Service Instruction

CAMERON BALLOONS

1. General

(a) No.:	11
(b) Revision / Date	A / February 2017
(b)Title:	Burner Pressure Gauge Replacement
(c)Description:	Procedures for replacement of defective Pressure gauges within Shadow, Stealth, Stratus and Safire Burners
(d)Applicability:	All Shadow, Stealth, Stratus and Safire Burners
(e)Effectivity:	All applicable CN's

Note: Applicability= All types and variants to which the change can be applied.
Effectivity= Actual CN or group of CN's to which the bulletin has been/will be applied.

2. Accomplishment Instructions

Ref: **CBL/TN/PJ/2994 'Pressure Gauge Replacement Procedures'** at latest issue

3. Materials - Pressure gauges (and gasket) as listed in Ref CBL/TN/PJ/2994

4. Other Publications Affected - None

5. Remarks -

Compiled by: ..... P Johnson

Date: 01-02-2017 | Name: Peter Johnson

Notes:

6. Design Organisation Approval

Approval Statement

I hereby confirm that these instructions are in compliance with all the applicable airworthiness requirements. The technical content of this document is approved under the authority of DOA nr EASA.21J.140

Signed, for and on behalf of Cameron Balloons Ltd.

PP .....

Head of Design

Cameron Balloons Ltd 2 B.E. Bower

Date: 01-02-2017 | Name:

Pressure Gauge Replacement Procedures

0 Introduction

These instructions detail the procedures for replacement of defective Pressure Gauges within the Cameron Balloons Ltd range of burner models. (see figures 1 to 4).

0.1 Compliance Information

These maintenance actions follow the original manufacturing assembly methods and restores the burner pressure gauge to full function at the original build standards.

Figure 1. Shadow Single pressure gauge installation

Figure 2. Shadow/Stealth Double/Triple/Quad gauge installation

Figure 3. Stratus pressure gauge connection / installation (LH can)

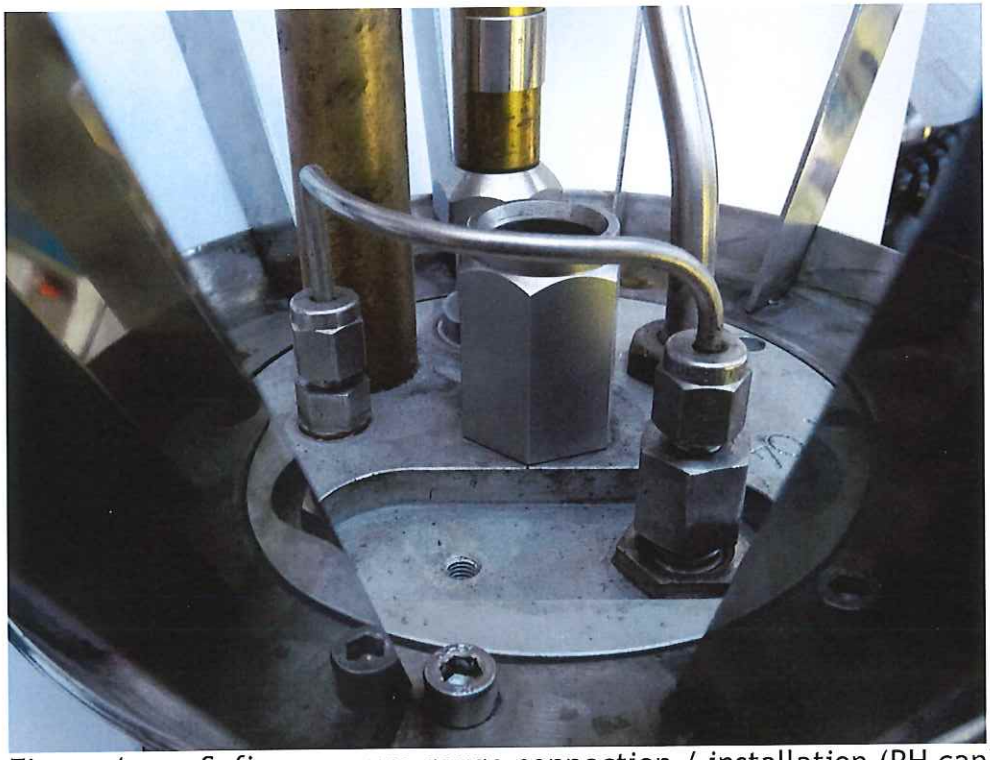

Figure 4. Safire pressure gauge connection / installation (RH can)

Important:

Warning: Care must be taken not to allow any debris or contamination to enter the fuel system at any stage.

