

The technical content of this document is approved under the authority of DOA ref. EASA. 21J.140 (C730)

## 8.22 OUT OF PRODUCTION BURNER MODELS

### 8.22.1 GENERAL INFORMATION

This supplement shall be inserted in the Flight Manual, in Section 8: 'Supplements' with the revisions record sheet amended accordingly.

Information contained herein supplements, or in the case of conflict, supersedes that contained in the basic Flight Manual. For Limitations, Procedures, and Performance Data not contained in this supplement, consult the basic Hot Air Balloon Flight Manual.

Issue 6 of this supplement consists of ten pages. There are no additional continued airworthiness instructions associated with this supplement.

### 8.22.2 LIMITATIONS

#### 8.22.2.4 Minimum burner Requirements

1. A single Cameron MKIII burner may only be used in balloons of less than 90,000 cu.ft. (2549 m<sup>3</sup>).
2. The following double burners may only be used in balloons of 56,000 cu.ft. (1585 m<sup>3</sup>) to 180,000 cu.ft. (5098 m<sup>3</sup>): Cameron MKIII, Cameron MKIV, Colt MKII(C2), Colt MKIII(C3) and Colt MKIIIT (C3-T, Magnum).
3. Triple Cameron MKIV burners may only be used in balloons of 140,000 cu.ft. (3970 m<sup>3</sup>) to 300,000 cu.ft. (8496 m<sup>3</sup>).
4. The following quad (and triple with Commercial Liquid Fire) burners may only be used in balloons of 180,000 cu.ft. (5100 m<sup>3</sup>) to 400,000 cu.ft. (11328 m<sup>3</sup>). Cameron MKIV, Colt C2, Colt C3 and Colt Magnum.

**8.22.3 EMERGENCY PROCEDURES****8.22.3.11 Pilot Light Failure**

If all pilot lights fail the following procedure should be adopted:

1. Shut off all fuel supplies at the cylinder valve.
2. Lock one whisper/Liquid fire burner valve (if fitted) fully open, or lock one main burner valve fully open.
3. Partially open the fuel supply to this burner at the cylinder valve, to permit a small amount of fuel to enter the burner.
4. Light the burner with a match or other igniter. (WARNING- do not use the igniter built into the burner)
5. Fully open the fuel supply to the burner, using the cylinder liquid valve to control the flight of the balloon.
6. Partially close the cylinder liquid valve to a fractional setting, regulating the burner to maintain a pilot setting.
7. Land as soon as possible.

**8.22.4 NORMAL PROCEDURES**

No change.

**8.22.5 WEIGHT CALCULATIONS**

No change.

## 8.22.6 BALLOON AND SYSTEMS DESCRIPTION

### 8.22.6.3 Burner

The Cameron MKIII, Cameron MKIV, Cameron MKIV Super, Colt C2, Colt C3 and Colt Magnum burners do not follow the current convention for colour-coded controls. Care must be taken during use to ensure that the correct control is being operated.

#### 8.22.6.3.15 Cameron MKIII Burner

The MKIII burner has a stainless steel vapourising coil which is fitted with jets and deflector plates.

At least two liquid fuel supplies are always fitted, which feed the coils via Rego blast valves. The blast valves may be retro-fitted with a Bonanno-modified valve centre-body.

A pressure gauge is fitted in the liquid fuel line between the blast valve and the coil, and reads only when the blast valve is operated.

A whisper burner may be retro-fitted, and consists of a needle or ball valve which feeds from the inlet of the Rego blast valve and has a jet at the centre of the coil.

A vapour pilot light is fitted, which is controlled from the vapour valve on the cylinder.

The MKIII single burner has two liquid fuel supplies and blast valves feeding one pressure gauge and coil. The single burner is fitted with a single pilot light.

The burner may be fitted either in a stainless steel frame or a red painted steel frame.

The MKIII burner is available in single and double burner combinations.

#### 8.22.6.3.16 Cameron MKIV Burner

The MKIV burner has a stainless steel vapourising coil and can, and is similar in appearance to the Shadow burner.

