

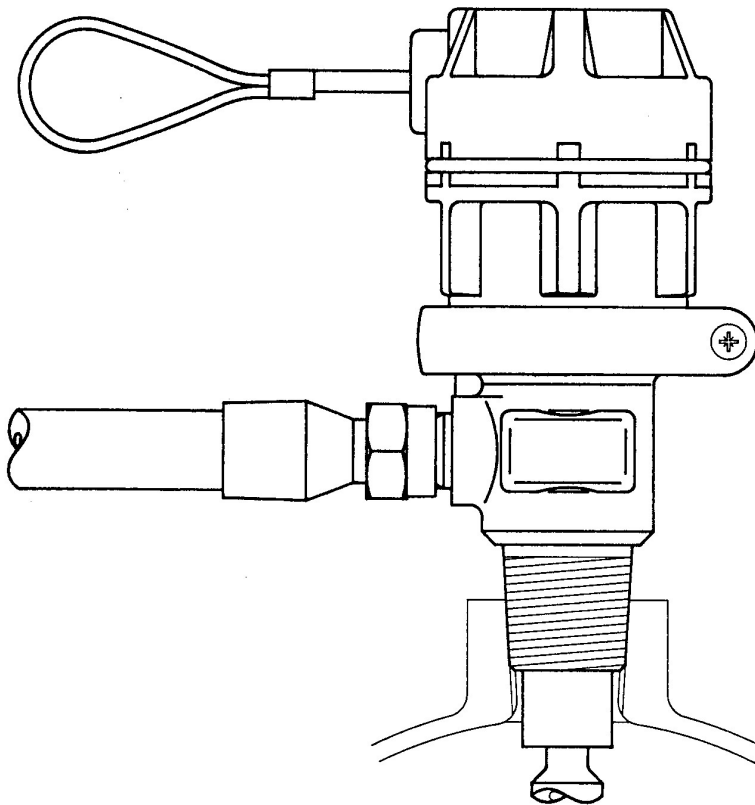
**LEAFIELD MARINE LIMITED**  
**GENERAL USER MANUAL**  
**FOR**  
**GAS INFLATION SYSTEM, CUTTER TYPE**

**LEL-20018**

March 2022

Issue 7b

**FOR INFORMATION ONLY- WILL NOT  
BE KEPT UP TO DATE**



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## CHANGE RECORD

Issue	DARR No.	Incorporated By	Date
7	NCR 12039	D Dickins	22/02/2011
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## SECTION 1

### INTRODUCTION

#### 1. IMPORTANT INFORMATION

This user manual is provided by LEAFIELD MARINE LIMITED to ensure the safe handling, storage, installation and servicing of the LEAFIELD GAS INFLATION SYSTEM, CUTTER TYPE when used with CO<sub>2</sub>/N<sub>2</sub>, CO<sub>2</sub>, N<sub>2</sub> or air.

For the GAS INFLATION SYSTEM WITH PRESSURE GAUGE, use Manual M-07-UM-GISPG.

For the GAS INFLATION SYSTEM, TORSIONAL, use Manual M-07-UM-GIST.

Use only cylinders approved for use up to the maximum working pressure of the Cylinder Valve. Care should be taken that the developed pressure at 65°C does not exceed that recommended for the burst disc (Diaphragm Assembly) in normal use. 250bar disc maximum pressure at 65°C = 238 bar ± 5%, 300bar disc maximum pressure at 65°C = 286 bar ± 5%.

The system is designed to function in temperatures ranging from -30°C to +65°C. It is important that this manual is read and understood prior to any activity being undertaken.

#### 2. NOTE

LEAFIELD MARINE LIMITED shall not be deemed by virtue of any of the instructions in this manual to have assumed any of the responsibilities of the Purchaser or his Service Agencies under the Health and Safety at Work Act nor any other Enactment.

The products detailed in this manual are covered by the European Pressure Equipment Directive 2014/68/EU.

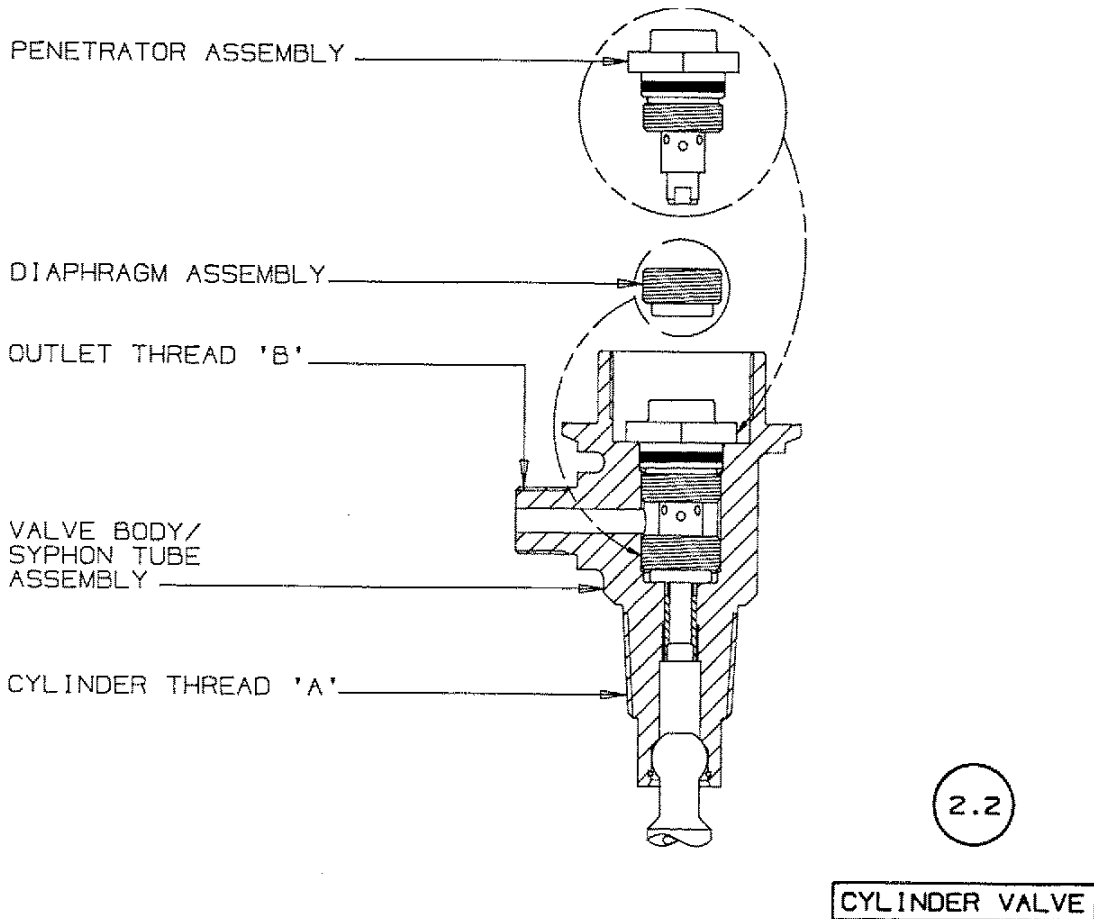
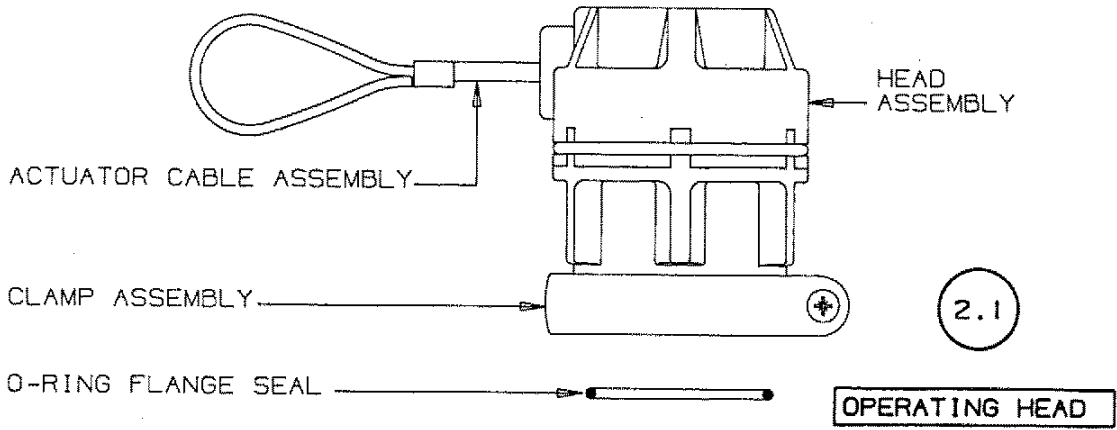
#### 3. WARNING AND CAUTION

The following text highlights **WARNING** and CAUTION. These are defined as follows:

**A WARNING CALLS ATTENTION TO THE USE OF MATERIALS OR PROCEDURES WHICH MUST BE FOLLOWED PRECISELY TO AVOID INCIDENTS WHICH COULD RESULT IN INJURY, LOSS OF LIFE OR FAILURE TO INFLATE LIFERAFT.**

A CAUTION CALLS ATTENTION TO PROCEDURES WHICH MUST BE FOLLOWED TO PREVENT POSSIBLE DAMAGE TO EQUIPMENT WHICH MAY RESULT IN A MALFUNCTION.

