J98

Over Pressure Slam Shut Valve
Inlet Pressure up to 10 bar

This product is discontinued!

Commissioning Instructions

General Arrangements

Parts Lists

Maintenance Instructions

For: J98 Slam Shut Valve

150mm and 200mm size

For 10 bar units built after 1983.
For 2 Bar units and 2"(50mm), 3"(80mm) and 4"(100mm) units please refer to Elster Jeavons for special maintenance instructions.

elster
Jeavons

J98: Commissioning Instructions

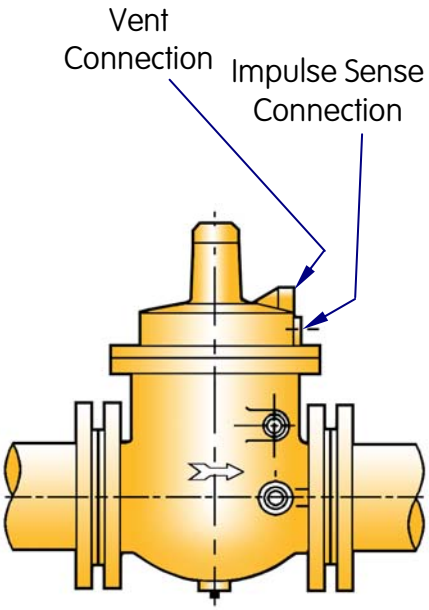


Fig. 1

INSTALLATION INSTRUCTIONS ((Fig 1)

1. The unit should not be installed in a corrosive environment.
2. The ambient temperature (surface temperature) should be within the limits stated on the slam shut valve catalogue.
3. Check the maximum allowable pressure on the slam shut valve nameplate against the installation specification.
4. Remove protective discs from flanges on inlet and outlet ports and plug from impulse connection.
5. Ensure installation pipework is thoroughly clean.
6. The direction of gas flow must be the same as the arrows on the slam shut body.
7. Install the slam shut valve into the pipework, using gaskets and bolting approved to National Standards.
8. Connect impulse line to sense chamber tapping, using jointing compound approved to National Standards.
9. Vent line can be installed as below if required: Remove vent protective screen and connect vent pipe line to top cover, using jointing compound approved to National Standards.

   Lead pipe to atmosphere in accordance with National Standards.

   Ensure no water can penetrate pipe termination point.

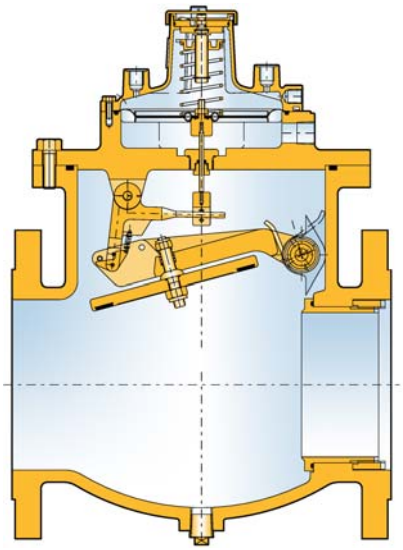


Fig. 2

VALVE OPERATION (Fig 2)

As the sense pressure rises to the desired trip point, it acts against the pressure sensing diaphragm and pressure setting spring.
The diaphragm gradually lifts as the sense pressure increases. When the set pressure is reached (TRIP POINT), it releases the latch that holds the valve in the cocked position. This allows the valve assembly to swing down, assisted by a powerful spring, into the closed position.
The position of the valve is indicated by a scribed line on the end of the reset shaft. The line corresponds with the position of the valve.
If the valve is fitted with a micro switch refer to separate sheet for installation instructions.

J98: Commissioning Instructions

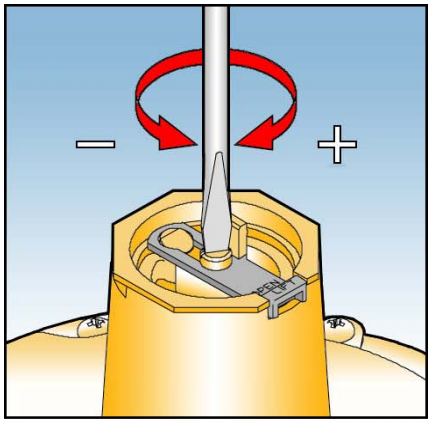


Fig. 3

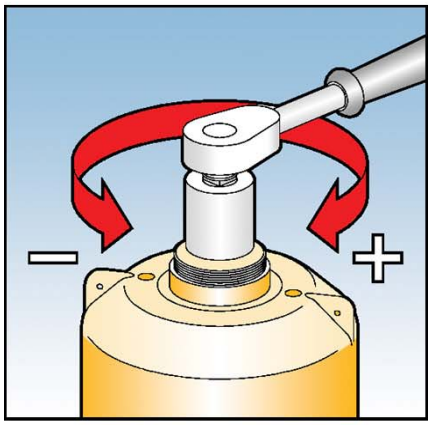


Fig. 4

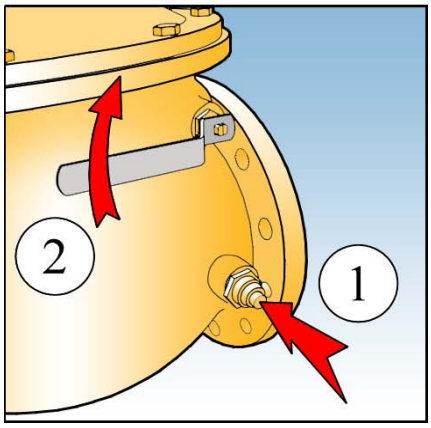


Fig. 5

SETTING THE TRIP PRESSURE

1. Ensure valve is depressurized.
2. Remove top cap.
3. On low pressure unit insert a flat bladed screwdriver into the slot in the end of the spring adjusting screw (Fig 3). On medium and high pressure units attach a suitable spanner or socket to the hexagon on top of the spring adjuster (Fig 4).
4. Screw adjuster clockwise as far as it will go, Do Not Force.
5. Induce desired set pressure at pressure sense point.
6. Wind out (anticlockwise) adjuster half a turn at a time until valve trips.
7. Remove pressure, reset valve (see below).
8. Slowly induce pressure at sense point, and check that valve trips at desired pressure. Adjust as necessary.
9. Valve is now set.
10. Refit top cap.
11. Note: If the required trip pressure can not be obtained with the spring fitted alternative loading springs are available. Refer to the maintenance instructions for spring details and fitting procedure.

