

## **CAMERON BALLOONS LTD (SKY BALLOONS)**

### **SERVICE BULLETIN: SB10**

**Subject:** Sky Balloons Mk1 & Mk2 (Mistral) Burner

**Title:** Replacement of valve stems in the main blast, liquid fire and pilot light valves.

**Parts affected:** 3 valve stems per valve block in Sky Balloons Burners with serial numbers: 001 to 098, 100 to 101.  
(The serial number is engraved on the mounting bracket between the cans of the burner unit)

**Reason for Modification:** To ensure prevention of a serious external fuel leak in the event of mechanical failure of the stem/seat pinned joint

**Modification Classification:** This Service Bulletin has been declared mandatory by the UK Civil Aviation Authority

**Compliance:** Within the next 20 flying hours or within 12 months whichever is the sooner.

**Possible Consequence of Non-compliance:** Serious external fuel leak vertically downwards from the underside of the burner unit during flight

**Accomplishment Instructions.** Complete the replacement procedure of section A (Mk1 burner) or section A & B (Mk 2 'Mistral' burner) on each affected Valve Block.  
Complete section C on each affected Burner/Balloon

**If in doubt please contact the factory:**

**Cameron Balloons Ltd (Sky Balloons)  
St John's Street  
Bedminster  
Bristol  
BS3 4NH**

**Tel +44 (0)117 9637216  
Fax +44 (0)117 9661168**

## **BACKGROUND INFORMATION**

The Sky Mk1 and Mk2 (Mistral) burner can be damaged if dropped, or placed heavily on the ground, on the handle of the Liquid Fire valve. This action can cause damage to the valve stem and/or roll-pin joining the stem to the valve seat. Embodiment of the modification action of this bulletin makes the valve 'fail-safe' in the event of such damage. However careless handling of the burner during the rigging and de-rigging of the balloon should still be avoided.

Tools Required:     **32mm (1.25") A/F ring spanner**  
                          **Circlip Pliers**  
                          **2.5mm A/F Hexagon wrench (Mk2 burner only)**  
                          **15mm A/F open ended spanner (Mk2 burner only)**  
                          **3mm diameter flat ended punch**  
                          **Mallet**

Materials Required: **KSP 125 Burner Valve Lubricant**

Parts to be changed:

PRE-MOD S020



Main, Whisper & Mk1 Pilot stem  
Part No. A4/BR1/2000/012



Mk2 Pilot stem  
Part No. A4/BR2/2000/006

Pivot Pin Circlips  
Roll-pins  
2 x Rubber sealing rings per stem

POST-MOD S020



Main, Whisper & Mk1 Pilot stem  
Part No. CB6425



Mk2 Pilot stem  
Part No. CB6426

new Pivot Pin Circlips  
new Roll-pin  
2 x O-ring P/N BS1806-008 per stem

**REMOVE AND DISCARD**

**FIT AS REPLACEMENT**

## **GENERAL PROCEDURE**

The maintenance actions of this bulletin must be carried out by a Ballooning equipment repair station approved by the local Aviation Authority. Alternatively in the UK the work may be carried out by an engineer experienced in ballooning equipment maintenance, under the observation of a BBAC approved inspector.

1. Before carrying out any disassembly on the burner ensure all pressure is vented from the burner and that the burner is disconnected from any fuel supply.
2. Ensure the burner is well supported before applying force to unscrew components.
3. Ensure all parts are kept clean during disassembly and reassembly. Ensure dirt or debris does not enter the valve block when valves are removed.
4. When the replacement is completed carry out a pressure test on the burner. Check carefully at each valve for any sign of a leak at the valve stem or around the valve housing. If any leak is observed it must be prevented by fitting new seals.
5. Check each valve for correct functioning.

**SECTION A MAIN BLAST VALVE, LIQUID FIRE VALVE & Mk1 PILOT VALVE**  
(refer to Diagram 1)

STAGE 1

Using a pair of Circlip Pliers carefully remove the small circlip from the end of the valve handle Pivot Pin. Remove the Pivot Pin and the Valve Handle.

STAGE 2

Using a 32mm spanner and taking care not to scratch the face of the valve block, loosen the Valve Bonnet. This may require some force and tapping the spanner with a mallet may be necessary. Unscrew the valve from the valve block.

