



FLIGHT MANUAL

for

ULTRAMAGIC HOT AIR BALLOONS

This manual and its approved supplements contain the Instructions for Operation of all Ultramagic Hot Air Balloons included in the Ultramagic Type Certificates EASA BA.014 and BA.517

The technical content of this document is approved under the authority of the DOA, ref.: EASA.21J.351

This copy of the Flight Manual has been customized for the following aircraft:

Registration:

Model:

Serial Nr.:

Signed:

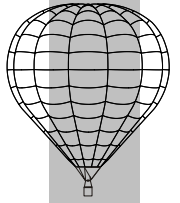
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Organization:

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LIST OF APPROVED REVISIONS

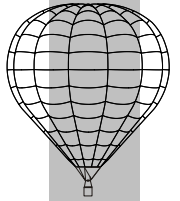


REVISIONS / CONTENTS

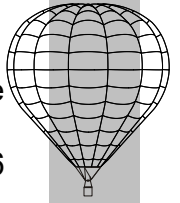
Rev	Description	Approval	
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2	Sup. 6, 7 added	18/Oct/03	DGAC - Spain
3	Sup. 9 added; V-25 model added; Section 8 amended	14/Feb/06	EASA BA.C.01011
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7	Sup. 13, 14 added; Section 5.6 added	31/Jul/06	EASA BA.A.01001
8	Sup. 8 added	03/Mar/08	EASA BA.C.01028
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25	Minor revisions to sections 0, 1, 2, 3, 4, 5, 6 and 7	29/Apr/20	DOA 21J.351 PD1-05 062
26	Minor revision to sections 2.14, 4.8.2.2, 4.13, 6.2.2.5, Appendix B and Appendix E	09/Oct/20	DOA 21J.351 PD1-05 063
27	Embodiment of Suppl. 34, 52, 56, 62, 72 & 73. Corrections, format adjustment.	15/Dec/23	DOA 21J.351 PD1-05 099
	N-550 envelope & C-15 basket addition.		EASA Project 60087942
28	Editorial updates and corrections	11/Jan/24	DOA 21J.351 PD1-05 100

LIST OF EFFECTIVE PAGES

Page	Nº	Date	Page	Nº	Date	Page	Nº	Date
0.0	28	11-Jan-24	6.5	26	09-Oct-20	E.7	26	09-Oct-20
0.1	24	21-Dec-15	6.6	26	09-Oct-20	E.8	26	09-Oct-20
0.2	27	15-Dec-23	6.7	26	09-Oct-20	E.9	26	09-Oct-20
0.3	28	11-Jan-24	6.8	26	09-Oct-20			
0.4	28	11-Jan-24	6.9	26	09-Oct-20			
0.5	24	21-Dec-15	6.10	26	09-Oct-20			
0.6	26	09-Oct-20	6.11	26	09-Oct-20			
0.7	26	09-Oct-20	6.12	26	09-Oct-20			
1.1	18	20-Jan-12	6.13	27	15-Dec-23			
1.2	14	23-Jul-08	6.14	26	09-Oct-20			
1.3	14	23-Jul-08	6.15	26	09-Oct-20			
1.4	25	29-Apr-20	6.16	26	09-Oct-20			
2.1	27	15-Dec-23	6.17	26	09-Oct-20			
2.2	27	15-Dec-23	6.18	26	09-Oct-20			
2.3	27	15-Dec-23	6.19	27	15-Dec-23			
2.4	28	11-Jan-24	6.20	27	15-Dec-23			
2.5	27	15-Dec-23	6.21	28	11-Jan-24			
3.1	27	15-Dec-23	6.22	27	15-Dec-23			
3.2	23	21-Jan-15	6.23	27	15-Dec-23			
3.3	14	23-Jul-08	6.24	27	15-Dec-23			
3.4	25	29-Apr-20	6.25	27	15-Dec-23			
4.1	27	15-Dec-23	6.26	27	15-Dec-23			
4.2	25	29-Apr-20	6.27	27	15-Dec-23			
4.3	24	21-Dec-15	6.28	27	15-Dec-23			
4.4	24	21-Dec-15	7.1	14	23-Jul-08			
4.5	24	21-Dec-15	7.2	23	21-Jan-15			
4.6	24	21-Dec-15	7.3	25	29-Apr-20			
4.7	23	21-Jan-15	8.1	23	21-Jan-15			
4.8	27	15-Dec-23	9.1	24	21-Dec-15			
4.9	14	23-Jul-08	A.1	27	15-Dec-23			
4.10	14	23-Jul-08	A.2	27	15-Dec-23			
4.11	24	21-Dec-15	A.3	27	15-Dec-23			
4.12	27	15-Dec-23	A.4	27	15-Dec-23			
4.13	25	29-Apr-20	A.5	27	15-Dec-23			
4.14	25	29-Apr-20	A.6	27	15-Dec-23			
4.15	25	29-Apr-20	A.7	27	15-Dec-23			
4.16	26	09-Oct-20	A.8	27	15-Dec-23			
4.17	26	09-Oct-20	A.9	27	15-Dec-23			
4.18	26	09-Oct-20	A.10	27	15-Dec-23			
5.1	27	15-Dec-23	A.11	27	15-Dec-23			
5.2	27	15-Dec-23	A.12	27	15-Dec-23			
5.3	23	21-Jan-15	B.1	26	09-Oct-20			
5.4	24	21-Dec-15	C.1	22	29-Nov-13			
5.5	25	29-Apr-20	C.2	24	21-Dec-15			
5.6	27	15-Dec-23	D.1	28	11-Jan-24			
5.7	27	15-Dec-23	D.2	28	11-Jan-24			
5.8	27	15-Dec-23	E.1	26	09-Oct-20			
5.9	27	15-Dec-23	E.2	26	09-Oct-20			
6.1	14	23-Jul-08	E.3	26	09-Oct-20			
6.2	14	23-Jul-08	E.4	26	09-Oct-20			
6.3	16	08-Sep-09	E.5	26	09-Oct-20			
6.4	16	08-Sep-09	E.6	26	09-Oct-20			



