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# **Type Acceptance Report**

**TAR 5/21B/27**

**BRANTLY B-2B**



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## Executive Summary

New Zealand Type Acceptance has been granted to the Brantly Model B-2 Series based on validation of FAA Type Certificate no. 2H2. 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(2).

## 1. Introduction

This report details the basis on which Type Acceptance Certificate No.5/21B/27 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. Foreign Type Certificate Details

Original Manufacturer: Brantly Helicopter Corporation (until 16.12.68)

Current TC Holder: Brantly International, Inc. (from 23.12.94)

Model(s): B-2B

Type Certificate: 2H2

Issued by: Federal Aviation Administration

MCTOW 1670 lb. (with 248-202 or -404 main rotor blades)

1600 lb. (with 248-101 main rotor blades)

Max. No. of Seats: 2

Noise Standard: Not Applicable

**Engine:** Lycoming IVO-360-A1A

Type Certificate: 1E1

Issued by: Federal Aviation Administration

### 3. Type Acceptance Certificate

The application for New Zealand type acceptance of the B-2B was from the importer Gumboot Airways Ltd, dated 1<sup>st</sup> March 2005. The first-of-type example was serial number 417, registered ZK-INK. The Brantly B-2 is a two-seat light utility or training helicopter.

Type Acceptance Certificate Number 5/21B/27 was granted on 26 May 2005 to the Brantly B-2B based on validation of FAA Type Certificate 2H2. There are no special requirements for import into New Zealand.

Of conventional helicopter configuration, the Brantly is distinctive in having coincident flapping and lag hinges located at approximately 40% of the blade length. (A second set of flapping hinges is fitted near the hub.) The B-2B was the last (and current) production version, with the main changes being the use of a fuel-injected engine and a small increase in MCTOW. There has been one previous example of the original Brantly Model B-2 in New Zealand, serial number 180 which was registered ZK-HFA in 1973.

### 4. Type Data

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) Type certificate:

FAA Type Certificate Number 2H2

FAA TCDS Number 2H2 at Revision 23 dated August 14, 2002

Model B-2 approved April 27, 1959

Model B-2B approved July 1, 1963

FAA TCDS Number 1E1 (Lycoming VO/IVO-360) at Rev.4 dated June 15, 1966

(2) Airworthiness design requirements:

The certification basis of the Brantly B-2 is Part 6 of the Civil Air Regulations effective December 20, 1956, as amended by 6-2. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as CAR 6 is the predecessor of FAR Part 27, which is the basic standard for Normal Category Rotorcraft 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.

(3) Certification compliance listing:

Brantly Helicopter Released Drawing Status List

Brantly Helicopter Corporation Model B-2 – Type Inspection Report

BHC Report No.7 – Model B-2 – “Basic Loads Part 1 (Landing Loads)”

BHC Report No.10 – Model B-2 – “Basic Loads Part 2 (Flight and Control Loads)”

BHC Report No.32 – Model B-2 Helicopter – “Static Test Results”

BHC Report No.35 – Model B-2 – Equipment List

BHC Report No.47 – Substantiation of Structure at Increased Gross Weight

Turner Aircraft Inc., Report No. B-2B-91-1 – Brantly Helicopter Technical Reports for Model 2-B2 Dated May 8, 1991

- (4) Environmental Certification:  
Not applicable
- (5) Flight manual: FAA-Approved Helicopter Flight Manual Brantly Model B-2B  
CAA Accepted as AIR 2914
- (6) Illustrated Parts Catalogue: Brantly B-2B Parts Catalog
- (7) Maintenance manual and service data for aircraft:  
Maintenance Manual and Overhaul Instructions – Brantly B-2B  
Brantly Service Bulletins, Service Letters, Service Instructions
- (8) Agreement from manufacturer to supply updates of data in (4), (5) and (6):  
CAA 2171 from Brantly International Inc. President, dated 12 April 2005

## 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

##### Appendix E - Helicopters

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
E.1	Doors and Exits	Complies by inspection
E.2.1	Emergency Exit Marking	CAR 6.357(3)

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	Safety Belt (Shoulder harness if aerobatic; flight training)	CAR 6.605(b)
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Less than ten passenger seats
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	CAR 6.603(a) N/A CAR 6.603(b) CAR 6.603(c) CAR 6.604(a)(1) CAR 6.604(a)(4) CAR 6.604(a)(2)
91.511 Night	(1) Turn and Slip (2) Position Lights	(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter  (3) Anti-collision Lights (4) Instrument Lighting
91.513	VFR Communication Equipment	N/A – Air-cooled engine CAR 6.604(a)(3) CAR 6.604(b)(3) CAR 6.604(b)(1) N/A – Helicopter N/A – Fixed skid landing gear GE 8DW53 Standard Fit CAR 6.637 CAR 6.630
		<i>Operational Requirement – Compliance as applicable</i>

91.517	IFR Instruments and Equipment	Not Applicable – Only approved for VFR day and Night
91.519	IFR Communication and Navigation Equipment	Not Applicable – Only approved for VFR day and Night
91.523	(a) More Than 10 pax - First Aid Kits per Table 7 - Fire Extinguishers per Table 8 Emrgcy Eqpmt. (b) More than 20 pax - Axe readily acceptable to crew (c) More than 61 pax - Portable Megaphones per Table 9	<b>Operational Requirement – Compliance as applicable</b> <b>Operational Requirement – Compliance as applicable</b> Not Applicable – Less than 20 passenger seats Not Applicable – Less than 61 passenger seats
91.529	ELT - TSO C91a or C126 after 1/4/97 (or replacement)	<b>To be determined on an individual aircraft basis</b>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Not fitted as standard
91.533	Oxygen for Non-Pressurized Aircraft	<b>Operational Requirement – Compliance as applicable</b>
91.541	SSR Transponder and Altitude Reporting Equipment	<b>Operational Requirement – Compliance as applicable</b>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Not approved for IFR operations
91.545	Assigned Altitude Indicator	Not Applicable – Not approved for IFR operations
A.15	ELT Installation Requirements	<b>To be determined on an individual aircraft basis</b>

## Civil Aviation Rules Part 135

### Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating and Restraints – Shoulder harness flight-crew seats	Shoulder harness installation kit available from factory
135.357	Additional Instruments (Powerplant and Propeller)	Has the applicable instruments required by FAR §23.1305
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))	<b>To be determined on an individual aircraft basis</b>
135.367	Cockpit Voice Recorder	N/A – Only for 2-crew helicopters with more than 10 pax
135.369	Flight Data Recorder	Not Applicable – Less than 10 passenger seats
135.371	Additional Attitude Indicator	Not Applicable – Not turbo jet or turbofan powered

## Attachments

The following documents form attachments to this report:

- Photographs first-of-type example B-2B Serial Number 417 ZK-INK
- Three-view drawing Brantly Helicopters Model B-2B
- Copy of FAA Type Certificate Data Sheet Number 2H2

## Sign off

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David Gill  
Team Leader Airworthiness

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Checked – AWE3  
Date: 26 May 2005

## Appendix 1

### List of Type Accepted Variants:

Model:	Applicant:	CAA Work Request:	Date Granted:
B-2	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
B-2B	Gumboot Airways Limited	5/21B/27	26 May 2005