Record of Amendments

Amendment Number	Description	Pages Affected	Date	Approval
1	Record of Amendment, List of Effective pages, Contents and List of Supplements Updated	i-iii, i-vii, i-viii, i-ix, i-xiv, ixv, i-xvi	17:12:2007	Approved by EASA under Approval Number EASA.BA.C.01128
	Page 2-2: Permitted Damage increased	2-2, 2-3		
	Page 4-2: Cylinder Orientation guidance added	4-2		
	Page 5-6: "Total" boxes added to tables	5-6		
	Page 6-10; Caution regarding vapour regulators at low ambient temperature added. 45 was 60	6-10, 6-11		
	Pages 7-1, 7-2 revised, 7-3 and 7-4 added.	7-1 to 7-4		
	Supplement 8.1: Addition of Turtle-120 Special Shape, Colt Sugar Box 90, Buddy-90, Head One-105, Lightbulb-110, Bierkrug-90, Condom -105, Apple-90, RX-105, Tiger 90 and Cup-110.	Supplement 8.1: All		
	Supplement 8.6: Addition of Record of Amendments, T&C and Cameron burners and burner frame information.	Supplement 8.6: All		
	Supplement 8.8: Introduction of basket maximum payloads and minimum burner requirements in accordance with EASA.BA.016. Extension to include T&C envelopes.	Supplement 8.8: All		
	Supplement 8.9: Kubíček Bottom Ends with Cameron and T&C Envelopes	New Supplement		
	Supplement 8.12: Addition of Cameron H20, H24, H34, Colt 17A, 21A and Thunder AX6-56S1.	Supplement 8.12: All		
	Supplement 8.15: Addition of Basket List.	Supplement 8.15: All		
	Supplement 8.19: Demountable double, triple and quad burners	New Supplement		
	Supplement 8.21: Deletion of A1 category (moved to type specific supplements), Addition of Basket CB3394, CB3006, CB3027, CB3120, CB3448 and CB3449, added. Type 3 cylinders added to CB950 and CB3175.	Supplement 8.21: All		
	Supplement 8.22: Addition of Paragraph 22.6.3.10.1. Burner Assemblies CB2051, CB2065, CB2081, CB2089, CB2095, CB2096, CB2097, CB2130, CB2145, CB2298, CB2299 added.	Supplement 8.22: All		
	Supplement 8.32: Out of Production Hoppers	New Supplement		
	Supplement 8.33: Sky Bottom Ends with Cameron and Thunder & Colt Envelopes	New Supplement		

Note: Any new or amended text in the revised page will be indicated by a black vertical line in the right hand margin, and the Amendment Number and the date will be shown at the bottom of the page.

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List of Effective Pages

Section	Page	Date	Section	Page	Date
i	i-i	10 April 2006	4	4-15	10 April 2006
	i-ii	10 April 2006	(cont)	4-16	10 April 2006
	i-iii	17 December 2007		4-17	10 April 2006
	i-iv	10 April 2006		4-18	10 April 2006
	i-v	10 April 2006		4-19	10 April 2006
	i-vi	10 April 2006		4-20	10 April 2006
	i-vii	17 December 2007		4-21	10 April 2006
	i-viii	17 December 2007		4-22	10 April 2006
	i-ix	17 December 2007		4-23	10 April 2006
	i-x	10 April 2006		4-24	10 April 2006
	i-xi	10 April 2006		4-25	10 April 2006
	i-xii	10 April 2006		4-26	10 April 2006
	i-xiii	10 April 2006		4-27	10 April 2006
	i-xiv	17 December 2007		4-28	10 April 2006
	i-xv	17 December 2007			
	i-xvi	17 December 2007	5	5-1	10 April 2006
				5-2	10 April 2006
1	1-1	10 April 2006		5-3	10 April 2006
	1-2	10 April 2006		5-4	10 April 2006
	1-3	10 April 2006		5-5	10 April 2006
	1-4	10 April 2006		5-6	17 December 2007
2	2-1	10 April 2006	6	6-1	10 April 2006
	2-2	17 December 2007		6-2	10 April 2006
	2-3	17 December 2007		6-3	10 April 2006
	2-4	10 April 2006		6-4	10 April 2006
	2-5	10 April 2006		6-5	10 April 2006
	2-6	10 April 2006		6-6	10 April 2006
	2-7	10 April 2006		6-7	10 April 2006
	2-8	10 April 2006		6-8	10 April 2006
				6-9	10 April 2006
3	3-1	10 April 2006		6-10	17 December 2007
	3-2	10 April 2006		6-11	17 December 2007
	3-3	10 April 2006		6-12	10 April 2006
	3-4	10 April 2006		6-13	10 April 2006
	3-5	10 April 2006		6-14	10 April 2006
	3-6	10 April 2006			
			7	7-1	17 December 2007
4	4-1	10 April 2006		7-2	17 December 2007
	4-2	17 December 2007		7-3	17 December 2007
	4-3	10 April 2006		7-4	17 December 2007
	4-4	10 April 2006			
	4-5	10 April 2006	8	8-1	10 April 2006
	4-6	10 April 2006		8-2	10 April 2006
	4-7	10 April 2006			
	4-8	10 April 2006	9	9-1	10 April 2006
	4-9	10 April 2006		9-2	10 April 2006
	4-10	10 April 2006		9-3	10 April 2006
	4-11	10 April 2006		9-4	10 April 2006
	4-12	10 April 2006		9-5	10 April 2006
	4-13	10 April 2006		9-6	10 April 2006
	4-14	10 April 2006		9-7	10 April 2006

