EC SERIES - REVERSE OSMOSIS SYSTEM
Installation, Operation and Maintenance Manual

4-Stage RO System with UV Disinfection

_____	**25 gpd System #9052545**
_____	**50 gpd System #9055045**
_____	**100 gpd System #9051004**

IMPORTANT NOTICES:

- Please read this manual carefully before proceeding with installation. Your failure to follow any of these instructions or operating parameters, may lead to personal injury or damage to the equipment and/or personal property.
- Do not use this RO/UV system with water that is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system.
- This RO/UV system contains replaceable treatment components critical for effective performance. It is the user's responsibility to periodically test the product water to verify the system is performing satisfactorily. Failure to properly maintain this RO/UV system may cause a health risk.
- Save this manual for future reference. **Log your RO/UV System Serial Number Here: _____**

Installation, Operation and Maintenance Manual
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INTRODUCTION

Thank you for choosing a Reo-Pure Reverse Osmosis (RO) and Ultraviolet (UV) Drinking Water System.

Proper installation and maintenance of your new RO/UV system is very important. Please read this instruction manual carefully and thoroughly before attempting the actual installation. Failure to do so could result in personal injury or damage to the equipment and/or personal property.

System installation must comply with State and Local laws and regulations. We recommend that an experienced water treatment professional perform the installation, if you are not familiar with this type of equipment.

What Is Reverse Osmosis (RO)?

In the reverse osmosis process, water is forced through a RO membrane to reduce the dissolved mineral content of the water. Minerals found in water are measured as Total Dissolved Solids (TDS). The RO membrane acts as a barrier, separating particles and contaminants from the incoming water (referred to as feed water), and rinsing them to the drain (referred to as reject water), leaving sparkling clear, fresh tasting drinking water (referred to as product water).

What is Ultraviolet (UV)?

Ultraviolet light is at the invisible, violet end of the light spectrum. The water treatment industry uses a high-powered form of UV light called UV-C or "germicidal UV" to disinfect water.

How Does UV Light Work?

UV-C rays penetrate microorganisms and destroy their ability to reproduce, effectively rendering them harmless. It's a simple but effective process, destroying a minimum of 99.99% of harmful microorganisms, including E. coli, Cryptosporidium, and Giardia.

Not only is it safe and highly effective, UV does not change the taste, color, or smell of water. It simply reduces the risk of illness caused by microbial contamination.

CAUTION - Reverse osmosis water should not flow through copper pipe, as the purity of the water will leach copper and may cause an unpleasant taste in the water, and may cause pin holes to form in the pipe.

System Operating Parameters

Water quality is extremely important for the optimum performance of your Reo-Pure RO/UV system.

If your water chemistry contains levels in excess of these mentioned below, proper pre-treatment is recommended to correct these water conditions prior to the installation of your RO/UV system.

IMPORTANT - Do not use this system with water that is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system.

Operating Temperatures

Maximum: 90°F (37.8°C), Minimum: 40°F (4.4°C)

Water Pressure

Maximum: 90 psi, Minimum: 40 psi

Note – The water pressure in your home should be tested over a 24 hour period to attain the maximum pressure. If the water pressure is above 85 psi, a pressure regulator is recommended.

Iron

Maximum: 0.1 ppm (0.1 mg/L)

Hardness

Maximum: 7 grains per gallon (120 mg/L)

The RO system will operate with hardness over 7 gpg, but the RO membrane life may be shortened. The UV system will not operate properly where total hardness is over 7 gpg. The addition of a water softener is recommended.

Chlorine

Feed water to the system should have chlorine removed prior to contact with the RO membrane to prevent permanent damage. This is the purpose of the carbon pre-filter.

Total Dissolved Solids (TDS)

Maximum: 1,800 ppm

Turbidity

Less than 1 NTU

pH

4-11 (optimum rejection at 7.0 – 7.5)

Manganese

Maximum: 0.05 ppm (0.05 mg/L)

Bacteria

Feed water must be potable.

Tannins

Less than 0.1 ppm (0.1 mg/L)

INTRODUCTION

Reo-Pure RO/UV Maintenance Schedule

FILTRATION/DISINFECTION	WHEN TO CHANGE	PURPOSE
Sediment Filter, 5-Micron (NSF Approved)	**3-6 Months**	Traps sediment and other particulate matter like dirt, silt, and rust, which may damage the RO membrane, and affect the taste and appearance of your water.
Carbon Block Filter, 10-Micron (NSF Approved)	**3-6 Months**	Helps to ensure that chlorine and other materials that cause bad taste and odor, and may damage the RO membrane, are greatly reduced.
RO Membrane (NSF Approved)	**2-3 Years**	The heart of the RO system—Rejects 95-98% of total dissolved solids, organics, and bacteria.
UV System	**1 Year**	UV destroys microorganisms. The UV lamp inside of the system is rated at an effective life of approximately 9,000 hours. To ensure continuous protection, replace the UV lamp annually.

SAFETY INSTRUCTIONS

WARNING – To guard against injury, basic safety precautions should be observed, including the following:

1. Read and follow all instructions and guidelines.
2. **DANGER** – To avoid possible electric shock, special care should be taken since water is present near electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting section, do not attempt repairs yourself, refer to an authorized water treatment professional.
3. **CAUTION** – The electronic ballast must be connected to a grounded receptacle and the lamp connector ground wire connected to the stainless steel reactor chamber.
4. For safety purposes, the RO/UV system should be connected to a ground fault interrupt circuit.
5. Install the RO/UV system on cold water line only.
6. Carefully examine the RO/UV system after installation. It should not be plugged in if there is water on parts not intended to be wet.
7. Do not operate the RO/UV system if it has a damaged cord or plug, if it is malfunctioning, or if it is dropped or damaged in any manner.
8. Always disconnect water flow and unplug the RO/UV system before performing cleaning or maintenance activities. Never yank the cord to remove from an outlet. Grasp the wall plug and pull to disconnect.
9. Do not use this RO/UV system for other than its intended use (potable water applications). The use of attachments not approved, recommended or sold by the manufacturer/distributor may cause an unsafe condition.
10. Intended for indoor use only. Do not install this RO/UV system where it will be exposed to the weather or to temperatures below freezing. Do not store this RO/UV system where it will be exposed to temperatures below freezing unless all water has been drained from it, the RO membrane has been removed, and the water supply has been disconnected.
11. Read and observe all the important notices and warnings on the RO/UV system.
12. If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less amps or watts than the system rating may overheat. Care should be taken to arrange the cord so that is will not be tripped over or pulled.
13. Save these instructions for future reference.

WARNING – The light given off by this unit can cause serious burns to unprotected eyes and skin. Never look directly at a burning UV lamp. When performing any work on the RO/UV system, always unplug the unit first. Never operate the system while the UV lamp is outside of the UV chamber.