STAGE 3

Carefully withdraw the valve stem assembly from the valve bonnet. Using a 3mm punch and mallet, drive out the roll pin joining the valve stem and seat. Check that the rubber seal pad on the end of the seat is in good condition. Renew if required.

STAGE 4

If they are not already fitted, fit the two rubber o-rings onto the new valve stem taking care not to damage them. Insert the end of the new valve stem nearest to the shoulder into the valve seat and turn until the holes are aligned. Drive the new roll pin into the hole to join the two parts, ensure that the ends of the roll pin are below flush on both sides of the seat.

#### STAGE 5

Apply some KSP 125 grease to the two o-ring seals and also the section of the new valve stem between the two seals. Refit the valve spring behind the seat, and carefully insert the new stem assembly into the valve bonnet taking care not to damage the o-ring seals.

#### STAGE 6

Ensure the bonded seal is in position on the face of the valve block. Screw the valve assembly back into the valve block and tighten (35-45 Nm).

#### STAGE 7

Refit the Valve Handle, ensuring that the nylon wear pad is still in position on the end of the valve bonnet. Refit the pivot pin. Carefully fit a new circlip to secure the pin.

#### STAGE 8

Repeat the procedure of stages 1 to 7 for each valve in turn.

### **SECTION B Mk2 'MISTRAL' PILOT VALVE** (refer to Diagram 2)

#### STAGE 1

Using a pair of Circlip Pliers carefully remove the small circlip from the end of the Handle retaining pin. Remove the Handle retaining pin and the Valve Handle.

#### STAGE 2

Using a 2.5mm Hexagon wrench remove the two Stop plate retaining bolts securing the pilot valve handle stop plate. Remove the stop plate from the valve bonnet.

#### STAGE 3

Using a 15mm spanner loosen the pilot valve bonnet. This may require some force and tapping the spanner with a mallet may be necessary. Unscrew the valve from the valve block.

#### STAGE 4

Carefully withdraw the valve stem assembly from the valve bonnet. Using a 3mm punch and mallet, drive out the roll pin joining the valve stem and seat. Check that the rubber seal pad on the end of the seat is in good condition. Renew if required.

## STAGE 5

If not already fitted, fit the two rubber o-rings onto the new valve stem taking care not to damage them. Insert the end of the new valve stem nearest to the shoulder into the valve seat and turn until the holes are aligned. Drive the new roll pin into the hole to join the two parts, ensure that the ends of the roll pin are below flush on both sides of the seat.

## STAGE 6

Apply some KSP 125 grease to the two o-ring seals and also to the section of the new valve stem between the two o-ring seals. Refit the valve spring behind the seat, and carefully insert the new stem assembly into the valve bonnet taking care not to damage the o-ring seals.

## STAGE 7

Ensure the bonded seal is in position on the face of the valve block. Screw the valve assembly back into the valve block and tighten (35-45 Nm).

## STAGE 8

Refit the stop plate and secure with the two bolts. Refit the Valve Handle, Refit the Handle retaining pin. Carefully fit a new circlip to secure the pin.

## STAGE 9

Repeat the procedure of stages 1 to 8 for each pilot valve in turn.

## **SECTION C ALL BURNERS**

On completion of the Valve stem replacements in all valve blocks of the burner, and successful pressure/functional test, record the embodiment of Mod S020 / SB10 in the balloon log book. Engrave adjacent to the burner serial number 'SB10' and the date of embodiment. Please also complete the Compliance Record Sheet stating burner serial number with date of embodiment of mod S020 and return to Cameron Balloons Ltd (Sky Balloons).

## **SECTION D MODIFICATION KIT AVAILABILITY**

Modification kits containing the parts required to retrofit the burner in accordance with SB10 (mod S020) are available from Cameron Balloons Ltd. Ordering numbers for the kits are as follows:-

