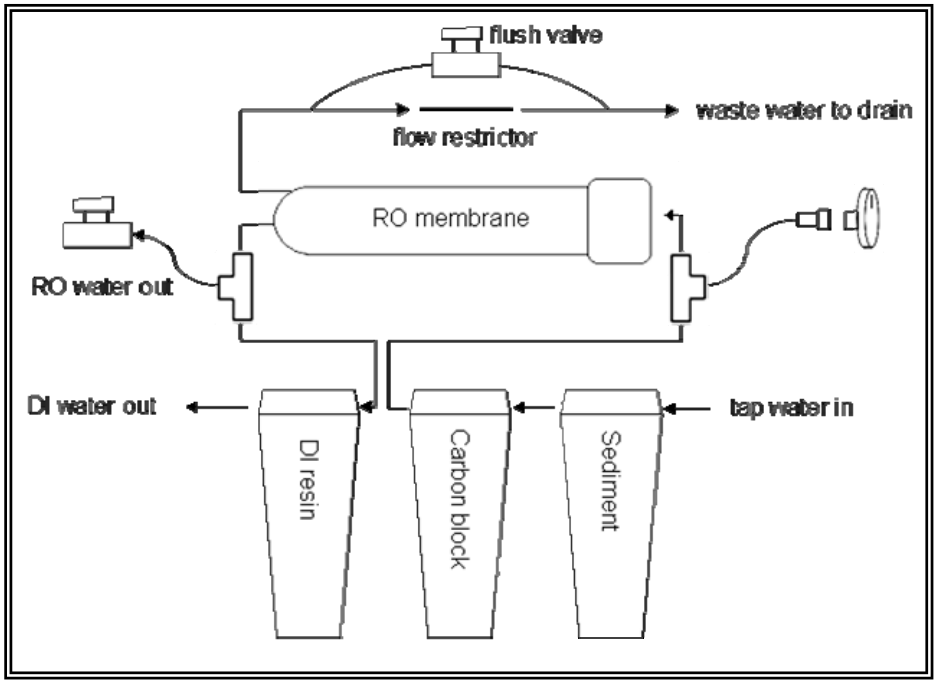
Understanding and Operating Your New Reverse Osmosis/Deionization System

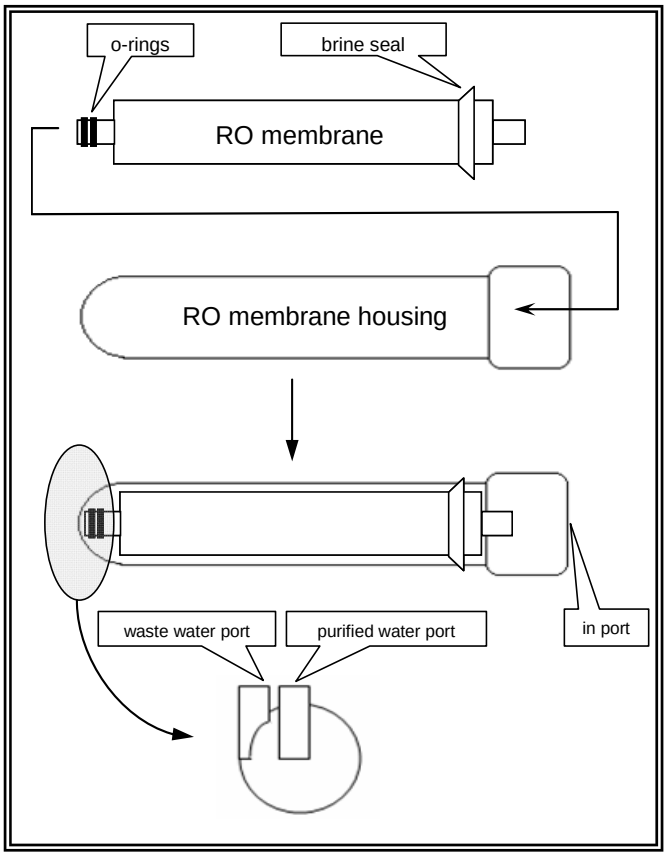
Congratulations on your purchase of a water purification system from Buckeye Field Supply – you've made the right choice! Start by carefully removing all parts from the shipping box. Remove any parts shipped within the left vertical housing. Identify your sediment cartridge (already installed in right housing), carbon block cartridge (already installed in center housing), DI resin cartridge, RO membrane, sediment housing "in" port, DI housing "out" port, drain saddle, static or adjustable flow restrictor, and tubing; and flush valve, pressure gauge and RO water "out" valve (Premium Series systems only).