0.2 Applicability

Pressure Gauge replacement procedures are detailed for the following CBL burner models:

- Shadow Single and Mini Burner
- Shadow / Stealth Double/Triple/Quad Burner
- Stratus Burner (all versions)
- Safire Burner (all versions)

For the Sirocco Burner reference should be made to Section 4.8 of the Sirocco Burner Overhaul Manual.

1 Accomplishment Instructions

1.1 Shadow Single and Mini Burner

1.1.1 Preparation for Disassembly

1. Tools / Materials required:

   14mm A/F Open Ended Spanner

   PTFE thread sealing tape

   New CB2130 Pressure Gauge
2. Clean the region of the pressure gauge to remove dirt and debris.
3. Ensure the burner is NOT connected to a fuel supply.
4. Operate the main blast valves to vent all pressure from within the burner.

1.1.2 Disassembly

1. Remove the Manifold Block from the burner in accordance with the procedure of the Maintenance Manual. (this may be unnecessary on the Mini burner)
2. Using the Open Ended Spanner, and applying force in an anti-clockwise direction, un-screw the defective Pressure Gauge and discard.

1.1.3 Preparation of the Burner Manifold Block

1. Carefully remove any remaining PTFE sealing tape from the Manifold screw thread.

1.1.4 Preparation of the new Pressure Gauge

1. Using the PTFE thread sealing tape apply at least 8 wraps of tape to the screw thread of the Pressure Gauge. Ensure the tape does not overhang the end of the thread.

1.1.5 Fitting the new Pressure Gauge

1. Fit the new Pressure Gauge into the Manifold Block port and hand tighten in a clockwise direction.
2. Using the Open Ended Spanner finally tighten the gauge until the dial face is in the correct orientation. Note - this must only be done by further tightening in a clockwise direction, never by slightly unscrewing the gauge.
3. Re-fit the Manifold Block to the burner in accordance with the Maintenance Manual procedure.

1.1.6 Leak testing the newly installed Pressure Gauge

1. Connect the appropriate fuel system to a fuel supply.
2. Slowly open the fuel valve to allow pressure into the manifold whilst looking and listening for any fuel leakage where the Pressure Gauge thread fits into the Manifold.

NOTE: If any leakage is suspected the fuel valve must be closed, the pressure vented, and the cause of the leakage investigated and rectified.

3. Using suitable leak-detector liquid check that there is no minor leakage where the gauge fits into the Manifold. Check also that the new Pressure Gauge correctly displays the fuel pressure. If these checks are satisfactory the burner may be returned to service.
4. Close the fuel valve and operate the main burner valve to vent any trapped pressure.

1.1.7 Recording of maintenance actions

1. Record the Manifold Block serial number and Pressure Gauge replacement action [Ref CBL SI11] (with date) in the appropriate log book or equipment record card.

1.2 Shadow / Stealth Double/Triple/Quad Burner

1.2.1 Preparation for Disassembly

1. Tools / Materials required:

   11mm/ 7/16" A/F Open Ended Spanner

   14mm A/F Open Ended Spanner

   Medium size Flat Blade Screwdriver

   PTFE thread sealing tape

   Loctite 243 medium-strength thread-locking compound

   New CU2948-5000 Pressure Gauge with retaining bracket

   New CU2948-5001 Gauge Gasket
2. Clean the region of the pressure gauge to remove dirt and debris.
3. Ensure the burner is NOT connected to a fuel supply.
4. Operate the main blast valves to vent all pressure from within the burner.

1.2.2 Disassembly

1. Using the 11mm/ 7/16" Open Ended Spanner, and applying force in an anti-clockwise direction, un-screw the hexagon fittings at both ends of the small pipe connecting to the Pressure Gauge. Remove and retain the pipe assembly.
2. Using the Screwdriver loosen the two long screws in the Gauge retaining bracket.
3. Twist the Gauge retaining bracket anti-clockwise to release the Pressure Gauge.
4. Remove the defective Pressure Gauge and gasket from the base of the burner can.
5. Remove the Gauge retaining bracket from within the burner can.

1.2.3 Preparation of the parts for re-assembly

1. Note or photograph the orientation of the Elbow Fitting on the back of the Pressure Gauge relative to the gauge dial markings - (It will be necessary to set this Elbow Fitting to the same position on the new Pressure Gauge)
2. Remove the Elbow Fitting from the back of the defective Pressure Gauge. Retain the Elbow Fitting and discard the Gauge and Gasket.
3. Remove any loose PTFE tape from within the internal thread of the Elbow Fitting.
4. Apply a minimum of 8 wraps of PTFE tape to the thread at the back of the new Pressure Gauge.