Section	Page	Date	Section	Page	Date
9	9-8	10 April 2006			
(cont)					
Appendices	A1-1 / A1-2	10 April 2006			
	A2-1 / A2-2	10 April 2006			
	A3-1 / A3-2	10 April 2006			
	A4-1 / A4-2	10 April 2006			

List of Supplements

The supplements ticked 'Applicable' to this balloon are inserted into this manual in Section 8.

Number	Description	Issue	Approval Date	Applicable
8.1	Special Shapes	9	17 December 2007	
8.2	Balloons On German Register	-	-	-
8.3	Balloons On French Register	-	-	-
8.4	Balloon Works Bottom Ends with Cameron Envelopes	-	-	-
8.5	Raven Aerostar Bottom Ends with Cameron Envelopes	1	10 April 2006	
8.6	Lindstrand Bottom Ends with Cameron and T&C Envelopes	2	18 April 2007	
8.7	Ultramagic Bottom Ends with Cameron Envelopes	1	10 April 2006	
8.8	Schröder Fire Bottom Ends with Cameron and T&C Envelopes	2	15 August 2007	
8.9	Kubícek Bottom Ends with Cameron and T&C Envelopes	1	17 December 2007	
8.10	Chaize Baskets with Cameron Envelopes	-	-	
8.11	Lindstrand Cloudhopper with Cameron Envelopes	1	10 April 2006	
8.12	Out of Production Envelope Types	3	15 October 2007	
8.13	Duo Airchair MKII	1	10 April 2006	
8.14	Cloudhopper Millennium	1	10 April 2006	
8.15	Wheelchair Baskets	2	17 April 2006	
8.16	Single Airchair	-	-	
8.17	Special Needs Passenger Seat	-	-	
8.18	Removable Partition Basket	1	10 April 2006	
8.19	Demountable double, triple and quad burners	1	30 November 2006	
8.20	Basket Towing Plates	1	10 April 2006	
8.21	Special Baskets	4	17 December 2007	
8.22	Out of Production Burner Models	2	18 April 2007	
8.23	Sirocco Burner - Remote Control Operating System	1	10 April 2006	
8.24	Shadow High Altitude Burner	1	10 April 2006	
8.25	Removable Burner	1	10 April 2006	
8.26	Shadow / Stealth Electric Burner	1	10 April 2006	
8.27	Launching Hang Gliders	1	10 April 2006	
8.28	Night Flying	1	10 April 2006	
8.29	Dropping Parachutists	1	10 April 2006	
8.30	Envelope Laser Display System	1	10 April 2006	
8.31	-	-	-	
8.32	Out of Production Hoppers	1	18 April 2007	
8.33	Sky Bottom Ends with Cameron and T&C Envelopes	1	10 April 2006	
	Canadian - Specific Addendum Type			

Number	Description	Issue	Approval Date	Applicable

2.1 INTRODUCTION

Section 2 details the operating limitations for the balloon and its standard equipment.

The limitations included in this Section and in Section 8 have been approved by EASA.

WARNING: The balloon must not be flown into contact with powerlines.

2.2 WEATHER

1. Balloons must not be flown free in surface winds greater than 15 knots (7.7m/sec).

2. The balloon must not be flown in meteorological conditions which could give rise to erratic winds and gusts of 10 knots (5.1m/sec) above the mean wind speed.

