SUPPLEMENT 19 – Other Manufacturers Components

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

19.1 General Information

Ultramagic envelopes are approved for use with other manufacturers components as listed in section 19.8 of this Supplement. There is a uniformity of interface between the Ultramagic envelope ranges and the load frames, basket, burners and cylinders listed which allows this use. Ultramagic allow this use based on a number of requirements having been met and listed at section 8.1 of the Flight Manual.

19.2 Limitations of use

Fantasy

19.2.2 Meteorological Limitations.

Maximum demonstrated surface winds;
(a) Take off - 11km/hr (7mph)
(b) Landing – 19km/hr (12mph)

19.2.5 Fuel

CAUTION: Care should be exercised when pressures drop below 80 p.s.i. The best operating range is 100 – 120 p.s.i.

WARNING: Do not open both burner valves on the single burner at the same time.

WARNING: At least 2 full fuel tanks equipped with fuel quantity gauges must be fitted for takeoff with one tank connected to either side of fuel system for redundancy. Ends of fuel lines not in use MUST be capped.

NOTE: The maximum number of fuel tanks that can be carried in Fantasy baskets is four. The Fantasy E – type basket 46” x 70” is designed for use with 15 gal. Stainless steel tanks only, and will only accommodate 3 of these tanks.

19.2.6 Loading

The maximum take off mass is limited when using Fantasy baskets and Burners as shown in the following table. This figure must not be exceeded or the limit determined with the use of the load chart in Flight Manual section 5.2, whichever is the lower.

Envelope Volume (ft^3)	Burner Type or Basket type	Maximum take off Mass (kg)
56,000	All applicable	500
65,000	All applicable	500
77,000	All applicable	659
90,000	All applicable	682
105,000	Single or dual A-type burner (round)	682
105,000	Dual F-type burner (square) only	818
120,000	Dual F-type burner (square) only	909
120,000	Dual F-type burner (square) with 46” x 70” T partition basket only	1090

Raven

19.2.2 Meteorological Limitations

Whenever the TWH basket is used, the maximum demonstrated surface winds must not exceed the 15 km/h (8 kt, 4.1 m/s).

19.2.6 Loading

The maximum take off mass is limited by certain basket types as shown in the following table. This figure must not be exceeded or the limit determined with the use of the load chart in Flight Manual section 5.2, whichever is the lower.

Envelope Volume [m³]	Basket Type	Maximum Take-Off Mass [kg]
900	ELS & ELSS	363
1600	ELS & ELSS	522
1600	RWS	500
1850	ELS&ELSS	522
1850	RWS	560
1850	CW , CW-AFX & RWS	636
2200	ELS & ELSS	545
2200	RWSW, RWSW-AFX, CW, CW-AFX & RWS	652
2550	ELS &ELSS	545
2550	RWSW, RWSW-AFX, CW, CW-AFX, CWS & RWS	750
3000	RWSW, RWSW-AFX, CW, CW-AFX, CWS & RWS	818
3400 – 3700	CWS & RWS	909
3400 – 3700	RB5 & RB6	1011
3700 – 5100	CWS	909
3700 – 5100	RB5	1045
3700 – 5100	RB6	1136
3700 – 5100	TWH	1203
3700 – 5100	RB8	1204
6000	RB6	1272
6000	RB8	1568
7000	RB6, RB8, TWX, HWS & NC5	1516
5100-7000	RB12	1564
7700	RB12	1723

19.2.11 Baskets

TWH basket has a limit of 3 occupants in the seat compartment, each of which must use the individual 5-point harnesses at all time.

19.2.15 Other manufacturers components

Raven burner frames can accommodate Ultramagic's Centre gimbal mounted burners if Minor Modification 183 is applied.

Kubíček

19.2.12 Burners

WARNING: Only burners with independent back up may be used. The back up must consist of a functional independent whisper burner in addition to the main burner.

CAUTION: Burners are only tested up to the Maximum Flight Altitude of 14,000 ft.

Kavanagh

19.2.5 Fuel

There must be one tank fitted for supply of regulated vapour for each vapour supply hose fitted to the burner.

The normal operating range of the Series 1,2 & 3 burner is 3.4-15 bar (50-218 psi)
The main liquid fuel hoses are defined as timed life components and must be replaced after 10 years from manufacture.

19.2.11 Basket

Baskets with a separate pilot compartment must have an approved pilot restraint fitted to the basket.

Where cushioned flooring is fitted to a basket, all drains holes must remain clear.

The maximum number of occupants in the pilot compartment of a partitioned basket is limited to 2 crew.

Where the basket exceeds the length to width ratio of 1.4:1, rotation vents must be fitted to the envelope.

NOTE: The limitation of a maximum of 6 occupants per compartment (2.11.2) applies to open baskets and partitioned baskets.

19.2.12 Minimum Burner Requirements

The following table sets out the minimum burner requirements based on envelope volume using a Kavanagh Series 1,2 & 3 burner in one of four configurations.

