



## **PortaPower Trolley System Operation and Maintenance Manual**

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## Welcome to Brodex

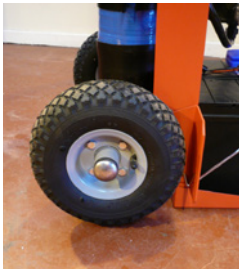
The Brodex Portapower has been designed by engineers, with reliability, build-quality, robustness and ease of use paramount in their considerations.

Like all engineered equipment, maintenance is an integral part of ensuring continuity in performance, we would recommend that you to take the time to read this manual to fully appreciate that, with just a few simple routine operations, you can protect your investment, whilst minimising any potential down-time in the field.

### PortaPower Overview



Booster Pump



Inflation Point



Drain Port



Spare Fuse



Tap Water In



Pure Water Out

## Operating Instructions

The PortaPower should ideally be situated near the tap water source, it can be used to:

1. Fill a static tank with Pure Water
2. Fill a portable Trolley system like the Eco Trolley
3. Used with a hole reel then to water fed pole
4. Used connected directly to the water fed pole



**Water Inlet port**

The PortaPower needs to be connected to a mains water supply of at least 30 psi. You will require a piece of hose and a connector to match that on your water source (bib tap) we have provided the connector for the other end of this hose, a male hose tail brass fitting which is pushed into the pump inlet.(see pic one) A jubilee clip will have been cable tied to this to help fit it to a filling hose.

### **Important Note:**

The drain valve seen at the base of the membrane housing (see pic two) must at all times, whilst the system is generating, be expelling water to the drain. This contains all of the minerals rejected and if this valve is left closed the membrane will be damaged permanently and will not be covered by your guarantee.

(you have been supplied a drain hose with your purchase)



**Drain Valve**

Before you turn on the water source ensure your hose reel or water fed pole is connected to the pure water outlet port.(see pic three)

Once the water is connected, and the drain water outlet opened, pure water will immediately start to be produced.

The amount and pressure of this is dependant on the incoming mains water pressure, we have fitted the Portapower with either a mains or battery operated booster pump to increase the production (twice the production rate) and pressure of the water when required,(the booster pump does not boost the incoming water pressure it requires a good incoming pressure ( min30psi) to operate effectively).

\*Note you may need to adjust the drain back down to 2 litres per minute when using the booster pump.



**Pure Water Outlet**

## General Maintenance

### Changing a Pump



Disconnect the pump wires from the pump by sliding down the protective covering over the wires (see pic Four ) and pulling apart the connectors.



Unscrew the two plastic nuts on either side of the pump.



Unscrew the 4 screws holding the pump onto the panel. Catch pump, do not let it fall.

Change pump and repeat the process in reverse.

### Do's and Don'ts

- **Do not lift.** Use safe lifting techniques and apparatus
- **Do not** drop from any height.
- **Do not** let the system freeze. Store Indoors.
  
- **Do** keep the tyres pumped
- **Do** remember to flush the membrane once a week.



**Avoid Temperatures  
Below 0°C**

May cause serious  
damage and void  
guarantee

### Battery Charging Instructions

The battery supplied is a standard car grade battery. Please use a suitable 4amp charger obtainable from any good car parts stockist. Follow the battery manufacturers charging instructions.

## Routine Maintenance



### Taking a TDS Reading

Total Dissolved Solids (TDS) are the total amount of mobile charged ions, including minerals salts or metals dissolved in a given volume of water. It is expressed in parts per million (ppm) or milligrams per litre (mg/L). Our industry tends to work in ppm.



Specific instructions will have been included with your meter, but generally it will be as follows:

Remove the protective cap, turn the meter on and immerse the sensor into the water to be measured - usually no more than 2", as the whole unit may not be waterproof! Lightly stir the meter to dislodge any air bubbles. Wait about 10 seconds, until the display has stabilized, then read your ppm from the LCD screen. Some models may have a "hold" button to enable you remove the unit from the water and still read the display.

As a general guide, mains water in soft water areas will usually be in excess of 50ppm, and in hard water areas in excess of 300ppm,

Pure Water, suitable for cleaning windows will be 0-2ppm.

And sodium chloride used to calibrate TDS meters is 342ppm.

It is advisable to use the TDS meter to measure the ppm readings at three points:

- incoming mains
- RO water directly from the membrane
- water delivered from the manifold

Match these with your water pressure readings to produce a very accurate health check of your system. This will help you diagnose problems before they arise and cure them when they do occur. It is also a great tool to educate your customers about the power of Pure Water.

### Measuring TDS of the RO Membrane water

Switch off the PortaPower and water source.  
Place a container under the area to catch drips.

Loose the black nut catch some of this water and test with the tds meter as above.

