

# LINDSTRAND BALLOONS LTD

## SERVICE BULLETIN NO. 2

ISSUE 1 - DATED 14.03.96.

Title: CLOUDHOPPER BEARING REPLACEMENT

Classification: Recommended

Applicability: All LBL Cloudhopper Balloons

Serial Numbers Affected: 061, 080, 085, 130, 159, 160, 161, 162,170, 187, 260, 292, 352, 363

Compliance Standard: Inspect prior to next flight

Background: It has been found that if the Cloudhopper main burner assembly is habitually left unattended in the flying position, then it is possible that when the cylinder fuel contents are low, the complete base unit can fall forward and strike the ground. The first point of contact is normally the main rotating load frame. Sharp contact forces have been found to cause a breakdown of the front horizontal locator bearing.

A modification kit has been compiled which substitutes two of the location bearings for machined bushes, which have adequate resistance to the shock loads.

### Accomplishment Instructions:

#### **a. Inspection**

Rotate the main load frame and check for free running. Slight stiffness in localised areas is acceptable. Hold the load frame adjacent to the front horizontal bearing. Push and pull the load frame towards the front bearing. There should not be more than 1 mm (1/25") of movement. Repeat this process for the remaining horizontal bearings. Rotate each bearing by hand and check that the rotation is smooth. If the bearings are in good condition, no further action is necessary. If excessive movement in the load ring frame, or if any of the bearings have failed, the procedure given below should be undertaken.



**b. Bearing Replacement**

1. Ensure that all the components are present in the replacement kit P/N BA300237, as identified on the contents sheet, and that the necessary tools are available.
2. Erect the burner assembly onto the Cloudhopper back pack in the normal manner. Use two cylinder straps to fasten the complete base unit to a work bench.
3. Unscrew the three vertical bolts which hold the existing horizontal bearings in place and remove the complete load ring and three bearings.
4. Unscrew the three off M8 socked lead cap screws. These screws are locked in place with Loctite 242e and require considerable leverage in order to break the bond. Remove bearings, washers and bolts.
5. Retain all old components for return to Lindstrand Balloons Limited.
6. Select the three M8 replacement bearings (1), the M8 washers (3) and M8 bolts (2) from the replacement kit. Assemble components as shown in Figure SB2-002. Place a small drop of the Loctite 242e on the end of the thread.

Screw the complete assembly into the threaded hole in the end of each arm of the main block. Tighten the bolt to a torque setting of 8 Nm (5.9 lbf.ft). Repeat this process for all three vertical bearings.

7. Select the one horizontal locator bush (7) which has a cut out in the largest diameter. Assemble with the M6 x 55 bolt (10), and M6 washer (5) and an M6 aerotite nut (8) in the front bearing location, as shown in Figure SB2-002. Tighten the nut securely.
8. Assemble the remaining horizontal locator bush (7) in the same manner, using the M6 x 45 mm bolt (9) and tighten into the position shown in Figure SB2-003.
9. Place the load frame ring so that it is sitting on all three vertical bearings, as shown in SB2-003.
10. Assemble the remaining 6 mm internal diameter horizontal bearing (4) with an M6 washer (5) on both sides with the last M6 x 45 length bolt (9) and the 32 mm diameter washer (6) on the lower side, as shown in SB2-004. Tighten the M6 nut securely.
11. Rotate the load frame ring to ensure that it moves freely. Note that a little resistance to rotation is acceptable.
12. Call LBL if any difficulties are encountered.