### **P/N CB6431-0000 Sky Mk1 Burner Valve Block mod kit S020**

3 x CB6425-0000 Valve Stem

6 x BS1806-008 O-Ring seal

3 x CLDP3x12MDK Roll-pin

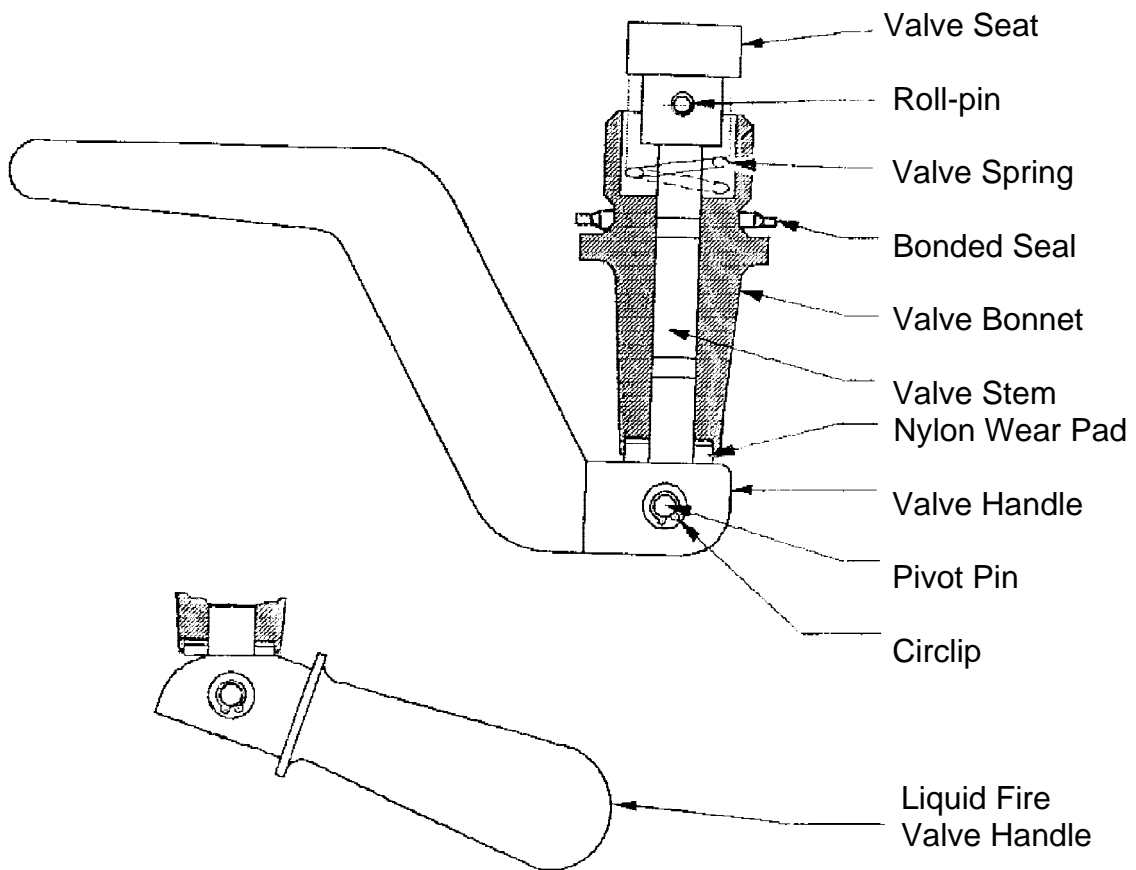
3 x 4mm External Circlip

(enough for ONE valve block)