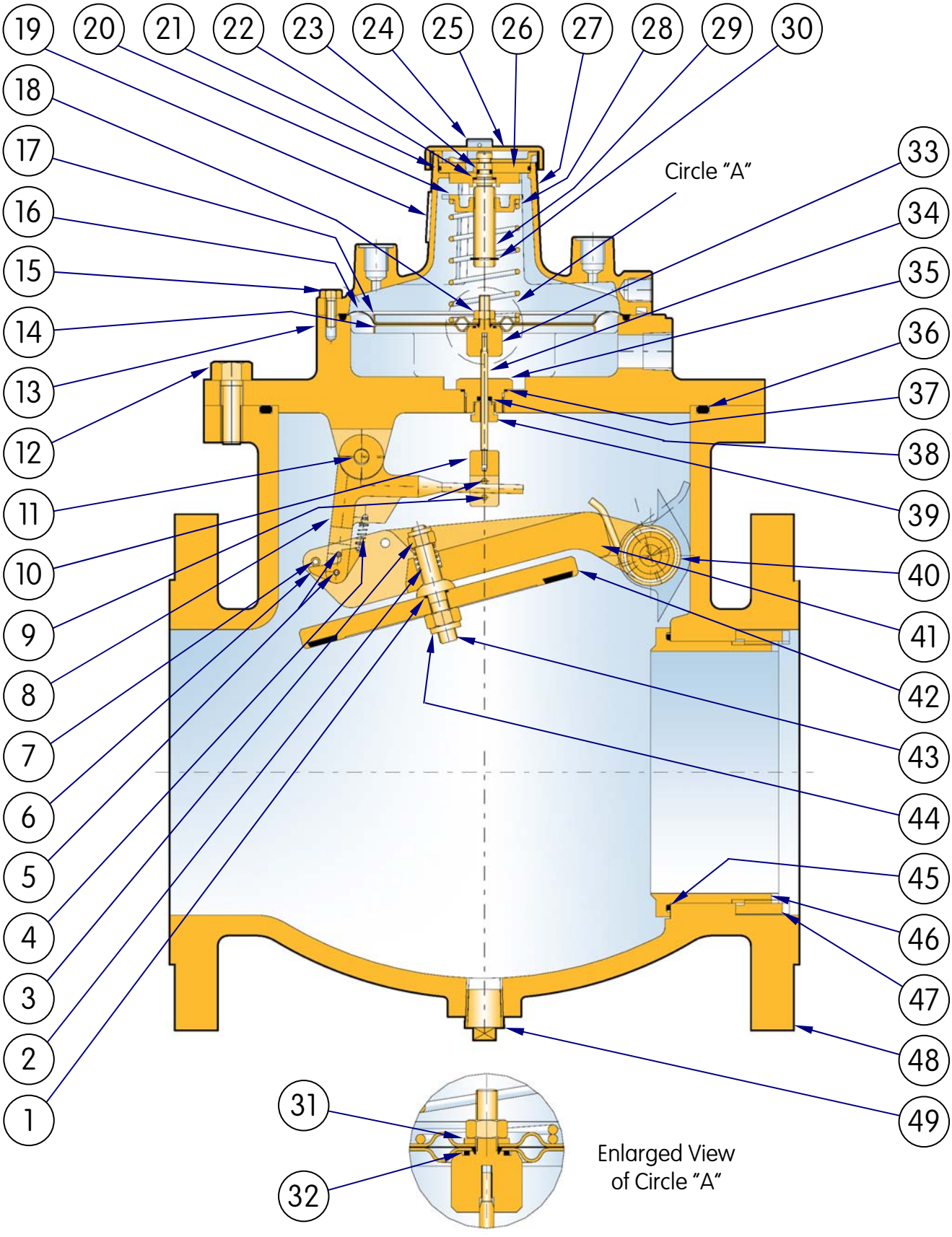
RE-ARMING THE VALVE (Fig 4)

Re-arming of the valve is carried out manually. Prior to re-arming, the cause of actuation should first be ascertained and rectified. Close the downstream valve. Vent downstream pressure in accordance with national standards. In order to operate, the correct procedure must be followed.

Remove the dust caps from the equalising valve and the reset bush. Attach the resetting handle to the end of the reset spindle. Depress the button on the equalizing valve (1). Do not attempt to force the valve open. Once pressure has equalized the valve seat assembly will be felt to lift from the seat allowing the reset shaft to be easily rotated (2) to the latching position. Remove handle and refit the dust caps to equalizing valve and reset bush. Commission downstream appliances.