5. Fit the Elbow Fitting onto the Pressure Gauge and tighten clockwise. Fully tighten to set the Elbow at the same orientation as recorded at stage (1) of this section.
6. Apply a small amount of medium-strength thread-locking compound to the threads of the two screws of the Gauge retaining bracket close to where they engage the bracket.

1.2.4 Fitting the new Pressure Gauge

1. Fit the new Gauge Gasket onto the Pressure Gauge.
2. Fit the new Pressure Gauge into the base of the burner can ensuring the orientation of the gauge dial is correct.
3. Fit the Gauge retaining bracket within the Can and attach it to the Pressure Gauge.
4. Using the Screwdriver, tighten the two screws of the Gauge retaining bracket to medium tightness, ensuring that the thread-locking compound will secure the screws when it cures.

1.2.5 Re-fitting the Pressure Gauge pipe connection

1. Re-fit the small pipe assembly and tighten the hexagon nuts at both ends in a clockwise direction until finger tight.
2. Using the 11mm / 7/16" Open Ended Spanner tighten the two hexagon nuts by a further 3/4 of a turn.

NOTE: This amount of tightening should produce a secure sealed joint. Any further over-tightening beyond this amount may be the cause of leakage and/or permanent damage to the small pipe assembly.

1.2.6 Leak testing the newly installed Pressure Gauge

1. Connect the appropriate fuel system to a fuel supply.
2. Slowly open the fuel valve to allow pressure into the manifold whilst looking and listening for any fuel leakage at the Pressure Gauge pipe connections.

NOTE: If any leakage is suspected the fuel valve must be closed, the pressure vented, and the cause of the leakage investigated and rectified.

3. Using suitable leak-detector liquid check that there is no minor leakage at either end of the pipe connections. Check also that the new Pressure Gauge correctly

displays the fuel pressure. If these checks are satisfactory the burner may be returned to service.

4. Close the fuel valve and operate the main burner valve to vent any trapped pressure.

1.2.7 Recording of maintenance actions

1. Record the Manifold Block serial number and Pressure Gauge replacement action [Ref CBL SI11] (with date) in the appropriate log book or equipment record card.

1.3 Stratus Burner (all versions)

1.3.1 Preparation for Disassembly

1. Tools / Materials required:
   11mm/ 7/16" A/F Open Ended Spanner
   9/16" A/F Open Ended Spanner
   17mm/ 11/16" A/F socket with extension bar & wrench
   New CB8590 Pressure Gauge
   Loctite 572 thread sealant (or equivalent)
2. Clean the region of the pressure gauge to remove dirt and debris.
3. Ensure the burner is NOT connected to a fuel supply.
4. Operate the main blast valves to vent all pressure from within the burner.

1.3.2 Disassembly

1. Using the 11mm/ 7/16" Open Ended Spanner, and applying force in an anti-clockwise direction, un-screw the hexagon fittings at both ends of the small pipe connecting to the Pressure Gauge. Remove and retain the pipe assembly.
2. Using the 9/16" Open Ended Spanner, and applying force in an anticlockwise direction, un-screw the hexagon fitting on the back of the Pressure Gauge and retain.
3. Using the 17mm/ 11/16" socket, and applying force in an anticlockwise direction, un-screw the retaining nut on the back of the Pressure Gauge and retain.

4. Drop the defective Pressure Gauge out of the location chamber in the Manifold Block and discard.

1.3.3 Preparation of the parts for re-assembly

7. Remove any loose sealant from around the retaining nut location of the Manifold Block.
8. Remove and loose sealant from within the internal thread of the Hexagon Fitting.
9. Check that the small pipe assembly is free of debris or blockage.

1.3.4 Fitting the new Pressure Gauge

5. Fit the new Pressure Gauge into the Manifold Block chamber ensuring the orientation of the gauge dial is correct.
6. Apply a small amount of Loctite 572 sealant to the thread and face of the gauge retaining nut, then screw the nut onto the back of the gauge taking care to avoid any sealant entering the gauge pressure port.
7. Using the 17mm / 11/16" socket, tighten the gauge retaining screw to medium tightness to securely hold the gauge within the Manifold Block.

1.3.5 Re-fitting the Pressure Gauge pipe connection

3. Apply a small amount of Loctite 572 sealant to the thread at the back of the Pressure Gauge, then screw the Hexagon Fitting onto the gauge and securely tighten with the 9/16" Open Ended Spanner.
4. Re-fit the small pipe assembly and tighten the hexagon nuts at both ends in a clockwise direction until finger tight.
5. Using the 11mm / 7/16" Open Ended Spanner tighten the two hexagon nuts by a further 3/4 of a turn.

