



107 series – Operating and maintenance instructions

107 series – Pressure Reducing Valve

GENERAL INFORMATION:

The 107 Pressure Reducing Range is based on modular concepts and designed to safely reduce inlet pressure and accurately deliver output pressure to the desired setting. There is a wide choice of outlet pressure settings, main valve types and optional extras available from standard components.

INSTALLATION:

It is likely when new installations are assembled or when fluids are being conveyed small particles of dirt and debris may lodge on the valve seat causing the regulator to malfunction. It is therefore recommended that a suitable filter, (30 micron or less) be fitted directly up stream of the valve.

Some models incorporate a pressure release to aid adjustment and although in operation this device acts as a following pressure relief, it must not be considered as sufficient to safely vent off full bore flow. Consequently, it is recommended that a separate relief valve be fitted downstream of the regulator to vent off maximum system flow.

Immediately prior to installing the regulator into a system check all operating data compares with details printed on the valve label.

Remove protective dust caps from all ports ensuring ingress of dirt is prevented prior to connecting all fittings. Any debris introduced into the regulator may affect its working and cause incorrect operation.

Ensure that all fitting connections correspond exactly with the thread type and size of the regulator.

Ports should be connected correctly with the direction of flow of the system. Inlet, outlet and gauge and relief ports are clearly identified by the stampings or etchings on the valve body.

When all connections have been fully tightened, turn the control knob or locking boss anti-clockwise until it stops. Pressure can now be introduced to the valve inlet. Outlet pressure can now be increased to the desired setting by turning the control knob or locking boss clockwise. If the desired pressure is exceeded turn anti-clockwise. On non-venting models, outlet pressure will have to be partially vented-off and then increased to the desired setting. On self-venting models, the release feature will automatically vent downstream pressure. Always drop pressure well below the desired requirement and increase to final setting when making adjustments.

Finally check the setting by drawing off, with short steady bursts, the down-stream pressure. Outlet pressure will fall slightly when flow is taken and return to the set pressure when flow ceases.

The valve is now set for operation.

NOTE

Ensure that the relief port is always clear of any restrictions or blockages, and this must be piped to a safe place if hazardous fluids or gases are being controlled.



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 suggested that customers keep suitable quantities of recommended spare parts in order to carry out their own maintenance.

Spare kits are available from:

Presreg Valves

a trading division of

JRE Precision Limited

18 Bakewell Road
Loughborough
Leicester
LE11 5QY
UNITED KINGDOM
Tel: 44(O) 1509 610580
e-mail: info@jreuk.com

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

MAINTENANCE

In general, unless special conditions prevail, valves should not need attention until performance becomes affected.

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.

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.

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.

NOTE

Ensure all pressure to the valve 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.

RECOMENDED MAINTENANCE

The design of the 107 valve range is such that maintenance has been simplified to the absolute minimum for this type of regulator. It consists of replacing the main valve, and pressure sensing modules. Always quote the regulator serial number and model type code when requesting spares in order that the correct materials and parts are supplied. Always return the control knob or locking boss to zero pressure setting by turning in an anti-clockwise direction until the stop is encountered.

1) REPLACING THE MAIN VALVE AND SEAT

After pressure has been safely vented, unscrew the capsule and withdraw the seat and valve, together with all “o” rings and back-up rings, remove all “o” rings and back-up rings and discard. Thoroughly clean the



capsule and spring and replace all “o” rings and back-up rings with new components. Insert the spring into a new valve, ensuring that the seating is not scratched or damaged in anyway and fit into capsule. Work the valve to check freedom of movement. Take a new seat, being careful not to mark the seating edge, and together with the “o” ring place in position within the valve body. Screw in the capsule and valve and tighten. Do not over tighten, there should be approximately 1mm gap between the capsule and body when fully tightened.

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

2) REPLACING PRESSURE SENSING MODULE

First remove the control knob or locked pressure assy, whichever is fitted. Slacken the small socket grub screw in the panel-locking ring and unscrew the ring. Grip and support the valve body and using the two flats machined on the spring housing, unscrew in anti-clockwise direction. Be careful not to lose any small components that may fall out during this operation. Remove the sensing module from the body together with all “O” rings etc. the push rod should now be inspected and, if okay, re-located into the valve body.

Whilst the spring housing is detached, push the spindle and load nut assy through the housing and remove. Take out the roller thrust bearing assy, ensuring that the two wear washers are accounted for (occasionally on will remain inside the housing).

If the valve incorporates a down-stream release feature unscrew the adjuster from the spindle centre and extract the relief spindle. All “o” rings should be removed and discarded ensuring that the grooves and sealing faces are not damaged during this operation.

NOTE

Before re-assembling the valve, check that the push rod is correctly located in the valve body.

Replace the new sensing module and all “O” rings, (lightly grease all “O” rings prior to assembling with the appropriate lubricant*). If the valve incorporates a release feature, lightly grease* the release push rod and replace in the sensing module. Replace the spring, locating this correctly over the guide.

Take the load spindle and load nut and fit a new thrust bearing assy, applying grease* to the roller surfaces. Replace all “O” rings and the roller in the load nut. The spindle assy can now be re-fitted to the spring housing, ensuring that the roller engages the housing slot. Apply grease* to the threaded portion of the spindle.

Grip the load spindle (where it exits in the spring housing), whilst re-fitting the spring housing into the valve body. Tighten down and fit the panel locking ring and secure with the small socket grub screw.

SELF-VENTING MODELS ONLY

Before fitting the control knob or locking boss, lightly grease* the relief valve spindle and locate through the load spindle. Replace the “O” ring on the adjuster and screw into the load spindle one or two turns. Inlet pressure should now be introduced to the valve and outlet pressure slowly increased to a setting near to range maximum. A soap bubble should then be drawn across the small vent hold in the spring housing top, (vent to atmosphere models), or over the relief port (captured vent models). Without moving the load spindle, slowly screw down the adjuster back approximately 1 turn. This has now set the release and will ensure correct operating over the outlet range. Re-fit the control knob or locking boss.

NOTE

When the valve is to be used for OXYGEN SERVICE do not use ordinary grease. USE ONLY FOMBLIN RT15. Unsafe conditions may result if this is not observed.