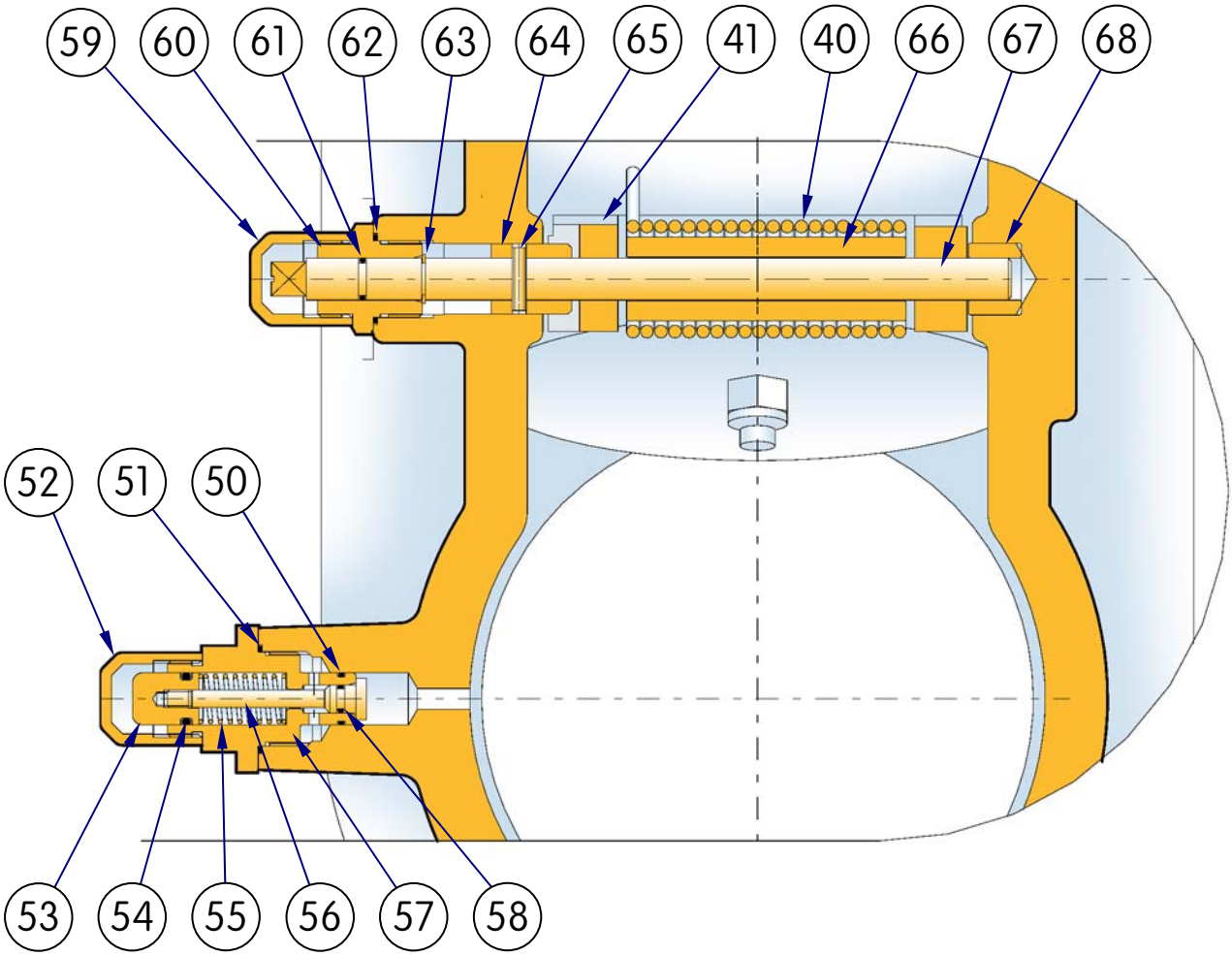
J98: General Arrangement

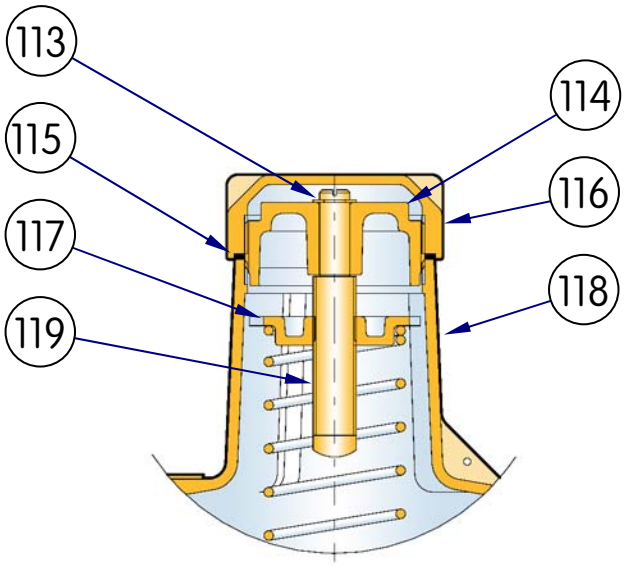
Low Pressure – Fig 6



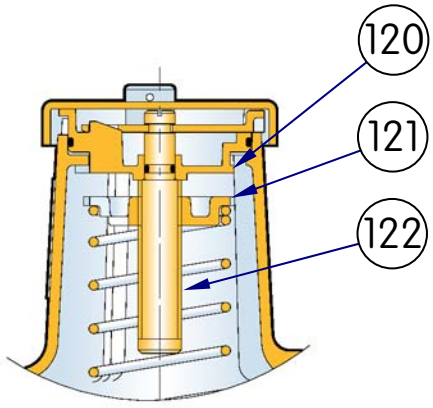
J98: General Arrangement

Spindle Assembly – Fig 7





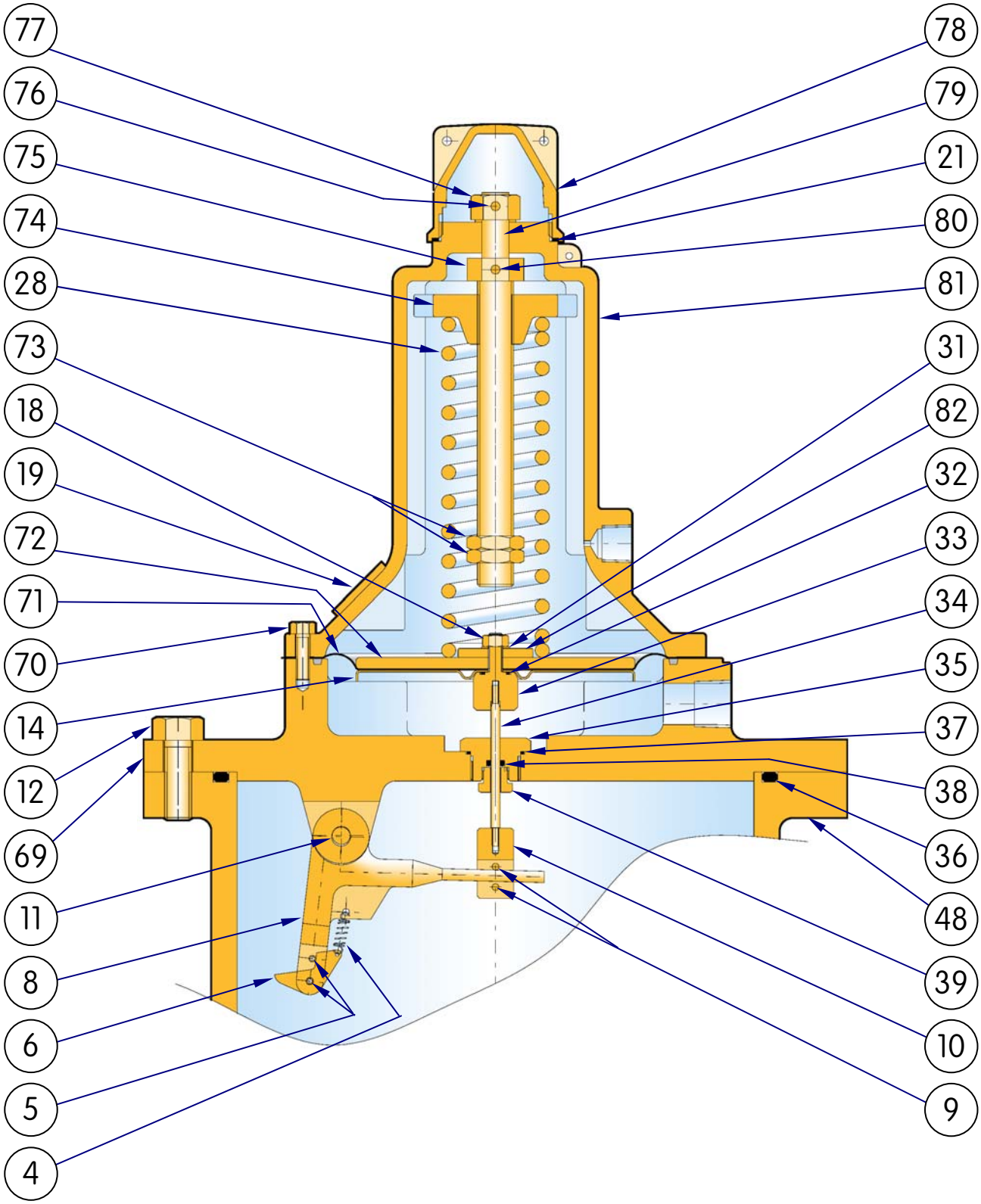
Top Cap Assembly
up to August 1992
Fig 8