**SECTION 2**  
**STANDARD EQUIPMENT**



**SECTION 2**  
**STANDARD EQUIPMENT**

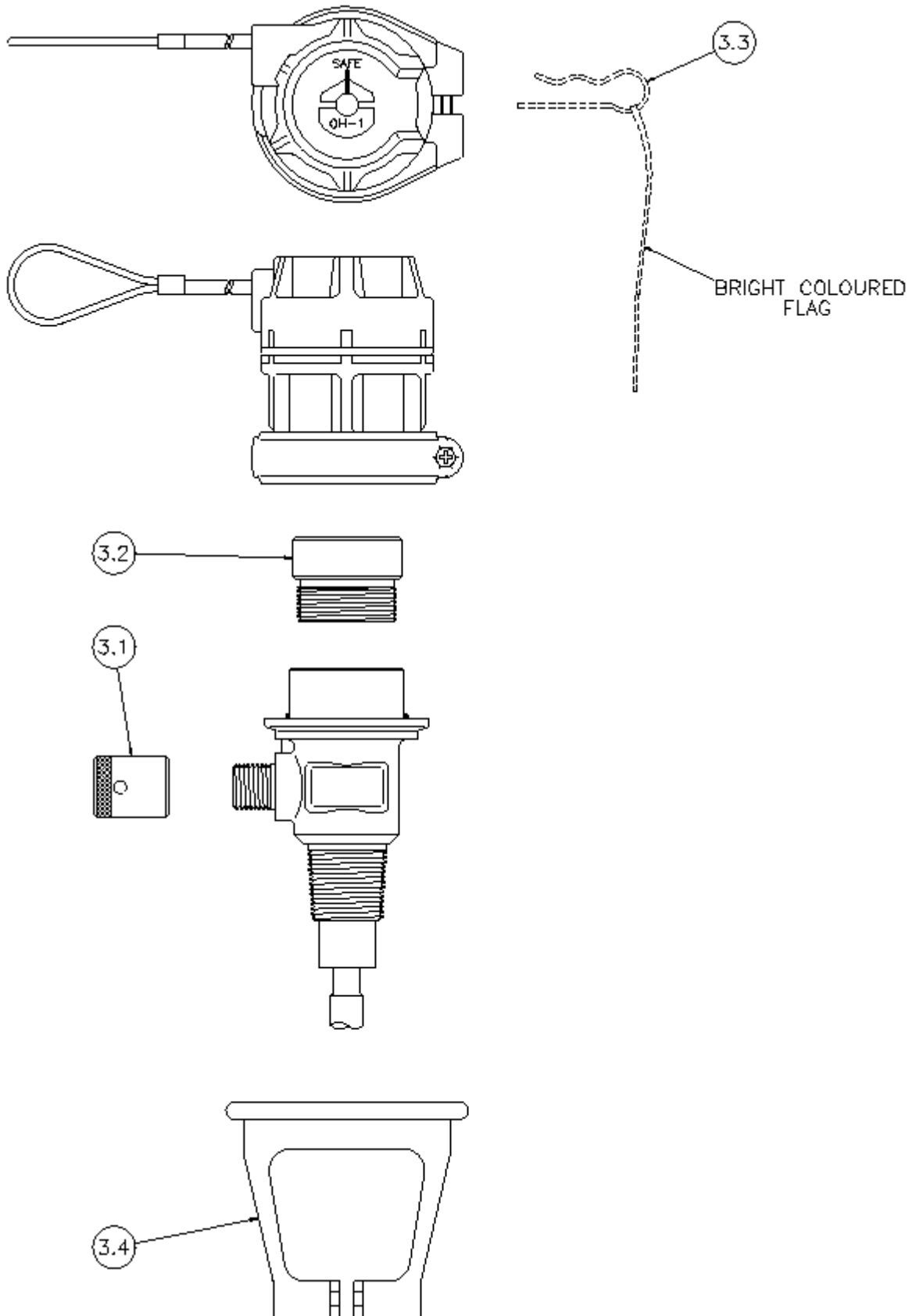
ITEM	DESCRIPTION	PART NUMBER
2.1	OPERATING HEAD <b>OH-1</b>	D912101
CAUTION: THE OPERATING HEAD IS SUPPLIED IN THE <b>LOADED</b> POSITION. CARE SHOULD BE TAKEN NOT TO PULL THE ACTUATOR CABLE OUT DURING HANDLING, TRANSIT OR STORAGE.		

ITEM	DESCRIPTION	PART NUMBER	CYLINDER THREAD 'A'	OUTLET THREAD 'B'	MAXIMUM WORKING PRESSURE
2.2	CYLINDER VALVES	D912202 <b>CV2</b>	W28.8 x 1/14 To DIN 477	0.860 x 14 TPI To BS84	250 BAR
		D912205 <b>CV5</b>	W28.8 x 1/14 To DIN 477	G 3/8 B To BS2779 (flat seat)	250 BAR

LUBRICATION: SILICONE GREASE TYPE MOLYKOTE 111 (DOW CORNING), LEAFIELD PART 50800041.

**WARNING: USE ONLY MOLYKOTE 111 TO LUBRICATE THE LEAFIELD GAS INFLATION SYSTEM.**

**SECTION 3**  
**SAFE HANDLING OF SYSTEM**



**SECTION 3**

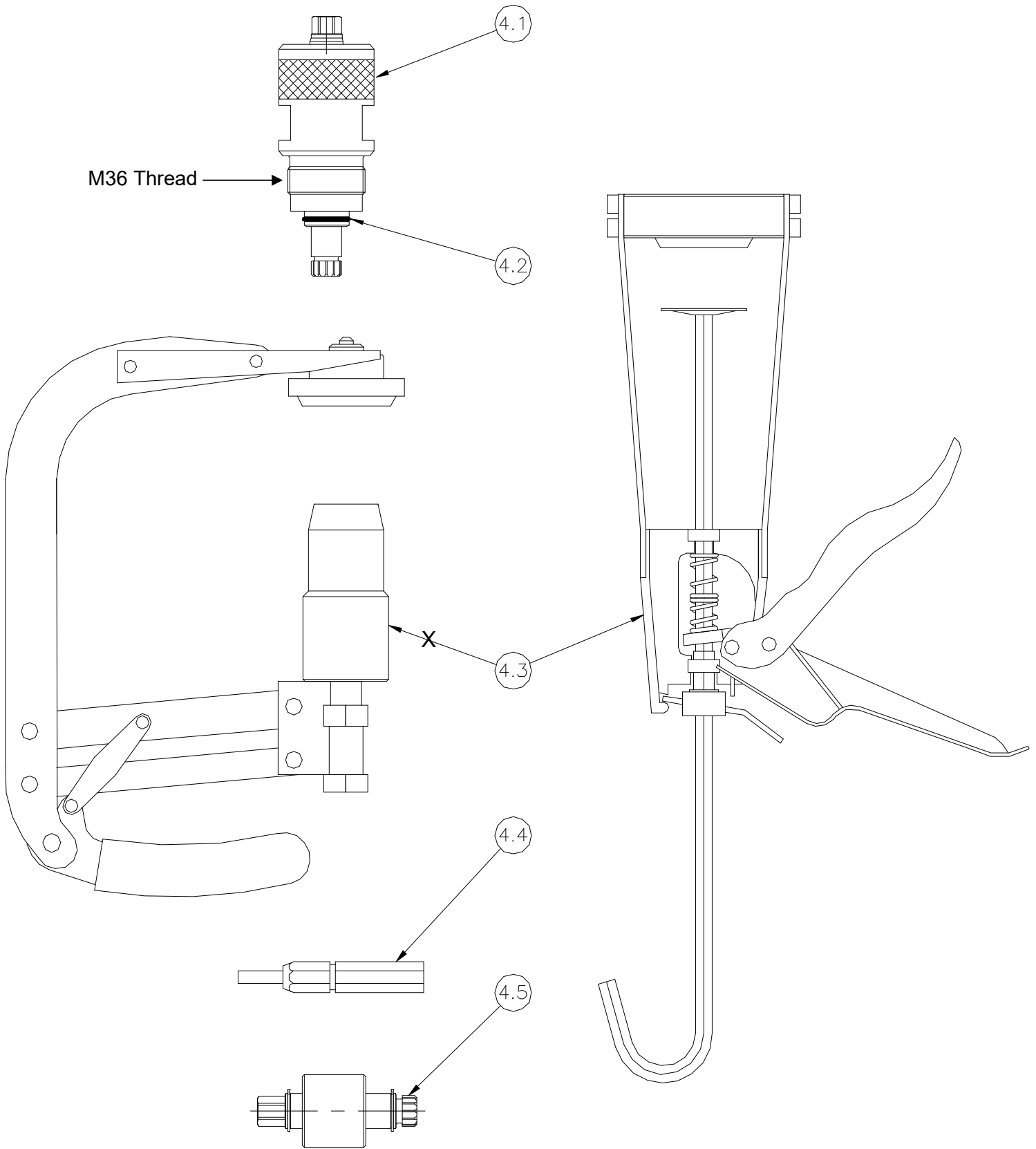
**SAFE HANDLING OF SYSTEM**

ITEM	DESCRIPTION	PART NUMBER	FUNCTION
3.1	RECOIL CAP G 3/8  See Notes 1 & 2	B15514	SAFETY DEVICE: Fitted to Cylinder Valve to throttle gas and balance the resulting thrust if a charged cylinder is accidentally discharged prior to coupling to the liferaft hose.
	RECOIL CAP 0.860" WHIT  See Notes 1 & 2	B15515	
3.2	TRANSIT PLUG  See Notes 1, 3 & 4	B15597	SAFETY DEVICE: Fitted to Cylinder Valve with or without Penetrator Assembly to protect against damage to internal mechanisms and or accidental discharge of gas.
3.3	SAFETY PIN ASSEMBLY  See Note 5	B91212	OPTIONAL DEVICE: May be fitted after Operating Head has been loaded to prevent it being accidentally activated during storage, handling and transit.
3.4	GUARD RING  See Notes 6 & 7	BB02	SAFETY DEVICE: Fitted to cylinders over 20 litres water capacity to protect the Cylinder Valve; except where the cylinders are transported and handled in cassettes.

1. **WARNING: USE ONLY LEAFIELD PRODUCED RECOIL CAP AND TRANSIT PLUG.**
2. **WARNING: RECOIL CAP MUST ALWAYS BE FITTED TO CYLINDER VALVE OUTLET WHEN CHARGED CYLINDER IS STORED UNCONNECTED TO LIFERAFT.**
3. **WARNING: TRANSIT PLUG MUST ALWAYS BE FITTED TO CYLINDER VALVE WHEN A CHARGED CYLINDER IS TO BE HANDLED, TRANSPORTED OR STORED WITHOUT PENETRATOR ASSEMBLY FITTED.**
4. **CAUTION: TRANSIT PLUG SHOULD BE FITTED TO CYLINDER VALVE WHEN A CHARGED CYLINDER IS TO BE HANDLED, TRANSPORTED OR STORED WITH PENETRATOR ASSEMBLY FITTED.**
5. **WARNING: TO ENSURE THAT THE SAFETY PIN (WHERE FITTED) IS ALWAYS REMOVED AT FINAL LIFERAFT PACKING STAGE, IT MUST ALWAYS BE IDENTIFIED WITH AN APPROPRIATE BRIGHT COLOURED FLAG.**
6. **WARNING: GUARD RING MUST BE FITTED TO BOTTLES EXCEEDING 20 LITRES WATER CAPACITY TO PROTECT THE CYLINDER VALVE DURING TRANSIT AND HANDLING; UNLESS THE CYLINDERS ARE TRANSPORTED AND HANDLED IN CASSETTES.**
7. **CAUTION: IF A GUARD RING FITTED TO A CYLINDER BECOMES DAMAGED, THE CYLINDER VALVE SHOULD BE CLOSELY INSPECTED AND MUST BE REPLACED IF ANY DAMAGE OR DISTORTION IS FOUND.**

**SECTION 4**

**SPECIAL TOOLS FOR ASSEMBLY, CHARGING AND SERVICING**





**SECTION 4**

**SPECIAL TOOLS FOR ASSEMBLY, CHARGING AND SERVICING**

ITEM	DESCRIPTION	PART NUMBER	FUNCTION
4.1	CYLINDER VALVE FILLING TOOL Complete with 'O' Ring Seal item 4.2  See Warnings 1 & 2 and Caution	C92100	To fit, lift and close Diaphragm Assembly during cylinder filling.
4.2	'O' RING SEAL- Spares Item	<del>66300468</del> 66300760	-
4.3	OPERATING HEAD LOADING TOOL  See Warning 1 and Note	<del>C92130</del> or 0807001	Used to compress Operating Head spring in resetting operation.
4.4	PLUG GAUGE  See Warning 1	B15907	Used during serviceability check of Penetrator Assembly.
4.5	DIAPHRAGM EXTRACTOR TOOL  See Warning 3	C99260	Used to remove Diaphragm Assembly during cylinder servicing.