GET ACQUAINTED WITH YOUR RO/UV SYSTEM

Factors That Affect System Performance

Feed Water Temperature: The ideal water temperature for a RO system is 77°F. The quantity of product water produced increases with higher water temperatures, and decreases with lower water temperatures. Temperatures below 40°F can damage the membrane, and temperatures above 85°F can cause rapid deterioration of the membrane.

Feed Water Pressure: The greater the water pressure, the better water quantity and quality the system will produce. Water pressure of 60 psi is ideal. (Maximum 90 psi.)

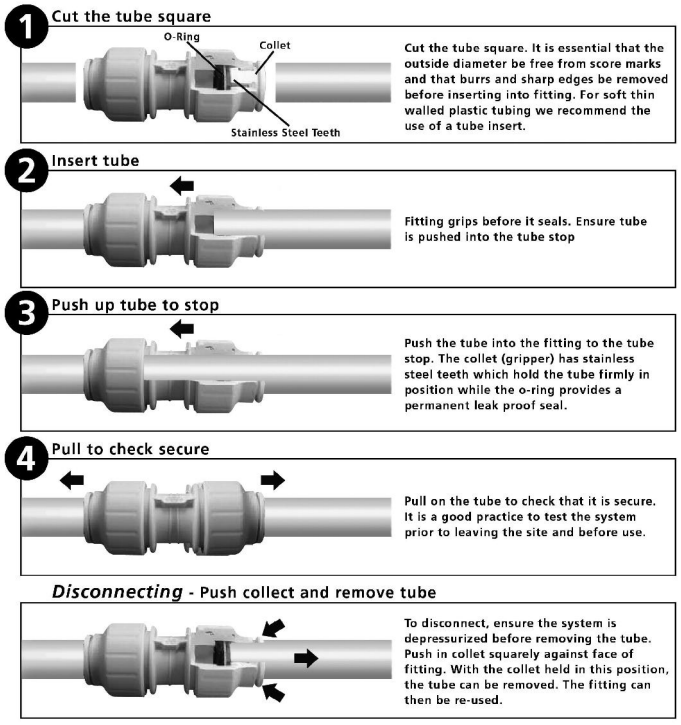
Total Dissolved Solids (TDS): The higher the amount of dissolved contaminants in the feed water, the lower the quantity of water produced.

Bacteria: When RO/UV systems are used, tested, or operated intermittently, they may be exposed to bacteria. Following a shut down or storage period, the RO/UV system and storage tank should be sanitized.

Fouling or Surface Coating of the Membrane: Membrane fouling is a common problem resulting from salts, hardness, iron, etc. collecting on the membrane surface. The pores and channels of the membrane become plugged, reducing the water production rate. Pre-treatment equipment, such as a water softener, iron filter, and/or turbidity filter, will reduce membrane fouling and extend its life.

How to Make a Proper Tubing Connection

Your Reo-Pure RO/UV System has been designed with the most popular and reliable quick-connect fittings available. It is important that the manufacturer's instructions are followed carefully to ensure a leak-free connection.



Major RO/UV System Components	
 Sediment Filter Cartridge	 Carbon Filter Cartridge
 RO Membrane	Drain Line Flow Restrictor
 UV System	 Water Storage Tank
 Drain Saddle Clamp	 Feed Water Saddle Valve
 Filter Wrench	 Membrane Vessel
 Tank Shut-Off Valve	 Check Valve Elbow
 Dispensing Faucet	 Filter Housing
 Automatic Shut-Off	 Faucet Connector

RO/UV SYSTEM INSTALLATION

Recommended Tools For Installation:

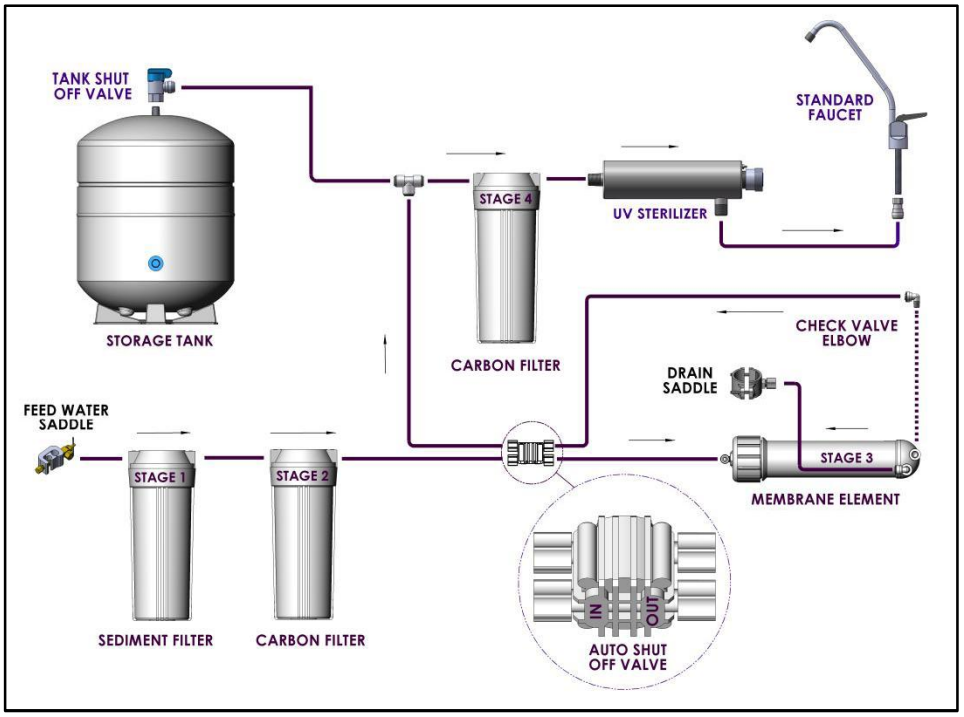
- ✓ Extension work light
- ✓ Battery operated drill and drill bits
- ✓ 1-1/4" Hole saw bit/punch for faucet
- ✓ Screw drivers (Phillips & flathead)
- ✓ Pliers (needle nose & adjustable)
- ✓ Utility knife or tubing cutter
- ✓ 5/16" wrench
- ✓ Teflon tape
- ✓ Safety glasses
- ✓ Food grade lubricant
- ✓ TDS test meter

NOTE: *If an air gap faucet is not used, reject water must go to drain through an anti-siphon air gap. Please check local plumbing codes.*

Faucet Installation.

When selecting a location for your faucet, be sure the stem of the faucet will be accessible for making all connections. We cannot accept any responsibility for damage to sinks or countertops when you are drilling a hole for your dispensing faucet. The following are only guidelines to aid with the installation of your dispensing faucet.

Flow Diagram of Reo-Pure RO/UV System
4-Stage with UV Model



Sink Sprayer Hole

Most sinks are predrilled with a 1-1/4" diameter hole that you can use for your dispensing faucet. If you are already using it for a sink sprayer or soap dispenser, you will need to drill an additional hole.

Stainless Steel Sink Top

The faucet opening should be centered between the back splash and the edge of the sink, ideally on the same side as the vertical drain pipe.

