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8.41 SAFIRE BURNER

8.41.1 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 2 of this supplement consists of six pages.

There are no additional continued airworthiness requirements associated with this supplement.

8.41.2 LIMITATIONS

8.41.2.3 FUEL

- When the balloon is fitted with the Safire burner, the minimum fuel pressure is 5.5 Bar (80 psi.)

8.41.2.4 MINIMUM BURNER REQUIREMENTS

| Burner Configuration | Permitted Envelope Volume |
|----------------------|--|
| Single | Not Available |
| Double | 180,000 ft ³ (5 098 m ³) - 315,000 ft ³ (8 920 m ³) |
| Triple | 250,000 ft ³ (7 080 m ³) - 600,000 ft ³ (16 992 m ³) |
| Quad | 315,000 ft ³ (8 920 m ³) - 750,000 ft ³ (21 238 m ³) |

8.41.2.5 FUEL SYSTEM COUPLINGS

The Safire burner requires the use of coupling types and cylinder valves capable of high fuel flow rates. Cylinders must be fitted with Quick Shut-Off (QSO) type of liquid offtake valve, with either Tema 3800 series or BMV CB7900 series 'Hi-Flow' couplings (refer to Fig. 8.41.2). Other types of ACME thread 'Rego' couplings or valves must not be used as they will cause a reduction in burner output, and possibly overheat damage.

8.41.3 EMERGENCY PROCEDURES

8.41.3.10 BURNER FAILURE

Burner Unit Malfunction:

Transfer control to another burner unit.

Note: Output of this unit may be maximised by using the whisper burner in combination with the main blast burner if required.

Shut off the fuel supply to the defective burner unit at the cylinder valve.

Vent fuel from the defective burner unit and supply hose.

Land as soon as possible.

Note: If the blast valve fails in the open position, its flow can be controlled by opening and closing the cylinder valve (liquid offtake).

Crossflow Valve Leak (if fitted):

Close the two blast valves connected by the crossflow valve.

Transfer control to the whisper burners or burners not connected by the crossflow valve.
Land as soon as possible.

Note: Crossflow valve leaks are only evident with the main burner operating. If a fuel leak cannot be controlled, shut off all fuel including the pilot light and brief passengers for a hard landing (Base Manual: Section 3.8).

Note: If the main fuel hoses are removed from the support rod covers they are long enough to reach fuel cylinders at the opposite side of the basket.

Caution: Care should be taken when operating with the fuel hoses outside of the support rod covers, as the liquid fuel pressure can cause the hose to deflect when the blast or whisper valve is operated. This may change the direction of the burner and flame.

8.41.3.11 PILOT LIGHT FAILURE

If a pilot light is extinguished for any reason, it should be relit.

Each burner unit is fitted with a pilot light. All burners will operate with one failed pilot light. The failed pilot light should be turned off and a landing made as soon as possible.

On pairs of burners the crossflow valve, if fitted, should be opened to ensure reliable ignition of both burners from the remaining pilot light. If the pilot light fails on the single unit of a triple burner then control should be maintained on another burner unit.

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

1. Shut off all fuel supplies at the cylinder valve.
2. Fully open one whisper burner valve.
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 whisper burner with a match or other igniter.

WARNING: Do not use the igniter built into the burner, as it will not ignite the fuel

5. Fully open the fuel supply to the burner, using the cylinder liquid offtake valve to control the flight of the balloon.
6. Partially close the cylinder liquid offtake valve to a fractional setting, regulating the burner to maintain a pilot setting.
7. Land as soon as possible.

Note: Do not leave one cylinder providing the pilot setting, with main fuel taken from another, because prolonged restricted flow of liquid will cause freezing of the valves.

8.41.4 NORMAL PROCEDURES

8.41.4.10 FUEL PRESSURISATION

When using the Safire Burner the maximum recommended pressure for nitrogen pressurisation is 7 Bar (100 psi).

8.41.5 WEIGHT CALCULATIONS

No change.

