Your complete satisfaction is our priority.

DO NOT RETURN THIS UNIT TO YOUR DEALER.

If you experience any problems or have any questions at all, contact Seachem’s Technical Support at 888.732.0003 or e-mail us at support@seachem.com.
Congratulations on your purchase of the finest reverse osmosis filtration system available. Your Pinnacle™ Filter has been assembled using the highest quality components to yield the ultimate in water quality. Whether you purchased this system for your aquarium, or to purify drinking water, or both, be assured that your animals and your family are enjoying the highest quality water possible from a residential reverse osmosis and/or DI (De-Ionization) filter system.

**Parts Checklist**

Your Owner’s Manual was enclosed within a package of items required to easily get you on your way to making purified water. In the package you will find one each of the following:

A. Yellow tubing (input line)
B. Blue tubing (product water line)
C. Black tubing (waste water line)
D. Brass hose adaptor
E. Ball Valve
F. RO Membrane
G. Canister Wrench

**200 GPD Pinnacle Plus™ Unit**
(Back View)

![Diagram of the 200 GPD Pinnacle Plus™ Unit back view showing components like RO Membrane Housing, Pressure Gauge, Input Line, Output Line, Flow Restrictor, Waste Water Line, Auto Shut-Off Valve, DI Cartridge, Carbon Cartridge, Sediment Filter]
Step 1: ASSEMBLY AND MOUNTING INSTRUCTIONS

The tubing needs to be connected and the RO membrane needs to be put in its housing.

1. Attach one end of the yellow tubing (A) to the sediment filter (clearly marked “IN” at the top of the canister to the left when facing the unit).

2. Connect the brass hose adaptor (D) to the other side of the yellow tubing or utilize other connections as referenced in the USAGE section below.

3. Attach the blue tubing (B) to the Carbon filter (Pinnacle™ models) or DI filter (Pinnacle Plus™ models) (clearly marked “OUT” at the top of the canister to the right when facing the unit).

4. Attach the ball valve (E) to the other end of the blue tubing.

5. Attach the black tubing (C) to the white flow restrictor located on the top of the RO membrane housing (the top of the unit). The flow restrictor has black tubing already connected at one side – simply connect the length of black tubing to the remaining open connection on the flow restrictor.

6. The left side of the RO membrane housing (located on top of the unit) has a threaded closure with yellow tubing coming into it (there are two RO membrane housings on the 200gpd Pinnacle Plus™ models). Unscrew the closure from the RO membrane housing.

7. Remove the plastic wrap from the RO membrane (F). Slide the membrane into the housing putting the two black o-ring side of membrane in first. Push the membrane in as far as it will go. Then thread the closure back onto the housing and tighten securely.

Pinnacle™ and Pinnacle Plus™ filters can be mounted to any secure location using hardware screws. Keep in mind that the filter system will gain a substantial amount of weight when it is full of water. For this reason, it is necessary that the filter system be mounted to a strong backing. Mount the filter system level with clearance for all housings and hoses. Also keep in mind that there will be space needed to accomplish regular maintenance of the filter system such as pre-filter removal. If needed, additional hardware and plumbing can be found at most hardware or plumbing supply stores.
Step 2: FLUSHING PROCEDURE

If it is your first time using the filter system or you have just replaced pre-filter cartridges or the membrane, it is important to flush them. Flushing the pre-filters maximizes membrane life. Reverse osmosis membranes are packed with an anti-bacterial agent to keep them sterile prior to use. This agent should be flushed away to avoid human or animal consumption. The DI Cartridge (only on Pinnacle Plus™ models) does not require flushing.

1. Flush the pre-filters first. Remove the input line (yellow tube) that connects to the Auto Shut-off valve at the opening marked “IN”. Disconnect the tubing by pressing the loose part of the quick fit fitting to the fitting while pulling in the opposite direction on the tubing. This will then leave a short length of yellow tubing coming out of the carbon pre-filter.

2. Attach the input line (yellow tube) to a cold water supply with the attached threaded brass adapter. This adapter will connect to virtually any garden hose and most kitchen faucets. A hardware or plumbing supply store can assist you with this connection if necessary. Turn on the water supply and let it run for 10 minutes. This will clear the carbon filter of any dust.

3. After 10 minutes, re-connect the yellow tubing to the Auto Shut-off valve at the opening marked “IN” making sure you push the tubing back into the quick fit fitting completely.

4. Next, flush the membrane of the anti-bacterial agent.

   A. For Pinnacle™ models, simply connect the filter system for normal use and let the system run for 15 minutes without collecting the output water. After 15 minutes, the flushing procedure is complete.

   B. For Pinnacle Plus™ models, first disconnect the yellow tubing from the DI cartridge housing, then let the system run for 15 minutes. This will prevent the anti-bacterial agent from flowing through the DI cartridge.

5. After 15 minutes re-connect the yellow tubing to the DI cartridge housing making sure you push the tubing back into the quick fit fitting completely.

