
Type Acceptance Report

TAR 7/21B/1 – Revision 1

KUBÍČEK HOT AIR BALLOONS

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Executive Summary

New Zealand Type Acceptance has been granted to the Kubíček BB Series hot air balloons based on validation of EASA Type Certificate number BA.003. 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(b).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.7/21B/1 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. ICAO Type Certificate Details

Manufacturer:	Balóny Kubíček spol. s r.o. (s/n 141 and up)
Type Certificate:	EASA.BA.003
Issued by:	European Aviation Safety Agency
Model(s):	BB
Variants:	O-Type, N-Type, Z-Type, GP-Type, XR-Type, E-Type
MCTOW:	See TCDS for individual types
Max. No. of Occupants:	See Flight Manual for individual types (based on largest approved basket combination)
Noise Standard:	Not Applicable

3. Type Acceptance Certificate

The application for New Zealand type acceptance was received from the manufacturer, dated 30 May 2006, but the applicant was taken to be the NZ importer, Kiwi Balloon Co. Ltd. The first-of-type example was a BB60 serial number 451, registered ZK-UPP. The Kubíček BB is a natural shape polyester hot air balloon with traditional canework basket.

Type Acceptance Certificate No. 7/21B/1 was granted on 21 July 2006 to the Kubíček BB Series hot air balloons based on validation of EASA Type Certificate BA.003. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The Kubíček BB Series were originally type certificated in the Czech Republic under CZ TC No. 93-01. (Kubíček Balloons was formed in 1989. Prior to that Mr Kubíček worked under the supervision of Aerotechnik, which was owned by the state military organization.) The model designation reflects the size of the envelope in $m^3 \times 10^2$ and the cutting style. Note the latter was originally missing from the model designation of N-type balloons, but has been added at Change 5 of the TCDS. (Only O-type now have no suffix letter.)

The balloons are natural shaped with either vertical gore or horizontal form (Z-type), and have a range of optional deflation systems. The Flight Manual Limitations Section 2 and the TCDS specifies approved envelope/burner/basket/fuel cylinder combinations.

This report was raised to Revision 1 under CAA Work Request 10/21B/15 to accept the latest versions of the flight and maintenance manuals. The applicant was the manufacturer, and the first-of-type was a BB-22Z serial number 737 registered ZK-FRG.

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 EASA.BA.003

EASA Type Certificate Data Sheet no. BA.003 at Issue 15 dated 31 August 2009
– Type BB approved February 25, 2005
(See the TCDS for individual variant reference date)

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Kubiček BB Series balloons is FAR Part 31. This is at either Amendment 31-4 dated September 11, 1980; Amendment 31-5 dated 18 August 1990; or Amendment 31-7 dated April 24, 1996, as individually specified for the envelope, basket or burner on the TCDS. Equivalent Safety Findings were made for the burners endurance test. This was reviewed and accepted by the CAA. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, because FAR Part 31 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

(iii) *Equivalent Level of Safety Findings:*

CRI No. E-01 – Equivalent Safety Findings to FAR §31.47(d) – Project BB Ignis P-EASA.BA.C.01000 – The FAR requires an endurance test for heater systems of 40 hours, which can be time consuming and expensive. In lieu of this Kubiček proposed to substantiate based on measurement of heat exposure of the burner by thermal camera and comparison with similar results from other approved and certified types. This methodology was based on identity of materials and manufacture and proven safe operating history.

(iv) *Airworthiness Limitations:*

See Maintenance Manual Section 2.

(3) Aircraft Noise and Engine Emission Standards:

Not Applicable

(4) Certification compliance listing:

P-EASA.B.102 Document BB60Z_PCC – Project Compliance Checklist
(Because of the similarity between models, only the compliance report for the Model BB-60 was requested, as a representative example.)

Doc. BB22Z_PCC – P-EASA.BA.C.01057 Project Compliance Checklist

Report – Certificate on Burner Tests for Hot-Air Balloons and Airships

Final Assessment of Test Results KOMET DUO+ Burner
(With regard to compliance with FAR 31.47(d)(1) and (2))

- (5) Flight manual: Czech Civil Aviation Authority-Approved Flight Manual for all Kubíček and Aerotechnik Hot Air Balloons – Document B.0102
CAA Accepted as AIR 2954
- EASA-Approved Flight Manual for use with the hot air balloon
(Applicable for balloons serial number 640 and higher) – Document B.2102 – CAA Accepted as AIR 3120
- (6) Operating Data for Aircraft, Engine and Propeller:
- (i) *Maintenance Manual:*
Maintenance Manual Document B.0202
(applicable to all Kubíček BB standard balloons.)
- Maintenance Manual Document B.2202
(applicable for balloons serial number 640 and higher)
- (ii) *Current service Information:*
All Manuals and Service Bulletins are available on their website at
<http://www.kubicekballoons.cz/english/support/>
- (iii) *Illustrated Parts Catalogue:*
Not Applicable
- (7) Agreement from manufacturer to supply updates of data in (5), (6) and (7):
CAA 2171 from Kubíček Head of Technical Department dated 30.5.2006
CAA 2171 from Kubíček DOA Executive Director dated 13 Nov 2009
- (8) Other information:
Optional Bulletin No. BB/22b-1 (Specifies how Kubíček parts may be combined with parts from other balloon manufacturers.)

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	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	Operational requirement – Compliance as applicable
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	Operational requirement – Compliance as applicable
91.533	Oxygen for non-Pressurised Aircraft	Operational requirement – Compliance as applicable Maximum Flight Altitude is 14,000 feet – See FM §2.14
91.541	SSR Transponder and Altitude Reporting Equipment	Operational requirement – Compliance as applicable
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 2.12 for required minimum equipment.

Attachments

The following documents form attachments to this report:

Photographs first-of-type example Kubíček BB60 s/n 451 ZK-UPP
Copy of EASA Type Certificate Data Sheet Number EASA.BA.003

Sign off

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David Gill
Team Leader Airworthiness

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Checked – David Selby
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
BB Series	Kiwi Balloon Co Ltd.	7/21B/1	21 July 2006
BB Series (s/n 640 on)	Balóny Kubiček spol. s r.o.	10/21B/15	22 January 2010