**P/N CB6427-0000 Sky Mk2 (Mistral) Burner Valve Block mod kit S020**

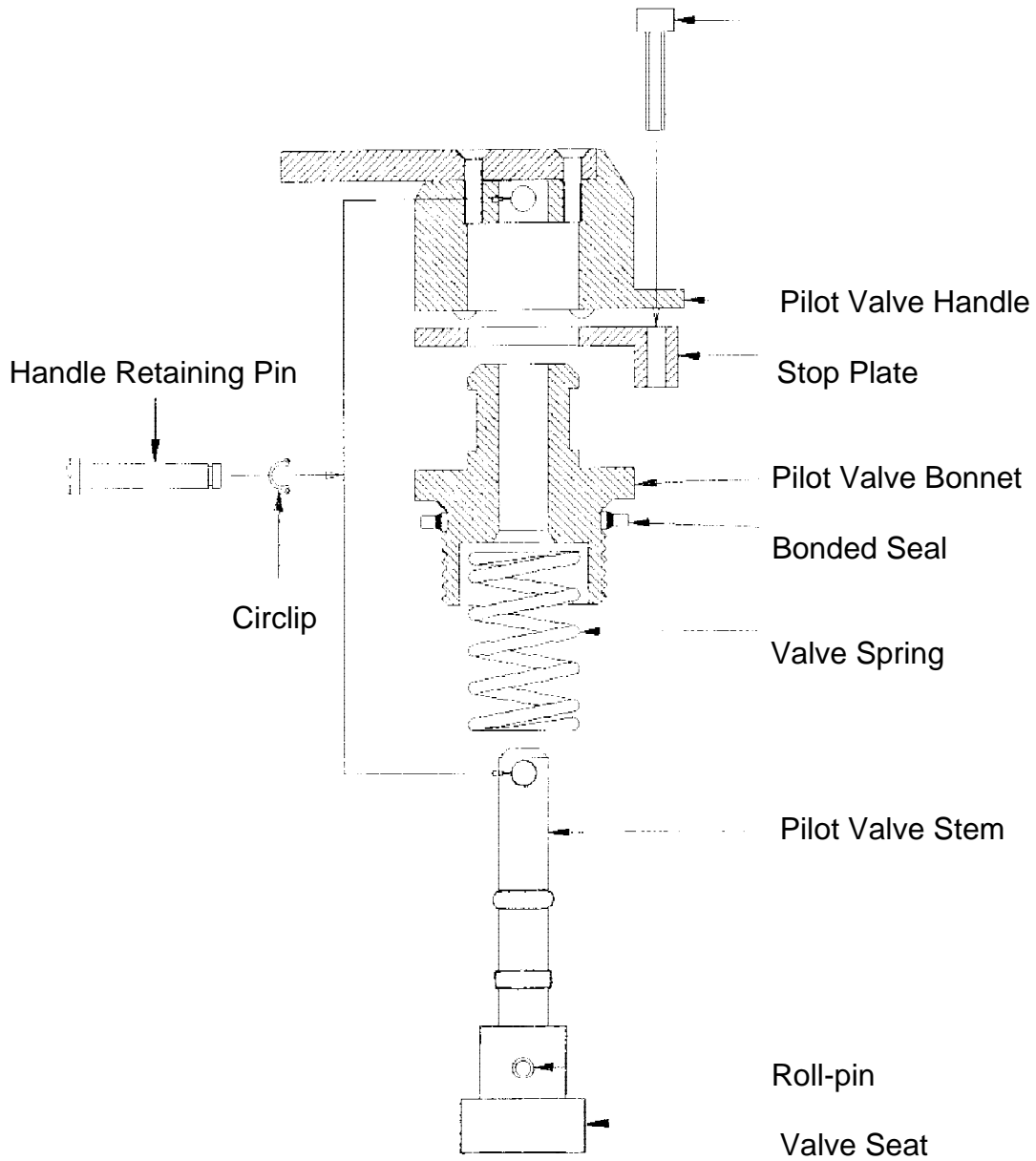
- 2 x CB6425-0000 Main Valve Stem
- 1 x CB6426-0000 Pilot Valve Stem
- 6 x BS1806-008 O-Ring seal
- 3 x CLDP3x12MDK Roll-pin
- 3 x 4mm External Circlip (enough for ONE valve block)

**CU0000-0010 KSP 125 Burner valve lubricant - 50ml tube**



**DIAGRAM 1 MAIN VALVE ARRANGEMENT**

(Mk2 illustrated, Mk1 arrangement similar)



**DIAGRAM 2 Mk2 PILOT VALVE**

**COMPLIANCE RECORD SHEET**

**BURNER SERIAL NUMBER:.....**

**BURNER PART NUMBER:.....**

**BURNER OPERATOR:**

**SERVICE ORGANISATION COMPLETING MODIFICATION:**

**DATE OF EMBODIMENT Mod S020/Service Bulletin SB10:.....**

**BURNER TEST AFTER MODIFICATION SATISFACTORY:.....**

**BURNER ENGRAVED 'SB10' :.....**

**SIGNED:**

**PRINT NAME:**

**DATE:**

**Please return to: Cameron Balloons Ltd (Sky Balloons)  
St John's Street  
Bedminster  
BRISTOL BS3 4NH  
UNITED KINGDOM**

**Fax 0044 (0) 117 9661168**