Balloon Volume (thousands of cubic feet)	**Burner Configuration**		
	KBS1 (Series 1)	**KBS2** (Series 2)	**KBS3** (Series 3)
56 – 65	Single	Single	Single
65 – 90	-	Single	Single
105 – 210	-	Double	Double
250	-	-	Triple
300 – 355	-	-	Triple
425	-	-	Quad

19.2.13 Fuel Cylinders

All fuel tanks must have a padded jacket with water resistant outer and not less than 19mm thick foam.

19.2.17 Smoking

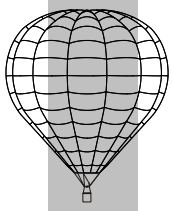
Smoking is not allowed while the balloon is being prepared for or during flight.

A placard bearing the statement “NO SMOKING” must be displayed on the inside of the basket or on fuel tanks or on the load frame or on the underside of a heat shield.

19.2.18 Altitude

Maximum permissible operating altitude is that height above ground level at which the burner fails to maintain ignition or that height, at which the maximum temperature is reached, whichever happens first.

Lindstrand Technologies



19.2.3 Acceptable damage

When there are more than five strands of a basket wire broken, it must be repaired or replaced before the balloon may be flown.

If the plywood floor has separated from the lower stainless frame or if the floor is damaged so that a 250 mm crack is visible on both sides of the floor, the basket must be repaired or the damaged part replaced before the balloon may be flown.

19.2.5 Fuel

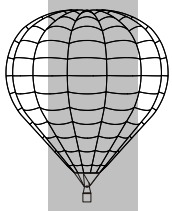
A minimum of one full fuel cylinder for each fuel feed to the burner assembly is required to be available on take-off.

Commercial LPG or Propane must be used. Avoid mixtures containing high proportions of butane, since butane provides marginal vapour pressure and reduced burner heat output. 4 to 15 bar (60 to 225 psi) is the normal range of fuel pressure for flight. Minimum tank pressure for operation is 4 bar (58 psi), maximum tank pressure for operation is 15 bar (225 psi). Flying with a fuel pressure below 5 bar (75 psi) requires caution. It is advised that the fuel pressure should be increased if it is below this level (see Section 4.5). The ideal operating burner pressure is 8.5 bar (125 psi).

WARNING: LPG is a highly volatile fuel and caution must be exercised to avoid explosive mixes when released into the atmosphere. The vapour is easily ignited by any ignition source and by static electricity. It is imperative that the potential for leaks is minimized and if they occur, rapid and positive action must be taken to prevent a dangerous and possibly uncontrollable fire. It must be remembered LPG is heavier than air. This should be kept in mind when storing cylinders.

19.2.11 Basket

The balloon must not be flown without the basket nylon rods to support the burner in place.



19.3 Emergency procedures

Fantasy

19.3.2 Pilot Light Failure

If the pilot light should go out for any reason, it should be relit if possible. If this is not possible then proceed as follows.

Dual Burners:

- Transfer control to the functioning burner.
- Shut down faulty burner and drain line.
- Land as soon as possible.

Single F-Type Burner:

- Cylinder Fuel Valve – closed
- Burner main valve – locked or held open.
- Cylinder Fuel Valve – fractionally open, to allow a small amount of fuel to the burner.
- Main Burner – ignite with sparker, match or other source of ignition lighting several inches above the main jets.
- Cylinder Fuel Valve – Open fully to obtain normal burn.
- Cylinder Fuel Valve – Close to fractional setting to turn burner off but to maintain a pilot light setting.
- Land as soon as possible.

Single FX/2 Burner:

If operating on Red fuel system when failure occurs proceed as follows:

- By-Pass Valve (Black) – lock open.
- Fuel Valve (Black) – open very slightly
- By Pass burner (Black) – ignite with sparker, match or other source of ignition several inches above by-pass jets.
- Adjust Fuel Valve – to maintain a pilot flame about 12 inches high.
- Operate Red Fuel System – as required to obtain normal burn.
- Land as soon as possible.

NOTE: The Red by-pass burner can be used as a back up pilot light when operating on the Black fuel system. However the same procedure applies which is –
Land as soon as possible.
WARNING: Continuous operation of a propane valve at very low settings will result in some freezing and should only be practised for the shortest periods of time required to achieve a safe landing as soon as is possible.
WARNING: The above procedures should be practised on the ground until proficiency in manually igniting the liquid by-pass burner and main burner, is attained.

Raven

19 .3.2 Pilot Light Failure

Ensure that the pilot light valves are turned on at the cylinder and the burner and attempt to relight the pilot light with the igniter.

If after two to three attempts the pilot light cannot be re-lit then carry out the following procedure.

Open the metering valve to allow a slow fuel flow and immediately ignite to provide a temporary pilot light.

Land as soon as possible.

