
Type Acceptance Report

TAR 10/21B/17

GROB G 103 C TWIN III SL

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Executive Summary

New Zealand Type Acceptance has been granted to the Grob G 103 C Twin III SL based on validation of EASA Type Certificate number LBA 869. 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(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.10/21B/17 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

Manufacturer:	Burkhart Grob Luft-und Raumfahrt GmbH & Co. KG
Type Certificate: Issued by:	Musterzulassungsschein Nr. 869 Luftfahrt-Bundesamt
Model:	G 103 C Twin III SL
MCTOW	710 kg. [1565 lb.]
Max. No. of Seats:	2
Noise Standard:	LSL Issue 1 January 1991
Engine:	Bombardier-Rotax Type 505 A
	Type Certificate: 4599 Issued by: Luftfahrt-Bundesamt

Propeller: KS-1C-158-R-108
Type Certificate: 32.110/18
Issued by: Luftfahrt-Bundesamt

MTV-24-M/158-16
Type Certificate: 32.130/83
Issued by: Luftfahrt-Bundesamt

3. Type Acceptance Details

The application for New Zealand type acceptance was from the importer, Gliding Hawkes Bay & Waipukurau Inc. dated 22 November 2009. The first-of-type example was serial number 35017, registered ZK-GHB. The “G103SL” is a tandem two-seat motorglider of all-composite construction and typical modern glider mid-wing with T-tail configuration.

Type Acceptance Certificate Number 10/21B/17 was granted on 29 March 2010 to the Grob G 103 C Twin III SL based on validation of EASA Type Certificate LBA 869, and includes the MTV-24 propeller based on EASA Type Certificate LBA 32.130/83. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The G103SL is the self-launching non-aerobatic powered version of the G103C Twin III Acro training glider. It has an electrically actuated mast-mounted retracting engine and steerable nose wheel.

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:

LBA Musterzulassungsschein Nr.: 869

LBA Type Certificate Data Sheet number 869 at Issue 3 dated 22.09.1992
– Model G 103 C Twin III SL approved 20 Dec. 1991

LBA Musterzulassungsschein Nr.: 32.130/83

LBA Propeller-Kennblatt Nr. 32.130/83 at Issue 1 dated 22 November 1991
– Baureihe MTV-24-M approved 22 November 1991

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the G103SL is JAR-22 dated 27 June 1989 (Change 4 of the English original edition) including “Orange Papers” Amendment 22/90/1 dated 12 February 1991, plus the Standards for Structural Substantiation of Sailplane and Powered Sailplane Components Consisting of Glass or Carbon Fiber Reinforced Plastics, Issue May 1986, and the Standards for Substantiation of the Electrical System of Motorgliders, Issue 22 Nov. 1990. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Appendix C, because JAR-22 is the basic standard for gliders and powered gliders called up under Advisory Circular 21-1. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

The certification basis of the MTV-24 propeller is JAR-22 Subpart J Propellers, including Change 4 Amendment 22/90/1.

(ii) *Special Conditions:*

NPA 22G-45 Powerplant Instruments – Digital displays must have clearly indicated limitations, precautionary and operating ranges, and be readable under all likely lighting conditions.

NPA 22D-55 Cockpit Controls – Throttle controls which are demonstrated to have constant-friction levels (e.g. Bowden push/pull type) are accepted as equivalent to adjustable friction type.

(iii) *Equivalent Level of Safety Findings:*

JAR 22.51 (Take-off Speed) – After takeoff the aircraft was accelerated to $1.15 V_{si}$ rather than the required $1.3 V_{si}$. Tests were required to show this speed was safe under all reasonably expected operating conditions, including very turbulent conditions and demonstration of engine failure.

(iv) *Airworthiness Limitations:*

See G103SL Maintenance Manual Section 11

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The G103SL had to meet the noise requirements of Lärmschutzforderungen für Luftfahrzeuge (LSL) Issue 1 January 1991.