6. If you have a Pinnacle Plus™ model with DI cartridge, the DI cartridge housing will fill with water from the membrane housing and water will filter through to the product water line (blue tube).
**Step 3: USAGE**

1. Make sure that the water supply is turned off during installation. The input line (yellow tube) should be installed to a cold water supply with the attached threaded brass adapter as it was in Step 2 of the Flushing Procedure. If the filter system is going to be installed permanently, it is recommended that Teflon tape be used to leak-proof the connection. A permanent connection can also be made to copper pipe using a saddle valve (available at most hardware or plumbing supply stores).

2. The output line (blue tube with ball valve on the end) should be placed in the reservoir to be filled. This is the line that yields the purified water. Make sure the valve on the end is in the closed position.

3. The waste water line (black tube) should be placed in the kitchen sink drain, garden, or suitable area for drainage of water. The wastewater is safe for most plants and animals. Keep in mind that in any given period of use, the filter system will produce 3-5 times the stated purified water production in wastewater. Allow for adequate drainage.

4. Make sure all fittings and pre-filters are hand tightened to avoid leakage.

5. The filter system is now prepared to produce purified water. Turn on the water supply. Wait 1-3 minutes for the filter system to fill with water. If the valve on the output line (blue tube with ball valve on the end) is closed, as it should be, there should be no water coming out of it or the waste water line (black tube). It is normal for a small amount of water to come out of the waste water line (black tube) initially but this should stop within 10 minutes. If it does not stop, it could mean that there is not adequate water pressure for proper operation or that the automatic shut-off valve has failed (see Trouble Shooting section of this manual).

6. Open the valve on the output line (blue tube with ball valve on the end). Water will start to come out of the waste water line (black tube). Within 1-3 minutes water will begin to come out of the output line (blue tube with ball valve on the end). This water is the purified water.

**NOTE**

We recommend that you DO NOT back flush the membrane as this can result in scale build up in the membrane thereby shortening its useful life. Other companies may sell special “back flush” kits, however these do not address this problem and are not recommended. Because back flushing uses the water you are trying to purify as the flushing agent, it can only further contaminate the membrane.

**Step 4: REMINERALIZATION**

Due to the effectiveness of reverse osmosis filtration it is important in many cases to mineralize the output water (purified water) with an appropriate mineralizing product. Seachem Laboratories, Inc. produces a number of products specifically designed with this in mind for a variety of aquatic environments. Replenish™ or Live Bearer Salt™ (freshwater community aquariums), Equilibrium™ (freshwater planted aquariums), Cichlid Lake Salt™ (African Cichlid aquariums), American Cichlid Salt™ (American Cichlid aquariums) or Reef Salt™ or Marine Salt™ (saltwater and reef aquariums) can all be used for the specific environment desired.

**Step 5: MAINTENANCE**

**MEMBRANE & FILTER CARTRIDGE REPLACEMENT SCHEDULE**

**Sediment Cartridge** – replace when visibly dirty (3–6 months)

**Carbon Cartridge** – replace at the same time the sediment cartridge is changed

**DI (De-Ionization) Cartridge** – (only on Pinnacle Plus™ models) – replace when DI resin color changes completely which indicates cartridge is exhausted

**Reverse Osmosis (R.O.) Membrane** – should be changed every 1.5–2 years or when TDS reading is above 30–40 µs.

All listed service times are approximate. Actual service life may be longer or shorter depending on the water source quality.
Your new Pinnacle™ or Pinnacle Plus™ reverse osmosis filter should work trouble free out of the box. If you have difficulties or questions please, call 888-732-0003 for assistance or outside of the US dial 706-343-6061. NOTE: The water supply should be turned off and the water pressure should be bled off [accomplished by opening the valve on the output line (blue tube with ball valve on the end)] prior to working on the filter system itself. Following are some common problems and their solutions:

Problem: 1) Water keeps coming out of the waste water line (black tube) even though the output line (blue tube with ball valve on the end) has been closed off. 2) The filter makes a rattling or “hammering” noise, perhaps sporadically, and the pressure seems to go up and down on the pressure gauge.

How the automatic shut-off valve works: When the output line (blue tube with ball valve on the end) is closed, back-pressure builds up in the filter system. When the backpressure gets to a certain point, the automatic shut-off valve cuts off the supply of water to the membrane. Since the supply to the membrane is cut off, the wastewater (black tube) will stop running. This requires that there be at least 65 PSI on the feed line to the reverse osmosis filter and that there be an absolute shut-off of flow at the end of the product water line (blue tube).

Solution: 1) Insufficient pressure on the feed to the filter will not produce enough backpressure to activate the automatic shut-off valve. Low water pressure may be corrected by two methods: (a) by consulting a qualified plumber to adjust water pressure entering your home, or (b) purchasing a booster pump (available from Seachem’s Pinnacle™ line) to increase water pressure in your Pinnacle™ or Pinnacle Plus™ reverse osmosis filter. Contact your local dealer for further information. 2) An absolute shut-off of flow is required to activate the automatic shut-off valve. Many float valves used in the aquarium hobby do not provide an absolute shut-off of flow and will cause the automatic shut-off valve to make a rattle or “hammering” noise and the pressure gauge to have a wildly varying reading. An electronic float switch and solenoid valve or a pressurized storage container is the best solution in such cases.

