

How to dismantle the Clearflow C40 and the C90

Reference numbers quoted below are those on the CF40/CF90 exploded diagram, and these instructions should be followed whilst referring to the exploded diagram.

Separating the pump assembly from the tank

Use a 18mm socket to unscrew the 4 x 12mm PP bolts (part 32) that fasten the pump assembly to the tank (part 7). Two of these bolts also pass through the black hose support plate (part 76/77).

Clearflow CF40:

Unscrew the two grey union connections (part 80) below the valves. Undo the worm drive clip securing the PVC water inlet hose to the orange tap (part 74), and remove PVC hose. Warming the hose will make it easier to remove. Pull hose support bracket backwards and remove. The pump assembly can now be lifted off the tank by rotating slightly to clear other components.

Clearflow CF90:

Carefully lift the pump assembly off the tank, rotating it backwards through the pump tank handle, to clear other components.

Removing the rotor cover

Use a 14mm spanner/socket to unscrew the 6 x 10mm plastic bolts (part 38). Remove the rotor /impeller cover (part 36) to reveal the pump impeller (part 35). Take care not to lose the large 'O' ring (part 37) between rotor cover and impeller housing.

N.B. the rotor cover should be flat when viewed from the side. If it is warped or saucer shaped, it should be replaced to restore normal pump performance.

Removing the impeller

CLEARFLOW pumps have an extended motor drive shaft, protected by a polypropylene sleeve (part 31). The motor drive shaft does not require support bearings, enabling the pump to run dry. The lower end of the stainless steel drive shaft cannot be seen after removal of the rotor cover, as the impeller (rotor) is sealed over the drive shaft end to protect it from chemical attack.

In order to remove the impeller it is necessary to grip the motor shaft to prevent rotation.

This is done at the motor end. Unscrew the 4 x self tapping screws which hold the black plastic fan cover (part 21) to the motor (part 20) and remove to expose the cooling fan (part 22).

Lever off the plastic fan, using TWO large screwdrivers, one each side between the fan and metal motor end shield. Grip the exposed metal shaft firmly with locking pliers, or a similar type of tool, taking care not to damage it. With the other hand grip the impeller (part 35). (wear rubber or PVC gloves to improve the grip) and unscrew anti-clockwise looking from underneath the motor. If the impeller is very tight it may be necessary to use pipe grips or a wrench to unscrew it.

The upper surface of the impeller has a small 'O' ring (part 34) nested into a circular depression – take care that this is not lost.

Removing the motor

Slide the polypropylene shaft sleeve (part 31) off the electric motor shaft. The upper end of the sleeve is machined to accept another small 'O' ring (part 30). This may come out with the sleeve or remain on the motor

drive shaft. Take care not to mislay it. Above the upper 'O' ring (on the motor shaft) is a white cup shaped plastic washer (part 29), backed by a circlip (part 28) located in a groove in the steel drive shaft. Remove the O ring, white washer and circlip from the drive shaft.

The motor and drive shaft assembly can then be removed by undoing the 4 brass nuts (part 27) located on the upper side of the flange (part 33), and lifting the motor off the flange from above.

Dismantling the motor

Use a 8mm spanner/socket to unscrew and remove the long bolts which hold the motor together.

Using a rubber hammer carefully tap the bottom flange of the motor until it comes away from the main body. Then slide it off the driveshaft.

The top flange should now also come away. (occasionally the driveshaft will stay attached to either the top or bottom flange. If so, gently tap the flange until it comes away).

Using a pulley/extractor, remove the motor bearings (part 23).

Replacing the motor bearings (part 23)

Place a new bearing over the shaft and using a long piece of pipe (longer than the driveshaft) slide this over the shaft until it meets the bearing and tap the end of pipe until the bearing is in correct position. Do the same with the opposite bearing.

Removing the flow reverser

After removing the motor to give adequate clearance, pull upwards on the flow reverser handle/ lever (part 56) to remove it from the shaft of the paddle (part 57). The flow reverser is secured to the underside of the flange by 2 (two) 6M x 30mm stainless steel bolts. Undo these and remove.

Dismantling the flow reverser

Individual components of the flow reverser are held together with 4 (four) 6M x 50mm stainless steel nuts and bolts (part 62/63). Undo these, taking care not to lose the O ring (part 60) between the body and lower cover.

This reveals the paddle (part 57). Push down on the paddle shaft from above and the paddle should slide out of the body (part 58). Take care not to lose the 2 small O rings (part 61) on the paddle shaft.

Changing the 'L' port valves (part 78)

Disconnect the PVC hoses attached to the hose tails (parts 70 & 72) coming from the valve, after loosening the worm drive clips with a screwdriver.