8.41.6 BALLOON AND SYSTEMS DESCRIPTION

8.41.6.3 BURNER

8.41.6.3.9 Safire Burner

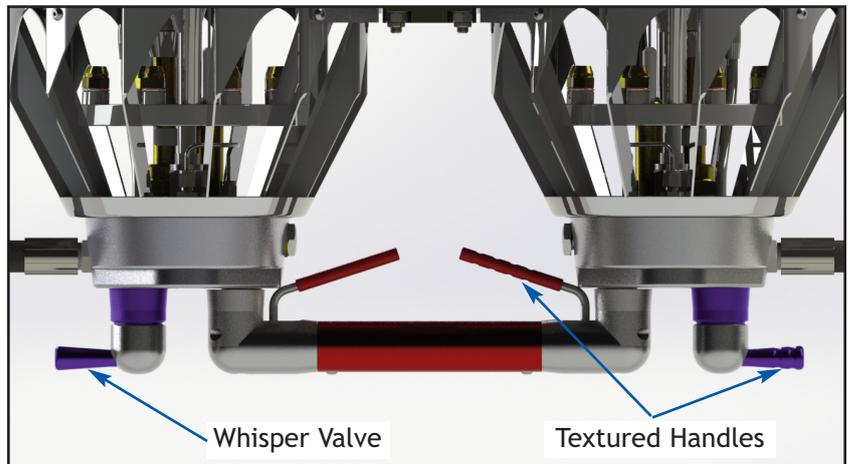
The Safire Burner is available as a double, triple or quad burner.

The main burners are fitted with squeeze action blast valves which are operated by squeezing the control lever towards the hand grip. The blast valve handles are arranged so that pairs of burners may be operated simultaneously with one hand.

The Whisper valve and pilot valve are operated by rotary action handles.

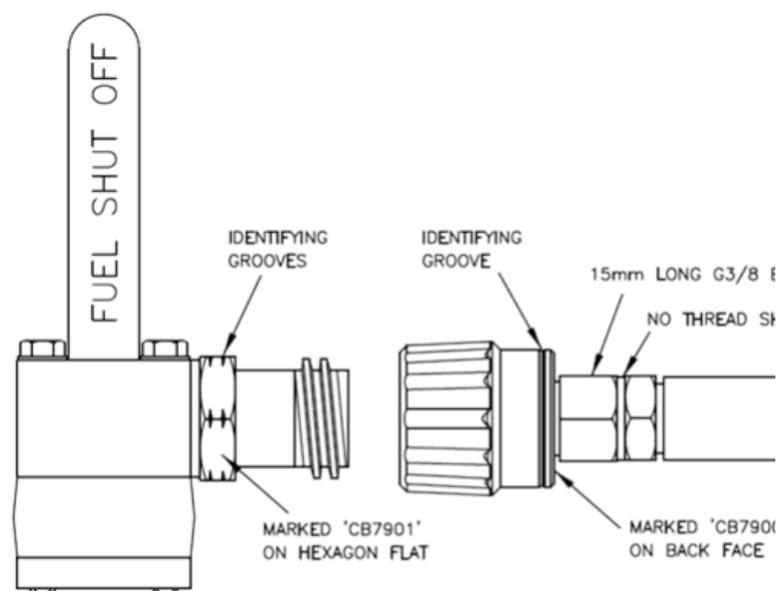
The right hand blast and whisper valve handles are textured to allow the pilot to differentiate between left and right burners

The Safire burner is fitted with a liquid pilot light. A vapour pilot light is available as an option. Both types of pilot lights are fitted with filters which require periodic cleaning.



▲ Fig. 8.41.1 Safire Double Burner Assembly

8.41.6.3.10 'HI-FLOW' COUPLING



▲ Fig. 8.41.2 "Hi-Flow" Coupling Identification

8.41.7 BALLOON MAINTENANCE, HANDLING AND CARE

No change.

8.41.9 EQUIPMENT LIST**8.41.9.2 EQUIPMENT LIST****Table 8: Burners (additional)**

| Burner Category | Part No. | Burner Model |
|-----------------|----------|--------------------------------|
| C | CB4002 | Safire, Double Burner Assembly |
| D | CB4003 | Safire, Triple Burner Assembly |
| D | CB4004 | Safire, Quad Burner Assembly |

WARNING: * Refer to limitations for permitted envelope volume combinations.

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