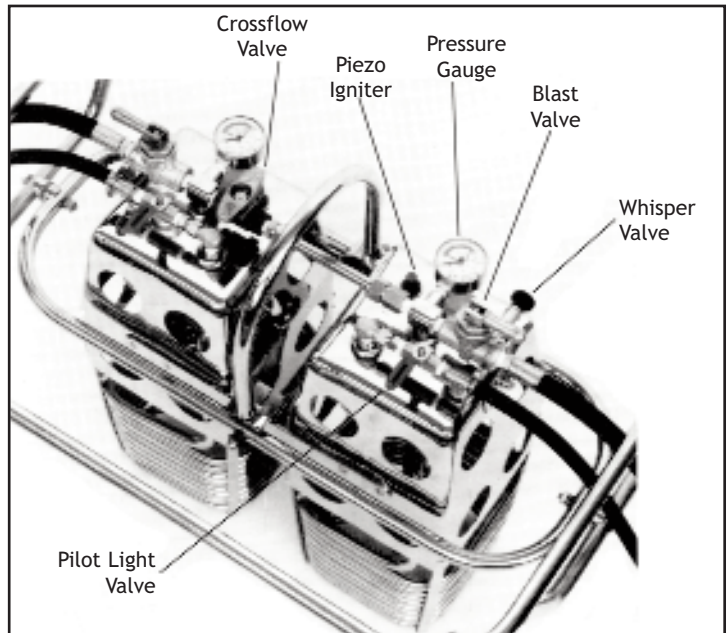
At least two liquid fuel supplies are always fitted, which feed the coils via Rego blast valves. The blast valves may be retro-fitted with a Bonanno-modified valve centre-body. The blast valve may also be a ball valve instead of a Rego valve.

A pressure gauge is fitted in the liquid fuel line between the blast valve and the coil, and reads only when the blast valve is operated.

At least one whisper burner is fitted, which may be operated by either a ball valve or a needle valve.

A vapour pilot light is fitted, which is controlled by a ball valve on the burner. The pilot light is ignited using a piezo-electric igniter fitted to the can.

A crossflow is fitted between paired burners, connecting them with a ball valve. The crossflow allows two burners to be operated with one blast valve. Maximum burner power will not be achieved with the crossflow open however, due to flow limitations in the fuel system.



▲ Cameron MKIV Burner

The MKIV single burner has two liquid fuel supplies and blast valves feeding one pressure gauge and coil. The single burner is fitted with a single pilot light.

The MKIV burner is available in single, double, triple and quad combinations.

An electric valve option may be fitted which allows the burner to be operated remotely. A solenoid valve feeds fuel into the crossflow port, operated by a hand-held remote operating switch.

#### 8.22.6.3.17 Cameron MK 4 Super Burner

The MK 4 Super burner has the same can and coil as the MK 4 burner, and differs in the arrangement of the burner controls.

A manifold block is fitted to the base of the can, which incorporates the blast valve, the whisper valve, the pilot light valve, the piezo-electric igniter and the fuel pressure gauge.

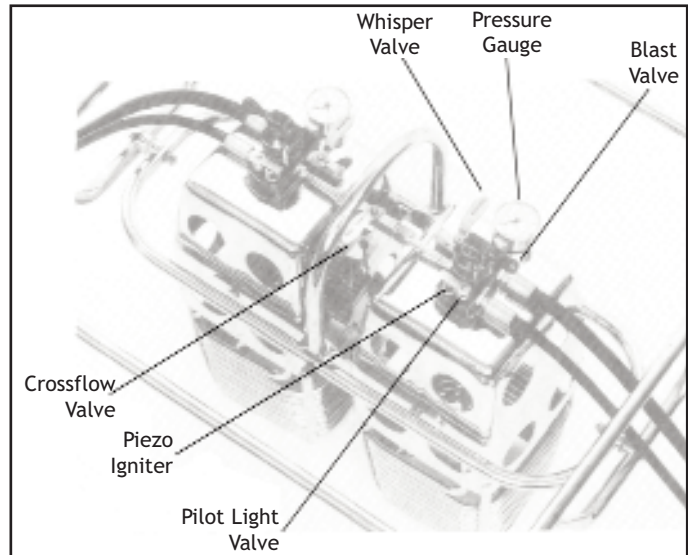
The blast valve is operated by a toggle handle on the bottom of the manifold block

The whisper burner is operated by a ball valve on the side of the manifold block.

The pressure gauge reads continuously when the fuel supply is on at the cylinder. When the burner is operated, the indicated pressure drops slightly.

The pilot light handle covers the piezo igniter button when in the closed position, preventing accidental operation of the igniter.

The burner is fitted as standard with a vapour pilot light, but may optionally be fitted with a liquid fed pilot light which draws its fuel from the main liquid supply. The liquid pilot light has a needle valve which allows the size of the pilot flame to be adjusted.



▲ Cameron MKIV Super Burner

A crossflow is fitted between double burners and paired burners in triple and quad configurations.

The MKIV Super burner is available in double, triple and quad combinations.