If no re-light at all is possible prepare for an emergency landing, see Section 3.7 Emergency landing.

19.4 Standard Procedures

19.4.5.4 Envelope

Fantasy

Fantasy “E” and “F” type series gondola connections also have 4 Karabiner connection to the envelope but without a burner frame lug attachment point. In this case the Ultramagic envelope Karabiners must be attached to a “slave” Fantasy Karabiner attached to the Fantasy Gondola as shown in the applicable Flight Manual gondola connections for “F” type series connections.

Raven

Raven Aerostar have the following attachment system.

See figure 1. For envelope attachment for 2 point attachment bottom ends.
See figure 2. For envelope attachment for 4 point attachment bottom ends.

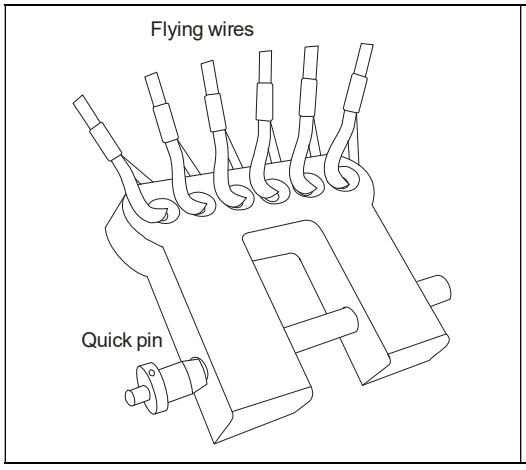


Figure 1

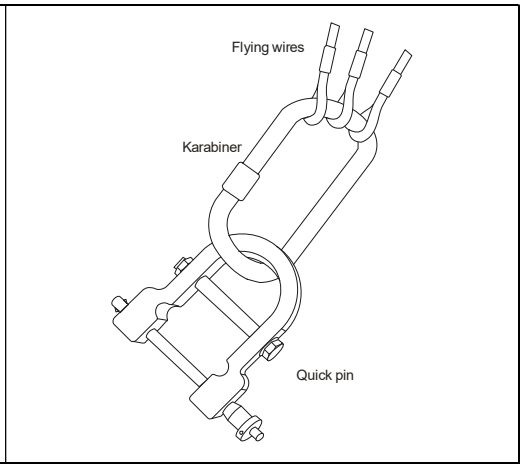


Figure 2

19.5 Loading

No change

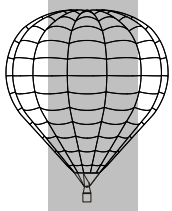
19.6 Balloon and Systems Description

Refer to applicable manufacturer Flight Manual.

19.7 Balloon Handling, Maintenance and Care

Refer to applicable manufacture Maintenance Manual.

19.8 Other manufacturers components



19.8.1 Conventional components

CAMERON

Basket Model / Size (cm)	Type	Typical Mass (Kg)	UM Envelope size range
Voyager / Voyager II	Open	45	31-56
Lite*	Open	35	31-65
Sportlite 2	Open	52	31-120
Sportlite 3	Open	59	31-160[3]
Sportlite 4	Open	62	31-160[3]
Sportlite 5	Open	78	42-180[4]
Concept 60	Open	50	42-105
Concept 80	Open	56	50-145
66 x 79	Open	35	31-70
112 x 112	Open	45	31-65
112 x 124	Open	60	56-77
112 x 147	Open	65	56-105
122 x 157	Open	70	77-160
122 x 189	Open	95	120-160
122 x 208	ST	100	120-160
135 x 195	P	100	120-180
144 x 230	ST	165	160-210
170 x 236	ST	180	160-250
170 x 282	ST	185	210-250
170 x 266	ST/DT	195	180-275
165 x 272	ST	216	180-250
155 x 326	DT	220	250-355
165 x 305	ST	220	210-425
170 x 305	DT	225	210-425
170 x 347	DT	245	250-425
165 x 340	DT	333	250-425
165 x 375	DT	350	250-425
165 x 410	DT	360	300-425
150 x 410	DT	485	300-500
150 x 446	DT	543	300-500
148 x 530	DT	-	600
149 x 536	DT	540	600
148 x 550	DT	-	600
148 x 556	DT	-	600
149 x 570	DT	-	600
148 x 605	DT	640	600
165 x 620	DT	639	600
169 x 625	DT	-	600
148 x 672	DT	720	600

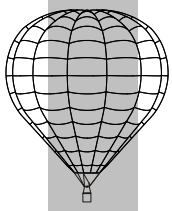
* Lite baskets require the installation of U-bolts on the cylinders as per CB2454 (See related FM Supplements)

