

## Dismantling the Pump



Pumps which convey hazardous liquids must be decontaminated before dismantling the pump. The appropriate personal protection equipment should be used.

*Tools required: Open ended spanner - across flats 1 1/8" (D3, D4, D4V), 46 mm (D5, D5V, D6, D6V) Engineers pliers, Screwdriver - medium flat blade, Hide mallet, Allen key - 6 mm across flats. (Where supplied - torque wrench, 1 1/8" or 46 mm deep series socket, special impeller tool).*



1) Isolate the motor (1) from the power supply.

2) Disconnect the inlet and outlet connections.



Risk of contact with liquid being pumped.

3) Unscrew the clamp ring handle(s) (8) by several turns and lift the clamp ring (7) over the flanged adaptor (5).

4) Remove the cover (18).

5) Unscrew the impeller locknut (22) with the spanner (right hand thread) and remove the gasket (41).

6) Slide the impeller vane plate (20) and (where fitted) the back plate (19) forward off the shaft (14) by maintaining an even pressure. Hitting the impeller can cause serious damage. The impeller joint ring (40) can now be inspected.

7) Remove the key (21) from the pump stub shaft (14).

8) The mechanical seal (9) is now accessible. Clean the shaft and slide the seal forwards off the shaft.

9) The face of the seal is now exposed and can be inspected.

10) To remove the seal seat assembly (10,11), unscrew the housing plate screws (6) and take out the housing plate (16). The seal seat (11) and seat ring (10) can both be inspected.

## Reassembling the Pump

1) Locate the seal seat assembly (10,11) in the housing plate (16), ensuring that the notch in the seat lines up with the peg. Fit the housing plate into the flanged adaptor (5) and tighten the housing plate screws (6). Take care during assembly that the seal seat (11) does not contact the shaft (14) and become chipped. Ensure that the shaft guard (where supplied) is in position.

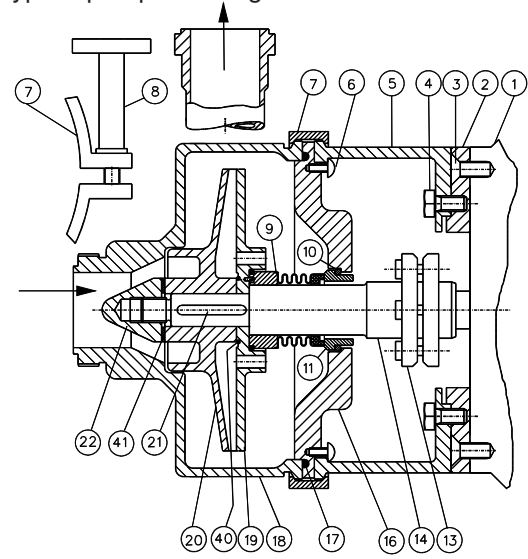
2) Fit the mechanical seal (9) (see page S2).

3) Replace the key (21) in the pump stub shaft (14).

4) Slide the impeller back plate (19) (where fitted) and the vane plate (20) onto the pump stub shaft (14), ensuring that the impeller joint ring (40) is fitted.

5) Fit the impeller gasket (41) on the shaft and screw on the impeller locknut (22) (right hand thread). Tighten with the spanner. If supplied, hold the impeller with the special tool and tighten with the torque wrench to 90 Nm (D3, D4) or 180 Nm (D5, D6).

Typical pump with single internal seal



6) Refit the cover (18).

7) Fit the clamp ring (7) into position and tighten the clamp ring handle(s) (8), ensuring that the clamp ring is correctly located.

8) Connect the inlet and outlet connections.

9) Before start-up, the pump should be flooded with liquid at the seal faces as dry running will cause overheating and may damage the mating surfaces.

## Replacing the Seal - type 515E.

**ATTENTION**

Mechanical seals are precision products. Installation should be carried out to the laid down procedure. Seals should be installed in a clean environment with particular care given to the lapped and polished seal faces.

Notes: - For information on the seal fitted in your pump, please refer to the data sheet.  
- The diagrams show seals with 'BP' type seats, although different seats are available.

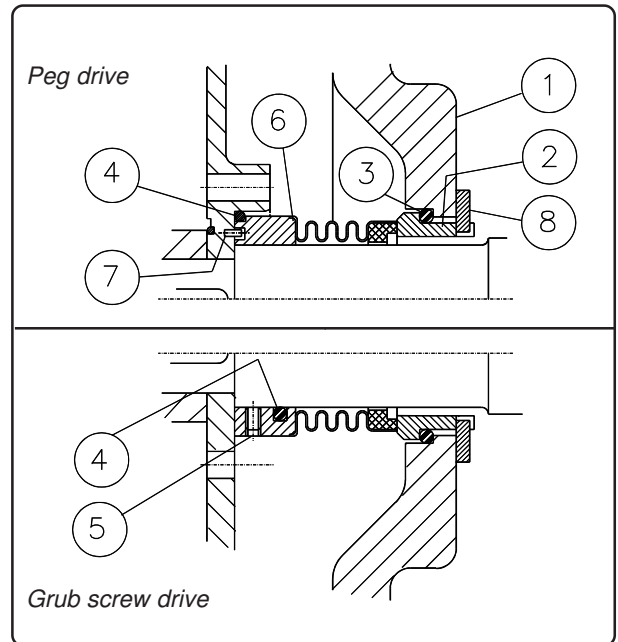
*Tools required: Diluted soft soap solution, Allen key - 2.5 mm (25 mm seal), 3 mm (1.75" seal) across flats.*

### Removing the old seal:

Dismantle the pump and seal as described on page S1.

### Fitting the new seal:

- 1) Where necessary, remove the grub screw burrs from the pump stub shaft.
- 2) Ensure all components are clean. Any sharp edges on the shaft shoulder or keyway should be removed.
- 3) Fit the seat (2) into the seat ring (3) to form the seat assembly.
- 4) Press the seat assembly fully down into the recess in the housing plate (1). Ensure that it is at right angles to the axis of the shaft and that the lapped sealing surface will face **towards** the mechanical seal assembly. Ensure that the notch in the seat is lined up with the peg (8). Failure to do so will result in seal failure.
- 5) Fit the housing plate (1) into the flanged adaptor and tighten the housing plate screws. Take care during assembly that the seal seat does not contact the shaft and become chipped. Ensure that the shaft guard (where supplied) is in position.
- 6) Ensure that the rubber 'O' ring (4) is not cut or damaged during assembly.
- 7) For seals with grub screw drive, ensure that the grub screws (5) are well clear of the bore of the drive ring. Lubricate the shaft, the inside diameter of the seal drive ring and the 'O' ring with a very slight smear of diluted soft soap solution. **Never use mineral oil, grease, vaseline**, etc, as it is **not** hygienic and may degrade the rubber.



- 8) Slide the seal unit (6) onto the shaft until it makes contact with the seat (2).
- 9) Slide the impeller back plate and the vane plate onto the shaft. For peg driven seals, locate the drive pin (7) into the slot in the rear of the seal unit (6). Screw on the impeller locknut and tighten with the spanner. The seal is now compressed to its correct working length.
- 10) For seals with grub screw drive, lightly tighten the grub screws (5), centralising the seal on the shaft. Now tighten the grub screws sufficiently to securely fix the seal unit. Do not overtighten.
- 11) Reassemble the pump as described on page S1.
- 12) Before start-up, the pump should be flooded with liquid at the seal faces as dry running will cause overheating and may damage the mating surfaces.