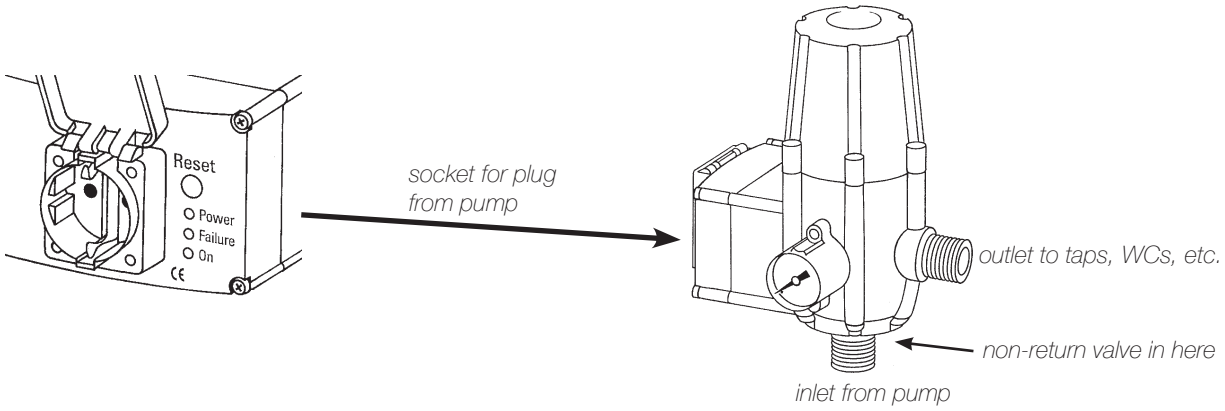
OPERATION AND MAINTENANCE

'Zeta 02' Automatic Pump Controller

The *Zeta 02* unit is a device specifically designed for automatic pump operation. It is designed in such a way that both the pumped water and the power to the pump pass through it. The unit can either be fitted into the discharge pipework from the pump, or directly connected to the pump itself (non-submersible pumps only).
The Zeta unit has an inlet at the bottom (1" bsp) and outlet on one side (1" bsp). A hinged flap on the opposite side gives access to the outlet power socket, into which the pump is connected electrically (n.b. Two-pin plug and socket) The unit contains a non-return valve and must be fitted in an upright position.

On the side of the unit (hopefully the one facing you!) a pressure gauge is fitted. Note that the gauge can be fitted to either face of the unit, but whichever face is not used, the locating hole must be plugged with a stainless steel screw. When the pump is at rest, the gauge should hold steady with no fluctuation. The pressure reading will vary from one installation to the next, but is normally between 2.0 and 3.5 bar.



Function
The unit functions by detecting a drop in pressure within the pipework from the pump. When the pressure falls to 1.5 bar, the unit switches the pump on. Thus, when for example a cistern is flushed, the resulting pressure reduction causes the unit to send power to the pump, thereby producing a flow of water. When the flow of water ceases (cistern valve closed), power to the pump is cut.

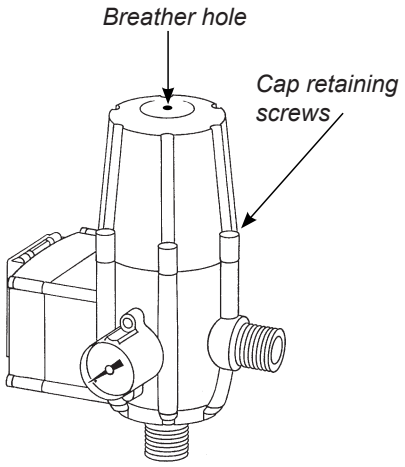
Adjacent to the power outlet socket are three small indicator lamps and a Reset switch. The lamps indicate as follows:

- Power = Unit is receiving power and switched on
- Failure = A fault has occurred and the pump is not running
- On = The pump motor is running

The Power lamp will always be illuminated whilst the unit is connected to the electrical supply. The On lamp will only illuminate whilst the pump is actually running. The Failure lamp will only illuminate when there is a fault. The condition of the lamps can aid fault diagnosis.