Top Cap Assembly
Sept 1992 until Jan 2000
Fig 9

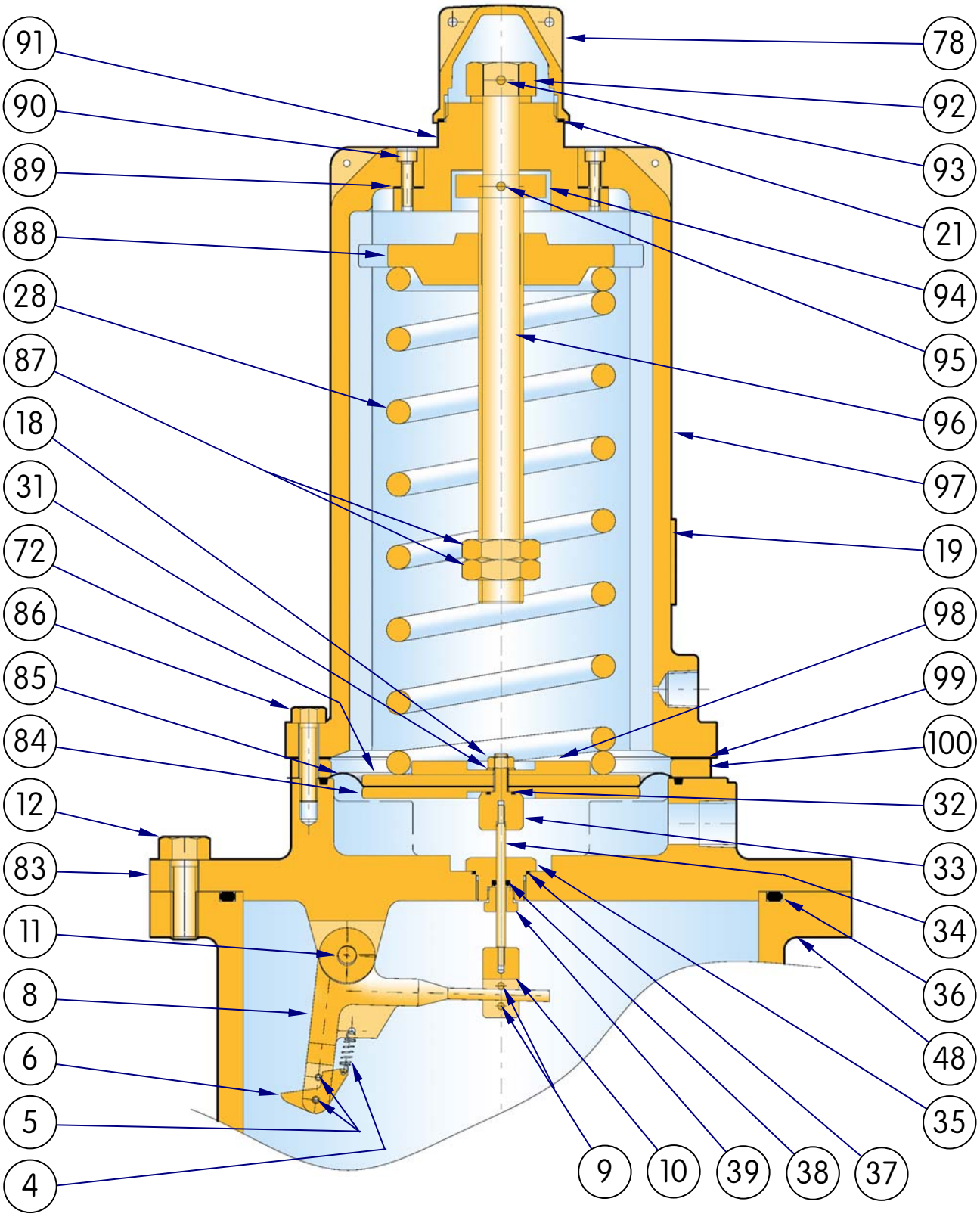
J98: General Arrangement

Medium Pressure – Fig 10



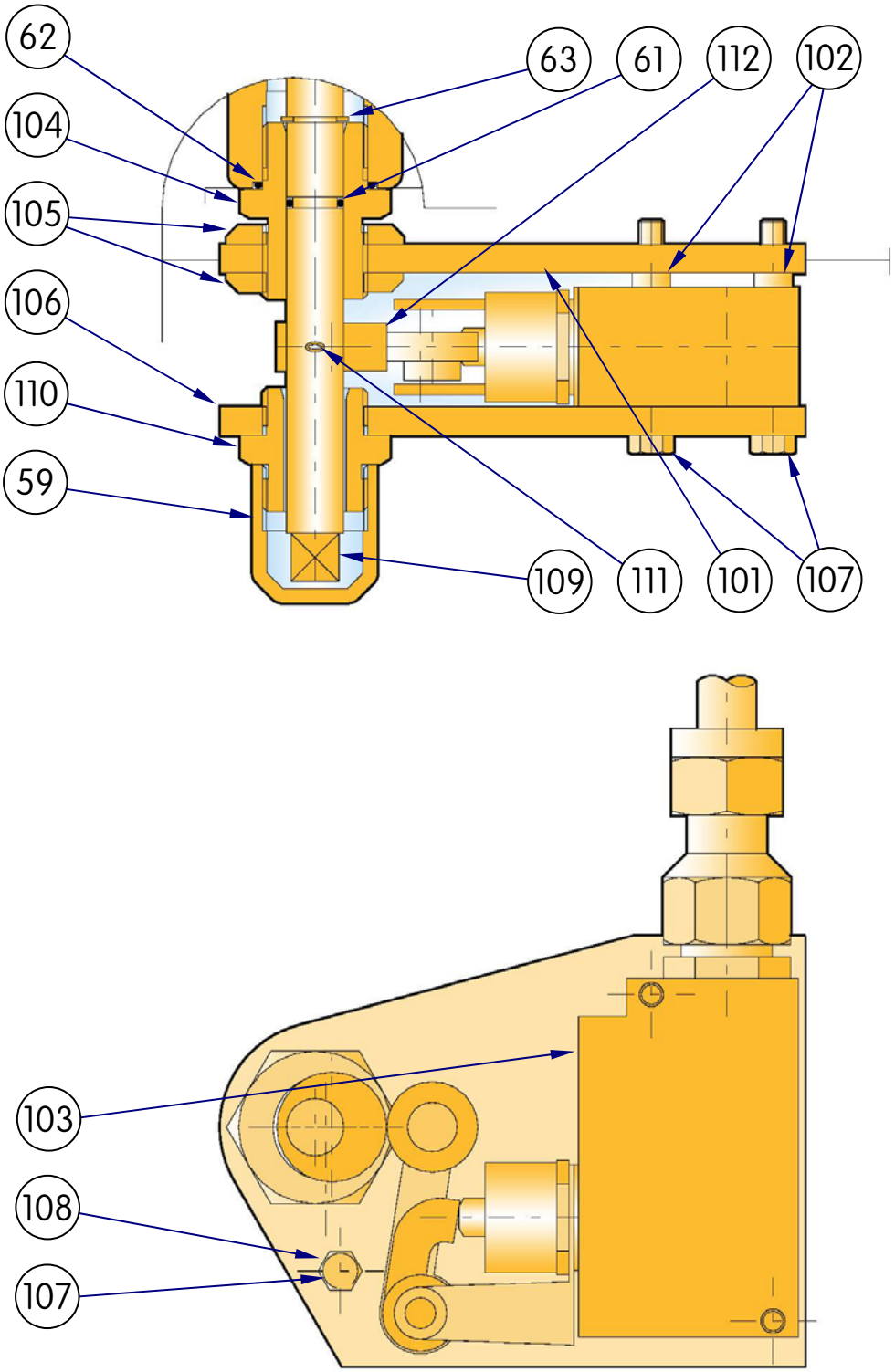
J98: General Arrangement

High Pressure – Fig 11



J98: General Arrangement

Microswitch Assembly – Fig 12



J98: Parts List
All types and sizes

ITEM	DESCRIPTION	150mm		200mm	
		Part Number	No Off	Part Number	No Off
1	"O"ring seal	JORM0091-16	✷ 1	JORM0091-16	✷ 1
2	Centring Spring	J9814-012	1	J9814-012	1
3	M8 Phillidas Nut	JNA8PZ	1	JNA8PZ	1
4	Cocking Lever Tension Spring	J9812-029	1	J9812-029	1
5	Tension Pin 3 x 16	JTP3X16S	2	JTP3X16S	2
6	Cocking lever	J9816-012	1	J9816-012	1
7	Tension Pin 5 x 60	JTP5X60S	1	JTP5X70S	1
8	Lever Arm	J9816-020Z01	1	J9816-020Z01	1
9	Tension Pin 3 x 16	JTP3X16S	2	JTP3X16S	2
10	Lever Arm Link	J9812-016	1	J9812-016	1
11	Tension Pin 8 x 40	JTP8X40	1	JTP8X40	1
12	M12 x 35 Hex Head Screw	JSA1235HHNZG	8	JSA1235HHNZG	8
13	L.P. Guide Plate	J9814-003+01	1	J9816-003+01	1
14	Bottom Diaphragm Plate	J4808-003	1	J4808-003	1
15	M6 x 16 Hex Head Screw	JSA616HHNZG	8	JSA616HHNZG	8
16	L.P. Main Diaphragm	J4808-011	✷ 1	J4808-011	✷ 1
17	L.P. Top Diaphragm Plate	J4808-003	1	J4808-003	1
18	M6 Fullnut	JNA6FZD	1	JNA6FZD	1
19	Nameplate	J8112-124	1	J8112-124	1
20	L.P. Top Spring Holder	J4806-127	1	J4806-127	1
21	"O"ring Seal	JO200032-4475	✷ 1	JO200032-4475	✷ 1
22	Washer	J4806-134	1	J4806-134	1
23	"O"ring Seal	JORM0051-16	✷ 1	JORM0051-16	✷ 1
24	Locking Lever	J4806-105	1	J4806-105	1
25	L.P. Top Cap	J4806-099	1	J4806-099	1
26	L.P. Spring Adjusting Bush	J4806-100Z01	1	J4806-100Z01	1
27	L.P. Top Cover	J4808-078+04	1	J4808-078+04	1
28	Loading Spring	See Table	1	See Table	1
29	L.P. Spring Adjusting Screw	J4806-128	1	J4806-128	1
30	Circlip	JCIR1500-080Z	1	JCIR1500-080Z	1
31	M6 Washer	JWM6BS4320BI	1	JWM6BS4320BI	1
32	"O"ring Seal	JORM0091-16	✷ 1	JORM0091-16	✷ 1
33	Diaphragm Adaptor Bush	J9812-023	1	J9812-023	1
34	Diaphragm Stem	J9812-025	1	J9812-025	1
35	Diaphragm Stem Guide Bush	J9812-015	1	J9812-015	1
36	"O"ring Seal	JORM2393-57	✷ 1	JORM3193-57	✷ 1
37	"O"ring Seal	JORM0221-16	✷ 1	JORM0221-16	✷ 1
38	"O"ring Seal	JORM0036-24	✷ 1	JORM0036-24	✷ 1
39	"O"ring Retaining Bush	J9812-052	1	J9812-052	1
40	Torsion Spring	J9814-010	1	J9816-014	1

Part numbers marked + require flange specification to be stated with order. Items marked ❄ are contained in spares kits

