
Type Acceptance Report

TAR 12/21B/8

Ultramagic Hot Air Balloons

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. ICAO TYPE CERTIFICATE DETAILS	1
3. TYPE ACCEPTANCE DETAILS	2
4. NZCAR §21.43 DATA REQUIREMENTS	2
5. ADDITIONAL NEW ZEALAND REQUIREMENTS	4
ATTACHMENTS	5

Executive Summary

New Zealand Type Acceptance has been granted to Ultramagic Hot Air Balloons based on validation of EASA Type Certificate number BA.014. 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 Number 12/21B/8 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:	Ultramagic, S.A.
Type Certificate:	BA.014
Issued by:	European Aviation Safety Agency
Models:	H, S, T, V, M, N, Z Series
MCTOW	See TCDS or Flight Manual for individual model
Max. No. of Persons:	See Flight Manual §2.6 and Appendix D
Noise Standard:	Not Applicable
Burner:	See TCDS Section x.2 for specific model
Basket:	See TCDS Section x.2 for specific model

3. Type Acceptance Details

The application for New Zealand type acceptance of the Ultramagic hot air balloons series was from the importer, Mr John Snodgrass, dated 19th October 2011. The first-of-type example was an H-77 serial number 77/329, registered ZK-PNG.

Type Acceptance Certificate Number 12/21B/8 was granted on 26 March 2012 to the Ultramagic series of hot air balloons based on validation of EASA Type Certificate number BA.014. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

Ultramagic began building balloons in the early 1980s and now produce seven standard models (Series H, S, T, V, M, N, Z) ranging in size from 25,000 to 509,000 cubic feet, plus Special Shapes and Cold Air Inflatables. All envelopes, baskets and burners are manufactured by Ultramagic to their own designs. The model differences are primarily due to the number of gores. The H series has 12 gores for mainly sport/adventure flying, while the S and T series have respectively 16 and 20-gore designs for passenger operations. The M series is a 24-gore smooth panelled balloon, excellent for artwork and logos, and a larger development is the N series with 28-gores. The V series is a super smooth 48-gore advertising/artwork balloon, and the Z series is a special sport package system.

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.014 Issued 18 July 2008

EASA Type Certificate Data Sheet BA.014 at Issue 12 dated 6 October 2010

– Individual Model approval dates are listed on the TCDS

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The original Spanish certification basis of the Ultramagic Series was 14 CFR Part 31 at Amendment 4 dated 14 October 1980. For later models this was updated to Amendments 5 and 7, as detailed on the TCDS. (The two latest model approvals correspond to CS-31HB dated 27 February 2009.) This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as FAR 31 is the basic standard for Hot Air Balloons 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:*

For V-25, Solo and Duo bottom end certified to FAR 31 at Amendment 7, EASA also applied the draft CS-31HB dated 27 February 2003.

(iii) *Equivalent Level of Safety Findings:*

FAR 31.47(d) Burner Endurance Test – Compliance Report 026 dated 30/07/2008 – (Models MK-1, MK-2, MK-2 Super and MK-10). Instead of the required 40 hours it was originally accepted by European authorities that a shorter test in a more cyclic manner was more representative of actual balloon operations. This was later embodied in FAR Amendment 31-7. For these older burners an extensive satisfactory service history was accepted in lieu of re-testing.

(iv) *Airworthiness Limitations:*

See Maintenance Manual Section 7

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

Not Applicable.

(ii) *Compliance Listing:*

Not Applicable.

(4) Certification Compliance Listing:

FAR 31 Compliance Checklist – Models certified up to 31/10/2001

Courtesy translation into English of the CCL to FAR 31 Amdt.31-7, corresponding to the M-42 Project Certification issued in Apr/2003

Structural Calculation and FAR 31 – Models T-150, T-180, T-210 – Doc. G.1.11 A

Compliance Checklist – Modelo V-25 – Doc. G.1.13

Compliance Checklist to Draft CS 31 HB Draft (27 February 2003) for the Envelope V-25 – Document Ref: CCL/011 Iss 2 Date 9 June 2004

FD1-03.05 Certification Programme Form – N500 Envelope C-14 Basket & Burner Frame – Iss 3 dated 23/May/2009

FD1-03.05 Certification Programme Form – S50 Tekno Envelope – Iss 1 14/10/2009

Ultramagic Balloons – Aerostat Project (Structural Report) revised 01/06/2011

(5) Flight Manual: EASA-Approved Flight Manual for Ultramagic Hot Air Balloons
Document FM04 – CAA Accepted as AIR 3207

(6) Operating Data for Hot Air Balloon:

(i) *Maintenance Manual:*

Maintenance Manual for Ultramagic Hot Air Balloons – Document MM04

(ii) *Current service Information:*

Service Bulletins and Service Instructions are available at www.ultramagic.com

(iii) *Illustrated Parts Catalogue:*

Ultramagic Balloons Parts Catalog

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

CAA 2171 from Ultramagic Airworthiness Technician dated 19 Oct 2011

(8) Other information:

Document – Certification Basis Applied To The Ultramagic Hot Air Balloons And Their Equipment - ULTRAMAGIC DOA EASA.21J.0351 – dated 1st June 2011

Certification Specifications Comparison Table – Between CS-31HB Iss1 and FAR31 Amdt. 31-7 – Ultramagic S.A. dated 17/Oct/2011

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:

- Photographs first-of-type example Ultramagic Model H-77 ZK-PNG
- Copy of EASA Type Certificate Data Sheet Number BA.014

Sign off

.....
David Gill
Team Leader Airworthiness

.....
Checked – Greg Baum
Airworthiness Engineer