Burner Type	Typical Mass (Kg)	UM Envelope size range
Mk4 Single	17	42-90
Mk4 Double	24	42-160
Mk4 Super Double	24	42-160
Mk4 Super Triple	44	120-315[2]
Mk4 Super Quad	55	180-425
Mk3 Double	23	56-160
Mk4 Single Shadow	17	31-90
Mk4 Super Shadow Double	24	42-210[1]
Mk4 Super Shadow Triple	44	120-315[2]
Mk4 Super Shadow Quad	55	180-600
Stratus Single	17	25-90
Stratus Double	24	56-180
Stratus Triple	44	145-300[2]
Stratus Quad	52	210-600
Stealth Double	24	42-180
Stealth Triple	45	120-250
Stealth Quad	56	180-425

Sirocco Double	24	56-160
Sirocco Triple	46	105-300[2]
Sirocco Quad	55	250-600
Stratus Neo Single	17	25-90
Stratus Neo Double	24	56-210[1]
Stratus Neo Triple	44	145-300[2]
Stratus Neo Quad	52	180-450

Cylinder Type	Empty Mass (Kg)	Fuel Capacity (Kg)	Basket range
CB901	3.5	2.5	All
CB250 (Worthington)	14	20	All
CB 497	16	20	All
CB 599	17	22	All
CB 426	22	28	All
CB 959	25	36	All
CB 2380S	13	29	All
CB 2383S	14	37	All
CB 2385S	10	23	All
CB 2387S	13	27	All
CB 2088	22	28	All
CB 2900	21	23	All
CB 2901	23	30	All
CB 2902	24	27	All
CB 2903	27	36	All
CB 2990	14	34	All

[1] Not exceeding a MTOM of 2,041 kg.
[2] Not exceeding a MTOM of 2,857 kg.
[3] Not exceeding a MTOM of 1,451 kg.
[4] Not exceeding a MTOM of 1,633 kg.



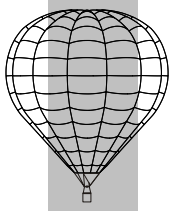
THUNDER & COLT

Basket Size (inches)	Type	Typical Mass (Kg)	UM Envelope size range
40 x 40	Open	48	31-77
40 x 48	Open	57	56-90
40 x 54	Open	67	65-145
40 x 60	Open	69	65-145
48 x 65	Open	78	90-160
48 x 68	Open	105	105-160
48 x 75	Open	127	105-180
48 x 85	P	132	120-180
60 x 87	ST	160	160-210
60 x 90	ST	170	180-250
60 x 102	ST	206	180-250
60 x 98	DT	252	180-250
60 x 118	DT	284	180-425
60 x 126	DT	415	180-425
60 x 137	DT	430	210-425

Burner Type	Typical Mass (Kg)	UM Envelope size range
C2 Single / Single Plus	13	31-77
C2 Double	17	42-160
C2 Triple	25	120-210
C2 Triple + CLF	26	180-300[1]
C2 Quad	28	180-425[2]
Magnum/Stratus Double	22	56-210[3]
Magnum/Stratus Double + CLF	23	90-210[4]
Magnum/Stratus Triple	28	105-250
Magnum/Stratus Triple +CLF	31	150-300[1]
Magnum/Stratus Quad	37	180-425[2]

[1] Not exceeding a MTOM of 2,857 kg.
[2] Not exceeding a MTOM of 3,628 kg.
[3] Not exceeding a MTOM of 1,633 kg.
[4] Not exceeding a MTOM of 2,041 kg.

Cylinder Type	Empty Mass (Kg)	Fuel Capacity (Kg)	Basket range
Worthington	14	20	All
V 20	14	20	All
V 30	18	30	All
V 40	20	40	All



LINDSTRAND

BASKET No.	Basket Size (cm)	Type	Typical Mass (Kg)	UM Envelope size range
01	110 x 115	Open	69	42-90
02	110 x 130	Open	75	56-105
03	110 x 155	Open	88	65-120
04	100 x 85	Open	50	25-42
05	98 x 113	Open	61	42-77
06	100 x 125	Open	68	56-105
07	100 x 137	Open	70	56-105
08	125 x 145	Open	91	77-120
09	96 x 102	Open	55	42-90
10	125 x 125	Open	80	105-120
11	122 x 165	Open	101	90-160
12	122 x 185	ST	117	90-160
13	122 x 205	ST	130	120-180
14	122 x 220	ST	138	120-180
15	122 x 260	DT	152	120-210
20	152 x 205	ST	150	150-210
21	152 x 240	ST	175	180-250
22	152 x 270	ST	200	180-300
23	152 x 260	DT	230	180-250
24	152 x 300	DT	255	180-425
25	152 x 350	DT	302	180-425
26	152 x 390	DT	320	250-425
27	152 x 430	DT	430	355-425
28	152 x 300	ST	289	180-355
29	152 x 325	DT	279	180-425
30	152 x 280	DT	285	180-300
31	140 x 270	DT	210	160-300
32	140 x 300	DT	230	180-425
33	140 x 390	DT	295	180-425
34	140 x 240	DT	186	120-250
35	140 x 240	ST	172	120-250
36	140 x 270	ST	196	100-425
37	140 x 340	DT	257	180-425
40	129 x 247	ST	200	120-210
41	135 x 285	ST	245	180-300
42	152 x 470	DT	452	415-500
45	152 x 550	DT	646	450-600
50	152 x 610	DT	684	600
244	125 x 205	P	167	120-180
265	125 x 220	P	172	120-180

