
Type Acceptance Report

TAR 22/21B/13

Diamond DA 62

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Executive Summary

New Zealand Type Acceptance has been granted to the Diamond Aircraft Industries Inc. DA 62 based on validation of Transport Canada Type Certificate number A-273. There are no special requirements for import.

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. 22/21B/13 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 Diamond DA 62 type acceptance in New Zealand under Transport Canada type certificate A-273, 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-273
Issued by: Transport Canada
Production Approval: 161-93

(b) Other State-of-Manufacture Type and Production Certificates:

Manufacturer: Diamond Aircraft Industries GmbH
Import TC: EASA.IM.A.629
Issued by: European Union Aviation Safety Agency
Production Approval: AT.21G.0001

Note: For specific serial number applicability under the State-of-Design type certificate refer to Note 2 on Transport Canada TCDS number A-273.

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

(i) **Model:** DA 62
MCTOW: 1999 kg (4407 lb)
2300 kg (5071 lb) – with MÄM 62-001
Max. No. of Seats: 5
7 – with OÄM 62-019
Noise Standard: AWM 516
Engine: Austro Control E4P
Type Certificate: E.200
Issued by: European Union Aviation Safety Agency
Propeller: MTV-6-R-C-F/CF194-80
Type Certificate: P.094
Issued by: European Union Aviation Safety Agency

3. Application Details and Background Information

The application for New Zealand type acceptance of the Diamond DA 62 was from the manufacturer, dated 5 January 2022. The first-of-type example is scheduled to be serial number 62.226. The Diamond DA 62 is a low-wing five to seven-seat light monoplane with an all-composite airframe and T-tail configuration with two geared turbocharged FADEC-equipped water-cooled compression-ignition engines.

Type Acceptance Certificate Number 22/21B/13 was granted on 31 October 2022 to the Diamond Model DA 62 based on validation of Transport Canada Type Certificate number A.273. There are no special requirements for import into New Zealand.

The DA 62 is an enlarged development of the four-seat DA 42 by Diamond Aircraft Industries GmbH in Austria, and was initially type certificated as a variant on the same type certificate EASA.A.005. The DA 62 has two single-lever-control 180 hp AE330 engines and is equipped with the Garmin G1000NXi EFIS. In 2016 Diamond Aircraft made the decision to split the DA 62 away from the DA 42 and a new type certificate EASA.A.629 was issued on December 12th, 2016.

In the 1990s Diamond set up a subsidiary company in Canada, which manufactured several models under license. In 2016 Chinese company Wanfeng Aviation Industry Company Limited acquired a 60% share of the Diamond Group, and subsequently in 2017 completed a 100% purchase. This led to some re-organisation of the design and production arrangements. On 15 November 2017 design approval holder and airworthiness authority responsibility for the DA 62 type certificate was transferred from DAI Austria and EASA respectively to DAI Canada and Transport Canada. A-273 became the State-of-Design type certificate and EASA.IM.A.629 became an import type certificate. The type design was unchanged during the transfer process.

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:

(1) State-of-Design Type certificate:

Transport Canada Type Certificate Number A-273

Transport Canada TCDS Number A-273 at Issue 4 dated November 6, 2020
– Model DA 62 approved November 15, 2017

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The Transport Canada certification basis of the DA 62 is AWM 523, Change 523-16, dated 31 December 2016. This is equivalent to the EASA certification basis for the DA 62 of CS-23 at Amendment 4, issued 15-Jul-2015. Nine Special Conditions and two findings of equivalent safety were carried over by Transport Canada. These have been reviewed and accepted by the CAA.

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, because CS 23 is equivalent to FAR 23, which 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.

(ii) *Special Conditions:*

CRI E-02 Use of Jet Fuel for Reciprocating Engines – The Rules did not envisage use of Jet Fuel for reciprocating engines. This special condition calls up rules which previously were for turbine engines only (particularly because kerosene-based fuels absorb greater amounts of water than gasoline fuels with the potential for fuel system icing).

CRI E-04 Liquid Cooling – Coolant Tank – The Rules call for a coolant tank which is five times the size required with the use of a closed loop cooling system, which is state of the art for automobiles. Expansion tank and overflow bottle capacity must be sufficient to ensure safe operation following loss of cooling fluid, and both must be able to withstand the vibration, inertia and fluid loads experienced. A low fluid level warning device will also be provided.

CRI E-05 Electronically-controlled Reciprocating Diesel Engine – The diesel has no ignition system but is electronically controlled and requires electrical power for continued operation. Electrical system and battery reliability and independence requirements were addressed, and an engine shut-down means equivalent to an ignition switch provided.

