
Type Acceptance Report

TAR 2/21B/19

DG-1000S

TABLE OF CONTENTS

INTRODUCTION	1
FOREIGN TYPE CERTIFICATE DETAILS	1
TYPE ACCEPTANCE APPLICATION	1
TYPE DATA	2
ADDITIONAL NEW ZEALAND CERTIFICATION REQUIREMENTS	2
SUMMARY	3
ATTACHMENTS	3

Introduction

This report details the basis on which Type Acceptance Certificate No.2/21B/19 was granted in the standard category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Record the airworthiness certification standard used for type acceptance of the applicable model in New Zealand;
- (b) Summarise any outstanding requirements which must be complied with for the issue of a NZ Airworthiness Certificate to any models covered by the Type Acceptance Certificate.

Foreign Type Certificate Details

Type Certificate: Musterzulassungsschein Nr. 413

Issued by: Luftfahrt-Bundesamt, Bundesrepublik Deutschland

Manufacturer: DG Flugzeugbau GmbH

Model: DG-1000S

MCTOW 750 kg (1653 lb) "Utility" Category

Noise Category: N/A

The certification basis of the DG-1000S is JAR Part 22 at Change 5 issued Oct. 28, 1995, plus the Preliminary guideline for the stress analysis of glasfibre and carbonfibre reinforced plastic structures for sailplanes and powered sailplanes issued July 1991. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as JAR-22 is an equivalent airworthiness standard for sailplanes called up under Advisory Circular 21-1A. One Equivalent Safety Finding regarding JAR 22.207(c) stall warning was reviewed and accepted. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

Type Acceptance Application

The application for NZ type acceptance was from the manufacturer dated 23 May 2002.

Type Acceptance Certificate No.2/21B/19 was granted on 6 August 2002.

The DG-1000S is a brand-new 20m-class training glider. The fuselage is a strengthened development of the DG-505 with a single sprung mainwheel and an all-new double-trapezoid plan-view wing. It can be flown with either an 18 metre wingspan, using a set of 0.4 metre long wing tips with "miniwinglets" (similar to the standard DG-800 18m tips), or for cross-country flying 20 metre wing tip extensions with integral winglets may be added. A fin water-ballast tank for trimming is an optional installation.

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 LBA Type Certificate Nr: 413 for DG-1000S issued 12 March 2002
LBA Sailplane Data Sheet No. 413 Issued 1 dated March 12, 2002

(2) Airworthiness design requirements: Already held by the CAA

(3) Certification compliance listing:

CD supplied containing Proof of compliance (all documents in English language):

Chapter 1 General

Chapter 3 Geometry and aerodynamic

Chapter 4 Drawing list

Chapter 5 Proof of compliance JAR 22 Subpart C – Construction

Chapter 6 Proof of compliance JAR 22 Subpart D Design and Construction,

Subpart F Equipment, Subpart G Operating limitations and information

Chapter 17 Load tests

Chapter 18 Flight tests

Chapter 19 Flutter evaluation (summary)

Chapter 20 Summaries of stress analysis

(4) Flight manual: LBA-Approved Flight Manual for the Sailplane DG-1000S
CAA Accepted as AIR 2785

(5) Illustrated Parts Catalogue: Not Available – Included in the MM

(6) Maintenance manual and service data:

Wartungshandbuch DG-1000S and Maintenance Manual DG-1000S

Reparaturhandbuch DG-1000S and Repair Manual DG-1000S

(7) Agreement from manufacturer to supply updates of data in (4) and (6):

CAA 2171 form from Wilhelm Dirks, Chief Design, dated 23 May 2002

Additional New Zealand Certification requirements

Compliance with the following additional NZ 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 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	Agricultural Aircraft – <i>Not Applicable</i>

Civil Aviation Rules Part 91 – General Operating and Flight Rules Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training	JAR 22.1307 – 4-piece symmetrical safety harness fitted as Standard - See FM §2.10(a) Minimum Equipment
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Two-seat glider
91.509	Minimum Instruments and Equipment	Not Applicable – Superseded by NZCAR §104.
91.511	Night VFR Instruments and Equipment	Not Applicable – Applies to powered aircraft only
91.513	VFR Communication Equipment	VHF Transceiver part of the Minimum Equipment per FM §2.10(a) – Maintenance Manual lists certificated options
91.517	IFR Instruments and Equipment	Not Applicable – Applies to powered aircraft only
91.519	IFR Communication and Navigation Equipment	Not Applicable – Certificated for VFR flight only
91.523 Emergency 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 – Superseded by NZCAR §104.101(5) Not Applicable – Two-seat glider Not Applicable – Two-seat glider Not Applicable – Two-seat glider
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	<i>To be fitted as required</i>
91.533 Unpress. Cabin	>30 min above FL100 - Supplemental for crew, 10% Pax - Therapeutic for 3% of Pax Above FL100 - Supplemental for all Crew, Pax - 120l PBE for each crew member	<i>To be fitted as required – Optional factory oxygen system is available – see FM §7.15.2</i> (Maintenance Manual lists 5 EP34 Installation Plan for Dräger oxygen system, although not contained in CD copy.)
91.541	SSR Transponder and Altitude Reporting Equipment	<i>To be fitted as required</i>
91.545	Assigned Altitude Indicator	Not Applicable – Certificated for VFR flight only
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i> (Installation plan 5 EP50 for ACK E-01 ELT is in the MM)

Civil Aviation Rules Part 104 – Gliders – Operating Rules 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 (7) For IMC (i) A variometer (ii) Turn & Slip/AH (iii) Radio transceiver	Required Equipment – See Flight Manual Section 2.10 (a) Required equipment – See Flight Manual Section 2.10 (a) Fitted as Standard – See Maintenance Manual Section 6 Required Equipment – See Flight Manual Section 2.10 (a) <i>To be determined on an individual aircraft basis</i> Not Applicable } Required for Cloud Flying in the Flight Manual §2.10 (b) }

Summary

Type Acceptance Certificate No. 2/21B/19 has been granted to the DG-1000S and all serial numbers are now eligible for the issue of a New Zealand Airworthiness Certificate in the Standard Category in accordance with CAR §21.177, subject to any outstanding operational requirements noted above being met.

Attachments

The following documents form attachments to this report:

- Three-view drawing DG Flugzeugbau Model DG-1000S
- Copy of LBA Type Certificate/ Type Certificate Data Sheet Nr.413

Sign off

David Gill
Team Leader Airworthiness

Date: 6 August 2002