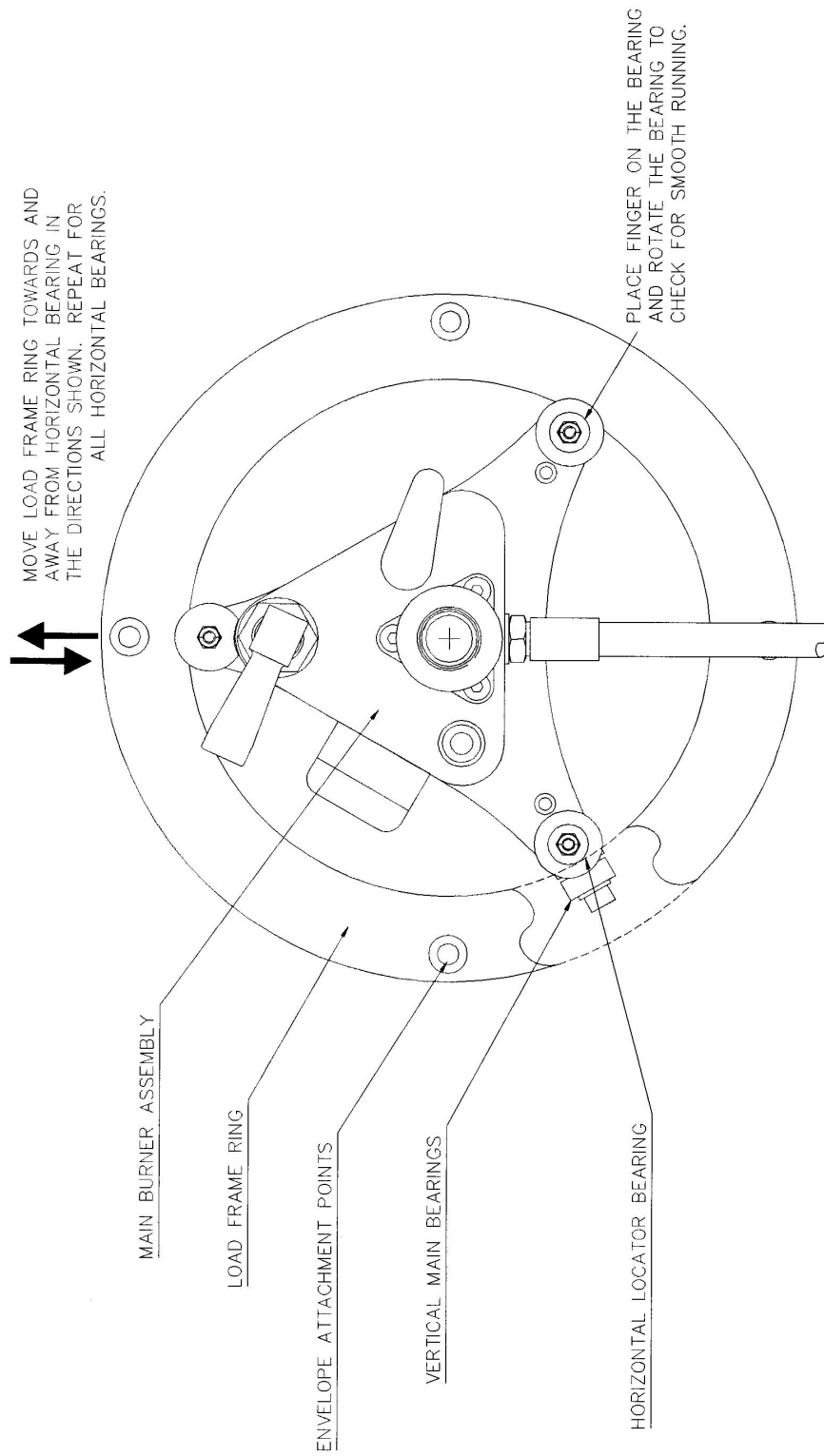


FIG SB2-001 CLOUDHOPPER BEARING INSPECTION.

