
Type Acceptance Report

TAR 99/21B/4 – Revision 2

Diamond DA20 Series

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. AIRCRAFT CERTIFICATION DETAILS	2
3. APPLICATION DETAILS AND BACKGROUND INFORMATION	3
4. NZCAR §21.43 DATA REQUIREMENTS	4
5. NEW ZEALAND OPERATIONAL RULE COMPLIANCE	7
ATTACHMENTS	8
APPENDIX 1 – NZ TYPE ACCEPTANCE HISTORY	8
APPENDIX 2 – THREE-VIEW DRAWING	9

Executive Summary

New Zealand Type Acceptance has been granted to the Diamond DA20 Series based on validation of Transport Canada Type Certificate number A-191. There are no special requirements for import. As a VLA-certificated aircraft the DA20 Series is eligible for day and night VFR non-Air Transport operations per AC 21-1A.

Applicability is currently limited to the Models and/or serial numbers detailed in Section 2, 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).

NOTE: The information in this report was correct as at the date of issue. The report is generally only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest revision of the State-of-Design Type Certificate Data Sheet referenced herein.

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 99/21B/4 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.

The report notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. The history of the DA20 Series type acceptance in New Zealand under Transport Canada type certificate A-191 is listed in Appendix 1.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer: Diamond Aircraft Industries Inc.
Type Certificate: A-191
Issued by: Transport Canada
Production Approval: 161-93

(b) Models Covered by the Part 21B Type Acceptance Certificate:

- (i) **Model:** DA20-A1
- MCTOW: 730 kg (1609 lb.) – 912 A3 or 912 F3 engine
750 kg (1653 lb.) – 912 S3 engine
- Max. No. of Seats: 2
- Noise Standard: ICAO Annex 16 Chapter 10/FAR 36 Appendix G
- Engine:** Rotax 912 A3, 912 F3, 912 S3
Type Certificate: E.121
Issued by: European Union Aviation Safety Agency
- Propeller:** Hoffman HO-V352F/(C)170FQ
Type Certificate: DE 32.110/1
Issued by: European Union Aviation Safety Agency
- (i) **Model:** DA20-C1
- MCTOW: 800 kg (1764 lb.)
- Max. No. of Seats: 2
- Noise Standard: ICAO Annex 16 Chapter 10/FAR 36 Appendix G
- Engine:** Continental IO-240-B
Type Certificate: E7SO
Issued by: Federal Aviation Administration
- Propeller:** Sensenich W69EK-63 or W69EK7-63, -63G or -63GM
Type Certificate: P00001NY
Issued by: Federal Aviation Administration

Note: Refer to Advisory Circular 21-1 Appendix 2 for the New Zealand type acceptance status of any engines and propellers listed above.

3. Application Details and Background Information

The application for New Zealand type acceptance of the DA20-C1 was from the local agent for the aircraft and importer, Flight Safety New Zealand, dated 9 July 1998. The Diamond DA20-C1 “Katana” is a single engined two-seat low wing T-tail light training aircraft with an all-composite basic structure and fixed landing gear.

Type Acceptance Certificate No. 99/21B/4 was granted on 22 October 1998 to the DA20-C1 based on validation of Transport Canada type certificate no. A-191. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

Revision 1 to this report was issued to include validation of the FAA type certificate, which allowed a higher MAUW of 800 kg, and night operations. (The Transport Canada type certificate at the time was limited to the VLA limit of 750 kg and Day VFR, whereas the FAA TC certification basis just referenced FAR 23.) Because the aircraft could be validated under either type certificate in New Zealand, the manufacturer was queried as to whether there was any difference between them. Diamond Aircraft replied “*there are no physical differences between the DA20-C1s for the US and Canadian market. The same Flight Manual is used, although the Supplement covering operation at a gross weight in excess of 750 kg is applicable only to US-registered aircraft. No changes are required to move from US to Canadian certification.*” The Gross Weight Increase to 800 kg was authorised in Flight Manual Supplement 4, which was only applicable to US-registered aircraft. The New Zealand Flight Manual AIR pages added applicability to NZ-registered aircraft.