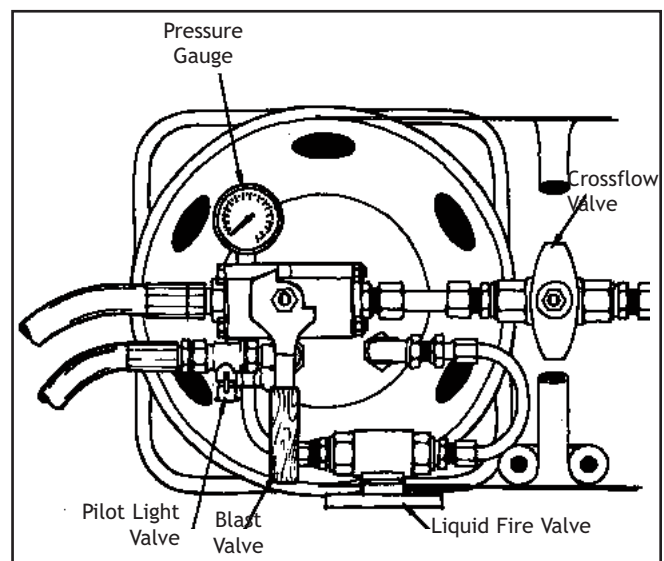
An electric valve option may be fitted which allows the burner to be operated remotely. A solenoid valve feeds fuel into the crossflow port, operated by a hand-held remote operating switch.

#### 8.22.6.3.18 Colt C2 Burner

The burner controls are fitted to the bottom of the burner can.

The main burner is controlled by a lever or toggle operated ball valve. A crossover valve may be fitted to allow operation of two burner units with one blast valve.

A vapour pilot light is fitted, and is either controlled by a toggle ball valve on the burner, or directly by the fuel cylinder valve. Ignition is either by an external sparker, or by a piezo igniter built into the burner.



▲ Colt C2 Burner

The liquid fire / whisper burner is operated by a toggle ball valve on the burner can.

Multiple burners may be fitted with a 'Commercial Liquid Fire' which consists of a separate burner unit fitted with only liquid fuel jets, controlled by a toggle ball valve.

The C2 burner is available in single, double, triple or quad configurations.

#### 8.22.6.3.19 Colt C3 Burner

The C3 burner is very similar to the C2 burner. The blast valve ball valve is mounted inside the burner can, and a liquid pilot light can be fitted.

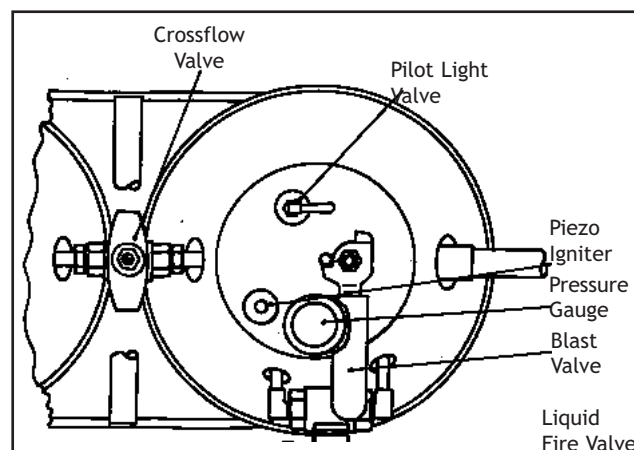
The main burner is controlled by a lever or toggle operated ball valve.

A liquid or vapour pilot light is fitted, and is controlled by a toggle ball valve on the burner. Ignition is by a piezo igniter built into the burner.

The liquid fire / whisper burner is operated by a toggle ball valve on the burner can.

Multiple burners may be fitted with a 'Commercial Liquid Fire' which consists of a separate burner unit fitted with only liquid fuel jets, controlled by a toggle ball valve.

The C3 burner is available in single, double, triple or quad configurations.



▲ Colt C3 Burner

#### 8.22.6.3.20 Colt C3T (Magnum) Burner

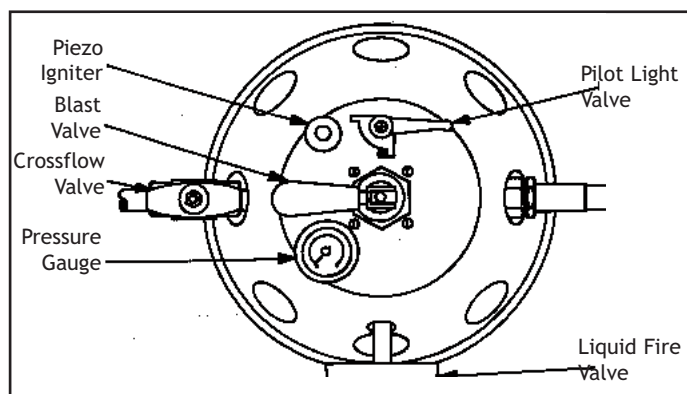
The Magnum burner is a development of the C3 burner. The blast valve is a specially designed 'Superseal' valve rather than a standard ball valve, and is operated by a vertical toggle handle.