**WARNING 1: USE ONLY THE ABOVE LISTED SPECIAL TOOLS WHEN SERVICING THE LEAFIELD GAS INFLATION SYSTEM. STANDARD TOOLS ARE ALSO CALLED FOR IN THE FOLLOWING TEXT**

**CAUTION:** REGULARLY CHECK THE M36 THREAD OF THE FILLING TOOL FOR WEAR AND DAMAGE. THE OUTSIDE DIAMETER (OD) MUST BE AT LEAST 35mm FOR ALL BUT THE FIRST THREAD (THE FIRST THREAD MAY BE LESS THAN 35mm).

**WARNING 2: DO NOT USE FILLING TOOL IF THREAD OUTSIDE DIAMETER MEASURES LESS THAN 35mm.**

**NOTE:** Item 4.3: EITHER LOADING TOOL MAY BE SUPPLIED.

**WARNING 3: THE DIAPHRAGM EXTRACTOR TOOL MUST NOT BE USED TO REMOVE THE DIAPHRAGM ASSEMBLY FROM A FILLED CYLINDER. VIOLENT GAS DISCHARGE WILL RESULT.**

**SECTION 5**

**CYLINDER VALVE INSTALLATION**

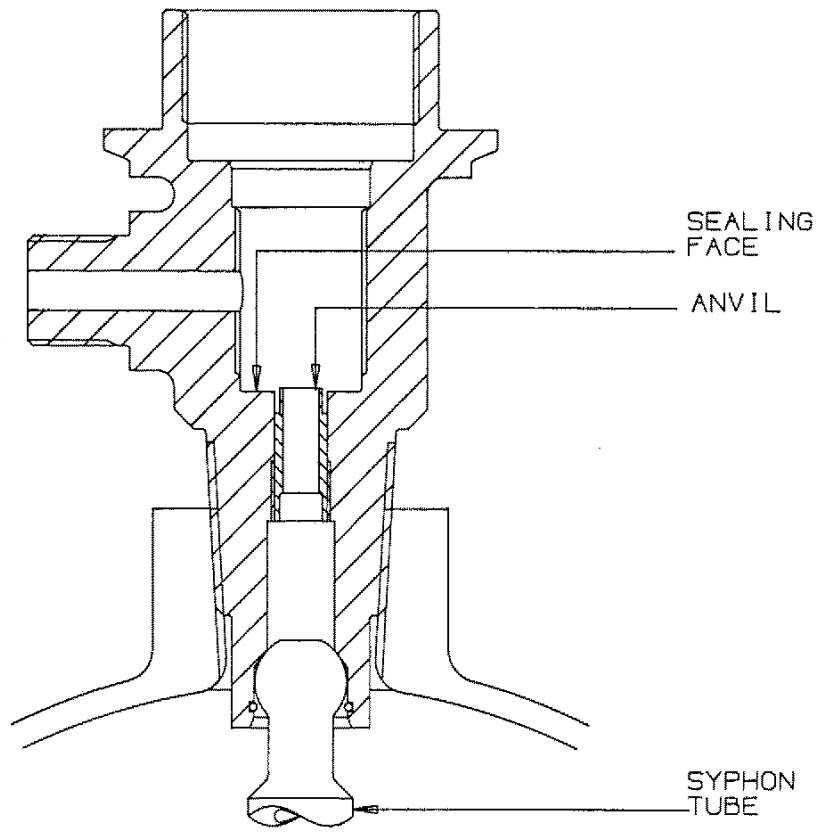


Fig. 5.1

## SECTION 5

### CYLINDER VALVE INSTALLATION

**WARNING: THE FOLLOWING CHECKS MUST BE CARRIED OUT PRIOR TO INSTALLATION OF CYLINDER VALVE TO CYLINDER.**

Fig. 5.1 refers.

1. Ensure that the cylinder and Cylinder Valve threads are compatible and that the cylinder conforms to the standard specified for the working pressure identified on the Cylinder Valve.
2. Ensure that the Cylinder Valve threads show no visible signs of damage.
3. Ensure that the Syphon Tube (where fitted) is free to swivel and rotate.
4. Ensure that all Cylinder Valve Bores and recesses are clean and free from particles.
5. Ensure that the Sealing Face and Anvil are free from damage and debris.

### INSTALLATION

6. Sealing material should be applied to the threads as recommended by the LIFE RAFT manufacturer. Tighten Cylinder Valve to a torque of **160-170Nm**

**CAUTION: NEVER INSERT INTO THE CYLINDER VALVE BODY ANY IMPLEMENT WHICH COULD DAMAGE THE SEALING FACE OR ANVIL.**

**WARNING: DO NOT EXCEED THE RECOMMENDED TORQUE OR ATTEMPT TO FURTHER TIGHTEN THE CYLINDER VALVE ONCE THE GAS BOTTLE IS CHARGED AS THIS COULD CAUSE FAILURE OF THE VALVE.**

**SECTION 6**  
**CYLINDER CHARGING PROCEDURE**

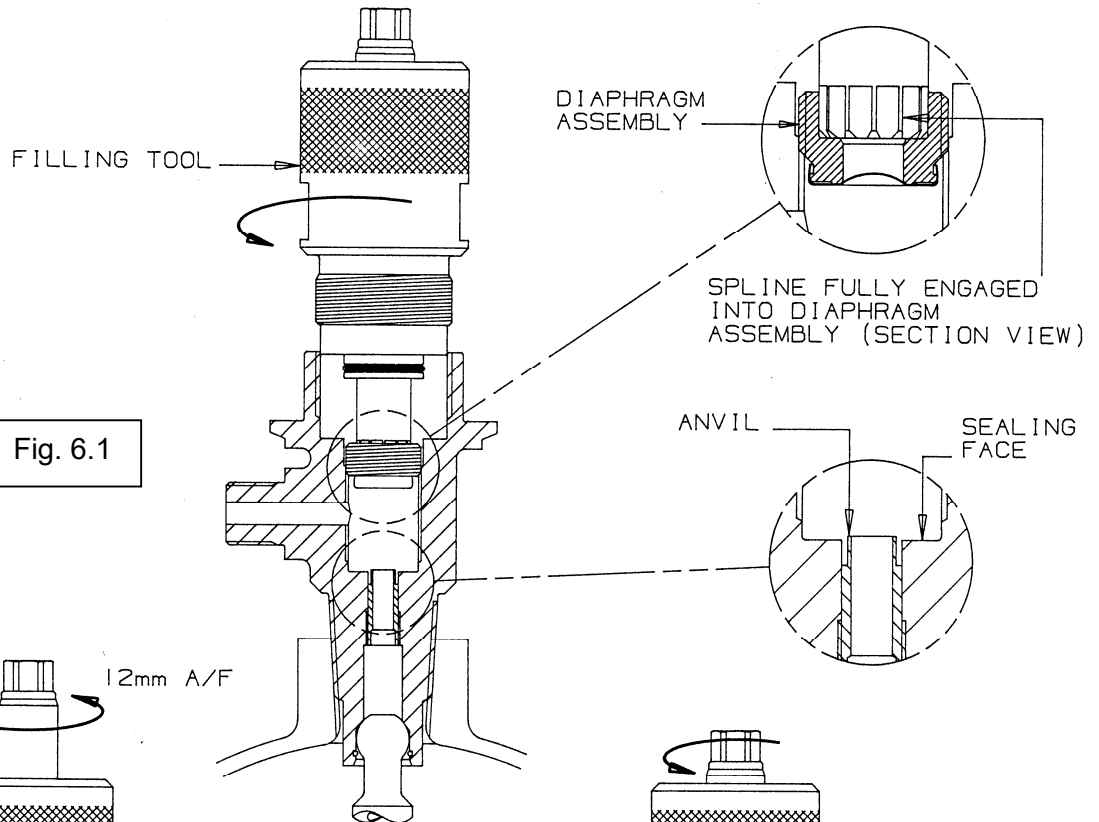


Fig. 6.1

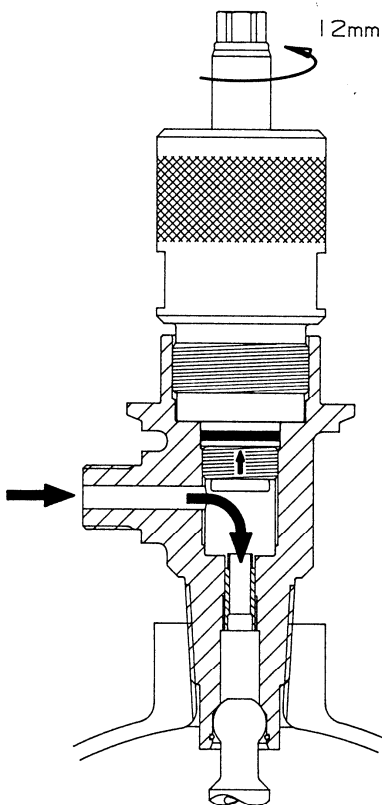


Fig. 6.2

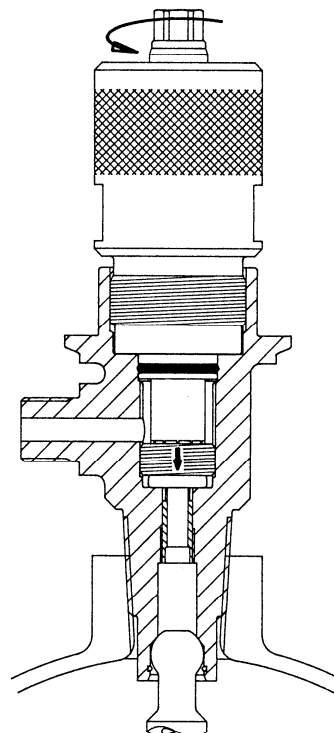


Fig. 6.3

## SECTION 6

### CYLINDER CHARGING PROCEDURE

**WARNING: ONLY SERVICE TOOL ITEM 4.1 (SEE PAGE 6) IS TO BE USED FOR MANIPULATING DIAPHRAGM ASSEMBLY DURING FILLING PROCEDURE.**

#### Fig 6.1 refers

1. Ensure that the Sealing Face and Anvil are clean and free from damage and debris.
2. Ensure the correct Diaphragm Assembly is to be fitted- unmarked diaphragm for 250 bar pressure, red colour-coded diaphragm for 300 bar.
3. Remove pre-greased Diaphragm Assembly from its protective cap and immediately hand assemble into the Cylinder Valve Body, ensuring proper initial engagement of threads.

**CAUTION: ALWAYS ENSURE THAT SURFACE OF DISC AND THREAD REMAIN GREASED AND FREE FROM LOOSE PARTICLES AS DEBRIS COULD CAUSE DAMAGE TO VALVE SEAT AND ADVERSELY AFFECT SEAL.**

4. Engage Filling Tool into spline of Diaphragm Assembly and proceed to screw down. After approximately 6 turns the Filling Tool thread will engage the Cylinder Valve thread. Continue to screw Filling Tool (approx. 10 more turns) until fully home. Hand tight is sufficient.

