
Type Acceptance Report

TAR 13/21B/18

Cameron Hot Air Balloons

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Executive Summary

New Zealand Type Acceptance has been granted to the Cameron Hot Air Balloon Series based on validation of EASA Type Certificates number BA.012 and BA.013. 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. 13/21B/18 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 also notes the status of all models included under the foreign type certificate which have been granted type acceptance in New Zealand. Models covered by the type acceptance certificate issued under Part 21B are listed in Section 2 of this report. Models which were accepted prior to that under NZCAR Section B.9 are listed in Appendix 1.

2. ICAO Type Certificate Details

Manufacturer:	Cameron Balloons Limited
Type Certificate:	BA.013
Issued by:	European Aviation Safety Agency
Models:	A, C, GP, H, N, O, TR, V, Z Types
Manufacturer:	Thunder and Colt Limited
Models:	Colt A, Colt “Bullett” Types

Models: Thunder A, Thunder “Bolt”, AX-Series S1,
AX-Series S2, Z Types

Manufacturer: Cameron Balloons Limited

Type Certificate: BA.012
Issued by: European Aviation Safety Agency

Models: Special Shape Types

Common details for all Models:

MCTOW See TCDS or Flight Manual for individual model

Max. No. of Persons: See Flight Manual §2.7-2

Noise Standard: Not Applicable

Burner: See Flight Manual Section 9 – Equipment List
See also Flight Manual Supplements for other options,
e.g. 8.22 Out of Production Burner Models

Basket: See Flight Manual Section 9 – Equipment List
See also Flight Manual Supplements for other options,
e.g. 8.15 Wheelchair Baskets and 8.21 Special Baskets,
and also use of other balloon manufacturer “bottom ends”

3. Type Acceptance Details

The application for New Zealand type acceptance of the N-133 was from the Balloon Expedition Co of NZ Ltd, dated 20 January 2013. The first-of-type example was serial number 10092, registered ZK-ZVE. Cameron and Thunder and Colt are manned free hot air balloons of conventional shape with varying number of vertically or horizontally cut gores, depending on the size and type.

Type Acceptance Certificate Number 13/21B/18 was granted on 25 February 2013 to the Cameron N-133 Hot Air Balloon based on validation of EASA Type Certificate BA.013. Because all the Models use the same operating manual, and the manufacturer provided representative design data, the Type Acceptance applicability was expanded to include all Models covered by the two EASA type certificates. There are no special requirements for import into New Zealand.

Cameron Balloons was one of the earliest manufacturers of hot air balloons and has grown to become the largest. In the 1990s it absorbed one of its main British competitors, Thunder and Colt Limited. The first free balloon in New Zealand was a Cameron O-77 serial number 81 which was registered ZK-FBA in December 1973.

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:

EASA Type Certificate Number BA.012

EASA Type Certificate Number BA.013

EASA Type Certificate Data Sheet no. BA.012 at Issue 20 dated 14 August 2012
– See TCDS for individual Model Date of Approval

EASA Type Certificate Data Sheet number BA.013 at Issue 12 dated 13 July 2012
– See TCDS for individual Model Date of Approval

Supersedes the previous UK CAA Type Certificates:

BB1 (O Type); BB3 (C Type); BB4 (N Type); BB12 (A Type); BB13 (V Type); BB15 (Thunder AX Series 1); BB16 (Thunder AX Series 2); BB17 (Colt Type); BB18 (Colt Bullet Type); BB21 (Z Type);

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Cameron and Thunder and Colt balloons depends on the date of certification, and is listed individually by model on the EASA TCDS. The original certification basis was British Airworthiness Requirements, Manned Free Balloons, Issue 1 dated March 1972 or later Draft Issues dated May 1978 or September 1979. This was superseded by BCAR Part 31 Issue 1 dated 31 August 1984. This was replaced by CS31HB, final CG9 draft 27 February 2003, and finally CS31HB Issue 1. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, because CS31 and BCAR 31 and its predecessors are equivalent to FAR Part 31, which is the basic airworthiness standard for Manned Free Balloons 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:*

Nil. (One set of special conditions was applied to balloons certified in the UK CAA Transport Category [Passenger]).

(iii) *Equivalent Level of Safety Findings:*

Nil.

(iv) *Airworthiness Limitations:*

See MM §6.2 Scheduled Inspections and Component Life

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

Not Applicable.

(4) Certification Compliance Listing:

B.B.A.C. Compliance Approval Note No.42 – Type ‘Mug-90’ dated 14-2-00

Compliance Check List to BCAR 31 – Balloon Type: 77A 32V – Date 18.07.89

Compliance Check List to BCAR 31 – Balloon Type: 90 52 – Date 18.07.89

Doc. No. CBL/TN/BEB/61 – Hot Air Balloon Type A-250 – Compliance Program and Check List (BCAR Part 31) – Issue A Dated 24-4-86