J98: Parts List

All types and sizes

ITEM	DESCRIPTION	150mm		200mm	
		Part Number	No Off	Part Number	No Off
41	Valve Disc Lever Arm	J9814-005Z01	1	J9816-005Z01	1
42	Valve Disc Holder	J9814-006	✶ 1	J9816-007	✶ 1
43	Valve Holder Spindle	J9816-013	1	J9816-013	1
44	M10 Phillidas Nut	JNA10PZ	1	JNA10PZ	1
45	"O"ring Seal	JORM1445-30	✶ 1	JORM1945-30	✶ 1
46	Valve Seat	J9814-008	1	J9816-010	1
47	Valve Seat Clamping Ring	J9814-009	1	J9816-011	1
48	Body	J9814-001+01	1	J9816-001+01	1
49	Bottom Plug	JMFP104	1	JMFP104	1
50	"O"ring Seal	JORM0121-16	✶ 1	JORM0121-16	✶ 1
51	"O"ring Seal	JORM0271-16	✶ 1	JORM0271-16	✶ 1
52	Equalising Valve End Cap	J9812-026	1	J9812-026	1
53	Plunger for Equalising Valve	J9809-016	1	J9809-016	1
54	"O"ring Seal	JORM0106-24	✶ 1	JORM0106-24	✶ 1
55	Equalising Valve Return Spring	J5411-007	1	J5411-007	1
56	Spindle for Equalising Valve	J9809-017	1	J9809-017	1
57	Equalising Valve Body	J9809-015	1	J9809-015	1
58	"O"ring Seal	JORM0051-16	✶ 1	JORM0051-16	✶ 1
59	Lever Arm Spindle End Cap	J9812-026	1	J9812-026	1
60	Lever Arm Spindle Bush	J9812-014	1	J9812-014	1
61	"O"ring Seal	JORM0091-16	✶ 1	JORM0091-16	✶ 1
62	"O"ring Seal	JORM0221-16	✶ 1	JORM0221-16	✶ 1
63	Circlip	JCIR7133-090B	1	JCIR7133-090B	1
64	Lever Arm Spindle Driving Bush	J9816-009	1	J9816-009	1
65	Tension Pin 4 x 18	JTP4X18	1	JTP4X18	1
66	Torsion Spring Location Bush	J9814-011	1	J9816-015	1
67	Lever Arm Spindle	J9814-007	1	J9816-008	1
68	Lever Arm Spindle Location Bush	J9812-037	1	J9812-037	1
69	M.P. Guide Plate	J9814-003+02	1	J9816-003+02	1
70	M6 x 20 Hex Head Screws	JSA620HHNZG	8	JSA620HHNZG	8
71	M.P. Diaphragm	J9812-030	✶ 1	J9812-030	✶ 1
72	M.P. Top Diaphragm Plate	J9812-024	1	J9812-024	1
73	M.P. Locknut	J9812-012	2	J9812-012	2
74	M.P. Top Spring Holder	J9812-008Z01	1	J9812-008Z01	1
75	M.P. Spring Adj. Screw Thrust Washer	J9812-010	1	J9812-010	1
76	Tension pin 4 x 18	JTP4X18	1	JTP4X18	1
77	M.P. Spring Adjusting Nut	J9812-011	1	J9812-011	1
78	M.P. Top cap	J12312-036Z01	1	J12312-036Z01	1
79	M.P. Spring Adjusting Screw	J9812-009	1	J9812-009	1
80	Tension Pin 4 x 25	JTP4X25	1	JTP4X25	1
81	M.P. Top Cover	J9812-007+01	1	J9812-007+01	1

Part numbers marked + require flange specification to be stated with order. Items marked ✶ are contained in spares kits

J98: Parts List
All types and sizes

ITEM	DESCRIPTION	150mm		200mm	
		Part Number	No Off	Part Number	No Off
82	M.P. Spring Locating Washer	J9812-022	1	J9812-022	1
83	H.P. Guide Plate	J9814-003+03	1	J9816-003+03	1
84	H.P. Bottom Diaphragm Plate	J9812-070	1	J9812-070	1
85	H.P. Diaphragm	J9812-072	1	J9812-072	1
86	M8 x 35 Socket Head Screw	JSA835SANZI	8	JSA835SANZI	8
87	H.P. Locknut	J8112-105	2	J8112-105	2
88	H.P. Top Spring Holder	J8112-049Z01	1	J8112-049Z01	1
89	H.P. Spring Adjusting Bush - Cover Gasket,	J8111-072	1	J8111-072	1
90	M5 x 20 Socket Head Screw	JSA520SANZI	2	JSA520SANZI	2
91	H.P. Spring Adjusting Bush	J8111-071	1	J8111-071	1
92	H.P. Spring Adjusting Nut	J8112-052	1	J8112-052	1
93	Tension Pin 4 x 25	JTP4X25	1	JTP4X25	1
94	H.P. Thrust Washer	J8112-051	1	J8112-051	1
95	Tension Pin 4 x 40	JTP4X40	1	JTP4X40	1
96	H.P. Spring Adjusting Screw	J9812-066	1	J9812-066	1
97	H.P. Top Cover	J8112-048+01	1	J8112-048+01	1
98	H.P. Spring Locating Washer	J9812-065	1	J9812-065	1
99	H.P. Top Cover Spacer Gasket	J9812-068	1	J9812-068	1
100	H.P. Top Cover Spacer	J9812-067	1	J9812-067	1
101	Micro Switch Mounting Plate	J9809-022	1	J9809-022	1
102	Micro Switch Mounting Plate Spacer	J9809-024	2	J9809-024	2
103	Burgess Micro Switch	JMSWITCH(B)01	1	JMSWITCH(B)01	1
104	Micro Switch Valve Mounting Plate Bush	J9814-016	1	J9814-016	1
105	Micro Switch Locknut	J9814-018	2	J9814-018	2
106	Micro Switch Cover Plate	J9809-021	1	J9809-021	1
107	M5 x 45 Hex Head Bolt	JBA545HEXZG	3	JBA545HEXZG	3
108	Micro Switch Top Plate Spacer	J9809-023	1	J9809-023	1
109	Micro Switch Lever Arm Spindle	J9814-028	1	J9816-018	1
110	Micro Switch Cap Mounting Bush	J9814-017	1	J9814-017	1
111	Tension Pin 4 x 18	JTP4X18	1	JTP4X18	1
112	Micro Switch Cam	J9814-015	1	J9814-015	1
113	Circlip (Old Design)	JCIR7133-060B	1	JCIR7133-060B	1
114	Spring Adjusting Bush (Old Design)	J4808-052Z01	1	J4808-052Z01	1
115	Top Cap Gasket (Old Design)	J4808-023	1	J4808-023	1
116	Top Cap - Aluminium (Old Design)	J4808-006Z01	1	J4808-006Z01	1
117	Top Spring Holder (Old Design)	J4808-018	1	J4808-018	1
118	Top Cover (Old Design)	J4808-002+04	1	J4808-002+04	1
119	Spring Adjusting Screw (Old Design)	J4808-019	1	J4808-019	1
120	Adjusting Bush (Sept '92 until Jan 2000)	J4808-100	1	J4808-100	1
121	Top Spring Holder (Sept '92 'til Jan 2000)	J4806-098	1	J4806-098	1
122	Spring Adjusting Screw (Sept '92 'til Jan 2000)	J4806-097	1	J4806-097	1

Part numbers marked + require flange specification to be stated with order.

J98: Spring Table

LOW PRESSURE UNITS

mbar	"w.g.	PART NUMBER	COLOUR
10 - 20	4 - 8	J4809-007	Dark Blue / Yellow
20 - 37	8 - 15	J4809-004	Dark Blue / Black
35 - 50	14 - 20	J4809-005	Dark Blue / Orange
47 - 60	19 - 27	J4809-006	Dark Blue / Brown
62 - 90	25 - 36	J4809-024	Dark Blue / Gold
87 - 125	35 - 50	J4809-025	Dark Blue / Grey
112 - 150	45 - 60	J9812-028	Green / Light Blue

MEDIUM PRESSURE UNITS

bar	PSIG	PART NUMBER	COLOUR
0.07 - 0.21	1 - 3	J9812-033	Green / Brown
0.21 - 0.34	3 - 5	J9812-040	White / Dark Green
0.34 - 0.48	5 - 7	J9812-044	White / Light Blue
0.48 - 0.76	7 - 11	J9812-045	White / Light Green

HIGH PRESSURE UNITS

bar	PSIG	PART NUMBER	COLOUR
0.69 - 1.38	10 - 20	J9812-061	Gold / Dark Green
1.38 - 2.07	20 - 30	J9812-062	Gold / Light Blue
2.07 - 2.76	30 - 40	J9812-063	Gold / Brown
2.76 - 3.45	40 - 50	J9812-064	Gold / Black

SPARES KITS

Size	Low Pressure	Medium Pressure	High Pressure
150mm	SK9814-01	SK9814-02	SK9814-05
200mm	SK9816-01	SK9816-02	SK9816-05

Spares kit contents are marked ✶ on parts list.