#### Fig. 6.2 refers

5. Using 12mm A/F ring spanner retract Diaphragm Assembly by turning central shaft of Filling Tool anticlockwise to its full limit (a maximum of 11 turns), taking care not to unscrew the Filling Tool body.
6. Ensure that gas charging hose interface is compatible with Cylinder Valve outlet port before making connection. Tighten as appropriate.

**CAUTION: CHARGING MUST ONLY BE INITIATED WHEN THE DIAPHRAGM ASSEMBLY IS FULLY RETRACTED.**

7. Charge cylinder with required mass of CO<sub>2</sub>/N<sub>2</sub>, N<sub>2</sub> or air in accordance with LIFERAFT manufacturer's filling procedures.

**CAUTION: ENSURE THAT GAS CHARGE WILL NOT RESULT IN DEVELOPED PRESSURE EXCEEDING THAT RECOMMENDED FOR THE BURST DISC FITTED (SEE SECTION 1, PARA. 1).**

#### Fig 6.3 refers

8. Tighten Diaphragm Assembly by turning 12mm A/F shaft clockwise to its limit and torque to 35-40Nm. Shut off gas supplies.

**CAUTION: ENSURE THAT A TORQUE WRENCH IS USED WHEN TIGHTENING DIAPHRAGM ASSEMBLY AND THAT TORQUE LEVEL IS NOT EXCEEDED.**

Cont.....

**SECTION 6**

**CYLINDER CHARGING PROCEDURE**

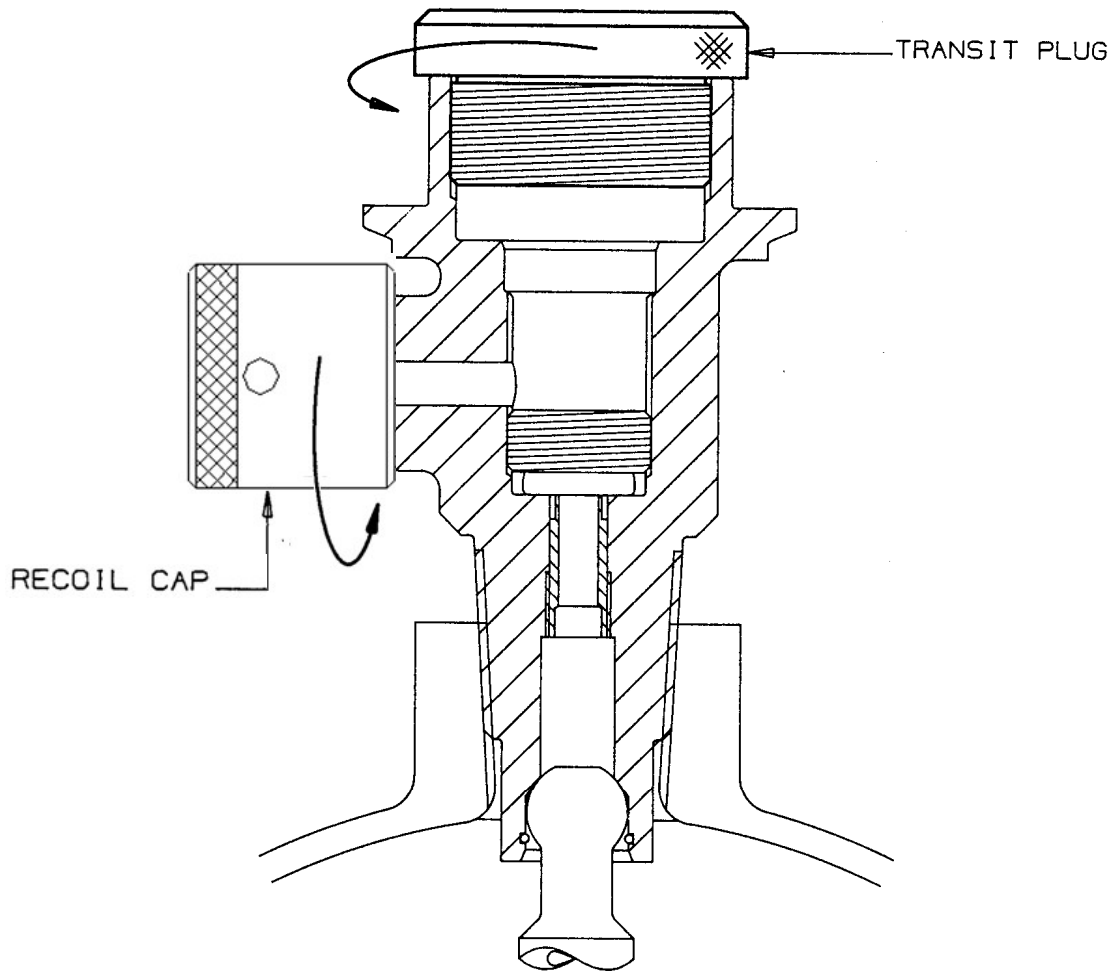


Fig. 6.4

Cont.....

## SECTION 6

### CYLINDER CHARGING PROCEDURE

Fig 6.4 refers

9. Remove charging hose from Cylinder Valve and immediately fit Recoil Cap to outlet port. Screw on hand tight.

**WARNING: RECOIL CAP MUST ALWAYS BE FITTED TO CYLINDER VALVE OUTLET WHEN CHARGED CYLINDER IS STORED UNCONNECTED TO LIFERAFT.**

10. Remove Filling Tool by unscrewing body only anticlockwise.

**CAUTION: ON NO ACCOUNT SHOULD 12mm A/F SHAFT BE TURNED DURING FILLING TOOL REMOVAL AS THIS WILL UNSEAT DIAPHRAGM ASSEMBLY AND RESULT IN GAS LOSS.**

**WARNING: NEVER INSERT ANY OBJECT INTO CYLINDER VALVE BODY THAT COULD RESULT IN DAMAGE TO DIAPHRAGM ASSEMBLY AND SUBSEQUENT VIOLENT GAS DISCHARGE.**

11. Inspect for leaks by applying methylated spirits or suitable alcohol based liquid sufficient to completely immerse Diaphragm Assembly and observe for bubbles. If more than ONE bubble in 60 seconds is evident, Filling Tool must be refitted (ref. Para. 4) and the torque checked to its maximum of 40Nm. If leak persists, Diaphragm Assembly must be slightly retracted and cylinder completely vented. Diaphragm Assembly must be removed, discarded and a new one fitted. Ensure that all seating surfaces are clean and free from surface contamination and scratches. Recharge cylinder as previously described. If sealing problem persists, replace Cylinder Valve.

**CAUTION: NEVER USE WATER FOR LEAK TESTING.**

12. On satisfactory completion of leak testing, pour off liquid and allow residue to evaporate.

**WARNING: NEVER USE CLOTH OR INSERT ANY IMPLEMENT INTO CYLINDER VALVE TO ASSIST WITH DRYING AS THIS COULD DAMAGE THE DISC OR JAM THE SYSTEM.**

13. Fit Transit Plug and screw fully home. Hand tight is sufficient.

**WARNING: TRANSIT PLUG MUST BE FITTED TO CYLINDER VALVE WHEN CHARGED CYLINDER IS TO BE HANDLED, TRANSPORTED OR STORED.**

**CAUTION: DO NOT STORE CHARGED CYLINDER IN DIRECT SUNLIGHT OR WHERE TEMPERATURE CAN EXCEED 65°C.**

**WARNING: WHERE CYLINDER CAPACITY EXCEEDS 20 LITRES WATER VOLUME, FIT GUARD RING DURING TRANSIT AND HANDLING TO PROTECT THE VALVE FROM DAMAGE; UNLESS CYLINDER IS TRANSPORTED AND HANDLED IN A CASSETTE.**

**SECTION 7**

**FITTING PENETRATOR ASSEMBLY**

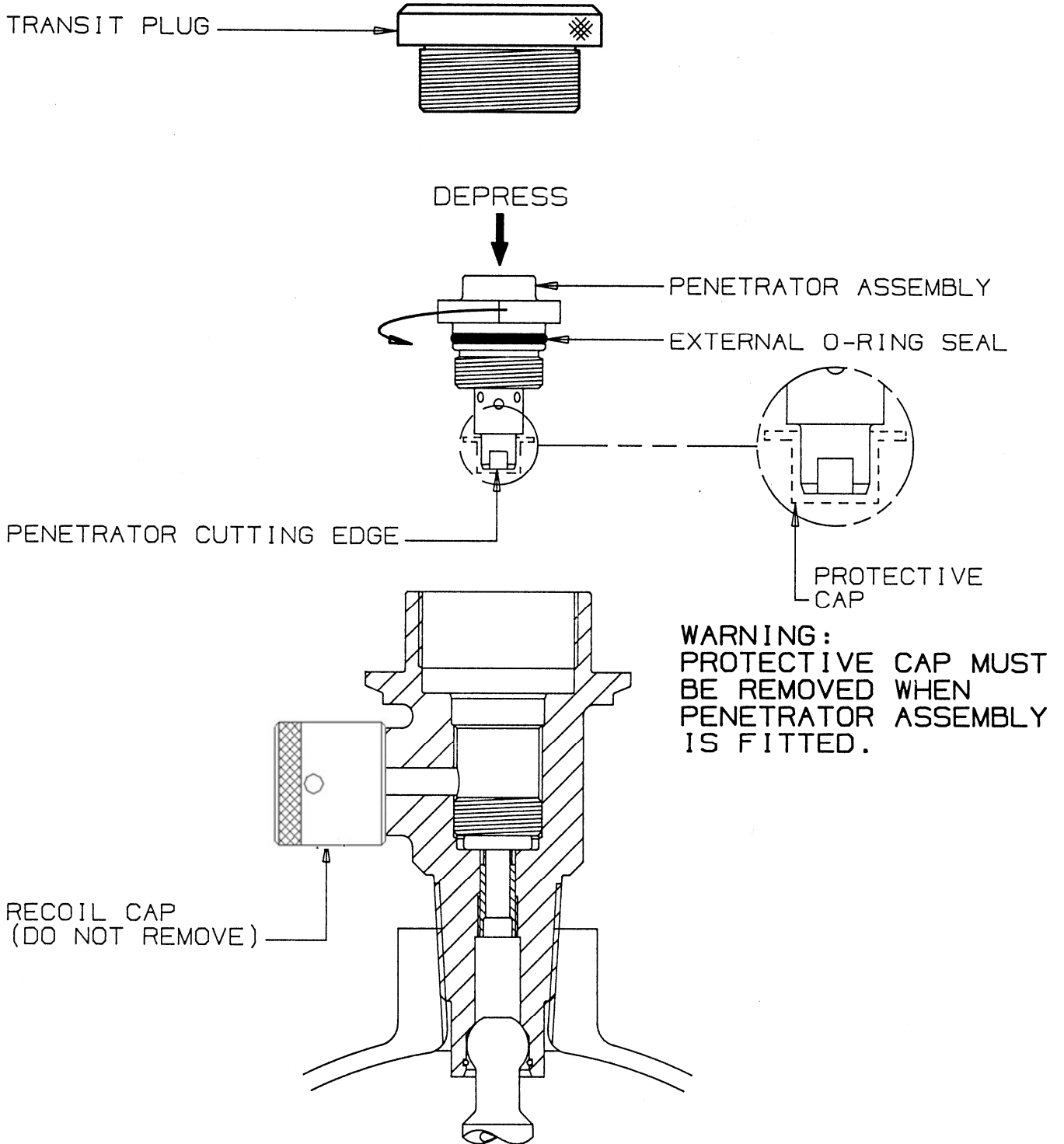


Fig. 7.1



## SECTION 7

### FITTING PENETRATOR ASSEMBLY

Fig 7.1 refers

1. Remove Transit Plug from Cylinder Valve.

**WARNING: DO NOT REMOVE RECOIL CAP.**

2. Remove protective cap from Penetrator Assembly.
3. Visually inspect penetrator blade to ensure there is no damage to cutting edge. Plug Gauge (item 4.4- see page 6) must freely enter and move in bore of penetrator.