Revision 2 to this report was raised to add the DA20-A1 variant and note Transport Canada had granted an exemption to Diamond to allow the DA20-C1 to be approved for 800 kg MAUW and night operations. This removed the need for AFM Supplement 4 and any reference to the FAA type certificate. Therefore type acceptance of the DA20 can now be based solely on the State-of-Design type certificate A-191. This revision also added details up to the latest Issue of the TCDS, including the major modification for the Garmin G500 EFIS installed during production under STC number SA18-63. Type acceptance was granted on 3 February 2023.

Type and Model History:

The Diamond DA20 is a version of the Austrian HOAC DV20, developed in Canada for the US market with some modifications such as a redesigned instrument panel. (The DV20 was derived from the HK36 Dimona powered glider.) The DA20-A1 was the first Model, fitted with the Rotax 912 F3 engine. Later versions of the 912 Series were subsequently available, and can be retrofitted by Drawing or Service Bulletin. When fitted with the 912 S3 engine under a factory upgrade program the aircraft is known as the DA20/100. The second Model was the DA20-C1, fitted with the 135 hp Continental IO-240B engine. Initially Sensenich and Hoffman fixed-pitch propellers were approved for the DA20-C1, but all examples of the latter have now been withdrawn from service, and it has been deleted from the type certificate. Another option is the MT 175 R 150-2Ca propeller which can be installed under STC SA07-41.

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) State-of-Design Type certificate:

Transport Canada Type Certificate Number A-191

Type Certificate Data Sheet number A-191 at Issue 18 dated July 11, 2022

– Model DA20-A1 approved July 29, 1994

– Model DA20-C1 approved December 19, 1997

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The Canadian certification basis of the DA20 Series is Canadian Airworthiness Manual (AWM) Chapter 523-VLA first Edition dated 30 June, 1993 (Specifically AWM Subchapters B and C, excluding items 523-VLA.203 (b)(1) through (b)(3) which are applicable to IFR operations only; refer DOT Issue Paper G-1, dated 25 April, 1994. [AWM 523-VLA incorporates the requirements of JAR-VLA effective 26 April 1990, through Amendment VLA/91/1 effective 1 January 1991, by direct reference.] plus Canadian AWM Chapter 516 (noise requirements). For DA20-C1 aircraft fitted with the G500 EFIS paragraph 523-VLA.1311 at change number 523.VLA-1 was added.

This is an acceptable certification basis in accordance with NZCAR Part 21B paragraph §21.41, as JAR-VLA is accepted as an equivalent standard for VFR non-Air Transport operations per Advisory Circular 21-1A. There are no non-compliances and no special conditions have been prescribed by the Director under §21.23. Per AC 21-1A with an engine and propeller type certificated under FAR Parts 33 and 35 respectively, the DA20 Series is eligible for all types of operations except for Air Transport under Part 135.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*

DA20-A1 equipped with Rotax 912 A3 engine:

AWM 523-VLA.203(a) – Transport Canada letter 5010-A518 (AARDD) dated June 22, 1995 – Diamond requested use of the Rotax 912A3 engine certified to JAR 22, Appendix H, pending completion of FAR 33 certification of the 912F3 variant, on the basis the engines were very similar and some of the FAR 33 testing applied to the 912A3. The ELOS was only valid for 100 examples and required confirmation of SB and ICA compliance.

DA20-C1 with G500 EFIS:

AWM 523-VLA.1311(a)(5) – Change 523-VLA-1 (Issue Paper G-03) – DA20-C1 with G500 EFIS does not have an independent secondary (standby) attitude instrument. This was accepted on the basis of comparison with the original configuration of the conventional instruments and their mechanical failure mode, the higher reliability of the G500 and that the aircraft is limited to VFR operations.