Seachem™ offers a float switch and solenoid valve that provides an absolute shut-off to the product water line (blue tube) in place of insufficient float valves. Contact your local dealer for further information. 3) If you have connected a pressurized storage container to your Pinnacle™ or Pinnacle Plus™ reverse osmosis filter, the water may run from the waste water line (black tube) for a while after you have closed the output line (blue tube with ball valve on the end). This is an effect of the filtration system topping off the storage tank. When the storage tank is full the waste water line (black tube) will stop running.

Note that the R/O will still function well in producing excellent quality water even though the automatic shut-off valve may not be working or may be producing a noise.

Problem: The filter system seems to produce a significantly larger amount of wastewater than it did when it was new. 2) The wastewater seems to come out with more force than it did when the filter system was new.

Solution: The reverse osmosis membrane may be clogged or fouled. A test with a TDS meter is the best means to confirm this. Otherwise consult the previous section, “Membrane & Filter Cartridge Replacement Schedule”. 2) Though not common, the flow restrictor may have failed. Contact your local dealer and inform them of the EXACT model of Pinnacle™ or Pinnacle Plus™ filter system you have. Flow restrictors are different based on the US Gallons Per Day (GPD) rating of the filter system. Your local dealer can assist you in getting a replacement of the correct flow restrictor for your model.
Problem: I’m not getting the rated capacity out of the unit, what could be wrong?

Solution: There are many variables that can affect output capacity: temperature of source water, low water pressure, clogged sediment or carbon cartridge(s), and exhausted membranes. Low water pressure may be corrected by two methods: (1) by consulting a qualified plumber to adjust water pressure entering your home, or (2) purchasing a booster pump (available from Seachem’s Pinnacle™ line) to increase water pressure in your Pinnacle™ or Pinnacle Plus™ reverse osmosis filter. Please consult your local dealer for booster pump options, filter accessories, replacement sediment and carbon cartridges, and reverse osmosis membranes.

GENERAL INFORMATION

PRESSURE

Pinnacle™ and Pinnacle Plus™ reverse osmosis filters work on a basis of pressure against the reverse osmosis membrane. The higher the pressure, the better the unit will remove impurities. Pressure should be maintained while the filter system is running at between 40-60 PSI per the attached meter on the membrane housing. This is normal for most household and municipality water pressure. If the pressure to the unit is below 40 PSI a booster pump may be required. If the pressure is below 60 psi the automatic shut off valve may not function properly. Consult your local dealer.

TEMPERATURE

Pinnacle™ or Pinnacle Plus™ reverse osmosis filters work well between 77° and 113° Fahrenheit (25°–45° Celsius). Reverse osmosis membranes work best using colder water. The colder the source water is the higher the pressure and the lower the flow will be through the reverse osmosis membrane. As such, more impurities or Total Dissolved Solid (TDS) are removed from the source water. The higher the temperature of the source water is the lower the pressure and higher the flow will be through the reverse osmosis membrane. As such, more impurities are able to pass through the filter. The difference is minimal in any case but worthwhile noting.

REJECTION

Rejection is the term used to describe what a reverse osmosis filter removes from the source water. Pinnacle™ and Pinnacle Plus™ reverse osmosis filters allow for an overall rejection of 99% of the impurities of source water. The following describes some of the impurities removed and the levels at which they are removed:

<table>
<thead>
<tr>
<th>Impurity</th>
<th>% TDS Rejection</th>
<th>Impurity</th>
<th>% TDS Rejection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>99%</td>
<td>Copper Sulfate</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Sodium Cyanide</td>
<td>97%</td>
<td>Formaldehyde</td>
<td>35%</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>99%</td>
<td>Methanol</td>
<td>25%</td>
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<tr>
<td>Silica</td>
<td>98%</td>
<td>Ethanol</td>
<td>70%</td>
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<tr>
<td>Sodium Bicarbonate</td>
<td>99%</td>
<td>Isopropanol</td>
<td>90%</td>
</tr>
<tr>
<td>Sodium Nitrate</td>
<td>97%</td>
<td>Urea</td>
<td>70%</td>
</tr>
<tr>
<td>Magnesium Chloride</td>
<td>99%</td>
<td>Lactic Acid</td>
<td>94-99%</td>
</tr>
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<td>Calcium Chloride</td>
<td>99%</td>
<td>Glucose</td>
<td>98%</td>
</tr>
<tr>
<td>Magnesium Sulfate</td>
<td>&gt;99%</td>
<td>Sucrose</td>
<td>99%</td>
</tr>
<tr>
<td>Nickel Sulfate</td>
<td>&gt;99%</td>
<td>Chlorinated Pesticides (traces)</td>
<td>&gt;99%</td>
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</tbody>
</table>