**WARNING: IF PLUG GAUGE DOES NOT ENTER PENETRATOR OR IF PENETRATOR SHOWS SIGNS OF SIGNIFICANT DAMAGE, PENETRATOR ASSEMBLY MUST BE DISCARDED AND REPLACED.**

4. Depress penetrator shaft (in direction of arrow in fig. 7.1) to ensure freedom of movement.
5. Ensure external 'O' Ring is in good condition. Smear with a thin film of Molykote 111 grease.
6. Fit Penetrator Assembly into Cylinder Valve and tighten to a torque of 25Nm using suitable 24mm A/F spanner and torque wrench.

**WARNING: NEVER INSERT ANY IMPLEMENT INTO CYLINDER VALVE OR PUSH DOWN PENETRATOR SHAFT WHEN PENETRATOR ASSEMBLY IS FITTED AS THIS COULD CAUSE VIOLENT GAS DISCHARGE.**

7. Re-fit Transit Plug.

**CAUTION:** TRANSIT PLUG SHOULD BE FITTED TO CYLINDER VALVE WHEN CHARGED CYLINDER IS TO BE HANDLED, TRANSPORTED OR STORED WITH PENETRATOR FITTED, TO PREVENT INGRESS OF DIRT.

**CAUTION:** DO NOT STORE CHARGED CYLINDER IN DIRECT SUNLIGHT OR WHERE TEMPERATURE CAN EXCEED 65°C.

**SECTION 8**

**ASSEMBLY OF OPERATING HEAD TO CYLINDER VALVE**

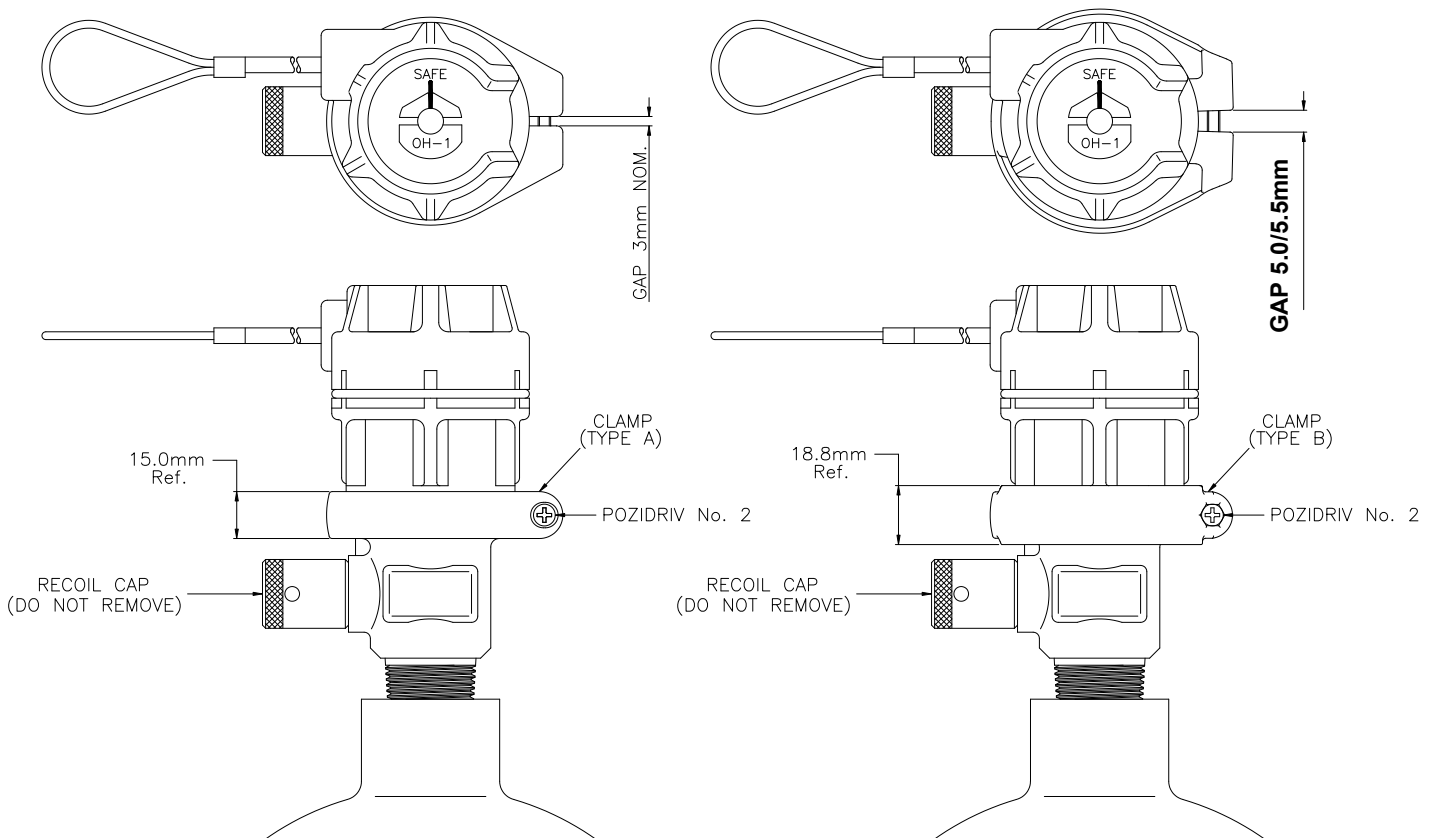
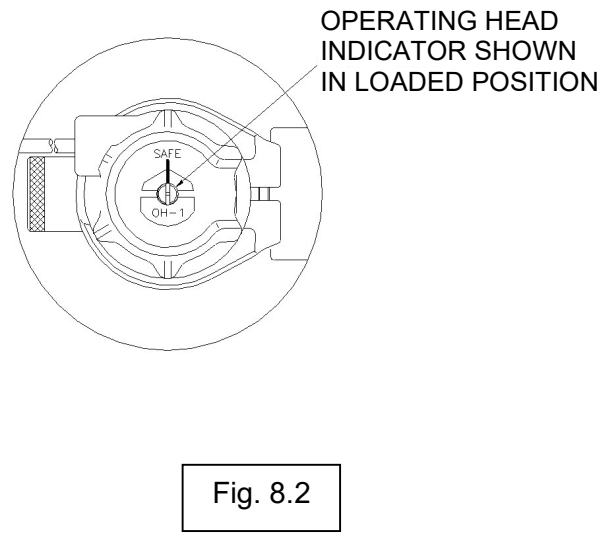
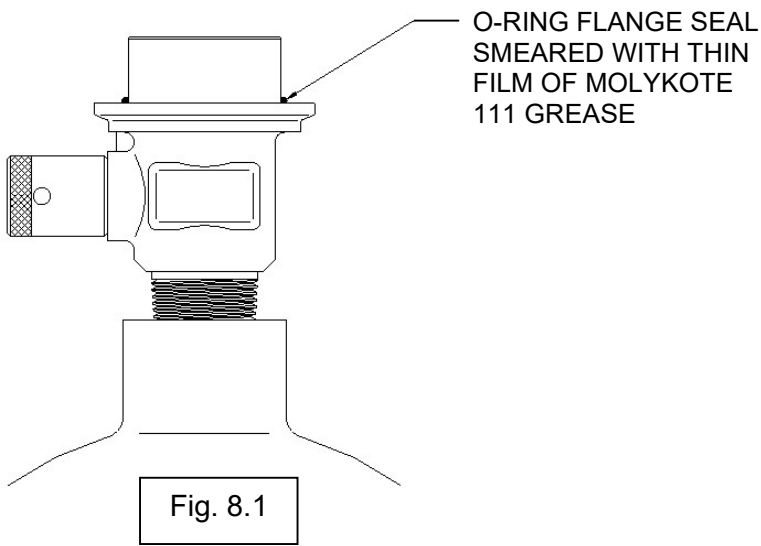


Fig. 8.3

## **SECTION 8**

### **ASSEMBLY OF OPERATING HEAD TO CYLINDER VALVE**

#### Fig 8.1 refers

1. If fitted, remove Transit Plug from Cylinder Valve.

**WARNING: DO NOT REMOVE RECOIL CAP.**

2. Apply a thin film of Molykote 111 grease to 'O' Ring Flange Seal and fit to neck of Cylinder Valve.

**WARNING: ENSURE THAT 'O' RING SEAL IS CORRECTLY LUBRICATED AND FITTED AS THIS IS A CRITICAL ITEM TO PREVENT INGRESS OF WATER.**

#### Fig 8.2 refers

3. Check that the Operating Head is loaded. Screwdriver slot must be in line with SAFE marking as shown in fig 8.2. If not, reload as Section 12.

**WARNING: OPERATING HEAD MUST BE CORRECTLY LOADED OR SYSTEM WILL NOT FUNCTION.**

#### Fig 8.3 refers

4. Locate Operating Head onto Cylinder Valve. Push fully home before proceeding to fit Clamp.
5. Fit Clamp and retain nut with a suitable  $\varnothing 6\text{mm}$  rod until screw is initially engaged. Tighten using Pozidriv No. 2 screwdriver so that Operating Head can just be rotated by hand on Cylinder Valve. Align Operating Head as required.
6. Tighten screw further until rotation of the Operating Head is just prevented. Tighten a further one turn. **DO NOT OVER-TIGHTEN.** This will leave a gap as shown in figure 8.3 depending on the type of clamp fitted.
7. **CLAMP TYPE B:** If the Operating Head is being reused, it is possible that the clamp has previously been over-tightened and stretched. In this case it is acceptable to tighten beyond the nominal gap shown in figure 8.3 to ensure the Operating Head cannot rotate on the Cylinder Valve.