(iv) Exemptions:

Transport Canada Exemption No. 123-2005-NCR/RCN dated 20 July 2005, to permit certification of the DA20-C1 at a Maximum Approved Take-off Mass (Weight) of not more than 800 kg (1764 lbs).

(v) Airworthiness Limitations:

See the applicable Maintenance Manual Chapter 4.

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:

The DA20 Series has been certificated for noise under Canadian Airworthiness Manual (AWM) Chapter 516, Edition 2 dated 1 November 1991.

(ii) Compliance Listing:

Noise Measurement Method:	DA20-A1	DA20-100	DA20-C1
FAR 36 Appendix G	65.2 dBA	63.8 dBA	71.7 dBA
ICAO Annex 16, Appendix 6 Paragraph 10.4(a)	63.6 dBA	71.7 dBA	74.4 dBA
ICAO Annex 16, Appdx. 6 Para. 10.4(b) (EASA Approval)			75.25 dBA

(4) Certification Compliance Listing:

Compliance Report DA 4.07.02 – Compliance Program – Issue 1
(Basic Configuration Day VFR) – DA20 Katana

Compliance Report CR-DA20-C1-001 Revision E
DA20-C1 Continental Katana (Utility Category/VFR)

Compliance Report CR-DA20-C1-002 Revision A
DA20-C1 Continental Katana (Type II Wing Structure)

Compliance Report CR-DA20-C1-005 Revision B
Gross Weight Increase to 800 kg

(5) Flight Manual: Transport Canada-Approved Airplane Flight Manual DA20-C1
Document Number DA202-C1 – CAA Accepted as AIR 2628

Transport Canada-Approved Flight Manual DA 20 Katana
Document DA202 – CAA Accepted as AIR 3506

Transport Canada-Approved Flight Manual DA 20/100 Katana
Document DA202-100 – CAA Accepted as AIR 3507

(6) Operating Data for Aircraft:

(i) Maintenance Manual:

Maintenance Manual DA20-A1 Katana – Document No. DA201

Maintenance Manual DA20-C1 Katana – Document No. DA201-C1

(ii) *Current service Information:*
Service Bulletins and Service Information

(iii) *Illustrated Parts Catalogue:*
IPC DA20-A1 – Document Number DA203-A1

IPC DA20-C1 – Document Number DA203-C1

(7) Agreement from manufacturer to supply updates of data in (5), and (6):
CAA2171 from Director of Airworthiness, Diamond Aircraft dated 28-07-98

All manuals are available on the Diamond website at
[Diamond Aircraft :: Technical Publications \(diamond-air.at\)](http://diamond-air.at)

(8) Other information:

Report: DA 4.07.66 Wire & Equipment Load Analysis

Report: ELA- DA20-CI-001 – DA20-C 1 Electrical Load Analysis

DA20-A1/DA20-100 List of Applicable Publications – Document No. DA200

DA20-C1 List of Applicable Publications – Document No. DA200-C1

Diamond Memo D20-AW-0196 – Change Summary to align New Zealand TAR 99-4 (currently at Issue 1) to TCCA TCDS A-191 Issue 18