CRI E-06 Engine Vibration Level JAR 23.251, 23.572, 23.573, 23.613, 23.627, 23.629 – The engine uses four attachment points with softer than usual shock mounts, to reduce vibration (but typical of automotive installations). Vibration levels for all possible failure modes were evaluated, including starting and stoppage. The effect on the engine fatigue spectrum and flutter conditions were also required to be considered.

CRI E-07 Engine Torque JAR 23.361 – A diesel with much higher compression ratio has its maximum torque at a lower RPM. Substantiation of the torque factor of 2 was required, by test and analysis, or a factor of 4 could be used without further investigation. It was shown the Austro engine induces less stress than a conventional petrol engine, even on three cylinders.

CRI F-04 Powerplant Instruments JAR 23.1305, 23.1521 – A Manifold Pressure gauge is not an adequate indication of power for a SLPC diesel engine. The DA 62 instead has a power indicator, and a cooling fluid temperature gauge is used in lieu of a CHT indicator.

CRI F-07 Human Factors in Integrated Avionic Systems JAR 23 Change 1 – The G1000 introduces Novel Features, including new technology, new pilot interface and different use of equipment which need Special Conditions. These cover ease of operation, including automation; effects of pilot error; normal and abnormal operations workload and adequacy of feedback for indication of reversionary and backup modes.

CRI F-18 Cyber Security CS 23.1309 – Airborne Systems and networks in the DA 62 may allow potential for unauthorised electronic access. It may contain vulnerabilities from the introduction of forged malware, alteration of critical data, networks, systems or databases. CS 23 does not address Information Security. This SC required protection from local or remote access, identification of security threats and procedures for maintenance or modifications.

CRI F-21 Battery Endurance CS 23.1353 – The system must be capable of providing 30 minutes of backup electrical power for loads essential for safe flight and landing. However this does not take into account flying at high altitudes or airplanes with a low rate of descent. DAI will show the time needed for the pilot to recognise the loss of generated power, take appropriate load shedding action and continue to a safe landing does not exceed 30 minutes.

(iii) Equivalent Level of Safety Findings:

CRI E-10 Electric Fuel Pump JAR 23.991(a), 23.991(b) – §23.991 (a)(1) requires at least one main fuel pump to be directly driven by the engine. On the DA 62 the rail pressure pump requires a minimum inlet pressure which is provided by an electric booster pump. A second emergency low pressure pump is fitted for each engine, controlled by a dedicated ECU channel. The other pump remains on standby, to be available to serve as an emergency pump.

CRI B-03 Stalling Speed in Icing Conditions – For approval of Flight into Known Icing conditions with a Freezing Point Depressant “TKS” System §23.49 (c) limits the stalling speed V_{so} for twins of 2722 kg or less, when the DA 62 cannot meet the minimum climb gradient specified in §23.67(a)(1) with the critical engine inoperative. This is either 61kt, or the value for which the emergency landing dynamic conditions of CS 23.562(d) was demonstrated. The DA 62 at MAUW cannot meet the stall speed requirement with critical ice accretions. EASA specified a range of compensating factors to allow for the higher stalling and operating speeds.

(iv) Airworthiness Limitations:

See Airworthiness Limitations Section of the Maintenance Manual

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:

The DA 62 has been certificated for noise against ICAO Annex 16, Volume 1, Part II, as detailed on the TCDS, plus CS-36 Amendment 1.

Under the Transport Canada type certificate the environmental standard is specified as AWM 516, Change 516-11, dated 30 June 2015.

(ii) Compliance Listing:

Type Certificate Data Sheet for Noise EASA.A.629 – Issue 2 of 30 March 2017.

Under the Transport Canada type certificate certificated noise levels are listed in Chapter 5 of the AFM.

(4) Certification Compliance Listing:

CRI A-01 Issue 1 dated 06-Dec-2016 – EASA DA 62 Type Certification Basis

Doc. No. 11.07.00 Chapter V001/1 – Means of Compliance – New TC DA 62

(5) Flight Manual: Transport Canada-Approved Airplane Flight Manual Diamond Model DA 62 – Doc. No. 11.01.05-E – CAA Accepted as AIR 3502

(6) Operating Data for Aircraft:

(i) *Maintenance Manual:*

Doc. No. 7.02.25 Airplane Maintenance Manual – DA 62

(ii) *Current service Information:*

DA 62 Series Service Bulletins and Service Information

(iii) *Illustrated Parts Catalogue:*

IPC for the DA 62 is available online at <http://ipc.diamond-air.at:8080/ipp>

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

All manuals are available on the website at

[Diamond Aircraft :: Technical Publications \(diamond-air.at\)](http://diamond-air.at)