Each spares kit comprises all diaphragms, valve seats, gaskets and "O" ring seals all packed in one plastic bag.

Units fitted with a micro switch use standard spares kit.

Precise details of contents will be on outside of each bag.

For units built before 1983 please contact Elster Jeavons for spares information.

Special Tools

Special tools are available from Elster Jeavons to assist in removing the valve seat.

Part numbers as follows:

150mm Size = Part Number. TA3-1514/D

200mm Size = Part Number. TA3-1514/E

J98: Maintenance Instructions

Dismantling Procedure:

To fully dismantle the J98 the unit has to be removed from the gas line.
(Isolate microswitch, if fitted, before commencing disassembly).
Note: Numbers in brackets identify items on drawing.

Removal of OPSS assembly from Slam Shut Body.

Low Pressure Unit

Drawing Reference: Fig 6

1. Check external surfaces for excessive corrosion.
2. Remove top cap (25).
3. Turn spring adjusting screw (29) anticlockwise to reduce loading spring compression to a minimum.
4. Carefully lift protruding end of locking lever (24) just above adjusting bush (26) whilst in this position turn (octagon shaped) adjusting bush (26) assembly anticlockwise until disengaged. The adjusting bush (26) can then be removed from the top cover (27).

   Note: When higher spring ranges are fitted the spring adjusting bush is still under compression when being removed.
5. Remove the loading spring (28) from the top cover (27).
6. Unscrew spring cover peripheral screws (15) and remove top cover (27).
7. Pull centre stem (33) upwards to ensure that the valve has "tripped off". Valve position is indicated at the end of the lever arm spindle (67).
8. Remove guide plate clamping hex head screw (12) and separate guide plate from body.
9. Lift off guide plate (13) taking care not to damage the internal mechanism against the inside wall of the body (48).

Medium Pressure Unit

Drawing Reference: Fig 10

1. Check external surfaces for excessive corrosion.
2. Unscrew top cap (78).
3. Turn spring adjusting nut (77) anticlockwise to reduce loading spring compression to a minimum.
4. Unscrew spring cover peripheral hex head screws (70) and remove top cover (81) and loading spring (28).
5. Pull centre stem (33) upwards to ensure that the valve has "tripped off". Valve position is indicated at the end of the lever arm spindle (67).
6. Remove guide plate clamping hex head screw (12) and separate guide plate from body.
7. Lift off guide plate (69) taking care not to damage the internal mechanism against the inside wall of the body (48).

J98: Maintenance Instructions

Removal of OPSS assembly from Slam Shut Body.

High Pressure Unit

Drawing Reference: Fig 11

1. Check external surfaces for excessive corrosion.
2. Unscrew top cap (78).
3. Turn spring adjusting nut (92) anticlockwise to reduce loading spring compression to a minimum.
4. Unscrew spring cover peripheral hex head screws (86) and remove top cover (97) and loading spring (28) spacer (100) and gasket (99).
5. Pull centre stem (33) upwards to ensure that the valve has "tripped off". Valve position is indicated at the end of the lever arm spindle (67).
6. Remove guide plate clamping hexagon head screw (12) and separate guide plate from body.
7. Lift off guide plate (83) taking care not to damage the internal mechanism against the inside wall of the body (48).

Dismantling of OPSS Assembly

Low Pressure Unit

Drawing Reference: Fig 6

1. Unscrew diaphragm clamping nut (18) and remove washer (31) whilst holding top diaphragm plate (17) to prevent rotation.
2. Remove diaphragm (16), diaphragm plates (14 & 17) and "O" ring (32).
3. Hold lever arm link (10) to prevent rotation and unscrew diaphragm adapter bush (33) from diaphragm stem (34), taking care not to bend diaphragm stem (34).
4. Remove lever arm link (10) and diaphragm stem (34) by pulling clear of guide bush (35). Unscrew lever arm link (10) from diaphragm stem (34).I
5. Inspect diaphragm stem for excessive wear and renew if necessary.
6. Unscrew diaphragm stem guide assembly (35) from guide plate (13). Inspect internal and external "O" rings (37 & 38) and renew if necessary by removing "O" ring retaining bush (39).
7. Visually inspect top surface of cocking lever (6) for wear. If damage is excessive detach the return spring (4) and remove the tension pin (5) to separate cocking lever (6) from lever arm (8).
8. To disassemble loading spring adjusting bush (26) lift keyhole end of locking lever (24) over sloping peg in adjusting bush (26), and slide forward until disengaged from spring adjusting screw (29) and remove.
9. Pull spring adjusting screw (29) from adjusting bush (26). Remove "O" rings (23 & 21) from spring adjusting screw (29) and adjusting bush (26) respectively.
10. Lift washer (22) from spring adjusting screw (29) and remove.

Dismantling of OPSS Assembly (cont.)

Medium Pressure Unit

Drawing Reference: Fig 10

1. Unscrew diaphragm clamping nut (18) and remove washer (31) and spring location plate (82), whilst holding top diaphragm plate (72) to prevent rotation.
2. Remove diaphragm (71), diaphragm plates (14 & 72) and "O" ring (32).
3. Hold lever arm link (10) to prevent rotation and unscrew diaphragm adapter bush (33) from diaphragm stem (34) taking care not to bend diaphragm stem (34).
4. Remove lever arm link (10) and diaphragm stem (34) by pulling clear of guide bush (35). Unscrew lever arm link (10) from diaphragm stem (34).
5. Inspect diaphragm stem for excessive wear and renew if necessary.
6. Unscrew diaphragm stem guide assembly (35) from guide plate (69). Inspect internal and external "O" rings (37 & 38) and renew if necessary by removing "O" ring retaining bush (39).
7. Visually inspect top surface of cocking lever (6) for wear. If damage is excessive detach the return spring (4) and remove the tension pin (5) to separate cocking lever (6) from lever arm (8).

High Pressure Unit

Drawing Reference: Fig 11

1. Unscrew diaphragm clamping nut (18) and remove washer (31) and spring locating washer (98) whilst holding top diaphragm plate (72) to prevent rotation.
2. Remove diaphragm (85), diaphragm plates (72 & 84) and "O" ring (32).
3. Hold lever arm link (10) to prevent rotation and unscrew diaphragm adapter bush (33) from diaphragm stem (34) taking care not to bend diaphragm stem (34).
4. Remove lever arm link (10) and diaphragm stem (34) by pulling clear of guide bush (35). Unscrew lever arm link (10) from diaphragm stem (34).
5. Inspect diaphragm stem for excessive wear and renew if necessary.
6. Unscrew diaphragm stem guide assembly (35) from guide plate (83). Inspect internal and external "O" rings (37 & 38) and renew if necessary.
7. Visually inspect top surface of cocking lever (6) for wear. If damage is excessive detach the return spring (4) and remove the tension pin (5) to separate cocking lever (6) from lever arm (8).

Dismantling of Burgess Type Micro Switch Assembly (If Fitted)

Drawing Reference: Fig 12

1. Remove lever arm spindle end cap (59).
2. Ensure that slam shut valve is in tripped off position (see earlier section).
3. Isolate micro switch (103) from electrical supply.
4. Loosen the three bolts (107) that secure the cover plate (106).
5. Partially withdraw the two lower bolts (107) that pass through the micro switch body (103) to enable the removal of the short spacers (102) that are between the micro switch body (103) and the mounting plate (101).
6. Fully withdraw the two lower bolts (107) and remove the micro switch (103).
7. Loosen and withdraw the top bolt (107) and remove long spacer (108).
8. Remove cover plate (106) with cap mounting bush (110).
9. Make special note of position of cam (112) on spindle (109).
10. Withdraw tension pin (111) from cam (112).
11. Remove cam (112).
12. Ensuring no possible movement of the valve mounting plate spindle bush (104), loosen and remove the outer locknut (105).
13. Remove mounting plate (101).
14. Again ensuring no possible movement of the valve mounting plate spindle bush (104), remove the inner locknut (105).
15. For dismantling of main unit please now refer to page 17 (Dismantling of Slam Shut Body).