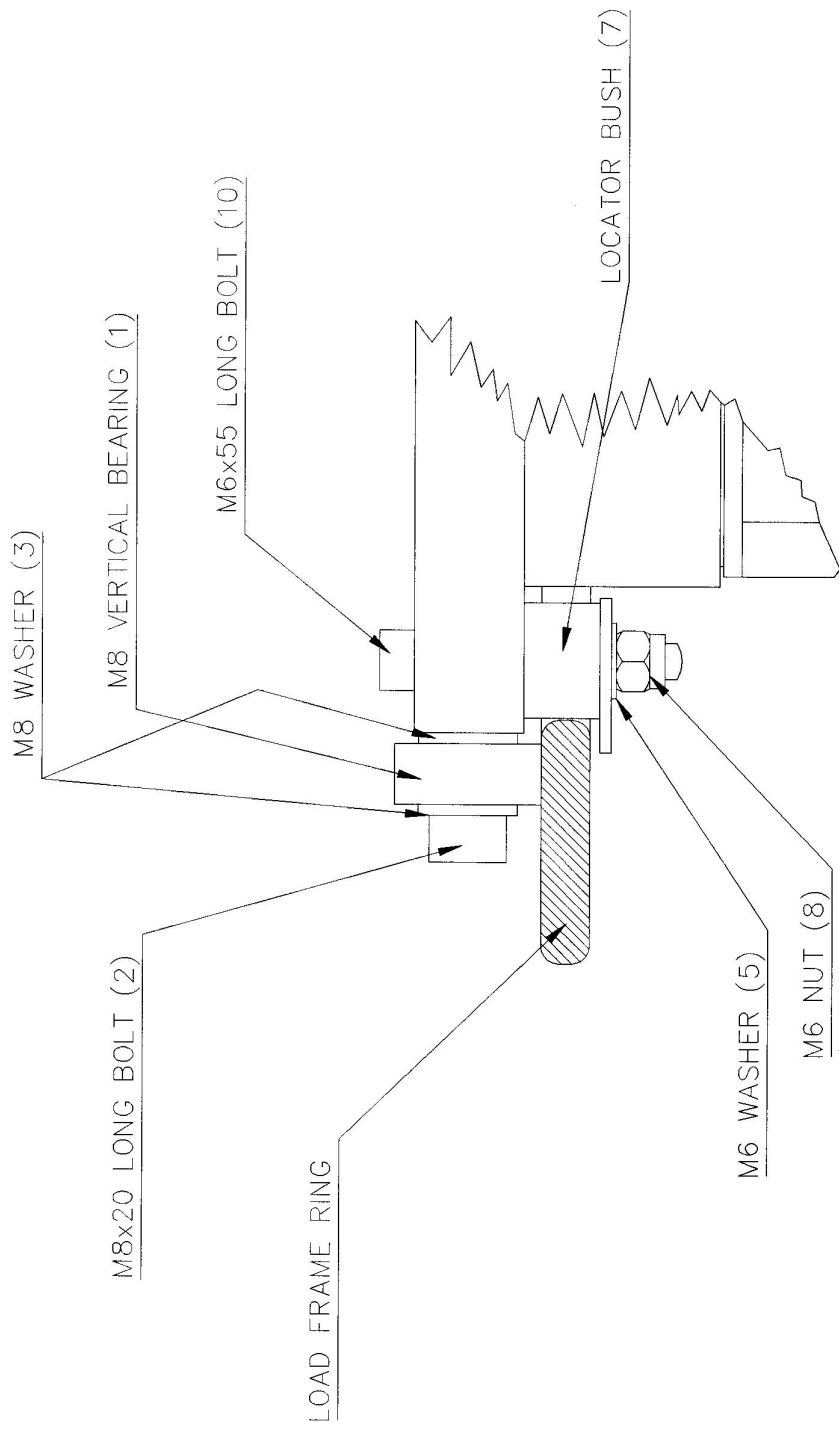


FIG SB2-002 FRONT BEARING ASSEMBLY.  
 NOTE THAT THE NUMBERS IN BRACKETS REFER TO THE ITEM NUMBERS IN THE CONTENTS LIST.