3. The balloon must not be flown if there is extensive thermal activity or any cumulonimbus (thunderstorm) activity.

2.3 FUEL

1. The fuel pressure must never exceed the system safe working pressure of 15 bar (218psi).

2. The fuel for the burner is LPG. Propane is the preferred fuel, but some content of other hydrocarbons is permissible, provided that minimum fuel pressures are maintained throughout the flight.

3. The minimum fuel pressure is 3 bar (44psi) for balloons smaller than 340,000cu.ft (9630m^3).

   CAUTION: Care should be exercised if the fuel pressure is below 5.5bar (80psi).

4. The minimum fuel pressure is 7 bar (102psi) for balloons of 340,000cu.ft (9630m^3). and larger, unless Shadow, Sirocco or Stratus burners are used, when the minimum fuel pressure is 5.5 bar (80psi),

5. Burners must not be operated on a vapour fuel supply.

6. With the exception of single occupancy balloons, a minimum of two independent cylinders with provision to supply pilot lights (double burner) are required, three such cylinders for a triple burner, four for a quadruple burner. Extra cylinders may be used.

2.4 MINIMUM BURNER REQUIREMENTS

1. A single burner may only be used in balloons of less than 105,000cu ft (2975m^3).

2. A double burner may only be used in balloons of 56,000cu ft (1585m^3) to 210,000cu ft (5950m^3).

3. A triple burner may only be used in balloons of 140,000cu ft (3970m^3) to 315,000cu ft (8920m^3).

4. A quad burner may only be used in balloons of 180,000cu ft (5100m^3) to 600,000cu ft (16992m^3).

2.5 PERMITTED DAMAGE

1. No damage is permitted to load tapes or any load bearing part of the suspension system.

2. No damage is permitted to the burner or fuel system.

3. Damage to the fabric below the first horizontal load tape above the Nomex (Cameron) or within 4 m of the Nomex (Thunder & Colt) is limited to holes or tears smaller than 1 m (39") in any direction.

4. Damage to the fabric higher than that specified above is limited to holes or tears smaller than 12 mm (½") in any direction. The distance between two adjacent holes shall not be less than 50mm (2"). The maximum number of holes or tears permitted is 12. If there is any damage in the upper half of the envelope (defined as the area above the widest horizontal seam between two vertical load tapes), it must be repaired within 10 flying hours.

5. Any damage outside these limitations must be repaired in accordance with the instructions contained in the Maintenance Manual.

2.6 SAFETY EQUIPMENT (MINIMUM EQUIPMENT)

The following minimum equipment must be carried:

1. Protective gloves must be available to the pilot.

2. Matches or other independent means of ignition in addition to any igniters built into the burner.

3. A Halon 1211 or powder fire extinguisher of minimum size 1kg and conforming to EN3.

4. An Altimeter with an indicating range sufficient for the operation range of the balloon.

5. A rate of climb and descent indicator (variometer).

6. An envelope temperature indicator which may either be of the continuous reading type or a type which gives a warning signal.

7. Each fuel cylinder shall be fitted with a fuel quantity gauge.

8. A time piece.

All minimum equipment must be functional.

2.7 CREW

1. The minimum crew is one pilot.

2. The pilot must be suitably qualified to conduct the flight.

3. The maximum number of occupants (consisting of crew and passengers) is determined by Sections 2.8, 2.9 and 2.15 below.

2.8 ENVELOPE TEMPERATURE AND LOADING

1. The envelope temperature must not exceed 120°C, (250°F).

2. The envelope temperature must be controlled either by use of the envelope thermometer, or by loading according to the loading chart in Section 5.

2.9 WEIGHT RANGE

1. The take-off Mass (TOM) of the balloon must never exceed the Maximum TOM (MTOM) shown in table 1. The applicability of the MTOM, either Standard or Reduced is given on page i-i.

2. If it is desired, for operational or insurance reasons, to alter the MTOM of the balloon, either the Standard or Reduced MTOM, appropriate to the balloon model, may be selected. These permitted MTOM values are shown in Section 2 Table 1. The MTOM in use must be entered as an amendment on page i.i and used for loading calculations.

3. For balloons of 105,000 cu. ft(2975 m^3) and above, the Minimum Landing Mass (MLM) for normal operation must not be less than 50% of the Standard MTOM. For special flights, record attempts etc., with only necessary crew on board, lower masses may be used at the pilot's discretion.

2.10 RATES OF CLIMB AND DESCENT

1. With the exception of 'TR' Type balloons, the maximum rate of climb and descent for conventional shaped balloons smaller than 340,000 cu.ft (9630m^3) is 1000 ft/min (5 m/sec).

