
Type Acceptance Report

TAR 11/21B/19

WESTLAND BELL 47G-4A

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Executive Summary

New Zealand Type Acceptance has been granted to the Westland Bell 47G-4A based on validation of the UK CAA Type Approval. 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 §21.191, 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).

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 11/21B/19 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 in New Zealand; and
- (b) Identify any special conditions for import applicable to any model 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:	Westland Helicopters Limited
Type Certificate:	AAN 10196
Issued by:	Air Registration Board
Model:	Westland Bell 47G-4A
MCTOW	2950 lb.
Max. No. of Seats:	3
Noise Standard:	Not Applicable
Engine:	Lycoming VO-540-B1B3
	Type Certificate: E-304
	Issued by: Federal Aviation Administration

3. Type Acceptance Details

The application for New Zealand type acceptance was from the importer, R M Aviation Ltd, dated 13 March 2011. The first-of-type example was serial number WA722, registered ZK-HBF. The Westland Bell 47G-4A is a light three-seat piston powered helicopter with a teetering rotor-head and conventional tail-rotor configuration.

Type Acceptance Certificate Number 11/21B/19 was granted on 23 December 2011 to the Westland Bell 47G-4A based on validation of the UK CAA Type Design Approval. (The UK CAA has confirmed the type design approval is still valid.) Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The Westland Bell 47G-4A was a license-produced version of the Bell 47G-4A. It was manufactured to a Westland Helicopters G.A. Drawing, but the transmission and rotors were supplied by Bell. The structure was built to Bell drawings, with the exception that some of the materials were changed to British specifications. From the records it appears that eighteen civil examples of the Westland Bell 47G-4A were produced, which were all operated initially by Bristow Helicopters.

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:

UK CAA Airworthiness Approval Note Number 10196 dated 7 August 1969
Aircraft Type: Westland Bell 47G-4A – Prototype Modified Certificate of
Airworthiness – Transport Category (Passenger)

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

There is no specified design standard for the Westland Bell 47G-4A. However the AAN under certification basis states that the helicopter is a license-manufactured version of the Bell model, which is FAA type certificated (The FAA certification basis is CAR 6, including Amendment 6-4); plus a large number of similar military versions have demonstrated acceptable reliability figures; and a satisfactory flight handling and performance substantiation test program was carried out.

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, because CAR 6 is the predecessor of FAR 27, which is the basic standard for Normal Category Rotorcraft called up under Part 21 Appendix C and Advisory Circular 21-1A. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*
Nil

(iv) *Airworthiness Limitations:*

The UK CAA confirmed that no variations were required to the Bell life-limited components schedule. Therefore the airworthiness limitations applicable to the Bell 47G-4A are also applicable to the Westland Bell 47G-4A.

These are specified in the Tables in TCDS 2H3 and Bell Info Letter 47-00-7

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*
Not Applicable

(ii) *Compliance Listing:*
Not Applicable

(4) Certification Compliance Listing:

ARB Airworthiness Approval Note No. 10196 – dated 7th August 1969

(5) Flight Manual: FAA-Approved Flight Manual for the Bell 47G-4A, plus the ARB-Approved Supplement to Flight Manual for the Westland Bell 47G-4A – CAA Accepted as AIR 3195

(6) Operating Data for Aircraft, Engine and Propeller:

(i) *Maintenance Manual:*
Westland Bell 47G-4A Maintenance and Overhaul Instructions
(Basically the Bell manuals with additions for Westland modifications.)

(ii) *Current service Information:*
See Bell Helicopter SB, TB and SIL

(iii) *Illustrated Parts Catalogue:*
Westland Bell 47G-4A Illustrated Parts Breakdown

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

The manufacturer provided copies of the above-referenced technical manuals, which have not been amended since 1974. It is therefore accepted that the type design of the helicopter has been frozen.

5. Additional New Zealand Requirements

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.

CAR 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	Not Applicable – no separate emergency exits

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:

CAR Part 91 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Seating and Restraints – Safety belt/Shoulder Harness	CAR 6.605(b)
91.507	Pax Information Signs – Smoking, safety belts fastened	Not Applicable – Less than 10 passenger seats
91.509	Minimum Instruments and Equipment	
	(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)
		(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter
		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 <i>To be determined</i>
91.511	Night VFR Instruments and Equipment	<i>Operational requirement – To be determined as applicable</i>
	Note: ARB Supplement states night flying is permitted subject to the carriage of Schermuly Flares (Mod.6013)	
91.513	VFR Communication Equipment	<i>Operational requirement – To be determined as applicable</i>
91.517	IFR Instruments and Equipment	N/A – Basic helicopter is limited to VFR conditions
91.519	IFR Communication and Navigation Equipment	N/A – Basic helicopter is limited to VFR conditions
91.523	Emergency Equipment:	
	(a) More Than 9 pax - First Aid Kits per Table 7 - Fire Extinguishers per Table 8	Not Applicable – Less than 10 passenger seats Not Applicable – Less than 10 passenger seats
	(b) More than 20 pax - Axe readily accessible to crew	Not Applicable – Less than 20 passenger seats
	(c) More than 61 pax - Portable Megaphones per Table 9	Not Applicable – Less than 61 passenger seats
91.529	ELT - TSO C91a or C126 after 1/4/97 (or replacement)	<i>To be determined on an individual aircraft basis</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Not fitted as Standard
91.533	Oxygen for Non-Pressurised Aircraft:	<i>Operational requirement – To be determined as applicable</i>
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational requirement – To be determined as applicable</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Not turbojet or turbofan powered
91.545	Assigned Altitude Indicator	N/A – Basic helicopter is limited to VFR conditions
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

CAR Part 135 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating and Restraints – Shoulder harness flight-crew seats	<i>To be determined on an individual aircraft basis</i>
135.357	Additional Instruments (Powerplant and Propeller)	Basic instruments required under FAR §27.1305 are fitted
135.359	Night Flight	<i>Operating Requirement – Compliance as applicable</i>
135.361	IFR Operations	N/A – Basic helicopter is limited to VFR conditions
135.363	Emergency Equipment (Part 91.523 (a) and (b))	<i>Operating Requirement – Compliance as applicable</i>
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 Westland Bell 47G-4A s/n WA722

Three-view drawing Westland Bell Model 47G-4A

Copy of UK CAA Airworthiness Approval Note No. 10196

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Peter Gill
Airworthiness Engineer