Burner No.	Burner Type	Typical Mass (Kg)	UM Envelope size range
1	Jetstream Single	17	42-90
2	Jetstream Double	22	42-210[1]
3	Jetstream Double + CLF	25	120-250
4	Jetstream Triple	31	120-300[2]
5	Jetstream Triple + CLF	35	160-425
6	Jetstream Quad	42	180-600
7	Jetstream Supersingle	18	42-90
8	Jetstream Series 2 Double	23	42-210[1]
10	Jetstream Series 2 Triple	32	120-300[2]
12	Jetstream Series 2 Quad	43	180-425
13	Jetstream Series 2 Super Quad	77	500-600

[1] Not exceeding a MTOM of 2,041 kg
[2] Not exceeding a MTOM of 2,857 kg

Cylinder Type	Empty Mass (Kg)	Fuel Capacity (Kg)	Basket range
Worthington	14	20	All
V20	14	20	All
V30	18	30	All
V40	20	40	All
T30	10	30	All

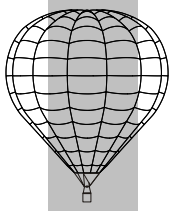
- A single 5 Ton Lindstrand Karabiner (and the corresponding tether ring) may be used on UM envelopes of size 210 and over, when fitted with the appropriate flying wires and all Lindstrand Flight Manual limitations are met.

LINDSTRAND TECHNOLOGIES

Basket No	Basket Size (cm)	Type	Typical Mass (kg)	UM envelope size range
9	152x240	Single-T	234	180-225[1]

Burner Type	Typical Mass (Kg)	UM Envelope size range
Vortech Double	19	50-210[2]

[1] Not exceeding a MTOM of 1,940 kg
[2] Not exceeding a MTOM of 1,896 kg



BALLOON WORKS

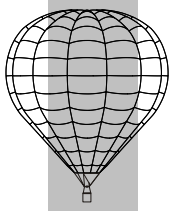
Nº	Basket Size (inches)	Type	Typical Mass (Kg)	UM Envelope size range
3100	49 x 53.5	Triangle	136	56 - 77
3101	45 x 61	Trapeze	136	56 - 77
3102	56 x 61	Triangle	146	56 - 90
3103	60 x 61	Trapeze	171	56 - 90
3104	59 x 65	Hexagon	186	77 - 240
3105	65 x 73	Hexagon	201	105 - 240
3106	75 x 80	Hexagon	240	105 - 240
3107	77 x 85	Hexagon	245	105 - 240
3108	48 x 40	Rectangle	145	56 - 77
3109	48 x 60	Rectangle	171	77 - 105
3110	72 x 60	Rectangle	420	105 - 210
3111	96 x 60	Rectangle	544	180 - 240
3112	120 x 60	Rectangle	660	210 - 300

Burner Type	UM Envelope size range
T-3	56 - 120[1]
Mirage	56 - 120[1]
Mirage Double	105 - 240[2]

[1] Not exceeding a MTOM of 1,111 kg

[2] Not exceeding a MTOM of 1,787 kg

Cylinder Type	Empty Weight (Kg)	Fuel Capacity (Kg)	Basket range
Worthington	14	20	All



KUBICEK

Basket Size (m)	Type	Typical Mass (Kg)	UM Envelope size range
0.88 x 0.88	K7(open)	50	31-56
0.88 x 1.16	K10(open)	60	56-77
1.16 x 1.16	K12(open)	80	65-90
1.16 x 1.16	K12a(open)	80	65-90
1.16 x 1.25 / 1.00 x 1.20	K13/K13S(open)	80 / 55	65-120
1.16 x 1.35	K15(open)	85	65-105
1.16 x 1.45	K16(open)	90	90-130
1.16 x 1.45	K17 (open)	90	90-130
1.16 x 1.55	K18(open)	100	90-130
1.16 x 1.55	K19(open)	95	90-150
1.23 x 1.28	J1(open)	72	90-105
1.23 x 1.40	J2(open)	76	90-130
1.27 x 2.10	K25P(single partition)	140	120-180
1.66 x 2.60	K40Y (Y partition)	250	180-250
1.60 x 3.00	K50Y (Y partition)	270	180-300
1.60 x 2.40	K32T (T partition)	210	180-250
1.60 x 3.00	K50T (T partition)	270	180-300
1.60 x 2.50	K32TT (TT partition)	210	180-250
1.60 x 3.00	K50TT (TT partition)	300	180-300
1.60 x 3.80 / 3.90	K60 / K60X	350 / 378	250-425
1.60 x 4.40	K70 / K70TTA	400	250-600*
1.60 x 4.80	K80	450	300-600*
1.60 x 5.20	K85 / K90	-	600*
1.60 x 6.10	K100	550	355-600*
1.60 x 6.60	K110	-	600*