NOTE: This amount of tightening should produce a secure sealed joint. Any further over-tightening beyond this amount may be the cause of leakage and/or permanent damage to the small pipe assembly.

1.3.6 Leak testing the newly installed Pressure Gauge

5. Connect the appropriate fuel system to a fuel supply.
6. Slowly open the fuel valve to allow pressure into the manifold whilst looking and listening for any fuel leakage at the Pressure Gauge pipe connections.

NOTE: If any leakage is suspected the fuel valve must be closed, the pressure vented, and the cause of the leakage investigated and rectified.

7. Using suitable leak-detector liquid check that there is no minor leakage at either end of the pipe connections. Check also that the new Pressure Gauge correctly displays the fuel pressure. If these checks are satisfactory the burner may be returned to service.
8. Close the fuel valve and operate the main burner valve to vent any trapped pressure.

1.3.7 Recording of maintenance actions

2. Record the Manifold Block serial number and Pressure Gauge replacement action [Ref CBL SI11] (with date) in the appropriate log book or equipment record card.

1.4 Safire Burner (all versions)

1.4.1 Preparation for Disassembly

1. Tools / Materials required:
   11mm/ 7/16" A/F Open Ended Spanner
   9/16" A/F Open Ended Spanner
   17mm/ 11/16" A/F socket with extension bar & wrench
   New CB8590 Pressure Gauge
   Loctite 572 thread sealant (or equivalent)
2. Clean the region of the pressure gauge to remove dirt and debris.
3. Ensure the burner is NOT connected to a fuel supply.
4. Operate the main blast valves to vent all pressure from within the burner.

1.4.2 Disassembly

1. Using the 11mm/ 7/16" Open Ended Spanner, and applying force in an anti-clockwise direction, un-screw the hexagon fittings at both ends of the small pipe connecting to the Pressure Gauge. Remove and retain the pipe assembly.
2. Using the 9/16" Open Ended Spanner, and applying force in an anticlockwise direction, un-screw the hexagon fitting on the back of the Pressure Gauge and retain.

3. Using the 17mm/ 11/16" socket, and applying force in an anticlockwise direction, un-screw the retaining nut on the back of the Pressure Gauge and retain.
4. Drop the defective Pressure Gauge out of the location chamber in the Manifold Block and discard.

1.4.3 Preparation of the parts for re-assembly

1. Remove any loose sealant from around the retaining nut location of the Manifold Block.
2. Remove and loose sealant from within the internal thread of the Hexagon Fitting.
3. Check that the small pipe assembly is free of debris or blockage.

1.4.4 Fitting the new Pressure Gauge

1. Fit the new Pressure Gauge into the Manifold Block chamber ensuring the orientation of the gauge dial is correct.
2. Apply a small amount of Loctite 572 sealant to the thread and face of the gauge retaining nut, then screw the nut onto the back of the gauge taking care to avoid any sealant entering the gauge pressure port.
3. Using the 17mm / 11/16" socket, tighten the gauge retaining screw to medium tightness to securely hold the gauge within the Manifold Block.

1.4.5 Re-fitting the Pressure Gauge pipe connection

1. Apply a small amount of Loctite 572 sealant to the thread at the back of the Pressure Gauge, then screw the Hexagon Fitting onto the gauge and securely tighten with the 9/16" Open Ended Spanner.
2. Re-fit the small pipe assembly and tighten the hexagon nuts at both ends in a clockwise direction until finger tight.
3. Using the 11mm / 7/16" Open Ended Spanner tighten the two hexagon nuts by a further 3/4 of a turn.

NOTE: This amount of tightening should produce a secure sealed joint. Any further over-tightening beyond this amount may be the cause of leakage and/or permanent damage to the small pipe assembly.

1.4.6 Leak testing the newly installed Pressure Gauge

1. Connect the appropriate fuel system to a fuel supply.
2. Slowly open the fuel valve to allow pressure into the manifold whilst looking and listening for any fuel leakage at the Pressure Gauge pipe connections.

NOTE: If any leakage is suspected the fuel valve must be closed, the pressure vented, and the cause of the leakage investigated and rectified.

3. Using suitable leak-detector liquid check that there is no minor leakage at either end of the pipe connections. Check also that the new Pressure Gauge correctly displays the fuel pressure. If these checks are satisfactory the burner may be returned to service.
4. Close the fuel valve and operate the main burner valve to vent any trapped pressure.

1.4.7 Recording of maintenance actions

1. Record the Manifold Block serial number and Pressure Gauge replacement action [Ref CBL SI11] (with date) in the appropriate log book or equipment record card.

Compiled P Johnson

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