**CAUTION: THE CLAMP FACES WILL NOT MEET WHEN THE SCREW IS TIGHTENED. A GAP WILL BE EVIDENT, NOMINALLY AS SHOWN IN FIGURE 8.3. DO NOT OVER TIGHTEN SCREW.**

**CAUTION: DO NOT STORE CHARGED CYLINDER IN DIRECT SUNLIGHT OR WHERE TEMPERATURE CAN EXCEED 65°C.**

**SECTION 9**

**INSTALLATION TO LIFERAFT**

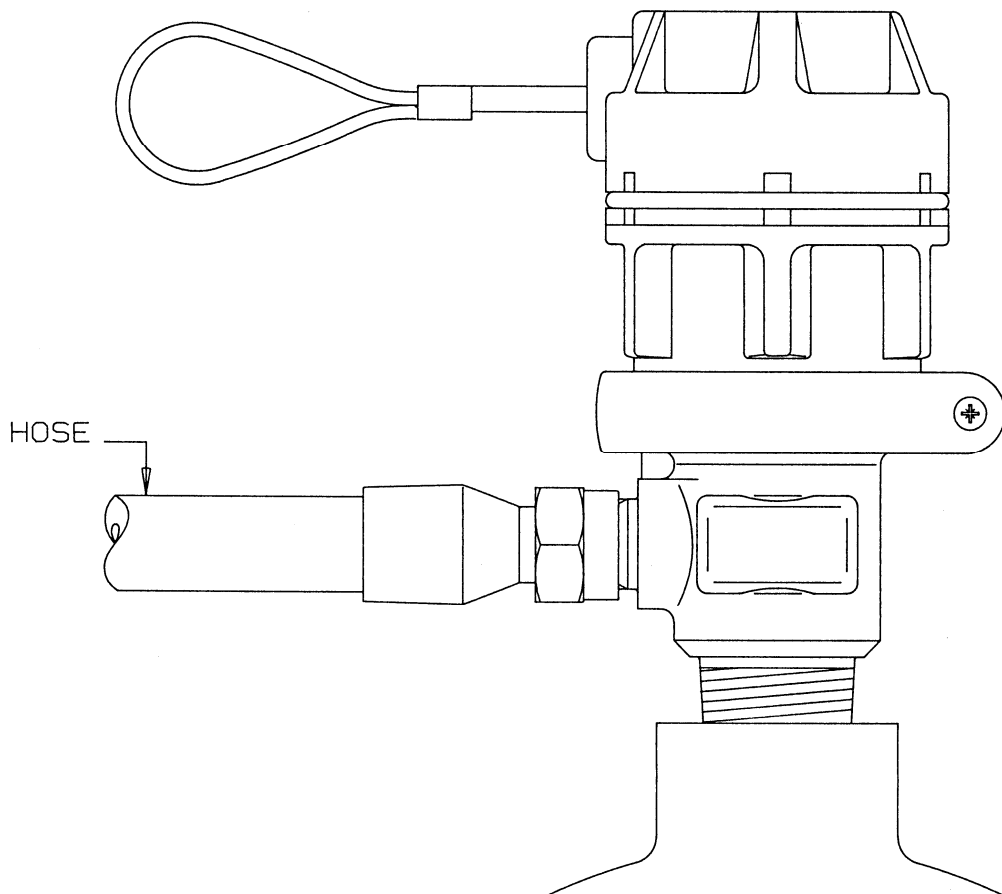
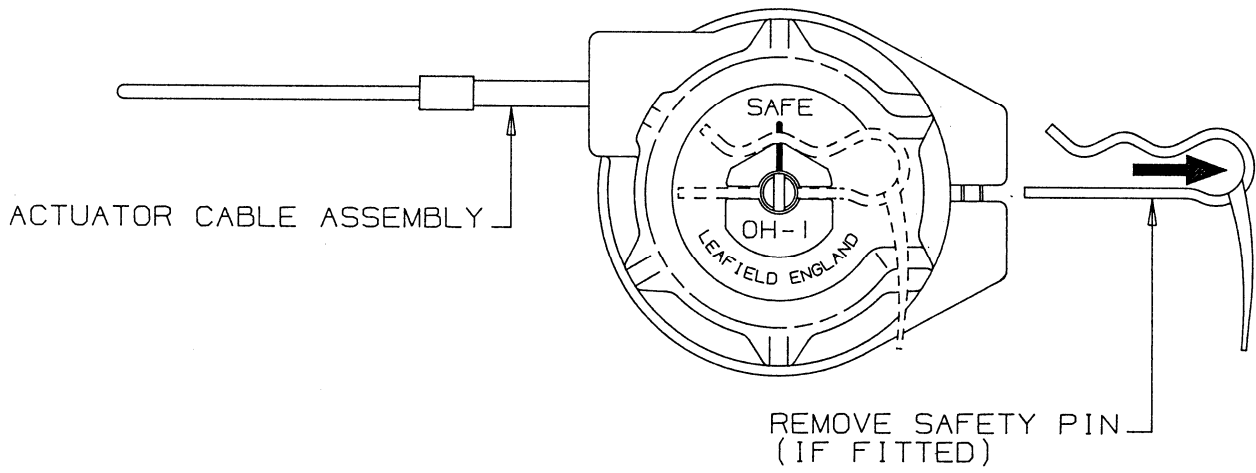


Fig. 9.1

## SECTION 9

### INSTALLATION TO LIFE RAFT

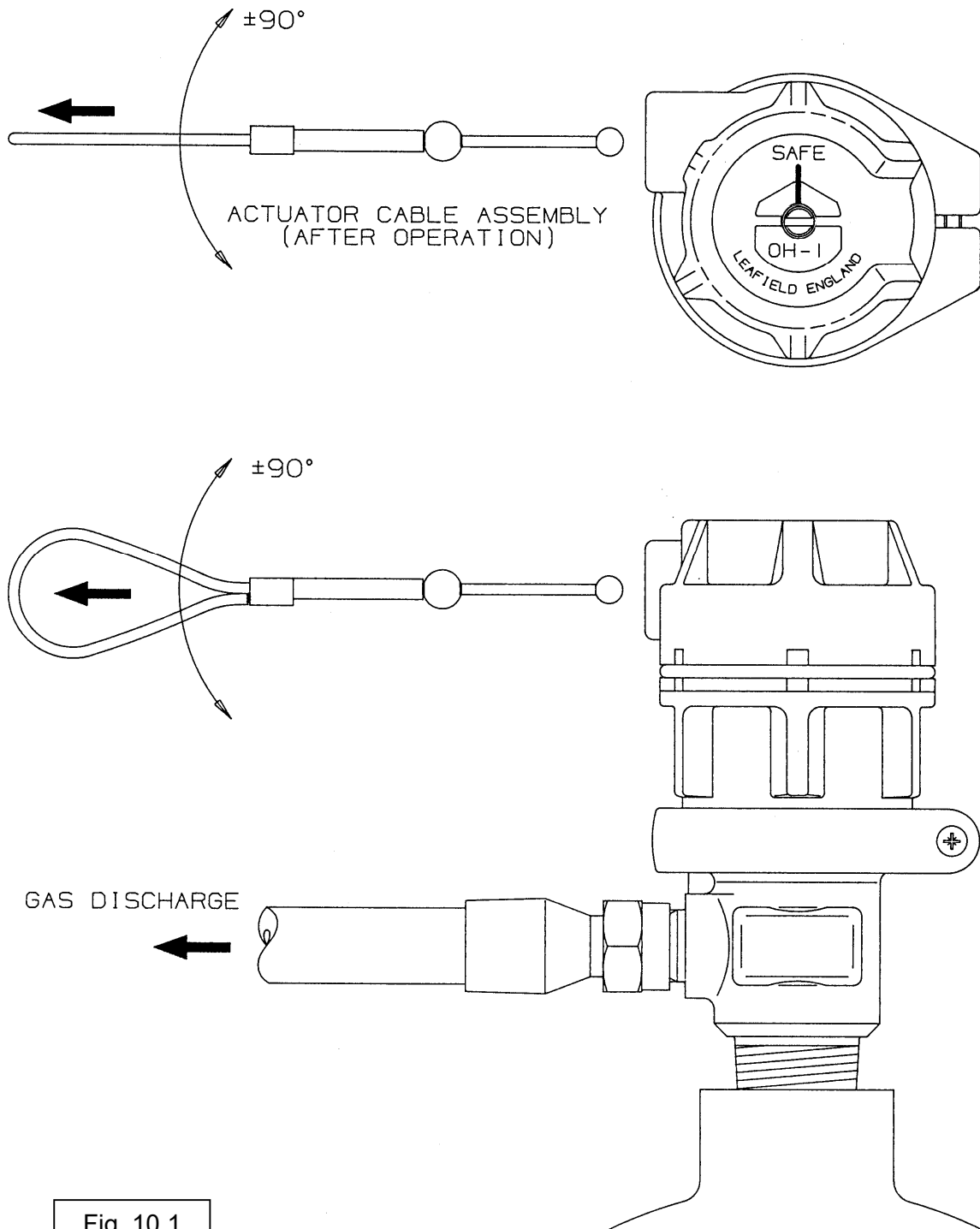
#### Fig 9.1 refers

1. Install cylinder complete with Cylinder Valve and Operating Head to life raft in accordance with LIFERAFT manufacturer's instructions.
2. Guard Ring is not required when cylinder is fitted to life raft.
3. Rotate cylinder and/or Operating Head to position the Actuator Cable as required. If necessary, loosen the Operating Head clamp screw, rotate the Operating Head and re-tighten the screw.
4. Remove Recoil Cap from Cylinder Valve outlet port.
5. Ensure that hose thread, Cylinder Valve thread and sealing surfaces are compatible and clean. Ensure that packing and seals specified for use with the hose are installed. Fit and tighten hose coupling to LIFE RAFT manufacturer's procedures.
6. After fitting painter to Actuator Cable, ensure that Safety Pin (if fitted) is removed from Operating Head.

**WARNING: ALWAYS ENSURE THAT SAFETY PIN (IF FITTED) IS REMOVED AT FINAL LIFERAFT PACKING STAGE. IF LEFT IN PLACE THE SYSTEM WILL NOT FUNCTION.**

**SECTION 10**

**OPERATING PROCEDURE**



## **SECTION 10**

### **OPERATING PROCEDURE**

Fig 10.1 refers

The Operating Head is activated by pulling the Actuator Cable with a pull force between 60N and 100N over a minimum 20mm distance.

Direction of pull can be up to 90° in any direction from axis of cable exit.

The Actuator Cable Assembly will pull free from the Operating Head.

Gas discharge will be through Cylinder Valve outlet port to connecting hose.