(8) Other information:

Diamond Report D62-AW-004 – DA 62 Type Design Definition

ELA-DA62-001 – Electrical Load Analysis Report DA 62 G1000 NXi Phase II

DA62 STC & DEO – List of Applicable Diamond Publications

Document No. 7.11.01 & 11.11.01 Master MEL Diamond DA 62

5. New Zealand Operational Rule Compliance

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	Seat belts/Shoulder Harness if Aerobatic; >10 passengers; used for Flight Training	CS §23.785 – See Flight Manual Section 7.6 – 3-point safety harness is fitted to all seats as standard equipment
91.507	Pax Information Signs – Smoking, safety belts fastened	Not Applicable – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	CS §23.1303(a) <i>N/A – No Mach limitations</i> CS §23.1303(b) CS §23.1303(c) CS §23.1305(a) CS §23.1305(d)(e) CS §23.1305(b)
91.511 Night	(1) Turn and Slip (2) Position Lights	(8) Coolant Temp Gauge (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter	(3) Anti-collision Lights (4) Instrument Lighting (5) OAT (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb
	The DA 62 is approved for Day and Night VFR and IFR operations and flight into known or forecast icing conditions See Flight Manual Section 2.13 Kinds of Operation for minimum operational equipment fit DA 62 is fitted as standard with the Garmin G1000NXi electronic flight instrument system	
91.519	IFR Communication and Navigation Equipment	Operational requirement – Compliance as applicable
91.523	Emergency Equipment (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	Operational requirement – Compliance as applicable Operational requirement – Compliance as applicable Not Applicable – Less than 20 passenger seats Not Applicable – Less than 61 passenger seats
91.529	ELT – TSO C126	To be determined on an individual aircraft basis
91.531	Oxygen Indicators – Volume/Pressure/Delivery	Operational requirement – Compliance as applicable
91.533	Oxygen for Non-Pressurised Aircraft >30 min above FL100 – Supplemental for crew, 10% Pax – Therapeutic for 3% of Pax Above FL100 – Supplemental, Therapeutic, 120 l PBE	Maximum operating altitude is 20,000 ft. (See AFM §2.11) A Continuous Flow oxygen system can be installed under Modification OÄM 62-004 (77 cu. ft. cylinder) or OÄM 62-028 (50 cu. ft. cylinder) (See AFM Supplement S04) The large tank when filled to 1850 psi provides 2.2 hours of oxygen for seven passengers at 20,000 ft.
91.541	SSR Transponder and Altitude Reporting Equipment	Garmin GTX 335R or GTX 345R fitted as standard
91.543	Altitude Alerting Device – Turbojet or Turbofan	Not Applicable – Not turbo jet or turbofan powered
91.545	Assigned Altitude Indicator	Function included as standard with Garmin G1000NXi
A.15	ELT Installation Requirements	To be determined on an individual aircraft basis

Civil Aviation Rules Part 135

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating/Restraints – Shoulder harness flight-crew seats	See compliance with NZCAR §91.505 above
135.357	Additional Instruments (Powerplant and Propeller)	CS §23.1305 instruments fitted/propeller not reversible
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))	
135.367	Cockpit Voice Recorder	Operational requirement – Compliance as applicable
135.369	Flight Data Recorder	Operational requirement – Compliance as applicable
135.371	Additional Attitude Indicator	Operational requirement – Compliance as applicable
		Not Applicable – Less than 10 passenger seats
		Not Applicable – Less than 10 passenger seats
		Not Applicable – Not turbo jet or turbofan powered

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.

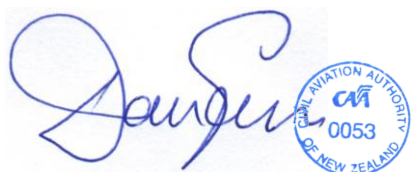
3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

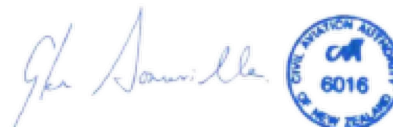
The following documents form attachments to this report:

Copy of Transport Canada Type Certificate Data Sheet A-273

Sign off



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David Gill
Team Leader Aircraft Inspection



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Checked – Glen Somerville
Certification Engineer

Appendix 1

List of Type Accepted Variants:

Model:	Applicant:	CAA Work Request:	Date Granted:
DA 62	Diamond Aircraft Industries Inc,	22/21B/13	31 October 2022

Appendix 2

Three-view drawing DA 62:

