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Civil Aviation Safety Authority

AIRWORTHINESS BULLETIN

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Kavanagh Balloons Burner Systems - Maintenance Advice

An Airworthiness Bulletin is an advisory document that alerts, educates and makes recommendations about airworthiness matters. Recommendations in this bulletin are not mandatory.

1. Effectivity

Kavanagh Balloons.

2. Purpose

This AWB is issued to make operators aware of precautionary maintenance measures regarding Kavanagh Balloons' burners.

3. Inspection of Pressure Gauges

Perform an external inspection of all pressure gauges for signs of external damage including deformed, cracked or damaged casing and missing or damaged lenses.

Check the operation of each pressure gauge as follows:

1. Remove all pressure from the burner fuel line and check the gauge reads zero.
2. Apply fuel pressure from a tank and check the pressure reading at the gauge is in the expected and normal range.
3. Remove all pressure from the burner and check the gauge returns to zero.

Any defects are cause for rejection and the gauge must be replaced before further flight. If no defects are found, record in the Aircraft Logbook and on the Burner component card that the pressure gauge inspection and functional check has been carried out with no defects found. There are no user serviceable parts in the gauge.

This inspection is not a calibration check of the gauge, so a calibrated pressure source or comparison readings are not required.

If the pressure gauge reading appears abnormal, cross check it against other pressure gauges in the burner using the same fuel supply and reject if unsure.

Older KBS3 burners may have a plastic body version of the KP4503 pressure gauge. These are safe to remain in service provided they pass inspection.

Replacement KP4503 gauges for the KBS3 burner have a stainless-steel body and glass lens however the internal pressure sensing mechanism is the same as earlier gauges.

KBS4 Crossfire burner pressure gauge is housed in the valve block and does not require removal for this inspection. External inspection is limited to the gauge lens and operation.

4. Fuel System Pressurisation

Review the limitations for system fuel pressure set out in paragraph 2.7 of the Kavanagh Balloons Flight Manual.

If fuel pressure is artificially raised by use of Nitrogen or CO2, review the procedures set out in the Kavanagh Balloons AFM section 8.5.

If alternative methods of pressurisation such as heater pads are approved by other engineering orders approved under CASR Part 21, the process must check maximum operating pressure for the burner is not exceeded. The maximum operating pressure for the KBS3 single, double, triple and quad is 218PSI. The KBS4 double, triple and quad has a maximum operating pressure of 180PSI.

Best performance is achieved around 120PSI for the KBS3 and nearer to 100PSI for the KBS4 KP6013 burner. Above these pressures incomplete combustion and excessive water production will result.

WARNING: Pressurisation of the fuel gauge beyond the maximum reading may cause catastrophic failure of the pressure gauge.

Liquid outlets that have quick shutoff valves (QSOV) that have a ¼ turn or 90° are recommended.

5. Check of Stem Seal

The quick shutoff valve assembly is a 90° action ball valve which will over time wear the stem seal see Figure 1. If the stem seal is not correctly adjusted, then a small gas leak may manifest at the stem and may catch on fire.

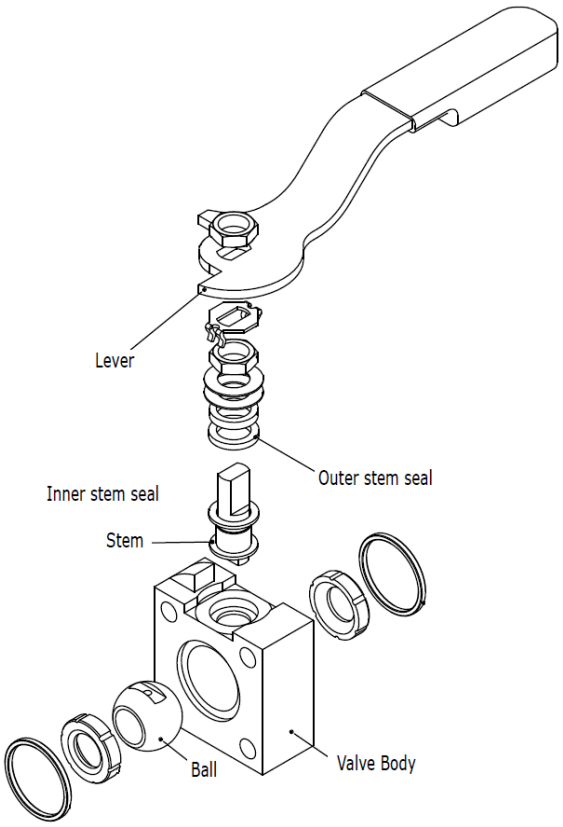

Figure 1 – Stem Seal

Adjustment of the stem seal is detailed in the MM section 4.6.4.1.

A small stem seal fire like this is typically extinguished by:

a) isolating the fuel supply at the tank and

b) then opening the valve to reduce pressure on the stem seal.

6. Liquid Fire Valve – Series 3 Burner

Check condition of liquid fire valve operation. This valve has no user serviceable parts. MM has procedures in 4.6.4.1 for tightening stem on the liquid fire valve.

7. Mishandling of Components

CASA has received reports from possible mishandling during ground operations due to:

- Foreign debris obstruction in threads causing sheared bolts.
- Cracks in burner coils which can include hairline cracks requiring magnification to observe.
- Worn basket suspension cables which may require replacement.
- Cracks in fuel tanks refer AD/BAL/3 Amdt 5.
- Leaks in blast valves by old or missing thread sealant.

8. Review of Emergency Procedures

Pilots and organisations should conduct a review of all emergency procedures including in-flight fire and burner malfunctions. Operators should focus on well-rehearsed and appropriate procedures ensuring the sequence for fuel isolation, cross feed valve position and isolation of fuel supply. Refer to the Kavanagh Balloons Flight Manual section 3. Brief passengers accordingly during any emergency procedures.

Isolation of the fuel supply at the fuel tank is the number one priority. Both the liquid and vapour valves must be closed on any tanks connected to the burner with a leak or malfunction before any effective firefighting methods can be performed.

The operator should remain aware of the position of the crossflow valve at all times.

Removal of residual fuel pressure from the burner is generally achieved by the actual leak but can be accelerated by activation of the main or liquid valve on the affected burner if it is safe to do so. Refer to the Kavanagh Balloons Flight Manual section 3.

Pilots and organisations are reminded that the minimum industry standard for protective clothing includes fire resistant gloves and clothing made from fire resistant material such as a long sleeve cotton shirt.

The correct clothing and protective equipment will enable a pilot to immediately and effectively deal with any fire risk. Sturdy enclosed foot wear is recommended.

Fire blankets of a size of at least 1.5m x 2m are recommended. Smaller sizes are not recommended as they cannot sufficiently cover the source of developing propane fire.

Dry Powder fire extinguisher with a minimum capacity of 2 kg is recommended, or when the extinguishing means is other than dry powder be at least of comparable effect and capacity.

9. Recommendations

Operators should follow procedures specified in Kavanagh maintenance manual and flight manual.

Alternatively, if engineering orders have been used then the information in these orders apply in addition to those specified by Kavanagh Balloons.

10. Reporting

Report any defects of burner system components to Kavanagh Balloons and CASA Defect Reporting Service (DRS).

Report any defects related to engineering orders to holder of the engineering order and aircraft.certification@casa.gov.au.

For further information on how to report defects refer to AWB 00-004.

11. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link email address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

Airworthiness & Engineering Branch
Civil Aviation Safety Authority
GPO Box 2005, Canberra, ACT, 2601