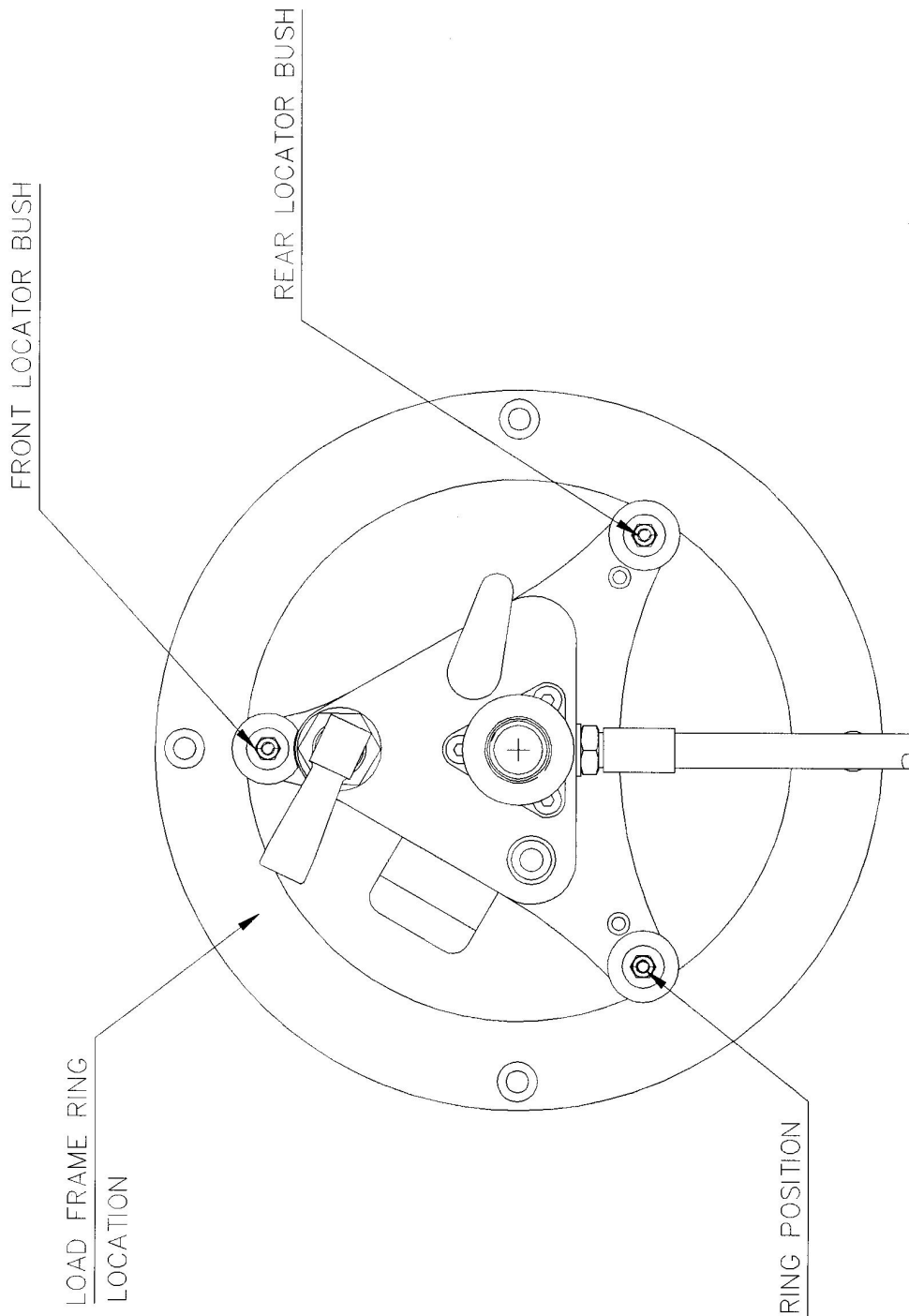


FIG SB2-003 ARRANGEMENT OF LOCATOR BUSHES

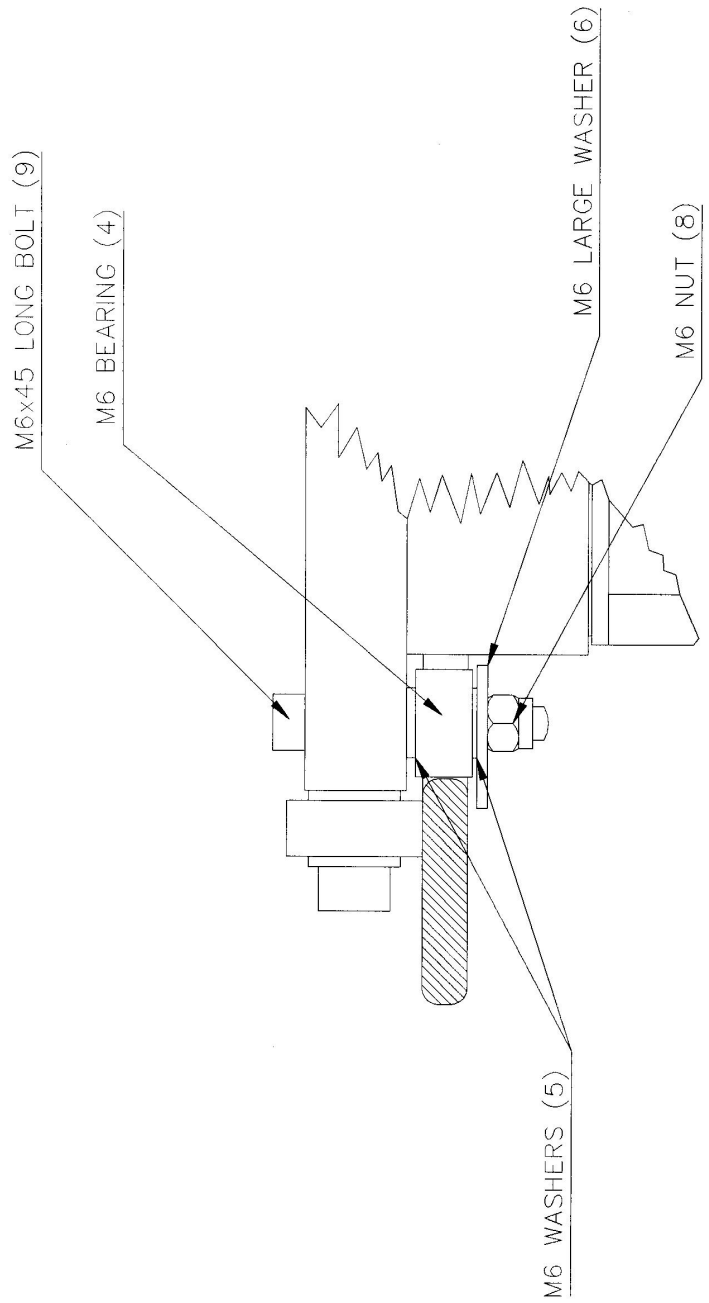


FIG SB2-004 HORIZONTAL BEARING ASSEMBLY.  
 NOTE THAT THE NUMBERS IN BRACKETS REFER TO  
 THE ITEM NUMBERS IN THE CONTENTS LIST.





DRG No  
BA-300-A-237

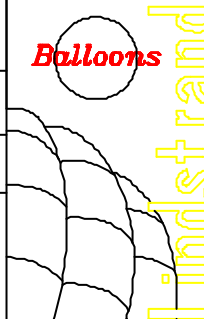
THIRD ANGLE PROJECTION  
ALL DIMENSIONS ARE mm.

DESIGN/SPECIFICATION REVISION					
ISSUE	DRAWN	CHECKED	APPROVED	DATE	REASON FOR CHANGE
1	SF	JB	SF	14/3/06	NEW

11	BU2253	3	M8 WASHERS OD 12mm 1.0mm THICK
10	BU2253	1	M6x55mm LONG SKT HEAD CAP BOLT
9	BU2238	2	M6x45mm LONG SKT HEAD CAP BOLT
8	BU2210	3	M6 AEROTITE NUT
7	BA300236	2	HORIZONTAL LOCATOR BUSH
6	CH10057	1	LARGE M6 RETAINING WASHER OD 32mm, 2.0 THICK