1) Drill a pilot hole.
2) Use a 1-1/4" Greenlee hole punch to create the larger hole.
3) Smooth any rough edges and sweep away chips.

Porcelain Sink

Porcelain sinks are extremely hard and can crack or chip easily. Use extreme caution when drilling.

1) Place a piece of masking tape on the desired location.
2) Mark the center of the hole on the tape.
3) Drill a pilot hole using a carbide tip pilot drill bit.
4) Drill at a slow speed to avoid cracking and chipping.
5) Using the 1-1/4" porcelain cutter, drill the larger hole.
6) Keep the drill speed on the slowest speed.
7) Use lubricating oil to keep the hole saw cool.
8) Make sure the surroundings of the sink are cooled before mounting the faucet.
9) Remove all sharp edges with a file.

Assemble The Faucet

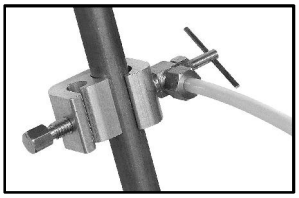
1) Slide the 1-1/4" rubber washer, chrome faceplate, and the 1-7/8" rubber gasket onto the faucet stem.
2) Place the stud through the hole in the sink or counter top, and properly position the faucet.
3) From under the counter, slide on the black plastic washer and the metal star washer, then screw on the faucet lock nut.
4) Tighten securely. You will not need the remaining parts supplied with the faucet.
5) At the bottom of the faucet stem, apply Teflon tape and thread on the plastic faucet connector and tighten.

Install The Saddle Valve For Feed Water Supply

Locate the cold water shut-off valve underneath your sink, and turn it off. Open the cold water faucet to release any water and pressure. On single handled faucets, the hot water may have to be turned off to prevent any hot water crossover. If water continues to come out of the faucet, with the valve turned off, the main house line may need to be turned off.

CAUTION—Do not connect the saddle valve to the hot water pipe. Hot water will severely damage your RO membrane. The saddle valve must be connected to the cold water pipe.

The feed water saddle valve may be installed on copper, iron, brass, steel, or CPVC pipe as follows:

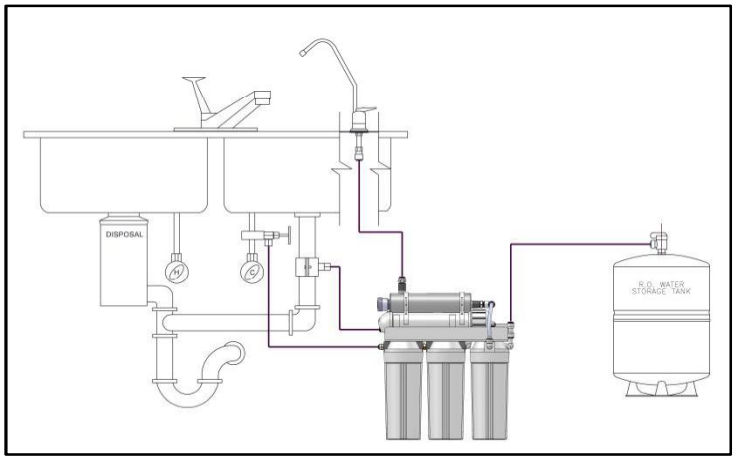


Installing on soft copper pipe.

1) Be sure the water supply is off.
2) Turn the valve handle counter clockwise until the lance (sharp point) does not protrude from the black gasket.
3) Position the valve around the cold water supply line (copper pipe) and insert the back plate. If the pipe is 3/8" in diameter, the small groove of the back plate must rest against the pipe. If the pipe is 5/8" in diameter, the large groove must be facing the pipe.
4) While holding the valve in place, tighten the screw.
5) To pierce the pipe, turn the valve handle clockwise.
6) When the valve handle becomes firmly seated, the pipe has been pierced and the valve is closed.
7) Keep the valve closed while turning on the sink faucet and water supply.
8) After allowing the water to flush away debris from the installation, turn off the faucet and check the valve for leaks. Leave the valve closed at this time.

Installing on hard steel, iron, brass, or CPVC pipe.

1) Be sure the water supply is off.
2) Drill a 3/16" hole in the cold water supply line. A battery powered drill should be used to avoid electric shock. Be extremely careful not to drill through the opposite wall of the pipe.
3) Turn the valve handle until the lance (sharp point) appears no more than 3/16" beyond the rubber gasket.
4) Place the lance over the hole so that it slides into the hole.
5) If the pipe is 3/8" in diameter, the small groove of the back plate must rest against the pipe. If the pipe is 5/8" in diameter, the large groove must be facing the pipe.



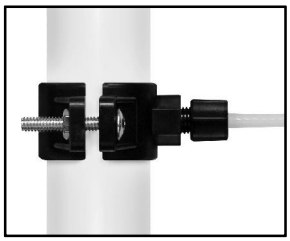
6) While holding the valve in place, tighten the brass screw.
7) Turn the valve handle clockwise until it is firmly seated and the valve is closed.
8) Keep the valve closed while turning on the sink faucet and water supply.
9) After allowing the water to flush away debris from the installation, turn off the faucet and check the valve for leaks. Leave the valve closed at this time.

Install The Drain Saddle Clamp

Do not install the drain saddle valve near the garbage disposal. Install the drain saddle valve on the opposite drain pipe. Install above the cross bar pipe.

CAUTION—Do not install the drain saddle valve near the garbage disposal drain pipe. Back pressure caused by either unit may back water up into the system.

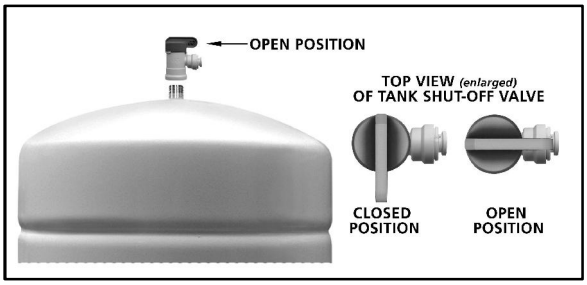
1) Place the small square black felt gasket, with a circle cut out of the middle, on the inside of the drain saddle. Peel off the sticky tape backing and adhere it to the inside of the drain saddle.
2) Position the drain saddle around the drain pipe at least 1-1/2" above the nut of the P-trap, to allow for the removal of the P-trap if necessary. Once in position, securely tighten the saddle clamp to the drain pipe.
3) Insert a 1/4" drill bit into the opening of the drain saddle and drill a hole in the drain pipe. Be extremely careful not to drill through the other side of the pipe.
4) Attach the black compression nut to the drain saddle, but do not tighten at this time.



Mount The Tank Shut-Off Valve.

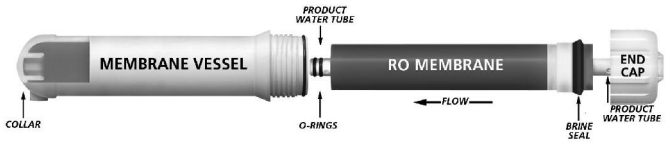
Locate the plastic tank shut-off valve included in the parts packet shipped with your unit.