Maintenance

Under normal circumstances, no maintenance is required other than checking that there are no signs of any leaks and that the pressure gauge holds constant when there is no water being used. If any signs of leakage are evident but not apparently from the connecting pipework joints, check the top of the Zeta unit. In the top of the housing, a small hole is visible. This is a breather hole and allows the diaphragm inside to expand and contract. If water is leaking from this hole it indicates that the diaphragm is ruptured and requires replacing.



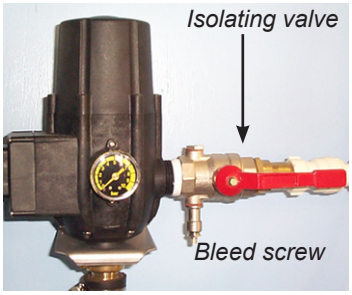
Replacement parts

Certain components of the Zeta unit are replaceable if necessary;

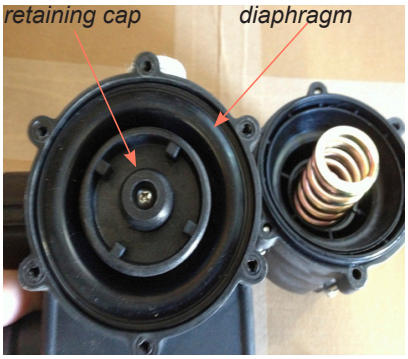
- Expansion diaphragm
- Pressure gauge
- PCB (printed circuit board)

Replacing the diaphragm

Before attempting to open the Zeta housing, it must be isolated from the mains power supply, and the internal pressure must be released. Switch off the power supply and pull the 13A plug out of the socket. Close the isolating valve (red handle) on the outlet side of the unit. Hold a container below the valve to catch any water and open the bleed screw on the valve to release the pressure.
The unit can now be opened; undo the six cap retaining screws; note there is a large spring inside the cap:



With the cap removed, the diaphragm can now be pulled out; note this is a tight fit so you may need to pull with some force on the central retaining cap.



Once removed, undo the screw in the centre of the retaining cap. The diaphragm assembly can now be taken apart:

Change the diaphragm for the new one and re-assemble the three parts; ensure the retaining screw is fully tightened.

Replace the diaphragm assembly into the unit and then fit the spring and housing cap onto the main body.

Tighten the 6 screws evenly, a few turns at a time on each, and ensure the cap fits snugly into the body. Ensure all are fully tightened.

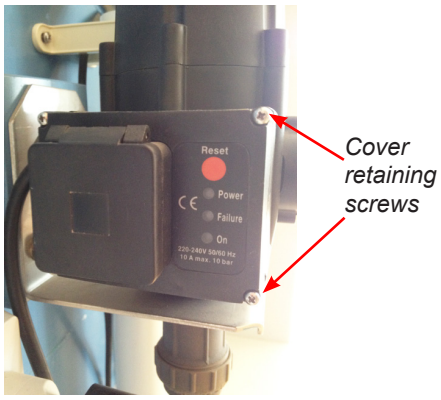
Now close the bleed screw on the isolating valve. Open the isolating valve.

Open an outlet on the circuit (e.g. flush a WC cistern)

Re-connect the Zeta unit to the power supply and switch on. The pump should begin operating ('On' lamp illuminates and gauge should show a pressure rise). If the pump only operates briefly and the 'Failure' lamp illuminates, press the 'Reset' button above the indicator lamps. Repeat if necessary.

Replacing the printed circuit board (PCB)

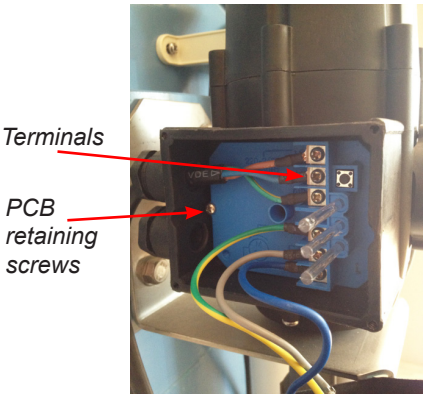
The PCB is located behind the rectangular cover housing the reset button and indicator lamps. Begin by disconnecting the Zeta unit from the power supply, and remove the 2-pin plug attached to the pump cable.