Doc. CBL/TN/BEB/75 – N-105 CP and CCL (BCAR 31) – Issue C Dated 1-12-94

Doc. CBL/TN/BEB/84 – V-65 CP and CCL (BCAR 31) – Issue A Dated 5-8-86

Doc. CBL/TN/BEB/246 – N-133 CP and CCL (BCAR 31) – Issue B Dated 18-4-95

Doc. CBL/TN/BEB/370 – H-34 CP and CCL (BCAR 31) – Issue A Dated 14-9-89

Doc. CBL/TN/BEB/375 – A-105 CP and CCL (BCAR 31) – Iss B Dated 24-11-89

Doc. CBL/TN/BEB/481 – O-65 CP and CCL (BCAR 31) – Issue B Dated 8-9-94

Doc. CBL/TN/BEB/631 – Concept (now C-60) CP and CCL – Iss A Dated 3-1-92

Doc. CBL/TN/BEB/863 – N-210 CP and CCL (BCAR 31) – Issue A Dated 21-4-94

Doc. CBL/TN/BEB/1479 – Concept-100 CP and CCL – Issue A Dated 02-4-98

Doc. CBL/TN/BEB/1941 – Z-133 CP and CCL (BCAR 31) – Iss B Dated 07-03-03

Doc. CBL/TN/BEB/2192 – A-530 CP and CCL (BCAR 31) – Iss A Dated 08-04-02

Doc. CBL/TN/BEB/2275 – GP-70 CP and CCL – Issue A Dated 29-05-03

Doc. Ref: CBL/TN/SAC/2604 Issue A 22/07/2009 – Compliance Checklist Against Certification Specification for Hot Air Balloons CS31HB-Issue 1 – Introduction of Z-56 – Drawing Number CB1464

Doc. Ref: CBL/TN/SAC/2742 Issue A 05/07/2012 – Compliance Checklist Against CS31HB-Amendment 1 – Introduction of Z-750 Envelope – Drawing No. CB1663

(5) Flight Manual: EASA-Approved Cameron Balloons Hot Air Balloon Flight Manual Issue 10 – CAA Approved as AIR 2188

UK CAA-Approved Thunder & Colt Ltd Hot Air Balloon Flight Manual – Issue 5 – CAA Approved as AIR 2219

Note: The current Cameron Balloons FM now covers all Models of balloons, including those manufactured by Thunder & Colt. However the EASA TCDS allows the continued use of the manuals which they were issued with if it was prior to 28 September 2003.

(6) Operating Data for Aircraft:

(i) *Maintenance Manual:*

Cameron Balloons Hot Air Balloon Maintenance Manual – Issue 10

(ii) *Current service Information:*

Service Bulletins and Service Instructions

(iii) *Illustrated Parts Catalogue:*

Cameron Balloons Parts Catalogue

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

All technical documentation is available on the Cameron Balloons website, which includes a technical updates service <http://www.cameronballoons.co.uk>

(8) Other information:

CB151 – ‘O’ Type Balloon – Drawing List and Component Specification

CB152 – ‘A’ Type Balloon – Drawing List and Component Specification

CB156 – ‘V’ Type Balloon – Drawing List and Component Specification

CB159 – ‘N’ Type Balloon – Drawing List and Component Specification

CB571 – Test Results Summary – Standard Components and Materials

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.

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	Not Applicable – No doors or exits
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	Shoulder Harness if Aerobatic; >10 pax; Flight Training	Not Applicable – Balloons excluded from the requirement
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Balloons excluded from the requirement
91.509	Minimum Instruments and Equipment	Not Applicable – Unpowered aircraft
91.511	Night VFR Instruments and equipment	Not Applicable – Unpowered aircraft
91.513	VFR Communication Equipment	<i>Operational requirement – Compliance as applicable</i>
91.517	IFR Instruments and Equipment	Not Applicable – Not approved for IFR Flight
91.519	IFR Communication and Navigation Equipment	Not Applicable – Not approved for IFR Flight
91.523	Emergency Equipment	Not Applicable – No certificated seating capacity
91.529	ELT - TSO C91a after 1/4/97 (or replacement)	Not Applicable – Balloons excluded from the requirement
91.531	Oxygen Indicators - Volume/Pressure/Delivery	<i>Operational requirement – Compliance as applicable</i>
91.533	Oxygen for non-Pressurised Aircraft	<i>Operational requirement – Compliance as applicable</i>
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational requirement – Compliance as applicable</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Unpowered aircraft
91.545	Assigned Altitude Indicator	Not Applicable – Not approved for IFR Flight
A.15	ELT Installation Requirements	Not Applicable – Balloons excluded from the requirement

Note: See TCDS Sub-Section III and Flight Manual Section 2.4 for required minimum equipment.

Attachments

The following documents form attachments to this report:

Copy of EASA Type Certificate Data Sheet Number BA.012

Copy of EASA Type Certificate Data Sheet Number BA.013

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Peter Gill
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
Cameron A-120, A-180, A-210, A-275, A-340, A-375 C-80, C-90 H-34 N-56, N-65, N-77, N-90, N-105 O-65, O-77, O-84, O-105, O-120 TR-70 V-65, V-77, V-90 Z-90, Z-275 EGG-65	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
Thunder & Colt 77B 160A AX8-90 Series 2, AX8-105 Series 2 AX9-120 Series 2	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
* N-133	Balloon Expedition Co of NZ Ltd	13/21B/18	25 February 2013
* Plus all other variants covered by EASA TC BA.012 or BA.013 and AIR 2188			