2. The maximum rate of climb and descent for 'TR' Type balloons is 1700 ft/min (8.5m/sec), except where the RDS is fitted, when the maximum rates of climb and descent are limited to 1000 ft/min (5 m/sec).

3. The maximum rate of climb and descent for conventional shaped balloons between 340,000 and 600,000 cu.ft is 800 ft/min (4m/sec).

2.11 PARACHUTE VALVE

1. The parachute valve must not be held open for periods longer than 3 seconds during flight. The envelope must be allowed to re-inflate fully and the envelope mouth must be seen to be fully open before subsequent operations of the vent.

2. 'TR' Type balloons must not have the parachute valve opened at rates of descent greater than 500ft/min (2.5m/sec).

2.12 RAPID DEFLATION SYSTEMS

1. The parachute valve of the rapid deflation system, when used for the controlled release of hot air during flight, must not be held open for periods longer than 3 seconds. The envelope must be allowed to re-inflate fully between operations of the vent.

2. Use of the rip line is not permitted at heights greater than 2m (6ft) above ground level, except in an emergency.

2.13 VELCRO RIP PANEL

1. Opening of the Velcro rip panel is not permitted at heights greater then 2m (6ft) above ground level, except in an emergency.

2.14 TETHERED FLIGHT

1. Balloons smaller than 340,000 cu.ft (9630m^3) must not be tethered in surface winds greater than 15 knots (7.7 m/sec).

2. Balloons of 340,000 cu.ft (9630m^3) and larger must not be tethered in surface winds greater than 10 knots (5.1 m/sec).

4.1 INTRODUCTION

Section 4 provides checklists and amplified procedures for the conduct of normal operation. Normal procedures associated with optional systems can be found in Section 9.

4.2 FLIGHT PLANNING AND WEATHER

Before starting to prepare the balloon for flight the pilot should consider the balloon loading, the weather and the flight area to determine their suitability for the flight.

4.2.1 Loading

The balloon should be loaded in accordance with limitations given in Sections 2.8 and 2.9. The effect of temperature on fuel pressure (Section 4.6.1) should also be considered.

4.2.2 Weather

In addition to the weather limitations in Section 2.2, the following should be considered-

Severe Weather A balloon flight should never be attempted around thunderstorm activity, ahead of approaching frontal systems or near severe weather of any kind.

Thermal Activity Balloons are significantly affected by air turbulence. Balloon flights are typically made in the first 2-3 hours after sunrise or the last 2 hours before sunset when thermal activity is at a minimum.

Sea Breezes The influence of sea breezes should be considered before flights near large bodies of water.

Wind Direction The wind direction should not carry the balloon into controlled airspace unless the class of the airspace is known and appropriate equipment is carried (e.g transponder, VHF radio), or into areas unsuitable for landing (mountains, lakes or large built-up areas) unless sufficient fuel is carried to overfly such areas safely.

The pilot should visually assess the weather both before take-off and during the flight and be prepared to modify flight plans accordingly.

Flight Planning Checks

Weather	Expected to be suitable throughout the flight.
Turbulence	Minimal expected during flight.
Wind Direction And Speed	Predicted flightpath - airspace restrictions.
Flight Duration	Passenger weight and fuel contents appropriate (see Section 5).

4.3 PREPARATION AND RIGGING

4.3.1 Site

The site should be chosen so that the downwind path that the balloon will take is clear of powerlines or high obstacles. There should be no powerlines or obstructions in any direction that the balloon could touch should it move during the inflation. The area for laying out the balloon should ideally be a smooth grass surface. Surfaces covered with rocks, sticks or other objects likely to cause fabric damage should be avoided.

The take-off point chosen for inflation should be towards the upwind side of the site and, if possible, at a point that gives some shelter from the prevailing wind.

4.3.2 Basket rigging

Unload the basket at the take-off point; place the envelope, in its bag, about 5m downwind of the basket.

A non-partitioned basket should be positioned with the step hole on the upwind side.

A T-partition basket should be positioned with the pilot compartment on the right, looking from the basket towards the envelope.

Double T-partition baskets should be positioned with either long side facing towards the envelope.

Note: The orientation of Double -T baskets should be alternated periodically to minimise any permanent distortion.

Strap the cylinders as required into the basket. Check the contents and ensure that the master cylinders (if used) are on the downwind (envelope) side of the basket.

