopper Upper level Contents	The hopper face is graduated and marked in lines.
D.5	Jettison Gear	Supplement 3 states the emergency system dumps the entire load in approx. 5 sec.s
D.6 Markings And Placards	D.6.2 Hopper Maximum Loadings D.6.3 Jettison Times D.6.4 Passenger Location D.6.5 Flight Limitations	<i>To be determined on an individual aircraft basis</i> Called up in the Flight Manual – See Section 2 Limitations paragraph 2-15 N/A – passenger position alongside pilot readily visible from outside of aircraft <i>To be determined on an individual aircraft basis</i>

Appendix B – Overload Weight Determination

Original Load factor = +3.8g in agricultural category
 Per Fig.2 of Appendix B maximum recommended percentage weight increase is 31 %
 MCTOW = 1524 kg ⇒ Recommended MTOW per Part 137 is 1996 kg
 The TCDS states the GA200C aircraft has demonstrated satisfactory flight handling characteristics in the agricultural category at 1996 kg, 1000 feet, 28°C.

Attachments

The following documents form attachments to this report:

- Photographs first-of-type example GA200C s/n 200C9827 ZK-EMD
- Three-view drawing Gippsland Aeronautics Model GA200C
- Copy of CASA Type Certificate/TCDS Number VA519

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:

Model:	Applicant:	CAA Work Request:	Date Granted:
GA200	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
GA200C	Gippsland Aeronautics Pty Ltd	98/21B/14	9 September 1998