**Loosen Black Nut Here**



## Particle Filter Change

Pre-filtration is essential to protect Reverse Osmosis membranes from damage caused by suspended and some dissolved solids present in ordinary tap water. The most cost effective way is to use 10" disposable cartridge filters, one to remove any suspended solids that would block the membrane.

We recommend replacement as and when necessary, but be aware that, if you see brown town's main water in your area, due possibly to local water authority repairs, the filters can block very quickly. However they are cheap to replace and ensure the health of your membrane which is the most expensive single component on your machine.



Pre-filter maintenance is an insurance policy on your machine, please remember to log dates in your owners' manual when you change them. Replacement is straightforward, please follow steps below.

Put a bucket under the housing to catch any water spillage. Using your housing spanner supplied with your machine, locate onto the moulded ribs of the housing and turn anti-clockwise from housing body.



**PLEASE NOTE:** Viewed from above the direction is clockwise to loosen. Watch closely for a rubber "O" ring which must be refitted to prevent leaks.

Remove the old 10" filter and discard. Replace with the new filter ensuring that all packaging is removed. Refit bowl hand-tight, ensuring "o" ring is still in correct position. Once both filters are replaced, pressurise the machine and bleed air from the top of each housing by depressing the red toggle button on top of lid. Once clear water bleeds out of the red recess, the filter is now back on line protecting the membranes.

## Replacing Reverse Osmosis Membranes - 40 & 20 Inch

**1** Remove the 40 inch or 20 inch Membrane Housing from the machine by disconnecting the hoses using a 19mm spanner (on the Bulkflow these are pushfits). Then remove the whole cylinder from its two Cobra clamps by undoing the alan bolts on each. Position housing on bench and pay attention to the end of the housing with a single pipe inlet and a grey plastic plug. Undo the clamp which holds the end cap in place using two 14mm spanners, as shown, right.



**2** This clamp takes the form of two C pieces, held together by a pair of bolts. Loosen one, but leave in position, and remove the other entirely, as shown.



**3** The black end cap has a recess which the clamp fitted into. Place the tip of a broad blade screwdriver in this recess and, using a hammer, gently tap to ease it out of the steel tube.



**4** Once a reasonable gap has opened up, insert the screwdriver in this, and twist to open further, taking care not to damage the rubber "O" ring which is now exposed.

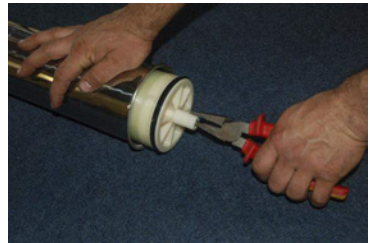




**5** Once the cap is removed, the white membrane can be seen. Take care to retain the rubber "O" ring and, if damaged, replace.



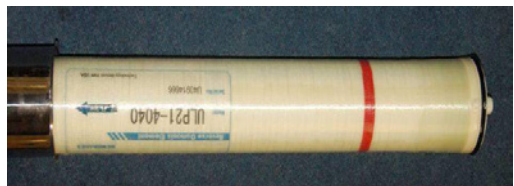
**6** Grasp the central spigot with a pair of pliers and pull gently, turning membrane as necessary and withdraw the membrane fully from the housing.



**7** Fit new membrane in reverse order of the above. Smear the central spigot on both ends with silicone gel or vaseline.



**8** Note: insert new membrane in direction of flow arrow.



**9** Ensure "O" ring is in good condition and correctly positioned, as you reinsert black endcap.



- 10** Refit pair of "C" clamps, ensuring outer lip grips the recess in the plastic end cap and the other fits over the stainless steel lip at the end of the membrane housing.



- 11** Tighten bolts equally, so that a similar gap is on either side of the housing.

Replace housing on machine and reconnect hoses.



## Important Note:

The drain port seen at the base of one of the membrane housings must at all times, whilst the system is generating, be expelling water to the drain. This contains all of the minerals rejected and if this valve is left closed the **membrane will be damaged permanently. They will need replacing and will not be covered by any warranty.**

The drain valve is adjustable by turning the blue topped valve handle. You should adjust this to it allows 2 litres per minute to flow to drain. Use a graduated beaker and watch. This remains the same whether you use it with or without a pump. **The drain port seen at the base of one of the membrane**

## FLUSHING ALERT!

### VITAL: REGULAR ADDITIONAL MEMBRANE FLUSHING

We cannot overstate the importance of flushing your reverse osmosis membrane at least weekly, by setting the machine up as if to fill and then fully opening the drain valve for 1 hour. This reduces the amount of calcium scale build up and prolongs the life of the membranes

Also in areas of the country where the water is particularly hard with calcium salts, the life of a membrane will be dramatically increased if the machine is fed with artificially softened water.



**Contact Us for more information**

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