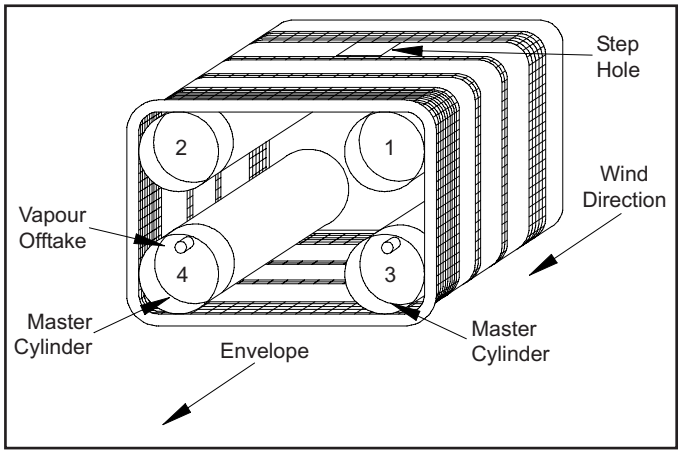
The orientation of the cylinders should ensure that:

1) Cylinders that are required to supply liquid during inflation are positioned so that the liquid valve is in the lower half of the cylinder when the basket is on its side.

2) Cylinders that are required to supply vapour during inflation are positioned so that the vapour valve is uppermost when the cylinder is on its side.

3) All cylinders should be positioned so that the liquid off-takes and hoses cannot be struck by the pilot or passengers during landing.

WARNING: Incorrect positioning of cylinders used for vapour offtake can result in pilot light failure.



▲ Correct Positioning Of Master Cylinders

Table 3 - Total Permitted Lift (lb)

Balloon Size	Lift (lb) Per 1000 cu.ft.										
	10	11	12	13	14	15	16	17	18	19	20
25	250	275	300	325	350	375	400	425	450	475	500
31	315	346	378	409	441	472	504	535	567	598	620
42	420	462	504	546	588	630	672	714	756	798	840
56	560	616	672	728	784	840	896	952	1008	1064	1120
60	600	660	720	780	840	900	960	1020	1080	1140	1200
65	650	715	780	845	910	975	1040	1105	1170	1235	1300
69	690	759	828	897	966	1035	1104	1173	1242	1311	1380
70	700	770	840	910	980	1050	1120	1190	1260	1330	1400
77	775	852	930	1007	1085	1162	1240	1317	1395	1472	1540
80	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600
84	840	924	1008	1092	1176	1260	1344	1428	1512	1596	1640
90	900	990	1080	1170	1260	1350	1440	1530	1620	1710	1800
100	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
105	1050	1155	1260	1365	1470	1575	1680	1785	1890	1995	2010
120	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400
133	1330	1463	1596	1729	1862	1995	2128	2261	2394	2527	2660
140	1400	1540	1680	1820	1960	2100	2240	2380	2520	2660	2800
145	1450	1595	1740	1885	2030	2175	2320	2465	2610	2755	2900
150	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000
160	1600	1760	1920	2080	2240	2400	2560	2720	2880	3040	3200
180	1800	1980	2160	2340	2520	2700	2880	3060	3240	3420	3600
200	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000
210	2100	2310	2520	2730	2940	3150	3360	3570	3780	3990	4200
225	2250	2475	2700	2925	3150	3375	3600	3825	4050	4275	4500
240	2400	2640	2880	3120	3360	3600	3840	4080	4320	4560	4800
250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000
260	2600	2860	3120	3380	3640	3900	4160	4420	4680	4940	5200
275	2750	3025	3300	3575	3850	4125	4400	4675	4950	5225	5500
300	3000	3300	3600	3900	4200	4500	4800	5100	5400	5700	6000
315	3150	3465	3780	4095	4410	4725	5040	5355	5670	5985	6300
340	3400	3740	4080	4420	4760	5100	5440	5780	6120	6300	6300
340HL	3400	3740	4080	4420	4760	5100	5440	5780	6120	6460	6800
350	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000
375	3750	4125	4500	4875	5250	5625	6000	6375	6750	7125	7500
400	4000	4400	4800	5200	5600	6000	6400	6800	7200	7600	8000
415	4150	4565	4980	5395	5810	6225	6640	7055	7470	7885	8300
425LW	4250	4675	5100	5525	5950	6375	6800	7225	7650	8075	8075
450	4500	4950	5400	5850	6300	6750	7200	7650	8100	8550	9000
530	5300	5830	6360	6890	7420	7950	8480	9010	9540	10070	10600
600	6000	6600	7200	7800	8400	9000	9600	10200	10800	11215	11215