Remove the four retaining screws as shown, then carefully pull the cover away, taking care not to damage the 3 perspex rods. These are there simply to transmit light from the PCB to the indicator lamps on the cover.

Remove these rods and put safely to one side.

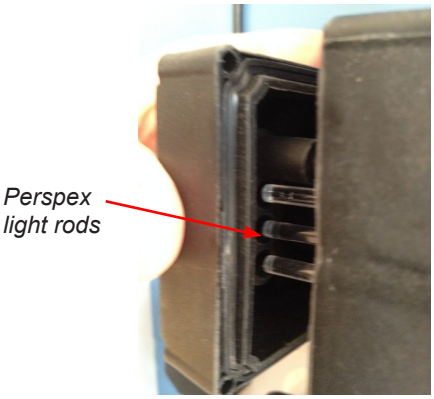
Now undo the six terminals, taking care to observe the colour of each wire. The cover panel can now be completely removed and put to one side.



Remove the two screws holding the PCB in place. The PCB can now be removed and the replacement fitted in it's place. Refit the two retaining screws.

Reconnect the six wires to their corresponding terminals, and carefully insert the 3 rods into the corresponding sockets on the PCB.

Replace the cover carefully, take care to align the three rods with the corresponding indentations on the inside of the cover. Replace the four retaining screws.



Replace the plug from the pump into the socket beneath the flap.

Reconnect to the mains power supply and switch on.

Troubleshooting

Always check indicator lamp status first

Nature of fault	Cause	Remedy
System <u>with</u> mains water top-up function to the main storge tank. (yellow float switch) No water is available from the system. Pump will not run.	a. Tank is empty and the dry-run protection has activated *(Failure lamp illuminated)*	a. Check that water level in tank is above level of suction filter and the float switch. If not, this indicates there is a problem with the top-up unit. Refer to the relevant document.
	b. No power to controller *(No lamps illuminated)*	b. Check power supply is switched on and active. Check fuse in plug.
	c. Controller has failed	c. Call customer service 01452 772000
	d. Pump is blocked	d. As above
System with <u>no</u> mains water top-up function. (red float switch) No water is available from the system. Pump will not run.	a. Tank is empty and the dry-run protection has activated *(Power lamp only illuminated)*	a. Check that water level in tank is above level of suction filter and the float switch. If not, and the float switch is in the down position, then the dry-run float switch has activated and will re-set once there is sufficient water in the tank. If there is water present and the float switch is in the up position, press Reset button to re-start the pump.
	b. No power to controller *(No lamps illuminated)*	b. Check power supply is switched on and active. Check fuse in plug.
	c. Controller has failed	c. Call customer service 01452 772000
	d. Pump is blocked	d. As above
Pump is constantly switching on and off.	Minor leak in the system, or an outlet is not fully closed (e.g. WC valve is not closing properly)	Close the red lever isolating valve on the outlet of the Zeta unit. If this resolves the problem, then it indicates the leak is beyond that point, so check all pipework, joints and outlets (WC valves and taps etc.) Remedy as required. If the problem persists, then there is leakage between the pump and the controller. Check the pipe run and especially the joints for signs of leaking. If necessary, raise the pump by its lifting rope until the top of the pump is out of the water in order to check its' outlet connection. Remedy as required.
No water is available from the system. Pump runs continually even though there is water in the tank.	a. Discharge pipe has become unattached from the pump *(Power and On lamps illuminated)*	a. Reconnect pipe and re-prime the pump.
	b. Plumbing failure between pump and controller (major leak >0.7 l/s)	b. Check all pipes and joints between pump and controller, and rectify as necessary.
	c. PCB in controller is defective	c. Replace PCB *(available from customer services)*
Pump runs continually, even when there is no demand for water	a. There is a leakage of more than 0.7 litres/sec.	a. Close the valve on the outlet side of the unit (this is usually a red handle, quarter turn). If pump stops, this indicates a leak somewhere in the pipework on the other side of the valve. Check all outlets, (e.g. dripping taps, ballcocks) and pipe joints. If problem persists, this indicates a leak somewhere between the pump and the controller.
	b. Debris preventing the non return valve from closing fully.	b. Disconnect the inlet pipe to the bottom of the controller, and clear the non return valve.
	c. PCB is faulty	c. Replace the PCB