**WARNING: IF OPERATION IS CARRIED OUT WITH GAS INFLATION SYSTEM DETACHED FROM LIFERAFT, THEN THE CYLINDER MUST BE ADEQUATELY SECURED AND RECOIL CAP FITTED.**

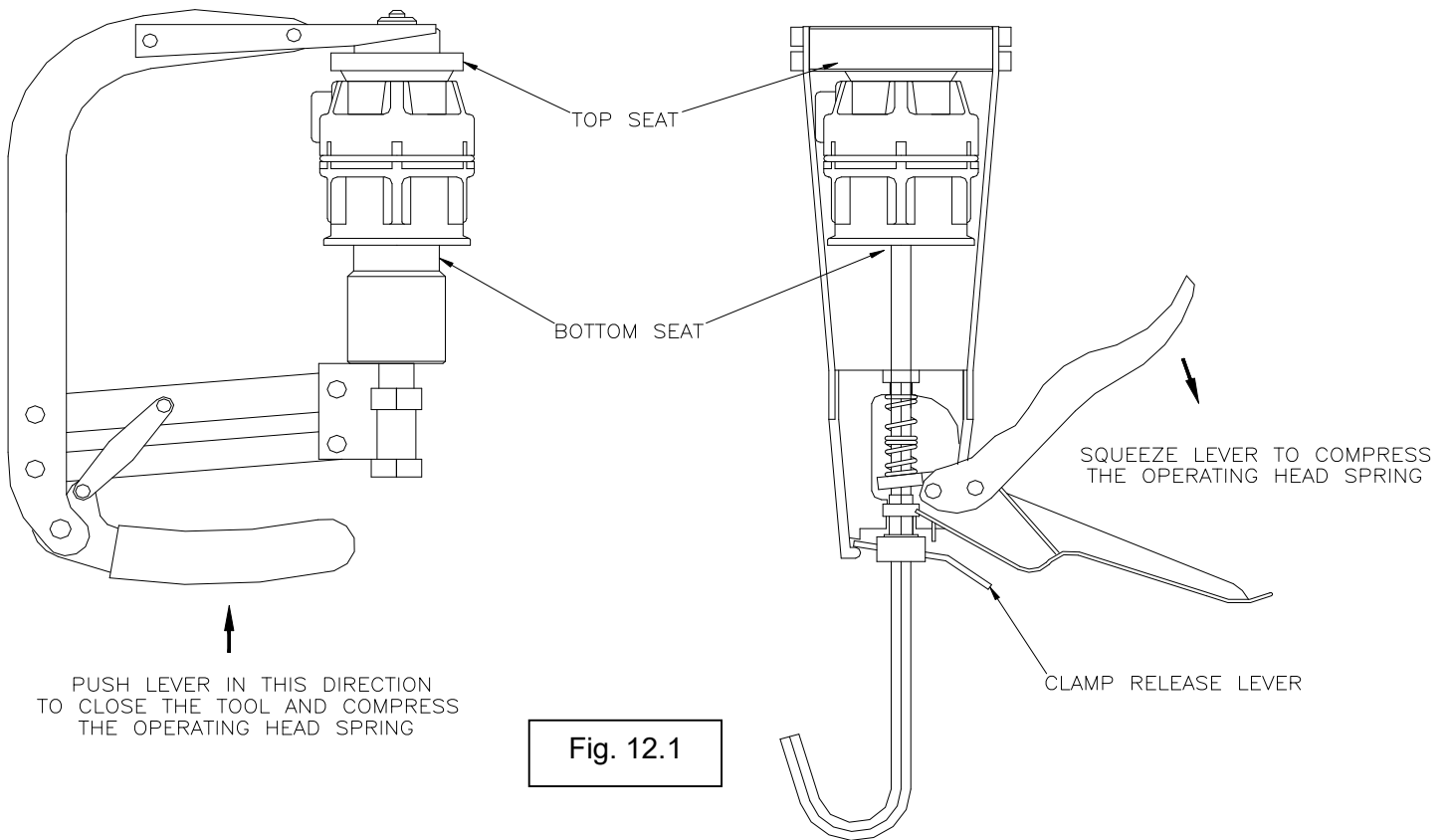
## **SECTION 11**

### **DISCHARGE OF SYSTEM WHEN NOT FITTED TO LIFERAFT**

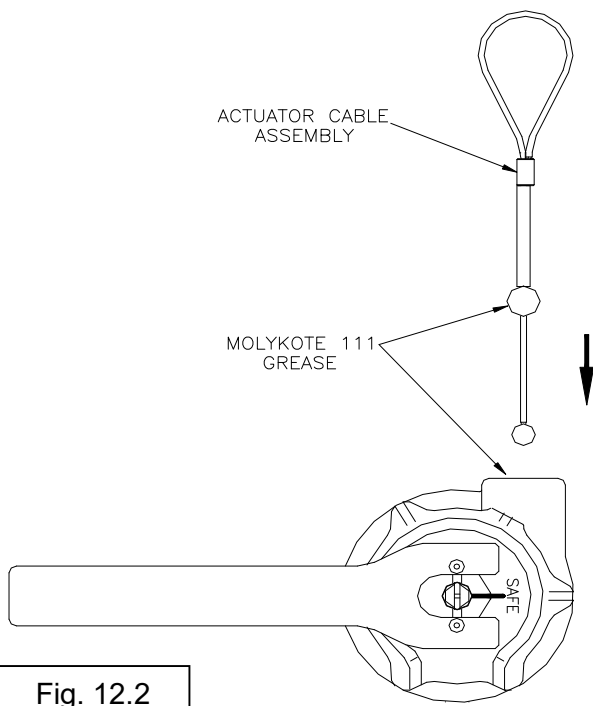
**WARNING: TO DISCHARGE A FULL CYLINDER WHICH IS NOT FITTED TO A LIFERAFT IT MUST BE FIRED AS A COMPLETE SYSTEM WITH RECOIL CAP FITTED AND CYLINDER RESTRAINED.**

**SECTION 12**

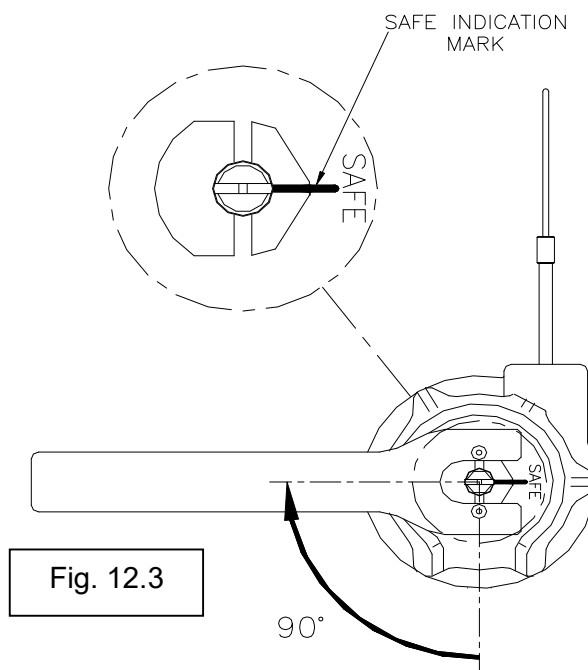
**RESETTING OF OPERATING HEAD AFTER FIRING**



**Fig. 12.1**



**Fig. 12.2**



**Fig. 12.3**



## **SECTION 12**

### **RESETTING OF OPERATING HEAD AFTER FIRING**

#### **On removal from life raft**

1. Remove the clamp retaining Operating Head to Cylinder Valve. Remove Operating Head from Cylinder Valve.
2. Visually examine Operating Head. Discard if damaged or more than 15 years old.
3. An Operating Head previously used MUST be flushed through with clean water and dried thoroughly in air.

Note: WD40 can be applied to the Operating Head mechanism to prevent surface corrosion if used regularly in training.

**WARNING: OPERATING HEAD MUST NOT BE CLEANED WITH SOLVENTS, SOAPS OR CHEMICAL CLEANING AGENTS. THESE MAY DEGRADE SYSTEM COMPONENTS AND CAUSE MALFUNCTION.**

#### **Fig 12.1 refers**

4. Locate Operating Head into Top Seat of Loading Tool (item 4.3, see page 6).
5. Compress Operating Head spring by pushing Loading Tool lever fully home or squeezing handles 3-4 times (depending on Loading Tool used), ensuring that Bottom Seat enters fully into Operating Head. Take care not to scratch chamfered entrance of plastic body.

#### **Fig 12.2 refers**

6. Visually examine Actuator Cable Assembly for condition of crimp, ball end and sealing ball. Discard if damaged.

**WARNING: IF SEALING BALL SHOWS ANY SIGNS OF SURFACE DAMAGE OR DEFORMATION THE ENTIRE CABLE MUST BE REPLACED, OR WATER MAY ENTER THE SYSTEM AND CAUSE MALFUNCTION.**

7. Apply a smear of Molykote 111 grease to cable port in Operating Head and to rubber ball seal of Actuator Cable Assembly. Push the rubber ball seal away from the metal ball end, up to the plastic sleeve. Insert Actuator Cable into cable port in Operating Head.

#### **Fig 12.3 refers**

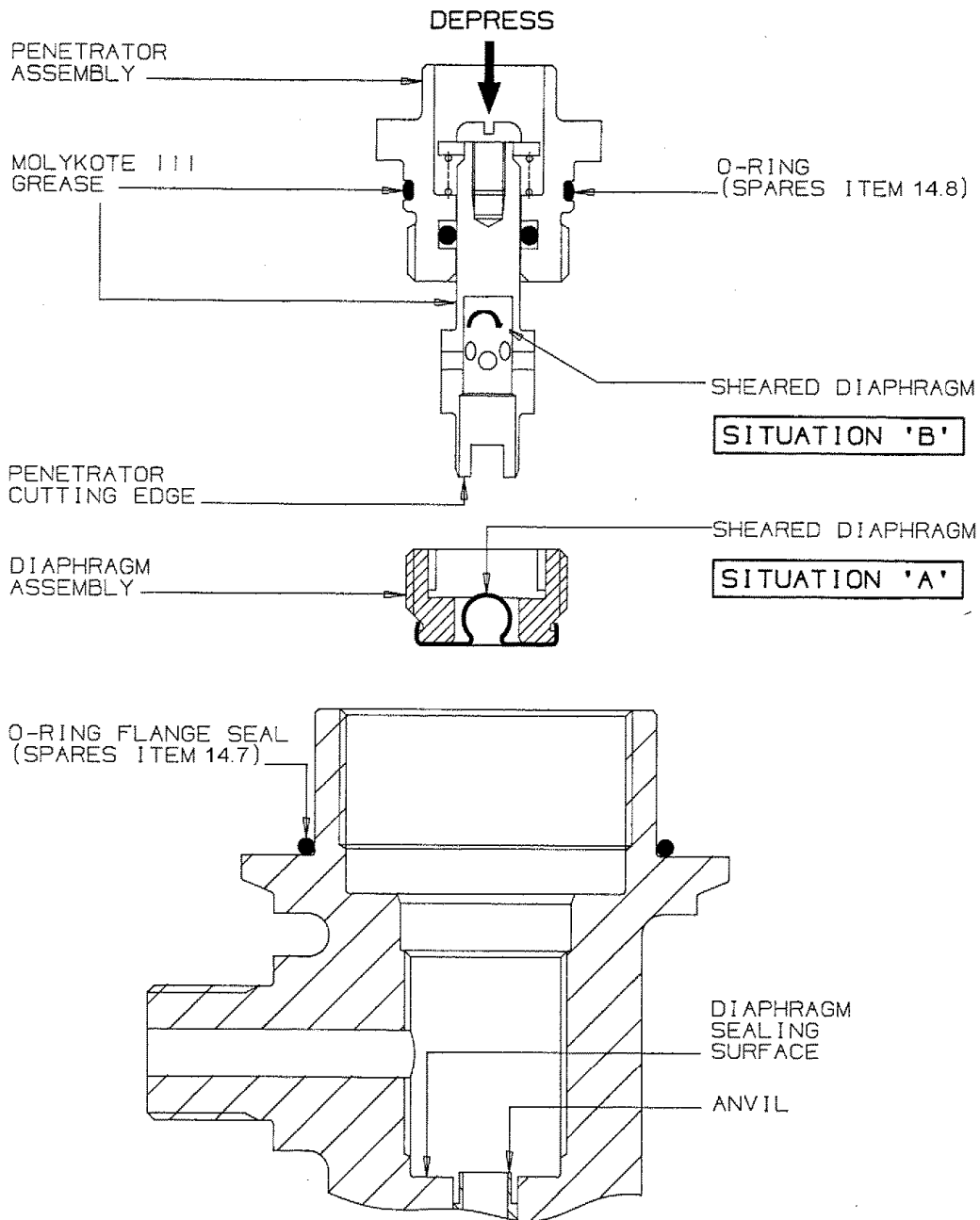
8. Using a suitable, parallel tip screwdriver turn screwdriver slot in top of Operating Head CLOCKWISE through 90° to pull in Actuator Cable and reset Operating Head.
9. Unclamp Loading Tool and remove Operating Head.
10. Ensure the screwdriver slot is aligned with the SAFE mark.

