

Servicing Piston Seals

The piston seals of small bore/short stroke HMIX cylinders may be serviced according to the instructions below. For large bore/long stroke cylinders, eg: those where the bore exceeds 100mm and the stroke 750mm, Parker recommends that the transducer should be removed from the cylinder to avoid the risk of damage to the transducer's waveguide tube during piston removal and replacement. Instructions for carrying out this procedure are available from the factory. Alternatively, the complete cylinder may be returned to Parker for servicing by our technicians.

Service Kit Numbers for Group 1 Piston Seal Kits

For use with Low Friction and Ultra Low Friction Glands.

Bore Ø	PF Kit Low Friction Piston Seals	Tie Rod Torque Nm
40	PF040HM001	19-20
50	PF050HM001	68-71
63	PF063HM001	68-71
80	PF080HM001	160-165
100	PF100HM001	160-165
125	PF125HM001	450-455
160	PF160HM001	815-830
200	PF200HM001	1140-1155

Replacement Seals – Other Fluid Groups

The part numbers shown in the tables are for fluid group 1 seals, denoted by the last character of each part number. For seals in fluid groups 2 or 5, substitute a '2' or '5' for the '1' at the end of the number sequence. See Operating Fluids and Temperature Ranges, opposite.

Preparation and Safe Working Practice



The cylinder must be removed from the machine to permit servicing of the piston seals.

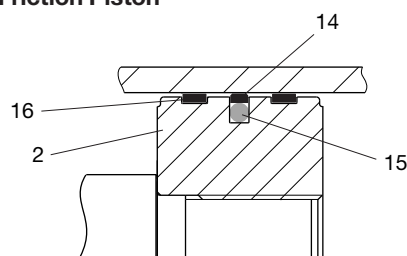
To minimise the risk of damage to the waveguide tube, servicing of the piston seals should be carried out with the cylinder mounted vertically, with the rod pointing upwards. The cap end of the cylinder should be securely clamped. No force or load should be applied to the transducer or its protector sleeve, and the cable and connector should be protected against physical damage.

Removal Figs. 1-4

- 1 Release the fitting nut X (see fig. 1) from the head end of the manifold tube. The fitting may be left undisturbed.
- 2 Remove the gland, and circular retainer where applicable, as described in 'Servicing Cylinder Gland Seals' on page 3.
- 3 **All Mounting Styles except TB, TE and JJ** Remove the tie rod nuts (21) from the head of the cylinder and detach the head.
Mounting Styles TB, TE and JJ Remove the tie rod nuts (21) from the cap end of the cylinder. Remove the head complete with tie rods.
- 4 Holding the tube firmly in place against the cap, withdraw the piston and rod assembly (1 & 2) from the cylinder tube.

All dimensions are in millimetres unless otherwise stated.

Fig. 5 Low Friction Piston



Key to Parts

- 2 Piston
- 14 Piston seal
- 15 Pre-load ring for piston seal
- 16 Wear ring

- 5 Remove the old seals and wear rings from the piston.
- 6 Separate the cylinder tube (3) from the cap (7). Remove old O-rings, and back-up washers where fitted, from the grooves in the head and cap. Clean all parts.
- 7 Examine the cylinder tube and piston for signs of scoring. If either is damaged, it must be replaced.

Installation Fig. 5

- 1 Lubricate all piston seals and wear rings.
- 2 Install a new split wear ring (16) in the shallow groove at one end of the piston. Working from the same end, slide the pre-load ring (15) over the wear ring and into the central groove. From the other end of the piston, install the second wear ring.
- 3 Heat the outer seal (14) in hot water or hydraulic fluid and stretch it by hand until it will just fit over the wear rings. Push the seal over the wear ring and into the central seal groove, on top of the pre-load ring.
- 4 With the cylinder tube positioned vertically on a flat, clean surface, position a suitable loading sleeve on the open end of the cylinder tube. Lubricate the loading sleeve and gently tap the piston through the sleeve into the cylinder tube.
- 5 Ensuring that the piston rod remains vertical, continue to drive the piston down the bore until it is approximately mid-way through the tube.

Cylinder Assembly Fig. 1



When lowering the piston and rod assembly over the transducer's waveguide tube, extreme care must be taken to ensure that the assembly remains vertical.

Any damage to the waveguide tube will render the feedback device inoperative.

- 1 Oil the tube O-rings (17), and back-up washers (18) where fitted, and position them in the grooves in the head (5) and cap (7).
- 2 Lower the cylinder tube (3), complete with piston and rod, over the waveguide tube and locate it in the groove in the cap, easing it down over the O-ring.
- 3 Taking care not to damage the piston rod, fit the head to the cylinder tube. Ensure that the manifold pipe engages in the head end fitting. Where tie rods are retained in the head or cap, ensure that their free ends engage in the correct holes at the opposite end of the cylinder.