- (ii) *Compliance Listing:*
See Flight Manual Section 5.3.3 Noise Data: Measured noise level was 62.9 dB(A) with MTV24 variable-pitch propeller; and 63.5 dB(A) with KS-1C fixed-pitch prop.
- (4) Certification Compliance Listing:
Musterzulassungsliste (MZ-Liste) Compliance Checklist: G103C Twin III SL
MZ-Liste (Compliance Checklist) – Propeller MTV-24-M – EB Nr. I-EC 34
- (5) Flight Manual: LBA Approved Flight Manual for the Sailplane G 103 C Twin III SL
CAA Accepted as AIR 3123
- (6) Operating Data for Aircraft, Engine and Propeller:
- (i) *Maintenance Manual:*
Maintenance Manual – Grob G 103 C Twin III SL issued December 1991
(Includes Repair Instructions as Appendix A.5)

MT-Propeller Document E-309 – Operation and Installation Manual – Mechanical Variable Pitch Propeller MTV-24-()

MT-Propeller Document E-310 – Überholungshandbuch und Teileliste (Overhaul Manual) – Mechanische Verstellpropeller MTV-24-()
- (ii) *Current service Information:*
Grob Aircraft AG Service Bulletin Summary G 103 C Twin III SL

MT-Propeller Service Bulletin Nr. 1AG – Time Between Overhaul of Propellers, Governors and Oil-Accumulators (TBO)
- (iii) *Illustrated Parts Catalogue:*
Not produced
- (7) Agreement from manufacturer to supply updates of data in (5), and (6):
SB and manual revisions are available at <http://www.grob-aircraft.eu/service-and-support/>
email from MT-Propeller (EASA.21J.020) Flight Test/Certification Engineering

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	Seating and Restraints - Shoulder Harness required if certified for aerobatics; >10 pax; Flight Training	JAR §22.1307 – 2 Symmetrical Safety belts (4-strap) required minimum equipment – See TCDS Section III.11
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Less than ten passenger seats
91.509	Minimum Instruments and Equipment	Not Applicable to powered gliders (See NZCAR Part 104)
91.511	Night VFR Instruments and Equipment	Not Applicable – Certificated for Day VFR flight only
91.513	VFR Communication Equipment	<i>Operational requirement – compliance as applicable</i>
91.517	IFR Instruments and Equipment	Not Applicable – Certificated for Day VFR flight only
91.519	IFR Communication and Navigation Equipment	Not Applicable – Certificated for Day VFR flight only
91.523	Emergency Equipment	Not Applicable by seating [Superseded by §104.101(5)]
91.529	ELT - TSO C91a after 1/4/97 (or replacement)	<i>Operational requirement – compliance as applicable</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Not fitted as standard
91.533	Oxygen for Unpressurized 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 Turbojet or Turbofan powered
91.545	Assigned Altitude Indicator	Not Applicable – Certificated for Day VFR flight only
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Civil Aviation Rules Part 104

Subpart C - Equipment and Maintenance Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
104.101	(1) Airspeed Indicator (2) Altimeter (Adjustable for barometric pressure) (3) Magnetic Compass (4) Safety Harness for each seat (5) A First Aid Kit (6) For powered gliders – (i) Fuel gauge for each main fuel tank (ii) Oil Pressure Gauge or warning device (iii) A tachometer or engine governor light (7) For IMC flight – (i) A variometer (ii) Turn & Slip/Artificial Horizon (iii) Radio transceiver	Required as Minimum Equipment – See TCDS Section III.11 Required as Minimum Equipment – See TCDS Section III.11 Required as Minimum Equipment – See TCDS Section III.11 Required as Minimum Equipment – See TCDS Section III.11 <i>Operational requirement – compliance as applicable</i> Required as Minimum Equipment – See TCDS Section III.11 Not Applicable – Two-stroke engine (Pre-mix fuel-oil system) Required as Minimum Equipment – See TCDS Section III.11 } } The G103SL is not approved for cloud flying }

Attachments

The following documents form attachments to this report:

Photographs first-of-type example G103SL s/n 35017 ZK-GHB
Three-view drawing Grob Model G 103 C Twin III SL
Copy of LBA Type Certificate Data Sheet Number 869

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Peter Gill
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
G 103 C Twin III SL	Gliding HB & Waipukurau Inc.	10/21B/17	29 March 2010