**WARNING: OPERATING HEAD MUST BE CORRECTLY LOADED OR SYSTEM WILL NOT FUNCTION.**

11. Fit Safety Pin, if required.
12. Store in a clean, dry place until required.

**SECTION 13**

**REFURBISHMENT OF CYLINDER VALVE AFTER FIRING**



**Fig. 13.1**

## SECTION 13

### REFURBISHMENT OF CYLINDER VALVE AFTER FIRING

1. Visually examine exterior of Cylinder Valve. Significant areas of exposed base metal (brass) or green corrosion are not acceptable.
2. Remove Penetrator Assembly, Diaphragm Assembly and 'O' Ring Flange Seal from Cylinder Valve. Discard 'O' Ring Flange Seal and external 'O' Ring on Penetrator Assembly, taking care not to damage the Penetrator Assembly 'O' Ring groove.
3. Thoroughly clean and degrease Cylinder Valve Body, ensuring no cleaning solution can enter the cylinder.

**WARNING: CYLINDER VALVE MUST NOT BE REUSED IF THERE IS ANY SIGNIFICANT DISTORTION, CORROSION OR IMPACT DAMAGE OR IF THERE IS DAMAGE TO EXTERNAL THREADS, HOSE SEATING SURFACE, DIAPHRAGM SEATING SURFACE OR ANVIL.**

Fig 13.1 refers

4. Establish if sheared diaphragm is **Situation 'A'** or **Situation 'B'**. In either situation the Diaphragm Assembly **MUST** be discarded. After a normal operation it is usual for the sheared diaphragm to be retained as shown in **Situation 'A'**. However, sometimes the cut element of the diaphragm may be lodged within the Penetrator as shown in **Situation 'B'**.

**CAUTION: THE PENETRATOR ASSEMBLY MAY BE REUSED IF IT HAS HAD NO MORE THAN 5 FIRINGS AND IS LESS THAN 15 YEARS OLD. OTHERWISE IT MUST BE DISCARDED AND REPLACED WITH NEW.**

5. If the Penetrator Assembly is to be reused, then the following actions **MUST** be carried out:
  - 5.1 The sheared diaphragm, if in **Situation 'B'**, must be carefully removed. This is best done using a pair of fine-nosed tweezers, with care being taken not to damage the cutting edge of the penetrator.
  - 5.2 Clean Penetrator Assembly in clean water and dry thoroughly in air.

**WARNING: PENETRATOR ASSEMBLY MUST NOT BE CLEANED WITH SOLVENTS, SOAPS OR CHEMICAL CLEANING AGENTS AS THIS CAN DEGRADE THE COMPONENTS. DO NOT ATTEMPT TO DISMANTLE PENETRATOR ASSEMBLY- THIS ITEM IS NON-SERVICEABLE.**

- 5.3 Visually inspect penetrator blade to ensure there is no damage to the cutting edge. Plug Gauge (item 4.4, see page 6) must freely enter and move in the bore of the penetrator.
- 5.4 Depress penetrator shaft (in direction of arrow in fig. 13.1) to ensure freedom of movement and apply a thin film of Molykote 111 as shown.

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### **SECTION 13**

#### **REFURBISHMENT OF CYLINDER VALVE AFTER FIRING**

- 5.5 Replace 'O' Ring with NEW (spares item 14.8, see page 28). Smear with a thin film of Molykote 111 grease and fit as shown, taking care not to damage 'O' Ring.

**WARNING: IF PLUG GAUGE DOES NOT ENTER PENETRATOR OR IF PENETRATOR SHOWS SIGNS OF SIGNIFICANT DAMAGE, PENETRATOR ASSEMBLY MUST BE DISCARDED AND REPLACED WITH NEW.**

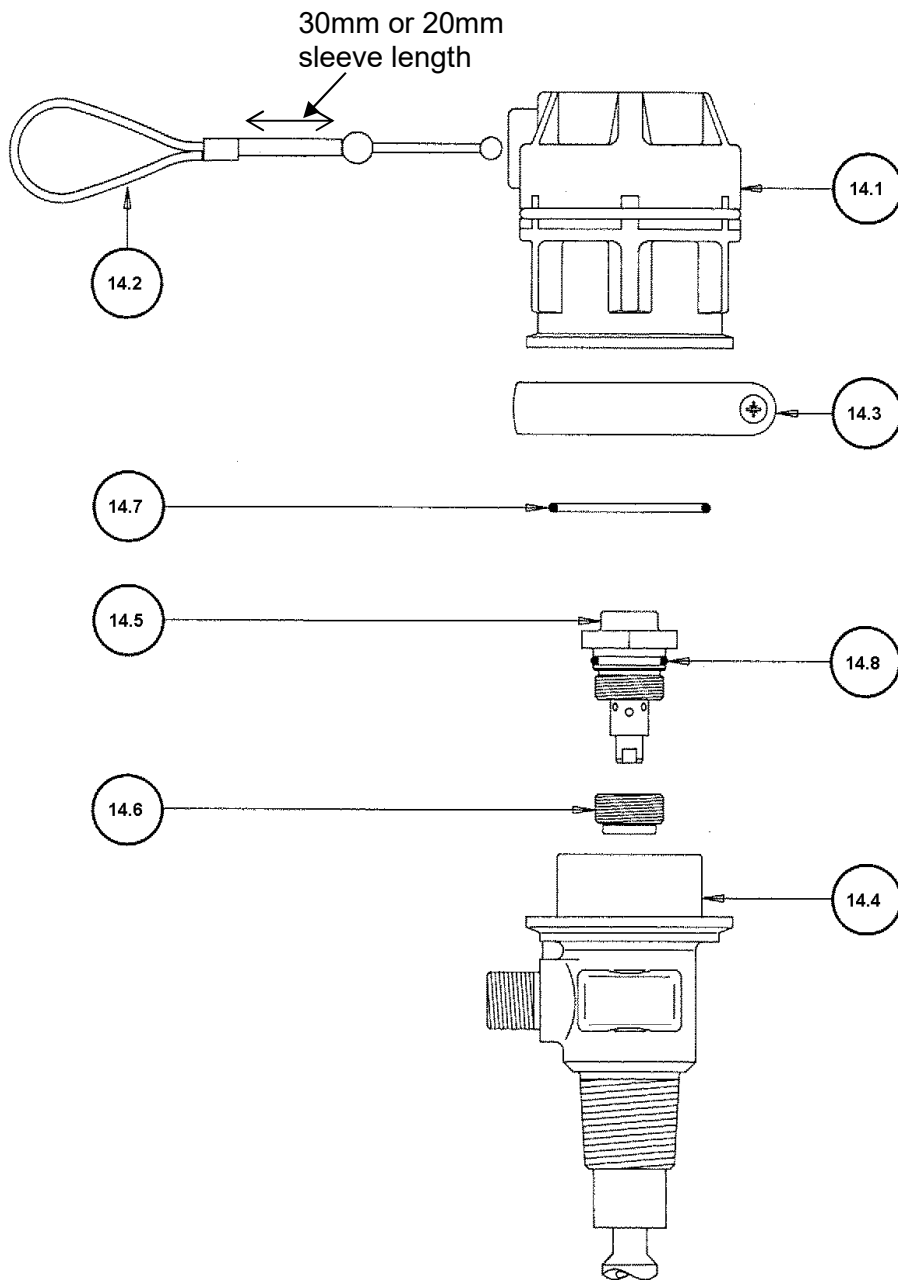
6. Fit NEW Diaphragm Assembly and charge the cylinder in accordance with Section 6 procedures.
7. Fit Penetrator Assembly in accordance with Section 7.
8. Cylinder/Cylinder Valve is now ready for fitting of Operating Head and installation to liferaft in accordance with Sections 8 and 9.
9. Fit a new 'O' Ring flange seal (spares item 14.7, page 28) to Cylinder Valve body.

**WARNING: RECOIL CAP MUST ALWAYS BE FITTED TO CYLINDER VALVE OUTLET WHEN CHARGED CYLINDER IS STORED UNCONNECTED TO LIFERAFT.**

**CAUTION: TRANSIT PLUG SHOULD BE FITTED TO CYLINDER VALVE WHEN CHARGED CYLINDER IS TO BE HANDLED, TRANSPORTED OR STORED WITH PENETRATOR ASSEMBLY FITTED.**

**CAUTION: DO NOT STORE CHARGED CYLINDER IN DIRECT SUNLIGHT OR WHERE TEMPERATURE CAN EXCEED 65°C.**

**SECTION 14**  
**SPARE PARTS LIST**



**SECTION 14**

**SPARE PARTS LIST**

ITEM	DESCRIPTION	PART NUMBER
14.1	OPERATING HEAD ASSEMBLY (complete with Actuator Cable Assembly, item 14.2, Clamp Assembly, item 14.3 and 'O' Ring Seal, item 14.7)	D912101
14.2	ACTUATOR CABLE ASSEMBLY Available with 30mm or 20mm sleeve	B9121130 (30mm) B9121120 (20mm)
14.3	CLAMP ASSEMBLY	B91214
14.4	VALVE BODY/SYPHON TUBE ASSEMBLY	C91223-2 and -5. See page 3, item 2.2
14.5	PENETRATOR ASSEMBLY (Complete with 'O' Ring Seal item 14.8)	C91221
14.6	DIAPHRAGM ASSEMBLY 250 BAR	B912221
14.7	'O' RING SEAL	66300458
14.8	'O' RING SEAL	66300456
-	SILICONE GREASE TYPE DOW CORNING MOLYKOTE 111	50800041

**WARNING: USE ONLY SPARES MANUFACTURED BY LEAFIELD MARINE LIMITED WHEN SERVICING THE GAS INFLATION SYSTEM. OTHER ITEMS COULD FAIL AND CAUSE INJURY OR DEATH.**