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2.9 Internal temperature

In normal use, the maximum continuous internal temperature adjacent to the fabric is 120 °C (250 °F).

The internal temperature adjacent to the fabric must never exceed 130 °C (266 °F).

2.10 Deflation systems

WARNING: It is forbidden to use the red rope of the FDS rapid deflation system at an altitude higher than 10 m (30 feet) above the ground.

CAUTION: In flight use of the parachute vent system should be no longer than 3 seconds at any one time. Re use must not be attempted until the envelope has re-inflated.

CAUTION: [For MZ Racer models] At high descend rates the envelope profile may suffer perceptible deformations, especially below the equator, adopting a characteristic funnel shape. During such manoeuvres, it is forbidden to use the parachute until the balloon has been reinflated and has returned to its normal shape.

2.11 Baskets

2.11.1 Rotation vents must be fitted to envelopes when used with partitioned baskets.

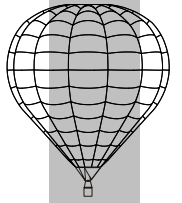
2.11.2 The maximum number of occupants in any one compartment of a basket is six.

2.12 Minimum Burner requirements.

The following table provides a summary of the burner capability regarding the envelope volume range. For detailed compatibility, refer to section 5.4.

BURNER ARRAY	BURNER MODEL	MIN VOLUME	MAX VOLUME
Single	MK-2 / MK-10	31,000 ft ³ / 900 m ³	77,000 ft ³ / 2,200 m ³
	MK-21	25,000 ft ³ / 708 m ³	105,000 ft ³ / 2,950 m ³
	BMK-008		120,000 ft ³ / 3,400 m ³
Double	MK-2 / MK-10	56,000 ft ³ / 1,590 m ³	160,000 ft ³ / 4,550 m ³
	MK-21 / BMK-008		210,000 ft ³ / 6,000 m ³
	MK-32		225,000 ft ³ / 6,370 m ³
	BMK-050	180,000 ft ³ / 5,100 m ³	300,000 ft ³ / 8,500 m ³
Triple	MK-2 / MK-10	105,000 ft ³ / 2,950 m ³	210,000 ft ³ / 2,070 m ³
	MK-21		300,000 ft ³ / 8,500 m ³
	MK-32	120,000 ft ³ / 3,400 m ³	315,000 ft ³ / 8,920 m ³
	BMK-050	250,000 ft ³ / 7,000 m ³	450,000 ft ³ / 12,750 m ³
Quadruple	MK-2 / MK-10	180,000 ft ³ / 5,100 m ³	425,000 ft ³ / 12,000 m ³
	MK-21 / MK-32		550,000 ft ³ / 15,574 m ³
	BMK-050	355,000 ft ³ / 10,000 m ³	600,000 ft ³ / 17,000 m ³

NOTE: Check section 2.5 for requirements on fuel.