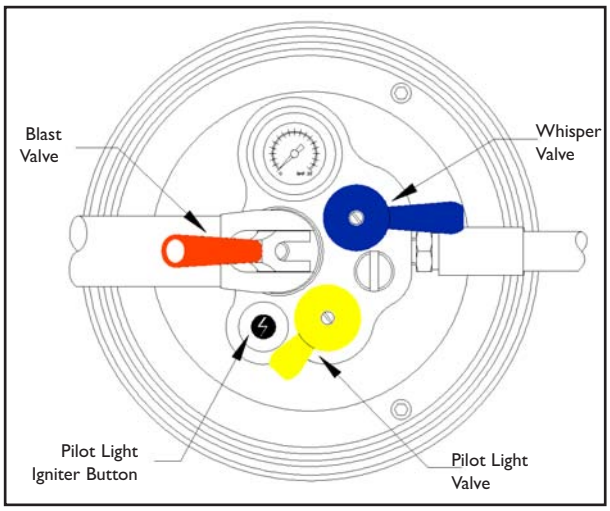
Table 4 - Balloon Component Weight Record

Registration	
Year Of Construction	
Constructors Number	
Balloon Type	

Component	Drawing Number	Serial Number	Weight (kg)
Envelope			
Burner			
Basket			
		Total	

Cylinder	Drawing Number	Serial Number	Weight (kg)	
			Empty	Full
Cylinder 1				
Cylinder 2				
Cylinder 3				
Cylinder 4				
Cylinder 5				
Cylinder 6				
		Total		

Total Fuel Weight _____ kg



▲Sirocco Control Layout

The burner coil operates at a relatively low temperature which reduces thermic cycling extending burner life.

A dual action handle is fitted to allow the operation of a pair of burner units simultaneously with one hand.

The Whisper valve and pilot valve are operated by rotary action handles which are marked to show their sense of operation.

The Sirocco manifold block enables quick disassembly for ease of maintenance.

The Sirocco is only available with a regulated liquid pilot light system.

Sirocco burners are not fitted with crossflow valves.

6.3.11 Sirocco E.P. Remote Control Burner

The Sirocco burner is available with a solenoid actuated remote control system. The burner may be operated normally or from a hand held remote control. The remote control system actuates either burner of a double burner or both burners simultaneously. The System can also be fitted to one pair of burners in a triple burner system or one pair of burners in a quad burner system.


▲Sirocco Manifold Block

6.3.12 Fixed Height Burner Frame

The burner assembly is mounted on a gimbal in the burner frame. The burner frame has a socket in each corner to accept a nylon support rod. In addition, there are rigging points at each corner through which karabiners are hooked to join the basket wires to the envelope flying cables. Larger frames are fitted with four additional sockets and rigging points. Heat shields may be fitted to larger burner frames to reduce radiant heat.

6.3.13 Adjustable Height Burner Frame

The adjustable height burner frame allows the burner to be raised and lowered relative to the basket floor. This adjustment can be safely carried out in flight. The adjustable burner frame is only available for use with single and double burners.


▲Adjustable Burner Frame

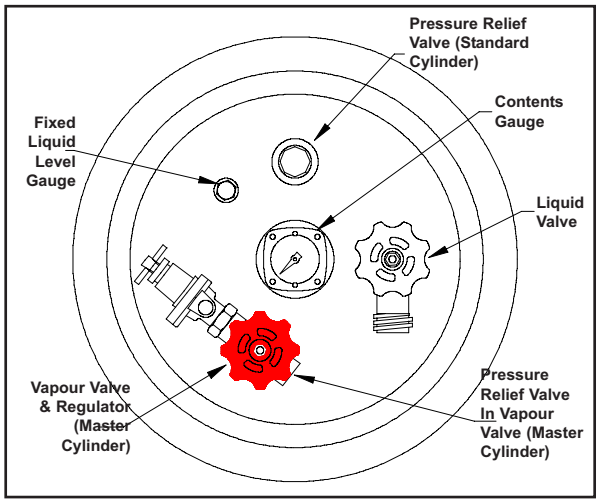
6.4 FUEL CYLINDERS

The fuel cylinders contain the liquid propane fuel under pressure. The cylinders are supplied in two configurations.

'Standard' cylinders - supplying liquid fuel feed only.
'Master' cylinders - supplying liquid fuel feed with an additional pressure regulated vapour supply for vapour pilot lights.

