
***Reverse Osmosis
Drinking Water System
Installation, Operation and Service Manual***

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IMPORTANT WARNING - PLEASE READ

System Flushing: This reverse osmosis system contains a preservative solution to prevent microbiological growth and freezing which if ingested may cause irritation of the gastrointestinal tract, colic, diarrhea or other symptoms. Therefore, approximately 5 gallons of water must be drawn from the tap to flush out the preservative solution before using the system. This volume of water represents approximately two days of production. The water flushed should be disposed of to the drain.

Feed Water Quality: This reverse osmosis drinking water system is not intended to be used for the treatment of water that is microbiologically unsafe or of unknown quality. If the feed water quality is unsafe or unknown, have a sample of the water tested by a qualified laboratory or agency and implement the necessary measures to ensure a safe water supply.

INTRODUCTION

Congratulations, on the purchase of your new Reverse Osmosis Drinking Water System. Treated with care and regular maintenance, your new system will provide many years of service delivering purified water to the tap.

By now, you have probably already opened the box to survey the contents. Please take a few moments to review this manual before proceeding with the installation and use of the system. Some important items to review are as follows:

- Check all components for any damage caused in shipment. Also, take a quick inventory of all items supplied to ensure none are missing. A checklist in the next section will assist you with identifying these items.
- Ensure that the reverse osmosis system and storage tank will easily fit into the desired location. This reverse osmosis system and tank needs to be removed for regular maintenance, so good accessibility is an important tip to keep in mind.
- Read all warnings contained within this manual.

Although this product is described as a *'Drinking Water System'*, the purified water produced by the reverse osmosis (RO) process can be used for many purposes around the home.

- **Drinking Water** - keep container of RO water in the fridge to be able to enjoy the clean, fresh taste. Alternatively, take it directly from the tap.
- **Ice Cubes** - use RO water to fill ice cube trays. Ice cubes made from RO water are typically clearer and better tasting than ice made from plain tap water.
- **Automatic Ice Makers** - a water line from the RO system can be plumbed to refrigerators with automatic icemakers. Additional accessories required to complete this connection are not included. Please consult the refrigerator's owner's manual on this installation.
- **Kettles and Coffee Makers** - plain tap water eventually causes films and scale in these devices that is difficult to clean. RO water is very low in dissolved minerals content, greatly reducing the chance of scale buildup.
- **Cooking** - use RO water for boiling pasta, rice or any other recipe that calls for water in the instructions.
- **Washing Fresh Fruit & Vegetables** - prevent tap water minerals from being deposited onto food to maintain freshness.
- **Family Pets** - Allow your dog or cat to enjoy the same purified water you do.
- **Irons and Steamers** - prevent mineral buildup in household appliances that use water and eventually build up with scale when using plain tap water.

Now you can relax and enjoy the benefits of great tasting water supplied by your reverse osmosis drinking water system. Remember that good quality water is important to maintaining a healthy lifestyle. You can also feel good about the money you have saved by installing your own drinking water system instead of dealing with the expense and hassle of bottled water delivery.

Application Guidelines

Model Number	Membrane Type	Max. Feed Water Salinity	Feed Water Temperature	Feed Water Pressure	Feed Water pH	Feed Water Supply	Feed Water Hydrogen Sulphide	Feed Water Manganese	Feed Water Iron	Feed Water Hardness
E50TFC-3	TFC	2000 ppm	40-110°F	50-100 psi	2.0-11.0	Chlorinated Unchlorinated	None	<0.05 ppm	<0.1 ppm	<10 gpg
E75TFC-3	TFC	2000 ppm	40-110°F	50-100 psi	2.0-11.0	Chlorinated Unchlorinated	None	<0.05 ppm	<0.1 ppm	<10 gpg

Specifications

Model Number	Membrane Production Rate ⁽¹⁾	Rejection ⁽²⁾	Storage Tank Capacity US Gal
E50TFC-3SF	50 USGPD	up to 99%	4.0
E75TFC-3SF	75 USGPD	up to 99%	4.0

⁽¹⁾ Nominal product water ratings are based on the following conditions: Supply TDS of 250 ppm softened tap water, 50 psi (0.36 Mpa), 77°F (25°C), pH 8 and 15% recovery with outlet to atmosphere.

⁽²⁾ Rejection percentages are dependent on the supply conditions and the substance being measured.

Notes: The performance of a reverse osmosis membrane is highly dependent upon pressure, temperature and TDS. The actual volume of product water and rejection percentage will vary with differences from the test conditions that membrane ratings are based upon.

These drinking water systems are not intended to be used for the treatment of water that is microbiologically unsafe or of unknown quality.