A liquid or vapour pilot light is fitted, and is controlled by a toggle ball valve on the burner. Ignition is by a piezo igniter built into the burner.

The liquid fire/whisper burner is operated by a toggle ball valve on the burner can.

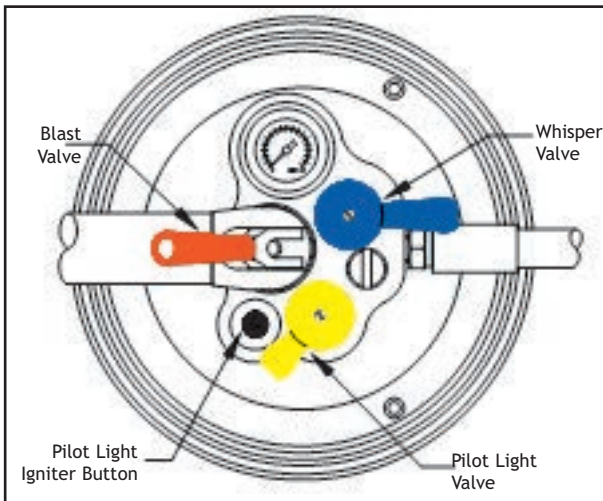
Multiple burners may be fitted with a 'Commercial Liquid Fire' which consists of a separate burner unit fitted with only liquid fuel jets, controlled by a toggle ball valve.

The Magnum burner is available in single, double, triple or quad configurations.



▲ Colt Magnum Burner





#### 8.22.6.3.21 Shadow Plus Burner

The Shadow Plus burner is a Stratus burner manifold block assembly and (modified) handle mated to a Shadow coil and can. Operation is identical to the Stratus burner. The Shadow Plus was manufactured as a double burner only.

#### 8.22.6.3.22 Sirocco Double Burner

The Sirocco burner is available as a double, triple or quad burner.

#### ▲ Sirocco Control Layout

The Sirocco burner has the ability to perform over a wide range of fuel pressures without the use of nitrogen (N<sub>2</sub>) pressurisation, and gives a slim, powerful flame with low radiant heat output.

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. Originally, the Sirocco double burner was produced without the double action handle (Part Number CB2698 or CB2699). All other details are identical to later versions.

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. Burners are not fitted with crossflow valves.

#### 8.22.6.3.23 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.

### 8.22.7 BALLOON MAINTENANCE, HANDLING AND CARE

No change.



▲ Sirocco  
Manifold Block

**8.22.9 EQUIPMENT LIST**
**Table 10: Burners**

<b>Burner Category</b>	<b>Drawing Number</b>	<b>Burner Description</b>
A <sup>1</sup>	CB200	Cameron MKIII, Single (including Load Frame)
A	CB391	MKIV, Single
A	CB2130	Shadow, Single
A	B2-75	Colt C2 Plus, Single
A	B3T-800	Colt C3T Magnum, Single
B <sup>2</sup>	CB205	Cameron MKIII, Double (including Load Frame)
B <sup>2</sup>	CB392	MKIV, Double
B <sup>2</sup>	CB451	MKIV, Double (Alternative)
B <sup>2</sup>	CB460	MKIV, Double, Solenoid
B <sup>2</sup>	CB494	MKIV, Double, Solenoid (Alternative)
B	CB579	MKIV Super, Double
B	CB595	MKIV Super, Double, Solenoid
B	CB2008	Stealth, Double (Rigid Load Frames)
B	CB2031	Stealth, Double (Flexi Load Frames)
B	CB2059	MKV, Double (Rigid Load Frames)
B	CB2064	MKV/Stealth Double
B	CB2075	Shadow, Double (Non-Gimbal)
B	CB2085	Stealth, Double, Solenoid
B	CB2086	Stealth, Double, Solenoid (Flexi Load Frames)
B	CB2101	Shadow/Stealth, Double (Non-Gimbal)
B	CB2111	MKIV Super/Stealth, Double
B	CB2153	Shadow/Stealth, Double, Solenoid (Non-Gimbal)
B	CB2195	Shadow, Double, Solenoid (Non-Gimbal)
B	CB2239	Stealth, Double (Fixed Height Frame)
B	CB2240	Stealth, Double (Adjustable Height Frame)
B	CB2460	Shadow/Stealth, Double (Frame CB2364)
B	CB2461	Shadow, Double (Frame CB2364)
B	CB2465	Shadow/Stealth, Double (Adjustable Height/Offset Frame)
B	CB2466	Shadow, Double (Adjustable Height/Offset Frame)
B	CB2479	Shadow, Double (Heatshield Frame)
B	CB2494	Shadow, Double (Frame CB2364)
B	CB2694	Sirocco, Double (Fixed Height Frame)
B	CB2695	Sirocco, Double (Adjustable Height Frame)
B <sup>2</sup>	B2-100	Colt C2, Double
B <sup>2</sup>	B3-100	Colt C3, Double
B <sup>2</sup>	B3T-100	Colt C3T (Magnum), Double
B	CB2541	Burner Assembly, Shadow Plus, Double
B	CB2542	Burner Assembly, Shadow Plus, Double, Crossflow



