



## 103 series – Operating and maintenance instructions

### 103 series – Pressure Reducing Valve

#### General information:

The type 103 Pressure Regulator will reduce varying inlet pressures to a preset outlet requirement. It is designed for medium, accurate pressure control and features a balanced main valve to maintain a constant outlet pressure, whilst inlet pressure fluctuates.

#### Installation:

Before installing the regulator, ensure the system operating requirements are matched with the valve specification details printed on the attached data label.

Immediately prior to installing the regulator into a system, check that all protective caps have been removed from various ports. Ensure that no ingress of dirt or debris is allowed to enter any part of the assembly, as this will affect the general working of the regulator.

A check should also be made to establish that the regulator inlet is positioned on the up-stream side and that the ports correspond with the direction of flow within the system.

It is likely, when new installations are assembled, small particles of metal etc will become dislodged. It is therefore recommended that a suitable filter (30 micron or less) be fitted immediately up-stream of the regulator.

As a necessary precaution it is also recommended that a correctly sized pressure relief valve, capable of safely exhausting full flow from the control regulator should be fitted down-stream of the valve. Advice on flow rates at various pressures can be obtained from PRESREG VALVES.

#### Operation:

When all port connections (including gauge ports, if fitted) have been checked for tightness, and the control knob fully turned anti-clockwise, inlet pressure can be steadily introduced to the regulator. During this time check that no leakage across the valve seat occurs. This will be detected by increasing outlet pressure reading down-stream of the regulator.

Having introduced inlet pressure to the valve, outlet pressure can be controlled by turning the control knob clockwise for increasing pressure and anti-clockwise for decreasing pressure during adjustment. It may be necessary to vent down-stream pressure during adjustment in order to obtain the desired setting.

Finally, check valve operation by venting off (with short steady bursts), the down-stream pressure. Outlet pressure should fall slightly when flow is taken and return to the set pressure when flow ceases.



## Spares:

A refurbishing facility is offered by PRESREG VALVES and customers are strongly advised to make full use of this service whenever valves need attention. However, from time to time it may not be possible or practical for valves to be returned and therefore it is recommended that customers keep suitable quantities of spare parts in order to carry out their own maintenance.

Spare kits are available from:

## Presreg Valves

*a trading division of*

### JRE Precision Limited

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In any correspondence, please quote valve type and serial number.

## Maintenance:

Whilst in operation, the various moving components will experience wear. Any elastomer material also has a finite shelf life. It is for these reasons that it is recommended that maintenance be carried out at regular intervals.

Only certain maintenance tasks are recommended, and these are listed below. Work must be restricted to these operations only and no alteration should be made to any component part of the valve, as this may lead to poor performance and even unsafe operation.

Whenever possible, remove the complete valve from the system and carry out servicing at a bench, suitably cleaned to ensure no ingress of dirt or foreign matter into the valve. Anyone wishing to carry out their own maintenance would be well advised to obtain an “O” ring service set of tools as these are specially made to avoid damage to the elastomers during re-assembly.

If, after maintenance has been carried out, the valve is not giving satisfactory performance, the complete unit should be returned, together with a brief outline of faults experienced, to the manufacturer for further investigation.



## Recommended maintenance

Before attempting any disassembly of valve, please ensure that a copy of drawing no 107-GA is available for reference, a recommended spares kit is obtained, and a suitable clean area is set aside for working.

**\*\*IT IS NOT RECOMMENDED THAT VALVES USED ON MEDICAL/OXYGEN INSTALLATIONS BE SERVICED ON SITE.** Special cleaning procedures and materials are necessary \*

\*When the valve is to be used for OXYGEN service do not use ordinary grease, ONLY USE FONBLIN RT15. Unsafe conditions may result if this is not observed.

Ensure all pressure is safely vented to zero prior to dismantling. If dangerous medias have been used the system must be purged in accordance with the system service instructions.

### 1) Soft seals spares kit

The soft seals repair kit includes a spare diaphragm and 2 O rings.

To replace the diaphragm, the spring housing must be removed:

Loosen and remove the 8 x M4 bolts (item 10) securing the spring housing (item 2) and place to one side. Lift the spring housing away from the body.

Remove the spring (item 7), diaphragm plate (item 4) and diaphragm support (Item 3) and place to one side. Remove the old diaphragm and discard.

The seat (item 11) can now be unscrewed using a suitable tool that engages with the slots. Remove O ring (item 12) from the seat and discard. Replace with new O ring – apply a small amount of grease to O ring before fitting.

The final O ring can be accessed by removing the main valve. Follow the below procedure to remove the main valve plug, remove the O ring (item 13) using a suitable tool and discard. Replace with new O ring – apply a small amount of grease to O ring before fitting.

Repeat processes in reverse order to re-assemble. Tighten the 8 x M4 bolts equally to 4.8 Nm.

If no other maintenance is required, the regulator can be brought back into service.

### 2) Main valve replacement:

*\*It is highly recommended that when carrying out this procedure, a soft seals spares kit is also obtained and fitted at the same time\**

The main valve sub assembly should also be replaced as an assembly as supplied.

Unscrew and remove the valve plug (item 14) from the base of the valve body (item 1). As the plug is unscrewed, the poppet sub assembly will come out with the plug – discard old main valve assembly (optionally, it is possible to return a main valve to PRESREG for refurb).

Screw in replacement main valve sub assembly. Secure using 24 mm spanner, no torque setting is defined – tighten to moderate torque.

If no other maintenance is required, the regulator can be brought back into service.