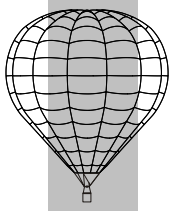
** Use K100 STRONG Frame and 40kN karabiners when flying under envelopes greater than a 500. A maximum surface wind speed of 5.5 m/s must be adopted in this case.*

Burner Type	Typical Mass (Kg)	UM Envelope size range
H3	16	42-90[1]
H3-D	20	42-160[2]
HB2	24	42-160
Komet Duo	21 to 24	42-160[2]
H4 Triple	42	105-250[3]
Komet Trio	44	105-250[3]
Ignis Double	23 to 43	65-210[4]
Ignis Triple	41 to 59	145-300[5]
Ignis Quadruple	56 to 102	210-600
Sirius Single	18	30-120

[1] Not exceeding a MTOM of 730 kg.
[2] Not exceeding a MTOM of 1,410 kg.
[3] Not exceeding a MTOM of 2,300 kg.
[4] Not exceeding a MTOM of 1,940 kg.
[5] Ignis with s/n below 516 can only be used up to a 250

Cylinder Type	Empty Mass (kg)	Fuel Capacity (Kg)	Basket range
KB72L	20	31 / 34*	All
KB85L	22	36 / 40*	All
KB97L	24	41 / 46*	All

** When using LPG*



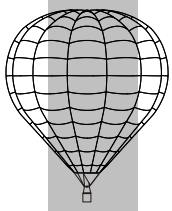
SCHROEDER FIRE

Basket Size (cm)	Type	Typical Mass (Kg)	UM Envelope size range
1.07 x 0.95	I/2	50	56-65
1.25 x 1.00	II/3	53	56-77
1.30 x 1.15	III/4	62	56-105[3]
1.45 x 1.15	IV/5	68	77-120
1.55 x 1.20	V/5	77	90-130
1.75 x 1.25	VI/6	86	105-160
1.80 x 1.40	VII/7	146	145-210
2.15 x 1.40	VIII/8	152	145-210
2.35 x 1.40	VIII/9	206	160-250
2.50 x 1.70	IX/11	225	210-300
2.75 x 1.75	X/13	265	250-300

Burner Type	Typical Mass (Kg)	UM Envelope size range
Optima I single	17	56-65
Optima II double	24	56-150[1]
Optima IV double	24	56-150[1]
FB V double	24	56-150[1]
FB 6 double	24	56-160[1]
FB 7 double	23 to 35	56-160
Optima IV triple	34	130-160
FB V triple	34	130-250[2]
FB 6 triple	34	130-250[2]
FB 7 triple	47	130-250[2]
FB V quad	43	210-300
FB 6 quad	43	210-300
FB 7 quad	56 to 75	210-355

[1] Not exceeding a MTOM of 1,410 kg
[2] Not exceeding a MTOM of 2,205 kg
[3] Not exceeding a MTOM of 910 kg

Cylinder Type	Empty Mass(Kg)	Fuel capacity (Kg)	Basket range
VA 50	15	21	All
VA 70	18	30	All



FANTASY

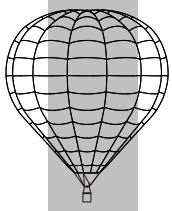
Basket Size (in.)	Type	Typical Mass (lbs) inc. Instruments fire extinguisher and straps	UM Envelope size range
47" x 47"	Fantasy (F)	146	65 - 90
47" x 56"	Fantasy (F)	170	65 - 120
42" x 42"	Mirage	140	56 - 77
42" x 50"	E - Type	154	56 - 90
42" x 56"	E - Type	164	65 - 120
46" x 70"	E – Type T partition	224	105- 120

Burner Type	Basket Type applicability	Typical Mass (lbs)	UM Envelope size range
A – Type Single	47 x 47 F	20	56 - 90[1]
F – Type Single	47 x 47 F 47 x 56 F 42 x 42 Mirage 42 x 50 E 42 x 56 E	20	56 - 105[1]
A – Type Dual	47 x 56 F	35	56 - 105
F – Type Dual	47 x 56 F 42 x 50 F 42 x 56 E 46 x 70 E	35	56 - 120[2]

[1] Not exceeding a MTOM of 680 kg

[2] Not exceeding a MTOM of 1,088 kg

- All UM envelopes to join with a non-rectangular basket (*), must carry special wires to attach to 3 points according to TN010. In that case for balloons of size 160 and over will carry 2 karabiners each corner.
- Special Wires just can be fitted by Ultramagic or a qualified organization authorized by Ultramagic.