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Dismantling of Slam Shut Body

Drawing Reference: Figs 6 & 7

1. Remove "O" ring (36) from top face of body (48), examine and renew if necessary.
2. Remove the lever arm spindle end cap (59).

   Note: During the following operations, 3 and 4, great care must be exercised to restrain movement of the torsion spring assembly. It is considered that hand pressure on the top surface of the spring will be sufficient to prevent sudden movement.
3. Unscrew lever arm spindle bush (60) from body (48) and extract lever arm spindle (67).
4. Carefully remove torsion spring (40), torsion spring location bush (66) and valve assembly from body (48) taking care not to damage the valve seat (46) when removing the valve assembly.
5. Inspect "O" rings (61) & (62) for damage and renew if necessary.
6. Inspect circlip (63) for damage and renew if necessary.
7. Remove self-locking nut (3) and centering spring (2) from valve disc lever arm (41) and withdraw valve disc holder assembly.
8. Inspect valve disc (42) for damage. To renew, unscrew self locking nut (44) and take out valve disc holder spindle (43). Inspect sealing "O" ring (1) and renew if necessary before reassembly.
9. The valve seat (46) may now be inspected. Only remove if damaged.
10. Unscrew the valve seat clamping ring (47) using slots provided (a special tool is available from Elster Jeavons - see page 12). Whilst holding the valve seat (46) remove clamping ring (47) through outlet port.
11. Remove valve seat (46) through top of body (48).
12. Inspect "O" ring (45) for damage and renew if necessary.
13. If equalising valve (if fitted) needs removing for inspection and "O" ring replacement, unscrew end cap (52), then unscrew equalizing valve body (57) from main body (48) and remove together with "O" rings (50) and (51).
14. Unscrew equalizing valve button (53) from valve spindle (56) and remove both items together with "O" rings (54 & 58) and return spring (55) from equalizing valve body (57).
15. Inspect "O" rings (54 & 58) and the holes in the equalizing valve body (57) where they seal. Clean and replace as necessary.

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Rebuilding Procedure for Slam Shut Body

Drawing Reference: Figs 6 & 7

Numbers in brackets identify items on drawing.

Note: Inspect all sealing "O" rings and discs and replace where necessary.

(A soft spares kit is available for this purpose).

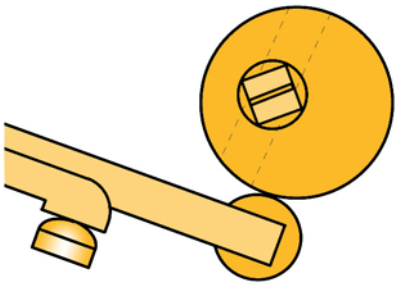
The use of Dow Corning Molycote 111 "O" ring lubricant is recommended during the rebuild (unless the unit was originally supplied with alternative lubricant for special conditions).

1. Ensure that the valve seat sealing face (46) and "O" ring groove are clean.
2. Position "O" ring (45) in groove in valve seat (46) and slide seat into body (48).
3. Screw valve seat clamping ring (47) onto valve seat (46) through outlet port of body, and tighten.
4. Clean valve disc sealing face (46).
5. Position valve disc holder spindle (43) onto lever arm (41). Place centering spring (2) onto spindle (43) and secure with self locking nut (3).
6. Ensure that location bush (68) is positioned in body (48) then insert valve assembly through top of body (48) and position lever arm (41) between bosses inside body (48).
7. Replace "O" ring (61) and circlip (63) onto spindle (67).
8. Insert lever arm spindle (67) assembly into boss and engage with first lever arm pivot boss.
9. Place torsion spring location bush (66) inside torsion spring (40).
10. Position torsion spring assembly inside body (48) between legs of lever arm (41) and compress by hand to provide alignment with spindle (67).
11. Push lever arm spindle (67) through tension spring location bush (66), second lever arm pivot boss (41) and into spindle location bush (68). Ensure that driving bush (64) is located in lever arm slot (41).
12. Ensure that lever arm spindle bush (60) has a clean bore and is fitted with "O" ring seal (62) before placing over lever arm spindle (67) and screwing tightly into body (48).
13. Check that the valve assembly moves freely and is spring loaded towards the closed position.
14. Position "O" ring (58) onto equalizing valve spindle (56) and carefully insert into equalizing valve body (57).
15. Place return spring (55) over end of spindle (56) and into recess in valve body (57).
16. Ensure "O" ring (54) is in place on button (53) and screw onto spindle (56). Check for no stiffness in operation by depressing the plunger button (53).
17. Return equalizing valve assembly into main body (48) ensuring that both "O" rings (50 & 51) are in place.

Rebuilding of Burgess Type Micro Switch Assembly (If Fitted)

Drawing Reference: Figs 12

1. Ensure that the slam shut valve is in the tripped off position as per previous instructions.
2. Thread one lock nut (105), checking orientation, onto valve mounting plate spindle bush (104) to within 1mm of hexagon of bush.
3. Fit micro switch mounting plate (101) in orientation shown on drawing page 8.
4. Thread second locknut (105) onto valve mounting plate spindle bush (104) and tighten, securing the mounting plate (101).
5. Position cam (112) on spindle (109) in orientation shown in figure below (or as special note made during dismantling).
6. Secure the cam (112) with tension pin (111) taking care not to bend spindle (109).
7. Align micro switch (103) with cover plate (106).
8. Position two lower bolts (107) through holes in cover plate (106) and micro switch body (103).
9. Place a short spacer (102) over each of the two lower bolts (107).
10. Offer this assembly to the unit. Slide the cap mounting bush (110) over the end of the spindle (109) and screw into plate (106).
11. Screw bolts (107) into relevant threaded holes in mounting plate (101), but do not tighten. Ensure roller of micro switch is in contact with cam surface.
12. Locate third top bolt (107) through hole in cover plate (106), introducing long spacer (108) and screw into mounting plate (101).
13. Tighten the three bolts (107) and cap mounting bush (110).
14. Reconnect the micro switch to the electrical supply and check that operation of the unit gives the required electrical impulses.
15. Disconnect electrical supply whilst completing reassembly of unit.



Cam Alignment

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Rebuilding of OPSS Unit and Final Assembly to Body

Low Pressure

Drawing Reference: Figs 6

Numbers in brackets identify items on drawing.

Note: Inspect all sealing "O" rings and discs and replace where necessary.

(A soft spares kit is available for this purpose).

The use of Dow Corning Molycote 111 "O" ring lubricant is recommended during the rebuild (unless the unit was originally supplied with alternative lubricant for special conditions).

1. Clean diaphragm stem guide bush (35) and fit "O" ring (38). Insert "O" ring retaining bush (39) and tighten. Place "O" ring (37) into recess in guide plate (13). Secure guide bush assembly (35) tightly into recess of guide plate (13).
2. Ensure that lever arm (8) moves freely between guide plate bosses and also cocking lever (6) moves freely between lever arm (8) bosses.

   Note: Cocking lever should be drawn to a preset position by a small tension spring (4).
3. Screw lever arm link (10) into the non spigotted end of the diaphragm stem (34) and tighten, taking care not to damage surface of stem (34).
4. Ensure that the diaphragm stem (34) is clean, and carefully push it through diaphragm stem guide bush (35).
5. Rotate lever arm (8) until arm is engaged between the two tension pins in the lever arm link (10).
6. Screw and tighten diaphragm adapter bush (33) onto spigotted end of diaphragm stem (34), whilst preventing rotation of lever arm link (10).
7. Clean diaphragm adapter bush (33), insert "O" ring (32) and place bottom diaphragm plate (14), diaphragm (16) and top diaphragm plate (17) onto diaphragm adapter bush (33).
8. Place washer (31) over diaphragm adapter bush (33) and tighten assembly with hexagon nut (18).
9. Clean top flange of body (48), "O" ring groove and lower flange of guide plate (13).
10. Place "O" ring (36) in body groove (48). Position guide plate (13) so that actuating lever pivot boss is on the inlet side of the body, and lower onto the body (48).
11. Insert and tighten hexagon head screws (12) evenly.
12. Using resetting spanner on square end of valve spindle (67), check that the valve will "cock", then disengage by pulling diaphragm stem (35) upwards.
13. Ensure that outer sealing bead of diaphragm (16) is located in the groove of the guide plate (13).
14. Carefully replace top cover (27) on to guide plate (13) with vent facing the outlet and secure with top cover screws (15).
15. Insert loading spring (28) into top cover chimney (27) so that it rests over spring location ridge in top diaphragm plate (17).