The liquid fuel is drawn from the bottom of the cylinder via an internal dip tube. The liquid supply is controlled by an external valve, either a handwheel type valve with a Rego type (screw-on) hose connector or a 'quick shutoff' lever-operated valve. The quick shutoff valve may be fitted with either a Rego type screw-on connector or a Tema push-on connector.

The regulated vapour pilot light supply (master cylinders only) is taken directly from the top of the cylinder through a handwheel type valve and an adjustable regulator. The vapour hose is connected using a quick release coupling.



▲ Fuel Cylinder Valve Layout - Master Stainless Steel Cylinder Shown

Caution: The Vapour Regulator requires an internal cylinder vapour pressure of 0.5 Bar (7 p.s.i) before it operates correctly. Care must be taken at low ambient temperatures when using fuel which is predominantly butane.

All fuel cylinders are fitted with-

A contents gauge which indicates from approximately 33% of capacity until the cylinder is empty.

A fixed liquid level gauge (bleed valve) which indicates when the cylinder is full.

A pressure relief valve (PRV) which protects the cylinder against excessive internal pressure.

A padded cover with integral map pocket. The padded cover must be used at all times.

The cylinders are strapped vertically inside the basket. Load spreading boards must be fitted to the internal runners of woven floor baskets if cylinders with a useable volume greater than 45 litres are used.

6.4.1 Cameron Stainless Steel Fuel Cylinders

Cameron stainless steel fuel cylinders have usable volumes of between 42 and 71 litres and have straight dip tubes.

6.4.2 Cameron Duplex Stainless Steel Fuel Cylinders

A range of duplex stainless steel cylinders is available. These have usable volumes of between 45 and 72 litres. Cameron duplex stainless steel fuel cylinders have curved dip tubes.

6.4.3 Cameron Titanium Fuel Cylinders

Titanium fuel cylinders provide the best fuel to cylinder weight ratio. They are externally similar to the stainless steel cylinders, but have an empty weight of approximately 10kg less per cylinder (see table 11). Cameron Titanium fuel cylinders have straight dip tubes.

6.4.4 Mini Vapour Cylinder

The Mini Vapour Cylinder is a 5 litre Worthington aluminium fuel cylinder, fitted with a vapour outlet, pressure regulator and connections for two pilot light hoses.

Use of a Mini Vapour Cylinder allows the main master cylinders to be pressurised with nitrogen (N_2) or carbon dioxide (CO_2) to increase burner power in cold conditions, or in cases of low gas pressure (e.g. when using butane).

6.4.5 Fuel Manifolds

Approved fuel manifolds may be used to join the outlets of several fuel cylinders to one burner fuel hose.

WARNING- Accidents have been caused by the use of non-approved fuel manifolds. In particular it is important that rigid refuelling adapters are not used to allow the combination of Rego outlet cylinders with Tema connectors or vice-versa.

6.5 BASKET

Baskets are of traditional wickerwork construction. The basket floors are either woven or solid plywood. The structural load is taken by stainless steel wires forming a continuous sling from the burner frame underneath the basket floor.

The baskets are strengthened by aluminium 'U'-tubes or a stainless steel frame.

The top of the basket is padded with foam, which is then trimmed with leather or suede. The bottom edge is covered with rawhide which protects the basket from damage during landings and transit. Openings are woven into the basket for cylinders straps and step holes.

The basket cables, burner support rods and fuel hoses are contained within zip-up padded covers.

Side or end wall cushions and cushion floors may be added inside the basket to increase the levels of passenger comfort.

A fire extinguisher must be fitted inside the basket.

▲ Aristocrat Basket

6.5.1 Concept Basket

The Concept basket is available in two sizes to match the Concept 60 - 70 and 80 - 100 envelopes. The baskets are of lightweight construction and have a flat top.

6.5.2 Aristocrat And Classic Baskets

The Aristocrat and Classic ranges of baskets carry between one and six occupants. The baskets are usually made with the top of the basket upswept at each end but flat top baskets can be specified.

6.5.3 Partitioned Baskets

Larger baskets have internal partitions woven into the walls and floor of the basket. These partitions provide greater structural integrity and separation between groups of passengers The pilot and fuel cylinders occupy a separate compartment from the passengers.

Larger partitioned baskets use two rigging points on each corner of the load frame for increased strength. The largest partitioned baskets have provision for eight burner support rods, each with its own rigging points.

7.1 INTRODUCTION

This Section contains the recommended procedures for proper ground handling and servicing of the balloon.