5. New Zealand Operational Rule Compliance

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 – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Compliance with the following additional New Zealand 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 – Safety belt/Shoulder Harness	Four-point safety belt fitted as standard – FM Page 7-10
91.507	Pax Information Signs – Smoking, safety belts fastened	Not Applicable – Less than 10 passengers
91.509 Min. VFR	(1) ASI JAR-VLA 1303 (a) – see DA202-C1 Fig 7-2 # 10 N/A (2) Machmeter JAR-VLA 1303 (b) – see DA202-C1 Fig 7-2 #14 (3) Altimeter JAR-VLA 1303 (c) – see DA202-C1 Fig 7-2 #15 (4) Magnetic Compass JAR-VLA 1303 (c) – see DA202-C1 Fig 7-2 #15 (5) Fuel Contents JAR-VLA 1305 (a) – see DA202-C1 Fig 7-2 #27 (6) Engine RPM JAR-VLA 1305 (d) – see DA202-C1 Fig 7-2 #16	(7) Oil Pressure JAR-VLA 1305 (b) – see DA202-C1 Fig 7-2 # 28 (8) Coolant Temp N/A – Air Cooled engine (9) Oil Temperature JAR-VLA 1305 (c) – see DA202-C1 Fig 7-2 # 23 (10) Manifold Pressure N/A – fixed-pitch propeller (11) Cylinder Head Temp. N/A – Less than 250 bhp (12) Flap Position See DA202-C1 Fig 7-2 # 2 (13) U/c Position N/A – Fixed undercarriage (14) Ammeter/Voltmeter JAR-VLA 1351 (d) – DA202-C1 Fig 7-2 # 30/32
	Notes: Minimum equipment fit is specified in Section 2.13 of the Flight Manual G500 TXi Glass Panel with GDC72 ADC, FS510, FliteCharts installed during production to DA20-C1 under STC SA18-63	
91.511 Night	(1) Turn and Slip – see DA202-C1 Fig 7-2 #9 (2) Position Lights Wingtip lamps have position lights and anti-collision lights	(3) Anti-collision Lights – see Maint. Manual §33-40 (4) Instrument Lighting DA20 has 3 cockpit lighting systems – See MM §33-20
91.513	VFR Communication Equipment Note: Garmin GTN 650Xi GPS/NAV/COM/MFD installed during production to DA20-C1 under STC SA11-100	Operational Requirement – Compliance as applicable
91.517	IFR Instruments and Equipment	Not Applicable – JAR-VLA is limited to Day/Night VFR
91.519	IFR Communication and Navigation Equipment	Not Applicable – JAR-VLA is limited to Day/Night VFR
91.523	Emergency Equipment: (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	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 C126 406 MHz after 22/11/2007	Operational Requirement – Compliance as applicable
91.531	Oxygen Indicators – Volume/Pressure/Delivery	Operational Requirement – Compliance as applicable
91.533	Oxygen for non-Pressurised Aircraft	Operational Requirement – Compliance as applicable
91.541	SSR Transponder and Altitude Reporting Equipment Note: Garmin GTX335 ADS-b “Out” transponder installed during production to DA20-C1 under STC SA15-74	Operational Requirement – Compliance as applicable
91.543	Altitude Alerting Device – Turbojet or Turbofan	Not Applicable – JAR-VLA is limited to Day/Night VFR
91.545	Assigned Altitude Indicator	Not Applicable – JAR-VLA is limited to Day/Night VFR
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was directly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.

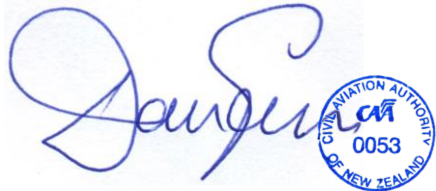
2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.

Attachments

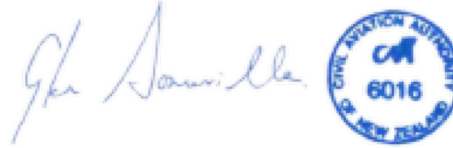
The following documents form attachments to this report:

Copy of Transport Canada Type Certificate Data Sheet Number A-191

Sign off



.....
David Gill
Team Leader Aircraft Inspection



.....
Checked – Glen Somerville
Certification Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
DA20-C1	Future Flight Limited	99/21B/4	22 October 1998
DA20-C1 (800 kg)	Simuflight (NZ) Limited	3/21B/29	24 April 2003
DA20-A1	Diamond Aircraft Industries	23/21B/8	3 February 2023
DA20-C1 (TCDS #18)	Diamond Aircraft Industries	23/21B/8	3 February 2023

Appendix 2

Three-view drawing Diamond DA20-C1