5	BU2211	7	M6 WASHER OD 12.5mm, 0.8mm THICK
4	CH10006	1	HORIZONTAL BEARING OD 19mm, ID 6mm, 10 THICK
3	BU20B9	3	M8 WASHERS OD 16.6mm 1.0mm THICK
2	CH10056	3	M8x20mm SOCKET HEAD CAP SCREW
1	CH10007	3	VERTICAL BEARING OD 24mm, ID 8mm 10 THICK
ITEM	PART No	No OFF	DESCRIPTION

TOOLS REQUIRED. -

- 1.) ONE 5mm ALLEN KEY (SOCKET WRENCH)
- 2.) ONE 10mm SPANNER (WRENCH)
- 3.) ONE 6mm ALLEN KEY WITH LONG HANDLE TO ASSIST IN BREAKING THE LOCTITE BONDING
- 4.) LOCTITE 242e (LOCTITE 243 IN USA)

TOLERANCES UNLESS OTHERWISE STATED		
GENERAL	+/-D 1mm	
HOLE		
FINISH: MATERIAL		
DRAWN	SIMON	
SCALE	CAD FILE @ FULL	
TITLE		
BEARING REPLACEMENT KIT CONTENTS		
DRG No BA-300-A-237		SHEET 1 OF 1 SHEET9