NOTE: If adjusting bush assembly (26) has been dismantled follow procedure, if it has been left assembled then precede to instruction number 21.

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Rebuilding of OPSS Unit and Final Assembly to Body

Low Pressure continued.

16. Slide "O" ring seal (23) over slotted end of spring adjusting screw (29) into second groove. (i.e. groove nearest thread).
17. Replace washer (22) over slotted end of spring adjusting screw (29) and slide down until it sits on shoulder of adjusting screw.
18. Slide "O" ring seal (21) into "O" ring groove on adjusting bush (26).
19. Push spring adjusting screw (29) into hole in the bottom of the adjusting bush (26) until parts are firmly together.
20. Position key hole slot in locking lever (24) over slotted end of spring adjusting screw (29) and slide over slopping peg in adjusting bush (26) until firmly locked in position.
21. Screw top spring holder (20) anti-clockwise to within 10mm of underside of adjusting bush (26).
22. Position underside of top spring holder (20) on to loading spring (28).
23. Align slots in top spring holder (20) with splines in top cover (27) and push adjusting bush (26) assembly into top cover (27) as far as possible.

Note: when higher range springs are fitted a pre-compression of the spring may be necessary when fitting spring adjusting bush to assembly.

24. Turn adjusting bush assembly (26) clockwise until locking lever (24) snaps into any of the three locking castellations in top cover (27).
25. Adjust trip off pressure as described in the earlier commissioning instructions (page 2).
26. Replace top cap (26) by aligning slot in cap with sealing wire lug and push over until it clicks into position, and seal if necessary.
27. Replace laver arm spindle end cap (59) onto spindle bush (60) and reset cap (52) onto equalizing valve body (57).

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Rebuilding of OPSS Unit and Final Assembly to Body

Medium Pressure

Drawing Reference: Figs 10

Numbers in brackets identify items on drawing.

Note: Inspect all sealing "O" rings and discs and replace where necessary.

(A soft spares kit is available for this purpose).

The use of Dow Corning Molycote 111 "O" ring lubricant is recommended during the rebuild (unless the unit was originally supplied with alternative lubricant for special conditions).

1. Clean diaphragm stem guide bush (35) and fit "O" ring (38). Insert "O" ring retaining bush (39) and tighten. Place "O" ring (37) into recess in guide plate (69). Secure guide bush assembly (35) tightly into recess of guide plate (69).
2. Ensure that lever arm (8) moves freely between guide plate bosses and also cocking lever (6) moves freely between lever arm (8) bosses.

   Note: Cocking lever should be drawn to a preset position by a small tension spring (4).
3. Screw lever arm link (10) into the non spigotted end of the diaphragm stem (34) and tighten taking care not to damage surface of stem (34).
4. Ensure that the diaphragm stem (34) is clean, and carefully push it through diaphragm stem guide bush (35).
5. Rotate lever arm (8) until arm is engaged between the two tension pins in the lever arm link (10).
6. Screw and tighten diaphragm adapter bush (33) onto spigotted end of diaphragm stem (34), whilst preventing rotation of lever arm link (10).
7. Clean diaphragm adapter bush (33), insert "O" ring (32) and place bottom diaphragm plate (14), diaphragm (71) and top diaphragm plate (72) onto diaphragm adapter bush (33).
8. Place spring location washer (82) and plain washer (31) over diaphragm adapter bush (33) and tighten assembly with hexagon nut (18) ensuring that diaphragm holes align with guide plate holes.
9. Clean top flange of body (48), "O" ring groove and lower flange of guide plate (69).
10. Place "O" ring (36) in body groove (48). Position guide plate (69) so that actuating lever pivot boss is on the inlet side of the body, and lower onto the body (48).
11. Insert and tighten hexagon head screws (12) evenly.
12. Using resetting spanner on square end of valve spindle (67), check that the valve will "cock", then disengage by pulling diaphragm stem (33) upwards.
13. Position the loading spring (28) on the top diaphragm plate (72) over the spring locating washer (82) and carefully lower the top cover assembly (81) onto the guide plate aligning holes in top cover (81), diaphragm (71) and guide plate (69).
14. Insert and tighten the hexagon head screws (70) evenly.
15. Adjust trip off pressure as described in the earlier commissioning instructions (page 2).
16. Replace top cap (78) an "O" ring (21), and seal if necessary.
17. Replace laver arm spindle end cap (59) onto spindle bush (60) and reset cap (52) onto equalizing valve body (57).

J98: Maintenance Instructions

Rebuilding of OPSS Unit and Final Assembly to Body

High Pressure

Drawing Reference: Figs 11

Numbers in brackets identify items on drawing.

Note: Inspect all sealing "O" rings and discs and replace where necessary.

(A soft spares kit is available for this purpose).

The use of Dow Corning Molycote 111 "O" ring lubricant is recommended during the rebuild (unless the unit was originally supplied with alternative lubricant for special conditions).

1. Clean diaphragm stem guide bush (35) and fit "O" ring (38). Insert "O" ring retaining bush (39) and tighten. Place "O" ring (37) into recess in guide plate (83). Secure guide bush (35) tightly into recess of guide plate (83).
2. Ensure that lever arm (8) moves freely between guide plate bosses and also cocking lever (6) moves freely between lever arm (8) bosses.

   Note: Cocking lever should be drawn to a preset position by a small tension spring (4).
3. Screw lever arm link (10) into the non spigotted end of the diaphragm stem (34) and tighten taking care not to damage surface of stem (34).
4. Ensure that the diaphragm stem (34) is clean, and carefully push it through diaphragm stem guide bush (35).
5. Rotate lever arm (8) until arm is engaged between the two tension pins in the lever arm link (10).
6. Screw and tighten diaphragm adapter bush (33) onto spigotted end of diaphragm stem (34), whilst preventing rotation of lever arm link (10).
7. Clean diaphragm adapter bush (33), insert "O" ring (32) and place bottom diaphragm plate (84), diaphragm (85) and top diaphragm plate (72) onto diaphragm adapter bush (33).
8. Place spring location washer (98) and plain washer (31) over diaphragm adapter bush (33) and tighten assembly with hexagon nut (18) ensuring that diaphragm holes align with guide plate holes.
9. Clean top flange of body (48), "O" ring groove and lower flange of guide plate (83).
10. Place "O" ring (36) in body groove (48). Position guide plate (83) so that actuating lever pivot boss is on the inlet side of the body, and lower onto the body (48).
11. Insert and tighten hexagon head screws (86) evenly.
12. Using resetting spanner on square end of valve spindle (67), check that the valve will "cock", then disengage by pulling diaphragm stem (33) upwards.
13. Position the loading spring (28) on the top diaphragm plate (72) into the spring locating washer (98) and carefully lower the top cover assembly (97) onto the guide plate aligning holes in top cover (97), diaphragm (85) and guide plate (83).
14. Insert and tighten the hexagon head screw (12) evenly.
15. Adjust trip off pressure as described in the earlier commissioning instructions (page 2).
16. Replace top cap (78) and "O" ring seal (21), and seal if necessary.
17. Replace laver arm spindle end cap (59) onto spindle bush (60) and reset cap (52) onto equalizing valve body (57).

Elster Jeavons is committed to a programme of continuous quality enhancement. All equipment designed by Elster Jeavons and manufactured within the Elster-Instromet Group benefits from the groups quality assurance standards, which are approved to EN ISO9001:2008.

Elster Jeavons has a programme of continuous product development and improvement and in consequence the information in this leaflet may be subject to change or modification without notice.

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