1) Wrap the male pipe threads (clockwise direction) on the top of the tank with plumbers (Teflon) tape.
2) Hand-tighten the plastic tank shut-off valve onto the top of the tank. Be sure it is tight, but not over-tight.
3) Turn the tank valve to the closed position for now.
4) Position the tank within 10 feet of the faucet.
5) Check the storage tank pre-charge pressure at the stem near the bottom of the tank. Tank pressure, when empty, should be 5 to 10 psi.

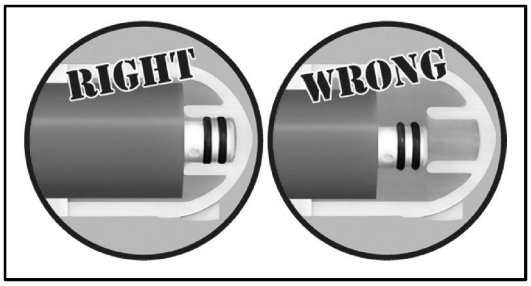


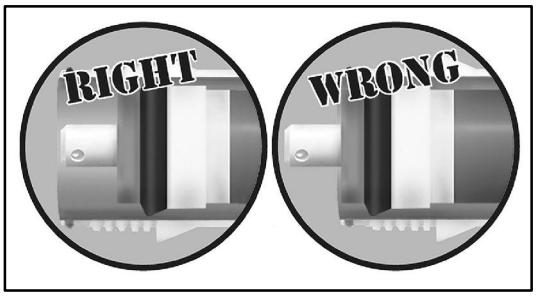
Install The RO Membrane

1) Carefully un-snap the white horizontal membrane vessel from the clips mounted on the metal bracket.
2) Disconnect the tubing from the fitting on the threaded end cap of the vessel. To remove the tubing from the quick-connect fitting, push the collet against the fitting and pull on the tubing at the same time.
3) Remove the end cap by turning counter clockwise to loosen.
4) Remove the new RO membrane from the plastic bag.
5) Lubricate the o-rings on the product water tube and the brine seal with a clean coating of food grade silicone, or water soluble lubricant, such as KY Jelly, canola oil, or vegetable oil. DO NOT use petroleum based lubricants, such as Vaseline.
6) Gently glide the membrane (o-ring end first) into the membrane vessel.



7) Once the membrane has been inserted into the vessel, you must take your thumbs and firmly push to properly seat the membrane. To be properly seated, the end of the product water tube must be even with the end of the vessel.
8) Check that the o-ring inside of the end cap is properly positioned, and thread the cap back onto the vessel. Firmly tighten.
9) Snap the membrane vessel back into the clips and re-connect the tubing.





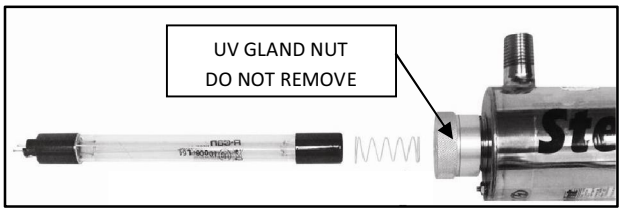
Install the Filter Cartridges

1) Using the filter wrench provided with the RO/UV system, unscrew the filter housing sumps.
2) Remove the filter cartridges from their packaging.
3) Insert the sediment filter (#SDF-25-1005) into the housing labeled “sediment pre-filter,” and the carbon cartridges (#CB-250-975-10) into the housings labeled “carbon pre-filter and carbon post-filter”.
4) Make sure that they slip down over the standpipe in the bottom of the filter housing sumps.
5) It’s important to check that the o-ring is properly seated in the groove of the housing sump.
6) Turn the sumps, with the cartridges inside, back onto the cap. Firmly tighten, but do not over tighten.

Install the UV Lamp

For shipping purposes, the UV lamp is shipped in a separate cardboard tube.

1) Carefully remove the UV lamp from the shipping tube, being careful not to touch the "glass" portion with your fingers. Handling the lamp at the ceramic ends is acceptable, however if you must touch the lamp glass, wear gloves or use a soft cloth.
2) Remove and discard the blue plug from the end of the UV gland nut (for shipping purposes only). DO NOT unscrew the gland nut. The UV lamp will slide through the hole in the gland nut.
3) Insert the UV lamp into the reactor vessel (actually the quartz sleeve), making sure that the connection end is inserted last. The spring should be behind the UV lamp, inside of the quartz sleeve.
4) Leave about two inches of the lamp protruding from the chamber.
5) **DO NOT** attach the ballast/connector at this time.



Select An Installation Site

Your Reo-Pure RO/UV system is designed compact enough to fit under most kitchen sinks. However, the system may easily be installed in a basement, closet, crawl space, or wherever it's most convenient.

When determining the best location to mount the RO/UV system, there must be access to a cold water line, a drain line, and within five (5) feet of a grounded electrical supply of the proper voltage (110V). The system will be damaged if connected to a power source other than the voltage, phase, and hertz specified on the label. Do not use an outlet that can be switched off (i.e. a waste disposal outlet).

CAUTION – For safety purposes, the RO/UV system should be connected to a ground fault interrupt circuit.

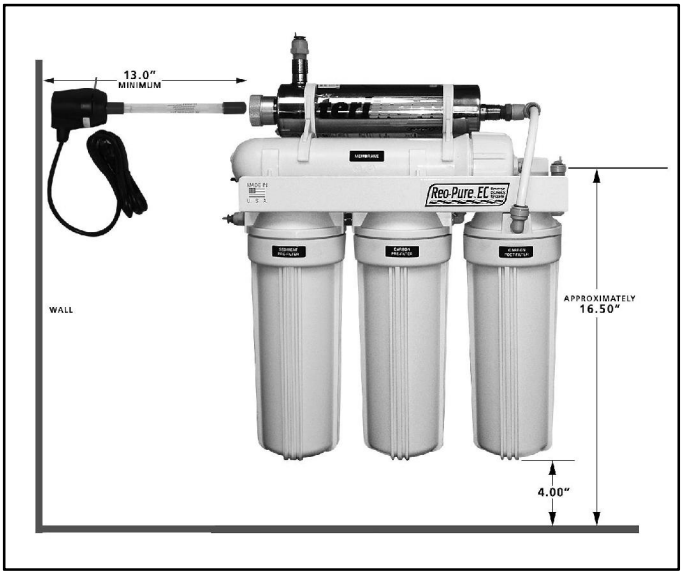
The water storage tank may weigh up to 30 pounds when full of water. Be sure to place it on a firm, level surface. Make sure you leave enough clearance around the RO/UV system for proper maintenance.

Mounting RO/UV System

The mounting bracket of the RO/UV system, has pre-drilled slots for easy mounting. Depending on the location chosen, additional support may be needed to provide a firm and solid mounting of the system.