**Table 10: Burners (cont'd)**

<b>Burner Category</b>	<b>Drawing Number</b>	<b>Burner Description</b>
C <sup>3</sup>	CB378	MKIV, Triple
C	CB637	MKIV Super, Triple, Large Whisper
C	CB663	MKIV Super, Triple
C	CB2051	Stealth, Triple
C	CB2063	MKV, Triple
C	CB2081	MKIV Super, Triple
C	CB2089	Shadow/Stealth, Triple (2+1), Non-Gimbal
C	CB2095	Shadow/Stealth, Triple (1+2), Non-Gimbal
C	CB2096	MKIV Super, Triple, Solenoid, Non-Gimbal
C	CB2103	MKIV Super/Stealth, Triple (2+1), Non-Gimbal
C	CB2152	MKIV Super/Stealth, Triple (1+2), Non-Gimbal
C	CB2178	MKIV Super/Shadow, Triple (2+1), Non-Gimbal
C <sup>3</sup>	CB2298	Stealth, Triple
C	CB2696	Sirocco, Triple
C	B2-200	Colt C2, Double + Commercial Liquid Fire
C	B2-300	Colt C2, Triple
C	B3-200	Colt C3, Double + Commercial Liquid Fire
C	B3-300	Colt C3, Triple
C	B3T-200	Colt C3T (Magnum), Double + Commercial Liquid Fire
C	B3T-300	Colt C3T (Magnum), Triple (2 Hose)
C	B3T-700	Colt C3T (Magnum), Triple (3 Hose)
D <sup>4</sup>	CB452	MKIV, Quad
D	CB616	MKIV Super, Quad
D <sup>4</sup>	CB2065	Stealth, Quad
D	CB2077	MKV, Quad, Non-gimbal
D	CB2083	Shadow, Quad, Non-Gimbal
D	CB2097	Shadow/Stealth, Quad (2+2), Non-Gimbal
D <sup>4</sup>	CB2104	MKIV Super/Stealth, Quad (3+1)
D <sup>4</sup>	CB2119	MKIV Super/Stealth, Quad (2+2)
D	CB2145	Shadow, Quad, Solenoid, Non-Gimbal
D	CB2171	Shadow/Stealth, Quad (3+1), Solenoid, Non-Gimbal
D <sup>4</sup>	CB2242	Shadow/Stealth, Quad (3+1), Non-Gimbal
D <sup>4</sup>	CB2299	Stealth, Quad
D	CB2697	Sirocco, Quad
D <sup>4</sup>	B2-400	Colt C2, Triple + Commercial Liquid Fire
D <sup>4</sup>	B2-500	Colt C2, Quad
D <sup>4</sup>	B3-400	Colt C3, Triple + Commercial Liquid Fire
D <sup>4</sup>	B3-500	Colt C3, Quad
D <sup>4</sup>	B3T-400	Colt C3T (Magnum), Triple + Commercial Liquid Fire (2 Hose)
D <sup>4</sup>	B3T-500	Colt C3T (Magnum), Quad (2 Hose)
D <sup>4</sup>	B3T-600	Colt C3T (Magnum), Quad (4 Hose)

**Key:**

1. Not to be used with envelopes larger than 90,000 cu.ft.
2. Not to be used with envelopes larger than 180,000 cu.ft.
3. Not to be used with envelopes larger than 300,000 cu.ft.
4. Not to be used with envelopes larger than 400,000 cu.ft.

**Note:**

1. Shadow, Stealth and Shadow/Stealth burners have their pilot light configuration denoted, with the following drawing numbers being appended with -1 for vapour, -2 for liquid or -3 for mixed vapour and liquid.
2. Where burner units are used in combination, the number of burner units of each burner type is given in brackets in the description (e.g. Shadow/Stealth, Triple (1+2) = 1 x Shadow combined with 2 x Stealth burners).