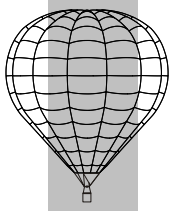
SKY

Basket Size (cm)	Type	Typical Mass (Kg)	UM Envelope size range
107 x 129	Simple	60	56-90
119 x 155	Simple	80	77-130
129 x 160	Simple	90	90-145
129 x 180	Simple, ST	100	105-145
157 x 207	ST	160	140-210
157 x 247	ST,DT	180	160-250
157 x 287	ST,DT	230	200-425
157 x 307	DT	260	180-300
157 x 327	DT	280	200-425
157 x 355	DT	300	200-425
157 x 407	DT	350	200-425
157 x 420	DT	400	300-425

Burner Type	Typical Mass (Kg)	UM Envelope size range
Mistral double (BR 1 & BR 2)	22	56-210[1]
Mistral triple (BR 1 & BR 2)	35	180-300[2]
Mistral quad (BR 2)	44	250-425

[1] Not exceeding a MTOM of 2,041 kg
[2] Not exceeding a MTOM of 2,857 kg

Cylinder Type	Empty Mass (Kg)	Fuel Capacity (Kg)	Basket range
V-30	18	30	All
V-40	20	40	All



RAVEN - AEROSTAR

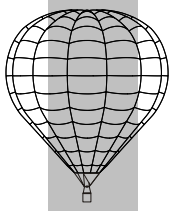
Basket Size (cm)	Type	Typical Mass (Kg)	UM Envelope size range
102 X 80	ELS	40	65-90
121 X 80	ELSS	54	65-90
122 X 107	RWS, RWSW & RWSX-AFX	60	77-105
145 X 119	CW & CW-AFX	95	65-140
168 X 119	CWS	101	90 - 170
173 X 119	RB5	132	130 - 170
178 X 127	RB6	148	130 - 250
193 x 127	TWX/HWS	148	130 - 250
200 x 115	TWH	173	130 - 180 (*)
231 X 127	RB8	179	160 - 250
230 x 160	NC5	175	160 - 250
246 x 141	RB12	193	180 - 275

Burner Type	Type	Typical Mass (Kg)	UM Envelope size range
Aurora S	Single	11	31 - 90
HPIII S	Single	12	65 - 105[1]
HPIII D	Dual	21	65 - 160[2]
HPIII T	Triple	30	160 - 275[3]
HP6D/HP5D	Double	21	56 - 250[2]
HP6S/HP5S	Single	12	56 - 105[1]
HP6E/HP5E	Double	22	56 - 250[2]
HP6T	Triple	30	160 - 250[3]

[1] Not exceeding a MTOM of 907 kg
[2] Not exceeding a MTOM of 1,270 kg
[3] Not exceeding a MTOM of 1,723 kg

Cylinder Type	Full Mass (Kg)	Fuel capacity (US gallons at 85% fill))	Basket range
15 gallons stainless steel (V-15)	50.5	15	Refer to applicable Aerostar - Raven Flight Manual
18 gallons stainless steel (V-18)	57.5	18	Refer to applicable Aerostar - Raven Flight Manual
20 gallons stainless steel (H-20)	63.0	20	Refer to applicable Aerostar - Raven Flight Manual
23.5gallons stainless steel (V-23)	74.0	23.5	Refer to applicable Aerostar - Raven Flight Manual
25 gallons stainless steel (H-25)	79.3	25	Refer to applicable Aerostar - Raven Flight Manual
10 gallons aluminum (V-10)	35	10	Refer to applicable Aerostar - Raven Flight Manual

* Envelope Turning vents required



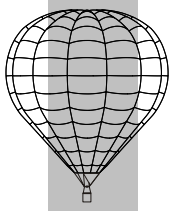
ALTISPH'AIR / AAC / CHAIZE

Basket Size (cm) Length x Width x Height	Type	Typical Mass (Kg)	UM Envelope size range
1.10 x 1.11 x 1.15	A101	70	42 - 90
1.30 x 1.10 x 1.15	A201	76	65 - 130
1.30 x 1.20 x 1.15	A201C	80	65 - 130
1.50 x 1.10 x 1.15	A301	80	77 - 160
1.50 x 1.10 x 1.15	A302	85	77 - 160
1.50 x 1.10 x 1.15	A303 T-separation	88	90 - 160
1.70 x 1.30 x 1.20	A401	92	105 - 180
1.70 x 1.30 x 1.20	A403	110	105 - 180
1.70 x 1.30 x 1.20	A403 T-separation	115	105 - 180
2.00 x 1.50 x 1.20	A501	125	120 - 250
2.00 x 1.50 x 1.20	A503	135	120 - 250
2.00 x 1.50 x 1.20	A503 T-separation	145	120 - 250

- **See General Notes below**

Notes :

- Dimensions of the basket are external in the base.
- ST means Single Partition and DT Double Partition.
- UM envelope sizes are given in thousands of cubic feet, so 65 mean 65000 ft^3.