To allow for enough room to make filter changing easy in the future, mount the RO/UV system approximately 23" to 24" from the cabinet floor. If you do not want to lift the system from the wall to replace the UV lamp, allow sufficient room to the left side of the system for future UV lamp removal.

Your RO/UV system must be located within five (5) feet of an electrical outlet. For safety purposes, the RO/UV system should be connected to a ground fault interrupt circuit. Do not use an outlet that can be switched off (i.e. a waste disposal outlet).



Using the bracket as a template, mark the mounting screw locations.

1) Drill 1/8" holes at each mark.
2) Install the screws and tighten them until the heads are about 1/8" from the wall
3) Hang the RO/UV system on the mounting screws and hand- tighten up against the wall.
4) Keep the system in place while making the tubing connections.

Tubing Connections

Complete all of the prior steps before making the tubing connections. The RO/UV system has colored plugs inserted into the fittings for easy identification of the system connections.

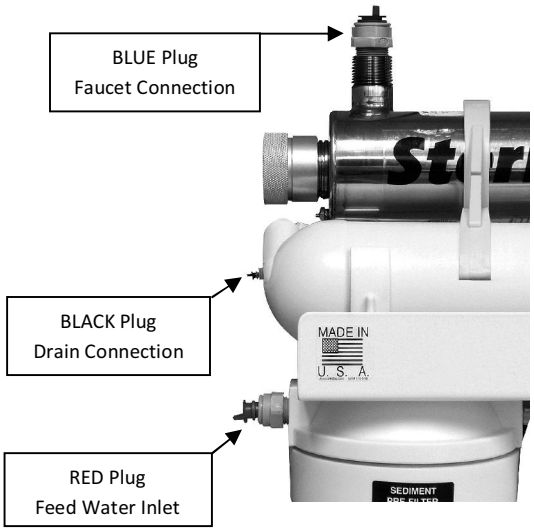
Attempt to keep tubing lines long enough to service the unit later. Do not cut tubing at an angle. When making tubing connections, follow these basic instructions:

1) Remove the colored plug from the fitting when you are ready to make the connection. Make one connection at a time, removing only one colored plug at a time.
2) Cut tubing perfectly square.
3) Insert tubing until it seats against stop inside of fitting.

Feed Water Connection (RED plug)

Go back to the feed water saddle valve you already installed on the inlet feed water line.

1) Slide the compression nut and plastic ferrule, provided with the feed water saddle valve kit, onto the 1/4" tubing and place the plastic insert into the end of the tubing.
2) Attach the tubing to the feed water saddle valve. Use a wrench to securely tighten.
3) Locate the RED plug on the RO/UV system.
4) Remove the RED plug on the RO/UV system. Connect the other end of the 1/4" tubing to the fitting located on the inlet side of the sediment filter housing.



Storage Tank Water Connection (YELLOW plug)

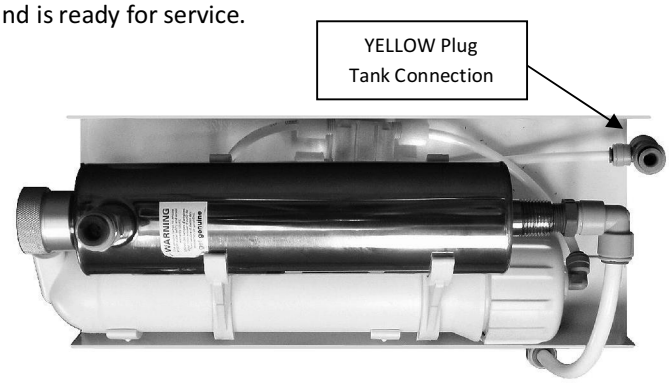
1) Remove the YELLOW plug from the tee located on the right side of the system and insert one end of 3/8" tubing.
2) Attach the other end to the storage tank shut-off valve.

Faucet Connection (BLUE plug)

5) Remove the BLUE plug from the outlet port of the UV system (located on the top of the UV reactor chamber).
6) Insert one end of 3/8" tubing and connect the other end to the faucet connector at the stem of the dispensing faucet.

Ice Maker Connection (Optional)

If the RO/UV system is supplying water to an ice maker, insert a union tee in the line between the faucet and the UV outlet port. The water line to the ice maker should have an inline shut-off valve installed before the ice maker, so it can be easily closed during start-up and maintenance. Keep the valve closed until the RO/UV system has been completely flushed and is ready for service.

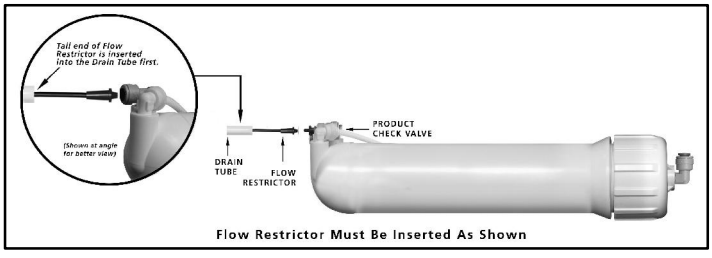


Top View

Drain/Reject Water Connection (BLACK plug)

Locate the Flow Restrictor included in the Installation Parts Packet.

1) Slide the flow restrictor, tail end first, into the open end of the 1/4" tubing.
2) Remove the BLACK plug from the drain elbow located on the membrane vessel, and Insert the tubing with the flow restrictor inside.
3) When connecting the drain tubing, make a downward slope from the RO system to the drain saddle to allow for proper drainage. Avoid bending or kinking the drain tubing.
4) Slide the compression nut, provided with the drain saddle clamp, onto the tubing and place the plastic insert into the end of the tubing.



Flow Restrictor Must Be Inserted As Shown

RO/UV SYSTEM START-UP

With the RO membrane installed in the pressure vessel, and the sediment and carbon pre-filter cartridges installed, UV lamp installed, and all tubing and tank connections in place, your Reo-Pure RO/UV system is ready for start-up.

1) Slowly open the feed water saddle valve on the inlet water line and the storage tank shut-off valve. Check the system carefully for any leaks.
2) The RO system should now begin making water.

IMPORTANT -- Properly ground the stainless steel reactor chamber.

3) Locate the integral ballast/lamp connector.
4) Attach the supplied 3' long, No.10 AWG green/yellow wire to the ground lug on the UV reactor.
5) Remove the green cap nut and slide the eyelet connector onto the screw.
6) Fasten the cap nut to the screw with a 5/16" wrench.
7) Affix the supplied pipe clamp (1/2" to 1") to the copper piping or an approved grounding source and securely fasten to the supplied green/yellow grounding wire.
8) Attach the lamp connector onto the UV lamp. The connector is "keyed" and will only allow correct installation in one position. Ensure that the connector is fully seated onto the UV lamp.