Securely mount your system using the mounting holes on the back of the bracket. Place the system in a location out of direct sunlight that is protected from temperatures below freezing and above 100°F. You'll note three vertical housings beneath the bracket. To prepare your system for operation:



1. Attach the blue ¼" water supply tube to the quick connect fitting in the lid (marked "in") on the sediment cartridge housing. Don't turn the water on yet!
2. Identify the white RO membrane housing mounted horizontally above the bracket. On the left end of the RO housing, locate the two quick connect elbows. The permeate port (i.e., the water that has been filtered by the RO membrane) is near the center of the end of the housing. The wastewater port is near the edge of the RO housing.
3. Connected to the wastewater port you will find a flow restrictor or flow restrictor/flush valve combination. Connect a length of ¼" tubing to the wye with the open port (yellow tubing provided). Run this tubing to a drain. If you purchased a Premium System, open the flush valve (place the valve handle parallel to the tubing). Wastewater will flow from this tube when the RO system is on.
4. A drain saddle is provided with your system. Route the yellow tube to a drain, or to the drain saddle installed high on a vertical drain pipe under a sink – select a location away from a dishwasher or disposal drain. After identifying the correct position of the drain saddle, drill a ¼-inch hole through one side of the vertical drain pipe. Center the gasket on the hole and tighten the drain saddle bolts. Insert the yellow tubing in the compression nut, and tighten the nut.

5. Run tubing from the “out” port on the left vertical housing to a drain (white tubing provided). Eventually, this is where DI water will flow from the system.
6. Turn on the supply water to the unit and allow water to flow through the sediment filter, through the carbon block, into the horizontal empty RO membrane housing, and out the waste line if you have a Premium System, or into the empty left hand housing, and to a drain if you have a Value System. Check the system for leaks. Allow the carbon block to flush for 10 minutes. Turn off the water supply to the unit.
7. On the right end of the RO housing, locate the single quick connect elbow. This is the RO housing supply (“in”) port. Disconnect the short length of tubing from the fitting by depressing the collar on the fitting with your thumbnail and pulling gently on the tubing - the tubing will come out easily if the collar is fully depressed. Unscrew this end of the RO housing, and insert the RO membrane in the housing. Insert the end of the membrane with the two small black rubber o-rings first. The end of the membrane near the single large rubber seal (“brine seal”) should be closest to the end of the RO housing that unscrews. Push on the membrane firmly with the heel of your hand to assure it is seated, replace the cap of the RO housing, and replace the tubing into the fitting on the cap of the RO housing. Close the flush valve. Turn on the water supply to the unit (and if you purchased an adjustable flow restrictor, adjust it to produce 4 parts waste to 1 part purified water) for 10 minutes (if the membrane was shipped to you dry) or 40 minutes (if the membrane was shipped to you wet). Check for leaks. Turn off the water supply to the RO/DI system.



8. Insert the DI resin cartridge, white end down into the housing on the far left.
9. Turn the water supply on, check for leaks, and run 1 gallon of water through the DI resin cartridge. Discard the purified water.
10. Turn off the water supply to the system, route the water supply, wastewater, and purified water tubings to their final locations, and your system is ready for use. If your system includes an adjustable flow restrictor, check the waste to permeate ratio several more times over the first week of use, and periodically thereafter.

Buckeye Field Supply is not responsible for any damage caused by leaks. *The user bears full responsibility to assure the system is not leaking.*

Additional Notes

Your reverse osmosis membrane capacity (in gallons of permeate produced per day, or gpd) was rated with supply water at 250 ppm total dissolved solids (TDS) at 77°F and 50 psi pressure for 50, 75, and 100 gpd membranes; and 550 ppm TDS at 77°F and 60 psi pressure for 150 gpd membranes. Colder water and/or lower pressure will reduce the amount of permeate your system produces. Low pressure can be corrected with a booster pump.

While your sediment filter and carbon block filter are new, note the water pressure reaching your membrane on the pressure gauge (the gauge reads in pounds per square inch, or "psi"). If you see this pressure drop over time, one or both of the filters is clogging and should be replaced.

Treat your DI resin gently! If resin was exposed to freezing temperatures during transit, allow it to warm to room temperature for 24 hours prior to use.

Don't run your system with supply water exceeding 100°F. If your system has an adjustable flow restrictor, don't use a waste:permeate ratio lower than 3:1. Ratios higher than 5:1 needlessly waste water.

Premium Series systems come with a 1 micron sediment filter and 0.6 micron, 20,000 gallon carbon block. Value Series systems come with a 5 micron sediment filter and 5 micron, 6,000 gallon carbon block.