	SERIES		N		
Type	370	425	450	500	550
Vol. (m3)	10480	12000	12750	14415	15574
Number of gores	28	28	28	32	32
FAI class	AX12	AX12	AX12	AX13	AX13
Total height(m)	33.2	35.5	35.2	36.2	37.3
Standard basket	C11	C12	C12	C14	C15

Envelope

Height (m)	29.1	31.2	30.9	32.2	33.3
Diameter at the Equator (m)	28.2	29.5	30.0	31.1	32.1
Diameter at the Mouth (m)	4/5	4/5	5.5	5.5	5.5
Weight (Kg)	360	375	390	422	472

Parachute

Diameter (m)	8.25 FDS	7.5/8.25 FDS	8.25 FDS	9.0 FDS	9.0 FDS
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APPENDIX

D – Minimum basket space requirements

The following table provides guidance on the number of persons that may occupy each basket type (including crew), taking into account the space available and the number of fuel cylinders on board. Basket occupancy shall not take precedence to loading limitations (see Sections 2 and 5). Figures given must not be exceeded unless written approval from Ultramagic or the National CAA is furnished.

The Ultramagic basket types are listed on the left column. Where baskets from another manufacturers have been approved for use, an equivalence in size can be adopted, without prejudice of the basket capacity established by the manufacturer.

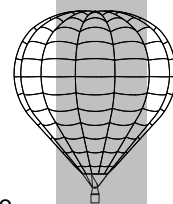
On baskets with a separate pilot / fuel compartment, it is permissible to carry occupants other than the pilot, subject to having enough space. Where cylinders of different size are used, the most conservative case must be considered.

When an odd number of occupants is to be distributed between a pair number of equal compartments, judgement must be made by the pilot considering the size of the occupants, or reduce the number of passengers if in doubt.

EXAMPLE 1: A C-6 open (single compartment) basket can carry up to 6 occupants (pilot included) and up to 6 M-30 cylinders.

EXAMPLE 2: A Double-T C-11 basket can carry 4 M-40 cylinders and the pilot in the centre compartment, whilst 16 passengers are distributed in groups of 4 on each lateral compartment.

		Type/Number of Cylinders on pilot's compartment														
		M-20/Worthington					M-30					M-40				
		2	3	4	5	6	2	3	4	5	6	2	3	4	5	6
Basket Denomination	C-0 O	2	1	1	n/a	n/a	1	1	n/a	n/a	n/a	1	1	n/a	n/a	n/a
	C-2 O	2	2	2	1	1	2	2	1	1	n/a	2	1	1	n/a	n/a
	C-1 O	3	3	2	2	2	3	2	2	1	1	3	2	2	1	1
	C-3 O	4	4	3	3	2	4	3	3	2	2	4	3	2	2	1
	C-10 O	5	4	4	4	3	5	4	4	3	3	4	4	3	3	2
	C-4 O	6	5	5	5	4	6	5	5	4	4	5	5	4	4	3
	O	6	6	6	6	6	6	6	6	6	5	6	6	6	5	5
	C-6 S	5 (3)	5 (2)	5 (2)	5 (1)	5 (1)	5 (2)	5 (2)	5 (1)	5 (1)	5 (1)	5 (2)	5 (2)	5 (1)	5 (1)	5 (0)
	O	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	C-7 S	6 (3)	6 (3)	6 (2)	6 (2)	6 (2)	6 (3)	6 (2)	6 (2)	6 (2)	6 (1)	6 (3)	6 (2)	6 (2)	6 (1)	6 (1)
	ST	6 (3)	6 (3)	6 (2)	6 (2)	6 (2)	6 (3)	6 (2)	6 (2)	6 (2)	6 (1)	6 (3)	6 (2)	6 (2)	6 (1)	6 (1)
	D	6 (3)	6 (3)	6 (3)	6 (2)	6 (2)	6 (3)	6 (3)	6 (2)	6 (2)	6 (1)	6 (3)	6 (3)	6 (2)	6 (1)	6 (1)
	C-5 ST	6 (3)	6 (3)	6 (3)	6 (2)	6 (2)	6 (3)	6 (3)	6 (2)	6 (2)	6 (1)	6 (3)	6 (3)	6 (2)	6 (1)	6 (1)
	D	8 (3)	8 (3)	8 (3)	8 (2)	8 (2)	8 (3)	8 (3)	8 (2)	8 (2)	8 (1)	8 (3)	8 (3)	8 (2)	8 (1)	8 (1)
	C-5(L) ST	8 (3)	8 (3)	8 (3)	8 (2)	8 (2)	8 (3)	8 (3)	8 (2)	8 (2)	8 (1)	8 (3)	8 (3)	8 (2)	8 (1)	8 (1)
	D	8 (4)	8 (3)	8 (3)	8 (3)	8 (2)	8 (4)	8 (3)	8 (3)	8 (2)	8 (2)	8 (3)	8 (3)	8 (2)	8 (2)	8 (1)
	C-8 ST	8 (4)	8 (3)	8 (3)	8 (3)	8 (2)	8 (4)	8 (3)	8 (3)	8 (2)	8 (2)	8 (3)	8 (3)	8 (2)	8 (2)	8 (1)
	D	10 (4)	10 (3)	10 (3)	10 (3)	10 (2)	10 (4)	10 (3)	10 (3)	10 (2)	10 (2)	10 (3)	10 (3)	10 (2)	10 (2)	10 (1)
	C-8(L) ST	10 (4)	10 (3)	10 (3)	10 (3)	10 (2)	10 (3)	10 (3)	10 (3)	10 (2)	10 (2)	10 (3)	10 (3)	10 (2)	10 (2)	10 (1)
	C-9 ST	12 (4)	12 (4)	12 (3)	12 (3)	12 (3)	12 (4)	12 (3)	12 (3)	12 (2)	12 (2)	12 (4)	12 (3)	12 (3)	12 (2)	12 (2)