9) Once the lamp is fully seated on the connector, slide the ballast/connector over the aluminum retaining nut (gland nut). Make sure the metal retaining ring on the ballast/connector is pulled away from the body of the connector in order that the connector may slide fully over the retaining nut.
10) Once the connector is located fully over the retaining nut, slide the metal ring back in, to lock the connector in place. As the ballast/connector is keyed to the reactor chamber, make sure that the depression on the connector is located over the ground lug located on the reactor chamber.
11) Plug the ballast into the outlet and ensure that the POWER-ON LED is illuminated.
12) To clear any air or debris from the RO/UV system, open the dispensing faucet and allow water to run through the UV system for 2 to 3 minutes.
13) Close the dispensing faucet after 2 to 3 minutes and do not open again until the tank is full. Check the system for leaks once again.
14) After the tank is full (you will hear the water stop), open the dispensing faucet and completely drain the tank and RO/UV system.
15) When the faucet is first opened, expect air and carbon fines (very fine black powder) from the carbon filters to be rinsed out. This is normal for the first tank of water or after carbon filter changes.
16) After the system has been drained, close the faucet and repeat this flush cycle two more times. **DO NOT DRINK THE WATER UNTIL THE TANK AND SYSTEM HAVE BEEN FLUSHED AT LEAST THREE TIMES.**
17) Test the product water at this time to ensure that the system is operating properly.
18) The RO/UV system is now ready for use.

You may notice that the water may be milky colored during the first week. It is due to the air bubbles in the water. It is normal and safe.

You may also notice that the water temperature is warmer than usual. This is because of the UV lamp, and can be eliminated by running the water for 30-45 seconds each time you open the dispensing faucet.

IMPORTANT:
This Reo-Pure RO/UV system contains replaceable treatment components critical for effective performance. Replacement of the system components should be done with one of identical specifications, in order to attain the same efficiency and contaminant reduction as originally designed. It is the user's responsibility to periodically test the product water to verify the system is performing satisfactorily.

After periods of non-use, such as a week of vacation, it is better to empty the storage tank and allow the system to produce fresh water for use. If the RO/UV system is not used for 3 to 4 weeks, we recommend you sanitize the system and change the filter cartridges. Longer periods of non-use may require additional service from a water treatment professional in your area.

Check for leaks daily for the first week and periodically thereafter.

RO/UV SYSTEM MAINTENANCE

CAUTION – Prior to performing any work on the RO/UV system, always disconnect the power supply first.

Filter Cartridge and RO Membrane Replacement

This Reo-Pure RO/UV system contains filter cartridges that must be replaced regularly to maintain proper performance. The recommended schedule for changing the filter cartridges (not the RO membrane) is every 3 to 6 months, depending on the quantity of water used and the feed water conditions.

The typical RO membrane life expectancy (assuming adequate filter changes are done) is two to three years. The life of the RO membrane also depends greatly on the incoming water conditions and the amount of water used. Normally, replacement of the RO membrane is necessary whenever the product water begins to take on a different and objectionable taste, if there is a noticeable reduction in the amount of product water (after replacing the filter cartridges), or a change in the TDS level of the product water.

Replacing Filter Cartridges

1) Use a drip pan or bucket to catch any water that may spill when the filter housing sumps are removed.
2) Close the feed water saddle valve on the inlet water supply line.
3) Close any additional dispensing lines, such as an ice maker (turn off the ice maker).
4) Open the dispensing faucet and allow the system and storage tank to empty. Leave the faucet open.
5) Turn the storage tank valve to the closed position.
6) Using the spanner wrench supplied with your system, remove the sediment and carbon filter housing sumps. Use one hand to hold the system and the other hand to turn the wrench counter-clockwise to open.
7) Remove the used cartridges and discard.
8) Wash the inside of the sumps using a mild detergent and soft cloth. Do not use abrasive cleaners or pads. Thoroughly rinse all the soap from the sumps.

9) Remove the o-ring from each sump and wipe the groove and o-ring clean. Lubricate the o-ring with a clean coating of food grade silicone, or water soluble lubricant, such as KY Jelly, canola oil, vegetable oil, or glycerin. DO NOT use petroleum based lubricants, such as Vaseline.
10) Place the o-ring back in the groove and press it in with two fingers. It's important to make sure that the o-ring is seated properly. (If the o-ring appears damaged or crimped, it should be replaced.)

If you are replacing the RO membrane at this time, skip to the section titled: "Changing the RO Membrane", Step #1, on the next page. If you are only changing the filter cartridges, continue on below (Step #11).

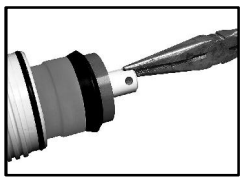
11) Remove the new filter cartridges from their wrapper.
12) Insert the sediment filter into the housing sump labeled "sediment pre-filter" and the carbon cartridges into the housing sumps labeled "carbon pre-filter and carbon post-filter".
13) Make sure that they slip down over the standpipe in the bottom of the filter housing sump.
14) Turn the sumps, with the cartridges inside, back onto the housing cap. Firmly tighten, but do not over tighten.
15) Flush the system as follows:
16) Slowly open the feed water saddle valve on the inlet water line. Check the system carefully for any leaks.
17) Be sure the water storage tank valve is now opened.
18) Plug the UV ballast back into a properly grounded receptacle.
19) Close the dispensing faucet as soon as water begins to flow and do not open it again until the storage tank is full. Check the system for leaks.
20) After the tank is full (you will hear the water stop), open the dispensing faucet and completely drain the tank and RO/UV system.
21) When the faucet is first opened, expect air and carbon fines (very fine black powder) from the carbon filters to be rinsed out. This is normal after carbon filter changes.
22) After the system has been completely drained, close the faucet and repeat this flush cycle two more times. **DO NOT DRINK THE WATER UNTIL THE TANK AND SYSTEM HAVE BEEN FLUSHED AT LEAST THREE TIMES.**
23) Test the product water at this time to ensure that the system is operating properly.
24) The RO/UV system is now ready for use.

Important Note: To prevent costly repairs or possible water damage, housing sumps should be replaced every 8 to 10 years. Be sure to date any new or replacement sump for future reference and indicate the next recommended replacement date.

Changing the RO Membrane
(Optional with routine filter changes)

Although changing the RO membrane is optional when replacing filter cartridges, it is important to replace filter cartridges whenever replacing the membrane. If you are changing the RO membrane at this time, it should now be removed from the membrane vessel, before the sanitization procedure.

1) Carefully remove the membrane vessel from the plastic clips mounting it to the metal bracket.
2) Disconnect the tubing from the fitting on the threaded end cap of the vessel. To remove the tubing from the quick-connect fitting, push the collet against the fitting and pull on the tubing at the same time.
3) Remove the end cap by turning counter clockwise.
4) With needle nose pliers, grip the product water tube of the RO membrane and pull to remove. Discard the used membrane.