KAVANAGH

Basket Size (cm)	Type	GCW (Kg)	UM Envelope size range
1.00 x 1.00	KLW1010	760	56 – 77
1.00 x 1.00	KOB1010	760	56 – 77
1.00 x 1.10	KLW1110	760	56 – 77
1.00 x 1.10	KOB1110	760	56 – 77
1.00 x 1.20	KLW1210	760	56 – 77
1.00 x 1.20	KOB1210	760	56 – 77
1.00 x 1.40	KOB1410	1400	65 – 130
1.00 x 1.50	KOB1510	1400	65 – 130
1.00 x 1.60	KOB1610	1200	65 – 130
1.00 x 1.80	KOB1810	1400	77 – 130
1.20 x 1.80	KMT1812	1400	120 – 160
1.20 x 1.80	KST1812	1400	120 – 160
1.20 x 2.00	KMT2012	1400	120 – 160
1.20 x 2.00	KST2012	1400	120 – 160
1.40 x 2.00	KST2014	1400	120 – 160
1.20 x 2.20	KST2212	1400	120 – 160
1.40 x 2.20	KST2214	1400	120 – 160
1.50 x 2.40	KST2415	1800	160 – 210
1.50 x 2.50	KST2515	1800	160 – 210
1.50 x 2.70	KST2715	2200	160 – 300
1.50 x 2.70	K4DT2715	2200	160 – 300
1.50 x 2.80	K4DT2815	2200	160 – 300
1.60 x 2.80	KST2816	2200	160 – 300
1.50 x 2.90	K4DT2915	2200	160 – 300
1.50 x 3.20	K4DT3215	2200	180 – 300
1.50 x 3.60	K8DT3615	2800	300 – 425
1.50 x 4.00	K8DT4015	3700	355 – 425
1.50 x 4.30	K8DT4315	3700	355 – 425
1.55 x 5.00	K8DT5015	3700	355 – 425

Burner Type	Burner Configuration	UM Envelope size range
KBS1-1	Single	56 – 65
KBS1-2	Double	56 – 65
KBS2-1	Single	56 – 90[1]
KBS3-1	Single	56 – 90[1]
KBS2-2	Double	105 – 210[2]
KBS3-2	Double	105 – 210[2]
KBS3-3	Triple	250 – 355[3]
KBS3-4	Quadruple	415 – 425[4]

[1] Not exceeding a MTOM of 824 kg
[2] Not exceeding a MTOM of 1,900 kg
[3] Not exceeding a MTOM of 2,800 kg
[4] Not exceeding a MTOM of 3,700 kg

Cylinder Type	Empty Mass (Kg)	Fuel capacity (Kg)	Basket range
55L-KP3629	19.0	22.0	All
76L-KP3628	21.5	30.5	All
82L-KP3630	23.0	33.0	All

Note: Kavanagh fuel cylinders [part numbers 55L-KP3629 (55 l); 76L-KP3628 (76 l) and 82L-KP3630 (82 l) must be fitted with KA5030 vapour regulator assemblies (i.e. those using Bullfinch Tinyreg, model FG1510/11) when used in EASA Member States.

Note: All fuel tank sizes can be used in all baskets provided the top rim of the fuel tank is below the top edge of the basket.

Note: Basket and Burner weights to be always specified in the balloon Flight Manual**.**

*** Key: OB = Open; LW = Lightweight; MT = Mini-T partition; ST = Single-T partition; DT = double-T partition ; 4/8 = 4/8 Pole ; GCW = Gross Certified Weight**

19.8.2 Non-basket type bottom ends

The following table gives a list of non-basket bottom end systems which may be used with Ultramagic envelopes.

Other manufacturers Duo and Sky Chariot bottom end components may include a specific burner and/or cylinder models inherent to the manufacturers design and as detailed by that associated manufacturer. As such, their use is therefore permitted.

In all cases, it is required to follow applicable bottom end manufacturer's supplement.

Make	Type	Occup.	P/N	UM Envelope size range	Rotation vents required
Cameron	Skyhopper	1	CB717	26-42	No
Cameron	Cloudhopper Millennium	1	CB8320	26-42	No
Cameron	Duo Airchair (MK-I & MK-II)	2	CB8340 CB8700	31-90[1]	Yes
Lindstrand	Cloudhopper (MK-I and Series 2)	1	BA-300 BA-310	26-42	No
Colt	Cloudhopper	1	800501	26-42	No
T&C / Cameron	Skychariot MK-II (One Seat Skychariot) (Single Airchair)	1	SC2-002 (T127, T188) (CB8310)	26-42	Yes
T&C	Two-Seat Skychariot	2	SC3-100	31-77	Yes

[1] For balloons of 65,000 ft^3 and above, the Minimum Landing Mass (MLM) is 300 kg.