(Warm the PVC hoses with warm air to make them flexible and easier to remove)

Unscrew the grey union connection (part 80) below the valve.

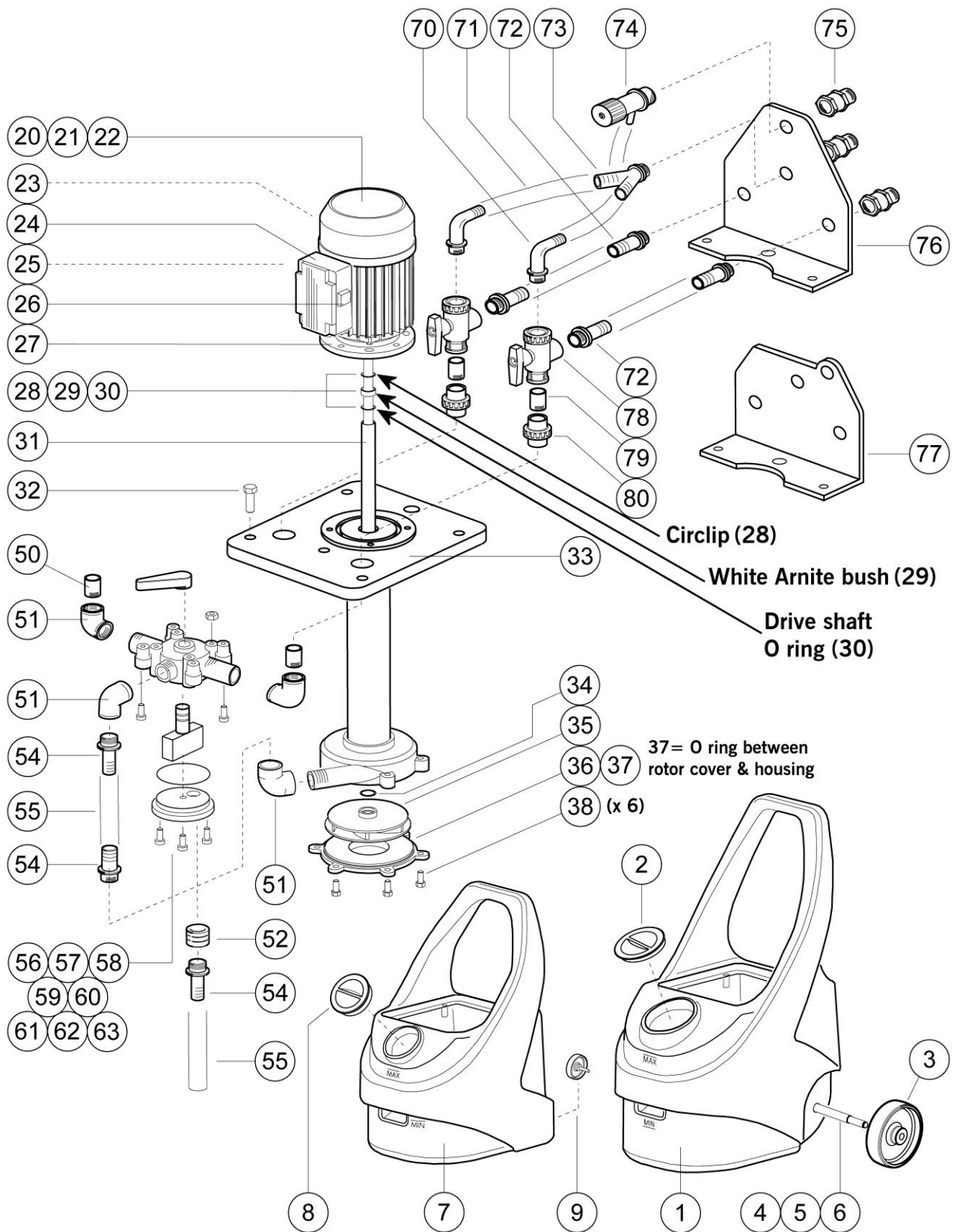
Unscrew the two hose connectors (parts 70 & 72) from the existing valve, and the connection (part 79) to the grey union, and remove all traces of PTFE tape and sealant.

Refit the two hose connectors and union connection using new PTFE tape, and replace the valve.

Push PVC hoses onto connectors, tighten worm drive clips, and re-fix the grey union connection on to tank.

Re-assembly

Re-assemble in reverse order, taking care not to use excessive torque / force when tightening polypropylene bolts - using a liquid soap as a lubricant will help assembly.



If you have any problems, telephone Kamco on 01727 875020 for advice.