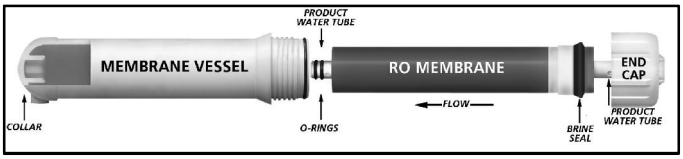


5) Inspect the o-rings for damage or crimp marks, and replace if necessary.
6) Rinse out the membrane vessel with a mild detergent and soft cloth.
7) Turn the end cap back onto vessel (leave the vessel empty at this time) and reconnect the tubing. Snap the membrane vessel back into the plastic clips.

Sanitize the RO/UV system and Storage Tank
(Optional with filter cartridge replacement, but required annually and/or with RO membrane replacement)

This procedure is not intended to be effective in sanitizing highly contaminated systems which have been exposed to an excessive amount of bacteria, or systems which have developed foul smelling RO membranes or filters. Such systems require extensive cleaning and sanitizing. Consult your Reo-Pure Dealer for further information.

1) Use a good quality unscented liquid chlorine household bleach. Pour approximately one cap full (2 teaspoons) into each one of the filter housing sumps.
2) Temporarily replace the housing sumps onto the filter housing cap without any cartridges inside. Firmly tighten.
3) Slowly open the feed water saddle valve and allow water to enter the system.
4) Open the water storage tank valve.
5) As soon as the sanitizing solution can be detected (by smell) from the dispensing faucet, turn the faucet off.
6) Check the system for any leaks.
7) Do not open the dispensing faucet again for at least 6 hours.
8) After 6 hours, open the dispensing faucet and drain the system.
9) Close the feed water saddle valve, with the dispensing faucet still open.
10) Once again, remove the RO membrane vessel from the plastic clips. Disconnect the tubing, and remove the end cap as before.
11) Remove the new RO membrane from its clear plastic bag.
12) Lubricate the o-rings on the product water tube and the brine seal, with a clean coating of food grade silicone, or water soluble lubricant such as KY Jelly, canola oil, vegetable oil, or silicone. DO NOT use petroleum based lubricants, such as Vaseline.
13) Gently glide the membrane (o-ring end first) into the membrane vessel.
14) Once the membrane has been inserted into the vessel, take your thumbs and firmly push to properly seat the membrane. To be properly seated, the end of the product water tube must be even with the end of the vessel.
15) Check that the o-ring inside of the end cap is properly positioned, and replace the cap back onto the vessel.
16) Snap the membrane vessel back into the plastic clips and re-connect the tubing.
17) This is also a good time to consider replacing the drain line flow restrictor.
18) Now, return to Step #11, under section “Replacing Filter Cartridges”, and proceed as instructed.



IMPORTANT:
Periodically check all tubing lines for wear, discoloration, kinks, or cracks. Replace whenever in doubt to avoid leaks.

UV System Maintenance

CAUTION – Prior to performing any work on the UV system, always disconnect the power supply first.

UV lamp replacement is a quick and simple procedure requiring no special tools. The UV lamp must be replaced after 9,000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.

Removing the old UV lamp:

1) To replace the lamp, there is NO need to turn off the water supply or to drain the water from the reactor chamber.
2) Disconnect the main power source and allow the unit to power down.
3) Remove the ballast/connector by sliding the metal retaining ring away from the body of the connector.
4) Remove the connector and lamp from the reactor chamber.
5) Separate the lamp from the connector. Do not twist the lamp from the connector, simply slide the two apart. Avoid touching the lamp on the glass portion. Handling the lamp at the ceramic ends is acceptable, however if you must touch the lamp glass, wear gloves, or use a soft cloth.
6) Fully remove the lamp from the reactor chamber being careful not to angle the lamp as it is removed from the chamber. If the lamp is removed on an angle, pressure will be applied on the inside of the quartz sleeve, and may cause the quartz sleeve to fracture.

Install the new UV lamp:

7) To install a new lamp, first remove the lamp from its protective packaging, again being careful not to touch the lamp glass itself.
8) Carefully insert the lamp into the reactor vessel (actually inside the quartz sleeve). Be sure the spring is in place behind the lamp.
9) Insert the lamp fully into the chamber leaving about two inches of the lamp protruding from the chamber.
10) Next, attach the ballast/connector on the UV lamp. The connector is "keyed" and will only allow correct installation in one position. Ensure the connector is fully seated onto the UV lamp.
11) Once the lamp is fully seated on the connector, slide the ballast/connector over the aluminum retaining nut (gland nut). Make sure the metal retaining ring on the ballast/connector is pulled away from the body of the connector in order that the connector may slide fully over the retaining nut.
12) Once the connector is located fully over the retaining nut, slide the metal ring back in, to lock the connector in place. As the ballast/connector is keyed to the reactor chamber, make sure that the depression on the connector is located over the ground lug located on the reactor chamber.

Cleaning the Quartz Sleeve

If your water contains any hardness, minerals (calcium or magnesium), iron or manganese, the quartz sleeve will require periodic cleaning.

To remove the quartz sleeve, first remove the UV lamp as outlined in the previous steps and follow these additional steps:

1) Close the inlet feed water saddle valve and open the dispensing faucet. Drain the system completely.
2) Remove aluminum gland nut from chamber.
3) Carefully remove the o-ring from the quartz sleeve. As the o-ring may tend to adhere to the quartz sleeve, it is recommended to replace the o-ring annually.
4) Clean the outside of the quartz sleeve with a cloth soaked in CLR or Limeaway. DO NOT allow cleaning solution to get inside of the quartz sleeve. Repeat the process as often as necessary to keep the quartz sleeve clean.
5) Be sure to remove all traces of cleaning fluid from the sleeve before it is reinstalled in the reactor
6) Re-assemble the quartz sleeve in the UV chamber.
7) Wet the o-ring and slide it onto the end of the quartz sleeve and re-assemble the gland nut (hand tight is sufficient).
8) Re-tighten all connections.
9) Open the inlet feed water saddle valve slowly and close the dispensing faucet. Check for leaks.
10) Re-install the UV lamp connector as per prior instructions.
11) Plug in the ballast and verify the Lamp/Power LED is illuminated.
12) Flush the system at least once.

WARNING – The UV light given off by this unit can cause serious burns to unprotected eyes and skin. Never look directly at an illuminated UV lamp. When performing any work on the UV system always unplug the unit first. Never operate the UV system while the UV lamp is outside of the UV chamber.