	DT	12 (4) 12 (4) 12 (3) 12 (3) 12 (3)	12 (4) 12 (3) 12 (3) 12 (2) 12 (2)	12 (4) 12 (3) 12 (3) 12 (2) 12 (2)
C-11	DT	16 (4) 16 (4) 16 (4) 16 (3) 16 (3)	16 (4) 16 (4) 16 (3) 16 (3) 16 (2)	16 (4) 16 (4) 16 (3) 16 (2) 16 (2)
C-12	DT	n/a 20 (4) 20 (4) 20 (3) 20 (3)	n/a 20 (4) 20 (3) 20 (3) 20 (2)	n/a 20 (3) 20 (3) 20 (2) 20 (2)
C-12 _(S)	DT	n/a 16 (4) 16 (4) 16 (3) 16 (3)	n/a 16 (4) 16 (3) 16 (3) 16 (2)	n/a 16 (3) 16 (3) 16 (2) 16 (2)
C-14	DT	n/a n/a 24 (4) 24 (3) 24 (3)	n/a n/a 24 (3) 24 (3) 24 (2)	n/a n/a 24 (3) 24 (2) 24 (2)
	QT	n/a n/a 28 (4) 28 (3) 28 (3)	n/a n/a 28 (3) 28 (3) 28 (4)	n/a n/a 28 (3) 28 (2) 28 (2)
C-14 _(L)	QT	n/a n/a 28 (4) 28 (3) 28 (3)	n/a n/a 28 (3) 28 (3) 28 (4)	n/a n/a 28 (3) 28 (2) 28 (2)
C-15	QT	n/a n/a 28 (4) 28 (3) 28 (3)	n/a n/a 28 (3) 28 (3) 28 (4)	n/a n/a 28 (3) 28 (2) 28 (2)

NOTES:

Basket styles: O =  / S =  / D =  / ST =  / DT =  / QT = 

Table above lists the most frequent basket configurations in terms of overall dimensions and partition wall distribution. For particular basket configurations or if in doubt, contact Ultramagic.

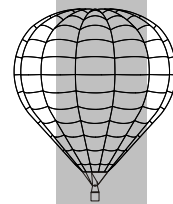
On Partitioned baskets, pilot compartment capacity is shown in brackets (pilot included) - the most frequent compartment width is assumed on each model.

Figures listed above show total occupancy; pilot and crew must be included in them.

The maximum number of occupants in the same compartment is of 6. In partitioned baskets, occupants must be uniformly distributed. For room calculations with more than 6 cylinders on board, contact Ultramagic.

Further to occupancy calculations, easy access to hand holds must be ensured for all the occupants at any time.

Observe additional room restrictions (i.e. carrying wheelchairs / seats on board); contact Ultramagic if in doubt.



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