7.2 INSPECTION PERIODS

Details of the required inspection periods are given in Cameron Balloons Maintenance Manual Issue 10, Section 6.

7.3 ALTERATIONS OR REPAIRS

It is essential that the responsible airworthiness authority is contacted prior to any alterations being made to the balloon to ensure that the airworthiness of the balloon is not compromised.

For repair procedures, reference should be made to Cameron Balloons Maintenance Manual Issue 10.

7.4 TRANSPORTATION

The following Sections apply to road transportation. If the balloon is to be transported by rail, sea or air, the operator of the service should be contacted prior to travel to find out what requirements they have in respect of fans, propane cylinders etc. Extra protection may be required when shipping by these methods.

7.4.1 Envelope

When the balloon is to be transported, the envelope must be carried in its storage bag, and should be protected from weather.

7.4.2 Burners

The burners must be vented of propane, and the fuel hoses disconnected from the cylinders before transport.

The burners should not be rigged to the basket. Transporting a basket and burner in this manner leads to greatly increased wear to the structure, and there is a chance of the burner striking low bridges.

Burners fitted with a crossflow valve should be transported with the crossflow valve in the open position.

Sirocco, Shadow and Stealth burners are fitted with 'squeeze action' valve controls mounted below the hand grip. The burner should be transported and stored with the control lever moved through approximately 150° so that it is parallel with the hand grip.

Burners with liquid pilot lights should be transported and stored with the burner vertical and coils uppermost, to prevent any 'heavy ends' in the fuel interfering with the liquid pilot light regulator.

7.4.3 Cylinders

Fuel cylinders must only be transported or stored vertically with the valves uppermost, as the pressure relief valves are designed to vent only vapour.

The cylinders must be firmly secured inside the basket or other form of protection within the transportation unit.

Cylinders which have been pressurised with nitrogen must be checked to ensure the internal vapour pressure is not greater than 7 bar (100 psi) prior to transportation.

If the cylinder pressure exceeds 7bar, the cylinder must be vented (Section 4.14) until the cylinder pressure is below 7bar.

7.4.4 Baskets

WARNING: Great care must be taken when transporting solid floor baskets to ensure that damage is not caused to the wires on the underside of the basket floor. If damage is evident or suspected, the wires must be inspected as per Cameron Balloons Maintenance Manual Issue 10 Section 6.17.4 before flight.

Baskets should be protected from the elements during transportation by use of a suitable cover.

When using ratchet straps to secure baskets to trailers, care must be taken not to over tighten these straps as permanent distortion to the basket can occur (especially when the basket is new or wet).

Baskets can be loaded longitudinally or transversely. Solid floor baskets must not be loaded or unloaded over the side of a vehicle or trailer unless wire protectors (CB 3351) are fitted. This is due to the high risk of wire damage from the edge of the vehicle or trailer. Before loading, check that all these protectors are in place and secure. Woven floor baskets must be protected from areas of the trailer that could cause damage to the wires or wicker. If the basket is to be winched lengthways onto a vehicle or trailer, only approved basket towing plates and bridles should be used. The winch cable must not be attached to the rope handles, or any other part of the basket, or serious damage could be caused to the basket structure.

When unloading baskets from trailers, great care must be taken not to drop the basket onto the ground without cushioning the impact (especially larger baskets with full fuel cylinders) as damage to the structure can occur.

7.5 STORAGE

The balloon should be stored in a clean dry place.

The envelope should not be stored damp or wet for more than a few days, as residual moisture can result in fabric deterioration due to mould or mildew. A wet envelope should be gently dried by keeping it cold inflated with a fan, rolling the envelope over if necessary. Hot inflating a wet envelope may cause damage to the fabric.

The basket should not be stored wet or with a covering of mud, as this will trap moisture next to the hide and wicker, leading to deterioration of the basket. The basket should be cleaned using fresh water and allowed to dry. If the basket is secured to a trailer using ratchet straps during storage, the straps should be loosened to prevent any permanent distortion.

Salt contamination of any part of the balloon and its equipment must be avoided. If any of the balloon's components become contaminated with sea water they should be washed with plenty of fresh water. Salt will cause corrosion in metal components (including stainless steel), accelerate decay in wickerwork, and adversely affect the envelope fabric and tapes.

For full cleaning instructions, reference should be made to Cameron Balloons Maintenance Manual Issue 10.

Cylinders must be stored in a well-ventilated area with no sources of ignition or excessive heat. Cylinders must not be stored near drains or cellars, where any leaked propane could collect.

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