RO/UV SYSTEM REPLACEMENT PARTS
For Systems: #9052545 / 9055045 / 9051004

1000201	RO membrane vessel white 1/4"
60181225	RO membrane for 25 gpd unit
60181250	RO membrane for 50 gpd unit
601812100	RO membrane for 100 gpd unit
1300227	O-ring for inside membrane vessel end cap
1300777	O-ring for membrane vessel

13515500	Filter housing 10" white
149251010	Carbon block filter cartridge 10-Micron
14815502	Sediment filter cartridge 5-Micron
710205	Filter housing wrench
1300232	O-ring for filter housing

840300	SC1 1gpm UV disinfection system-complete
8400900	S212RL UV lamp (bulb) only
840674	QS-212D quartz sleeve only
840545	BA-C1 ballast only
840658	OR-212 quartz sleeve o-ring only

3175120	Feed water saddle valve, self-piercing
03900252	Drain saddle clamp 1/4"
3170900	Shut-off valve with nuts
4469400402	Check valve elbow JG
03002	Long reach faucet chrome
4483212	Faucet connector 3/8"
49200180	Drain line flow restrictor for 25 gpd units
49200350	Drain line flow restrictor for 50 gpd units
49200600	Drain line flow restrictor for 100 gpd units
5800001	Storage tank white 4.4 gallon
446450504	Tank shut-off valve 90° 1/4"FPT x 3/8"JG

Reo-Pure water purification systems

EC SYSTEM TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
System makes product water slow, or not at all.	-Feed water supply may be turned off.	-Check feed water line and incoming valves are open.
	-Water supply to the system may not be sufficient and/or not meet operating specifications.	-Increase the water pressure by adding a booster pump. Precondition the feed water to meet the System Specifications (See Operating Manual).
	-Filter cartridges may be clogged.	-Replace filter cartridges.
	-Tubing may be kinked or blocked.	-Inspect and remove restriction.
	-System just started up.	-It may take 2-3 hours to fill the storage tank. Low water pressure and/or cold water temperature can reduce the production rate.
	-Air pressure in the storage tank is too high.	-Back pressure from the storage tank will slow production. Check that the air pressure in the tank is between 8-10 psi, when the tank is empty.
	-Product water check valve may be blocked.	-Remove and clean, or replace.
	-Membrane may be fouled or clogged.	-Replace membrane element.
	-System over used.	-Note the System's daily production rating. Low water pressure and/or cold water temperature can reduce the production rate. Consider a larger tank or system.
	-Storage tank shut-off valve may be closed.	-Check that the tank shut-off valve is fully open.
Water flow from the faucet is slow.	-The water line from the tank to the faucet is too far away, or too small in diameter.	-Keep lines direct and as short as possible. Increase tubing diameter from tank to faucet.
	-Low air pressure in storage tank.	-Add pressure to the storage tank. When the tank is empty, the pressure should be 8-10 psi.
	-Storage tank may not be holding air pressure.	-The bladder inside of the storage tank may be damaged. Replace the storage tank.
Water is constantly running to drain.	-This is normal when system is operating, but should stop when not operating. The drain line flow restrictor may not have been installed.	-Check that the drain line flow restrictor is installed in the drain line connection. Also check that it has been installed correctly.
	-Flow restrictor may be damaged/broken.	-Replace drain line flow restrictor.
Water has unpleasant taste and/or odor.	-Filtered water may have a different taste than what you are used to.	-This is normal
	-Carbon filter cartridge is depleted.	-Replace carbon filter cartridge(s).
	-Fouled membrane element.	-Replace membrane element.
	-Contamination in storage tank and/or system.	-Use sanitizing procedures.
	-Membrane preservative and/or sanitizer may not be flushed out of system.	-Fill the storage tank a few times and flush to drain.
	-Low water usage.	-Completely drain system and allow to refill.
Bad taste and/or odor in the product water.	-Storage tank and/or system may be contaminated.	-Sanitize system and tank, and replace filters and membrane.
	-Product water and drain line may be reversed.	-Check plumbing. See the flow diagram for assistance.
	-The amount of chlorine in your water supply exceeds maximum limits and has destroyed the membrane.	-If the water supply contains more the 2.0 ppm of chlorine, additional filtering of the water supply to the system is needed.
	-The carbon filter is no longer removing chlorine from the water supply.	-Replace the membrane element and filter cartridges.
	-Filter cartridges and/or membrane element may need replacing.	-Replace if necessary.
High TDS product water.	-Membrane may be fouled or damaged.	-Replace membrane element.
	-Membrane element brine seal and/or o-rings may be damaged or not positioned properly.	-Remove membrane element and examine brine seal and o-rings. Repair or replace.
	-The membrane element is new.	-Do not drink the first water produced from a new membrane element. Flush the first few tanks to drain prior to drinking. Product water TDS may be higher until thoroughly rinsed.
Water has air bubbles (cloudy).	-Air in the system at start-up is common.	-This will clear up after the system runs a few days.
Noise from the faucet.	-Air gap faucet.	-When the system is running, it is normal to hear noise from an air gap faucet.
No water to drain.	-Drain line flow control plugged/blocked.	-Replace drain line flow restrictor.
Leaks (dry the area and isolate the location of the leak).	-Fittings may be loose or broken.	-Remove fittings and check for damage. Replace or clean and re-tape threads.
	-O-rings may be worn or twisted/kinked.	-Remove and check for damage. Replace if necessary.
Water over flow at faucet air gap.	-Drain line tubing kinked or plugged.	-Inspect and eliminate restriction. Periodic inspection is recommended.
	-Drain line tubing is not positioned correctly.	-Check for low spots and loops. Reposition if necessary.

Limited One Year Warranty

Your Reo-Pure EC Series RO System is warranted by Great Lakes International, Inc. (GLI), to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase, provided that the unit is installed, maintained, and operated within the printed specifications in this manual.

The Reo-Pure RO System or original component part, determined to be defective by GLI, will be repaired or replaced at the manufacturer's discretion. Parts which are sold but not manufactured by GLI are subject to the warranty of the manufacturer.

This warranty does not cover the disposable sediment and carbon filters whose service life depends on feed water conditions. In addition, the RO membrane is only warranted if the specified feed water conditions are met.

This warranty will not apply to any part that is damaged because of neglect, misuse, inadequate pretreatment, modification, accident, misapplication, improper maintenance, incorrect electrical supply, physical damage, or damage caused by fire, act of God, freezing, hot water, or similar causes.

GLI will not be responsible for any implied warranties, including those of merchantability and fitness for a particular purpose. GLI will not be responsible for any incidental or consequential damages, including travel expense, telephone charges, loss of revenue, loss of time, cost of removal, installation, inconvenience, loss of use of the system, and damage caused by this system and its failure to function properly. This warranty sets forth all of GLI's responsibilities regarding this system. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not fully apply.

We recommend only authorized Reo-Pure replacement parts be used, since improper parts void this warranty.

This warranty is void if the Reo-Pure serial number label is mutilated or missing.

This warranty does not cover any equipment that is relocated from the site of its original installation. This warranty is not assignable or transferable.

To obtain warranty consideration, you must (a) contact your local dealer who supplied the unit, or (b) contact GLI, at 262-634-2386, for return authorization. Units approved by GLI for return warranty consideration must be sent freight and insurance prepaid, together with proof of original purchase and date, installation date, failure date, and supporting technical data. Include a note stating the problem experienced, and your name, address, and telephone number. No return will be accepted without proper return authorization.

There are no expressed or implied warranties beyond those warranties described or referred to above.