Both Premium and Value Series systems utilize a refillable DI cartridge filled with color-changing resin. Replace the resin in the cartridge when it becomes exhausted.

Replacing Prefilters The sediment filter and carbon block should be replaced when they clog, or after 6 months, whichever comes first. To replace the filter:

1. Turn off the water supply to the system.
2. Use the housing wrench supplied with your system to loosen the sediment filter housing. Keep a towel handy during this process.
3. Discard the old sediment filter.
4. Wash your hands thoroughly.
5. Carefully remove and retain the large black o-ring at the top of the housing. Inspect the o-ring for damage (e.g., cracks, tears, deformations).
6. Wash the inside and outside of the housing and the o-ring with warm water to which you've added soap and 2 teaspoons of bleach.
7. Thoroughly rinse the housing and o-ring with warm, chlorinated tap water.
8. Place a small dab of food grade silicone grease on the o-ring, and spread the grease over the entire o-ring using your fingers.
9. Place the o-ring in the housing.
10. Insert the new sediment filter into the housing
11. Screw the housing back onto the system. In most cases it is not necessary to use the wrench when tightening the housing.
12. Follow steps 2 through 11 to replace the carbon block.
13. Flush the carbon block for 10 minutes. Don't run flush water through later stages of your RO or RO/DI system.

Replacing the Membrane Under normal conditions RO membranes should last longer than one year. When the performance of the membrane indicates replacement is necessary:

1. Begin by washing your hands thoroughly.
2. Turn of the water supply to the system.

3. Remove the tubing from the quick connect fitting on the RO membrane cap, from the purified water port, and from the waste water port. Label the tubes if needed to assure they are reconnected correctly after replacing the membrane.
4. Remove the RO membrane housing from its clips.
5. Unscrew the RO membrane housing cap.
6. Grasp the stem of the RO membrane with pliers, and twist and pull the membrane from the housing.
7. Carefully remove and retain the black o-ring(s) near the threads of the housing or from within the cap. Inspect the o-ring(s) for damage (e.g., cracks, tears, deformations).
8. Wash the inside and outside of the housing and the o-ring(s) with warm water to which you've added soap and 2 teaspoons of bleach.
9. Thoroughly rinse the housing and o-ring(s) with warm, chlorinated tap water. Dry the inside of the housing with a clean cloth.
10. Place a small dab of food grade silicone grease on the o-ring(s), and spread the grease over the entire o-ring using your fingers.
11. Place the o-ring(s) into position.
12. Place the RO membrane housing into its clips, and reinsert the purified water tube and the waste water tube, being careful to match the tubes to the correct fittings on the RO membrane housing.
13. Insert the end of the membrane with the two small black rubber o-rings first. The end of the membrane near the single large rubber seal ("brine seal") should be closest to the end of the RO housing that unscrews. Push on the membrane firmly with the heel of your hand to assure it is seated, and replace the cap of the RO housing.
14. Replace the tubing into the fitting on the cap of the RO housing.

Replacing Deionization Resin To assure the beads in mixed bed resin remain mixed, pack the beads tightly in the refillable cartridge. Fill the cartridge to within a 1/4 inch of full with resin. Compact the resin by bouncing the cartridge repeatedly (~40 times), rubber washer end down, on a hard surface from a height of about 0.5 inch. Add more resin and repeat the process twice. Fill the cartridge a last time to within 1/8 inch of the top and compact the resin again. If you see any settling, refill to within 1/8 inch of the top, and replace the cap. Don't use the first gallon of water produced by the DI resin.

Testing Performance of the Membrane The two most common symptoms indicating the RO membrane should be replaced are reduced production of purified water, and a declining rejection rate. Your membrane capacity (in gallons of permeate produced per day, or gpd) was rated with supply water at 250 ppm total dissolved solids (TDS) at 77°F and 50 psi pressure for 50, 75, and 100 gpd membranes; and 550 ppm total dissolved solids (TDS) at 77°F and 60 psi pressure for 150 gpd membranes. The rejection rate, or the percentage of total dissolved solids (TDS) in the feed water that is rejected by the membrane, is 96% to 98% for 50 gpd, 75 gpd, and 150 gpd membranes, and 90% for 100 gpd membranes.

To assess the amount of purified water produced by the system, measure the amount of RO or DI water produced in one hour, and multiple that by 24 to calculate the number of gallons per day. To assess the membrane's rejection rate, use a meter to measure TDS in the feed water and in the RO water. For example, if the feed water measured 265 ppm TDS, and the RO water measured 8 ppm TDS the rejection rate can be calculated as follows:

(265 – 8) / 265 = 0.958 or approximately 96%