Functional Description

Feed water enters the 5-micron pre-filter, which filters out suspended particles such as dirt or sediment. The filtered water then enters the pre-carbon filter, which contains granular activated carbon, which removes any chlorine from the water.

The water then enters the reverse osmosis membrane. The membrane will allow only permeate (product water) to pass through. The brine (waste water) goes to the drain.

Permeate then flows through a hydraulic shut-off valve to the storage tank. When the tank fills and the tank pressure reaches approximately 40% to 65% of the inlet feed water pressure, the shut-off valve closes, which turns the system off.

When water is drawn from the faucet, permeate flows from the storage tank through the post carbon filter. This filter contains granulated activated carbon, removing any taste and odor that has accumulated while stored in the tank. When the tank empties, the shut-off valve opens, turning the unit on.

Please refer to the Flow Diagram on page 19 .

Supplied Item Checklist

Out of the box, your new R.O. System should be supplied with the following items. If any items appear to be missing, please contact the distributor who sold the system.



Figure 1 - Supplied items for 3 sump models

1. Storage tank & right angle shut-off valve with compression nut
2. Reverse Osmosis Manifold
3. Reverse Osmosis membrane element, 5 micron pre-filter, pre-carbon filter, carbon filter (in individual sealed protective bags)
4. Filter sump wrench, drain line saddle assembly, tubing bundle, feed water saddle piercing valve, quick faucet adapter
5. Faucet

Carton Contents & Assembly



INSTALLATION REQUIREMENTS

READ THIS ENTIRE INSTALLATION AND SERVICE GUIDE BEFORE BEGINNING INSTALLATION

The Economy Reverse Osmosis Drinking Water Treatment Systems have been designed for ease of installation and serviceability and are constructed with the finest materials available. Using these instructions will ensure a successful installation.

All systems must be installed in accordance with applicable city, state, provincial and local plumbing codes. For installation in Massachusetts, the Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system. The use of saddle (piercing) valves is not permitted. To ensure a system continues to operate at its optimum level, it is necessary to have a routine maintenance and replacement schedule (below - Maintenance Requirements). Frequency at which filters must be changed will depend on quality of feed water supply and level of system usage.

These RO systems contain a replaceable treatment component critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specification, as defined by WaterGroup to assure the same efficiency. Product water shall be tested periodically to verify the system is performing properly.

All state, provincial and local government codes regarding installation of these devices must be observed.

PREPARATION

1. Check that all appropriate components are packed with your system (Figure 1).
2. Determine locations for RO component installation. Two requirements for consideration are: access to cold water supply line and household sink drainpipe. Specific requirements are detailed below (Component Location Requirements).

COMPONENT LOCATION REQUIREMENTS

PRODUCT WATER FAUCET - Faucet may be installed in any convenient location. Make sure underside of location is free of obstructions.

REVERSE OSMOSIS MODULE - Module may be installed under sink or in any convenient location within 15 feet of source water supply and faucet.

STORAGE TANK - Tank may be placed in any space within 15 feet of faucet, generally under kitchen sink or in an adjacent unused cabinet. Tubing length between components should be kept to a minimum, avoiding sharp bends or kinks.

DO NOT PLACE REVERSE OSMOSIS UNIT WHERE IT WILL BE EXPOSED TO FREEZING AND/OR DIRECT SUNLIGHT.

MODULE MUST BE EASILY REMOVABLE FOR PERFORMANCE OF ROUTINE MAINTENANCE.

Mount the unit using bracket (attached) and two screws provided in the Installation Kit.

HOLD THE MODULE BY THE FILTER HOUSINGS WHEN PICKING UP OR CARRYING UNIT.

NOTE

THIS DRINKING WATER SYSTEM IS FOR USE ON POTABLE WATER SUPPLIES ONLY. SOURCE WATER EXCEEDING CHEMICAL PARAMETERS REQUIRES PRE-TREATMENT.

CAUTION

DO NOT USE WITH WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION BEFORE OR AFTER THE SYSTEM.

MAINTENANCE REQUIREMENTS

Service Requirements - To insure the system operates at its optimum level, certain routine maintenance must be performed. Frequency of maintenance performance will depend on feed water quality and level of system usage.

CLEAN: Each time filters are replaced

SANITIZE: At least once a year and each time membrane is replaced

Recommended Service Intervals - Replace filters as required or every 6 to 12 months depending on feed water quality. Replace membrane as required based on periodic TDS rejection tests.

Maximum recommended service life for membrane is 60 months.

INTER-COMPONENT CONNECTIONS

Connections between cold water supply line, RO Module, storage tank, product water faucet, and drain line are accomplished using plastic tubing and push-together quick-connect type fittings.

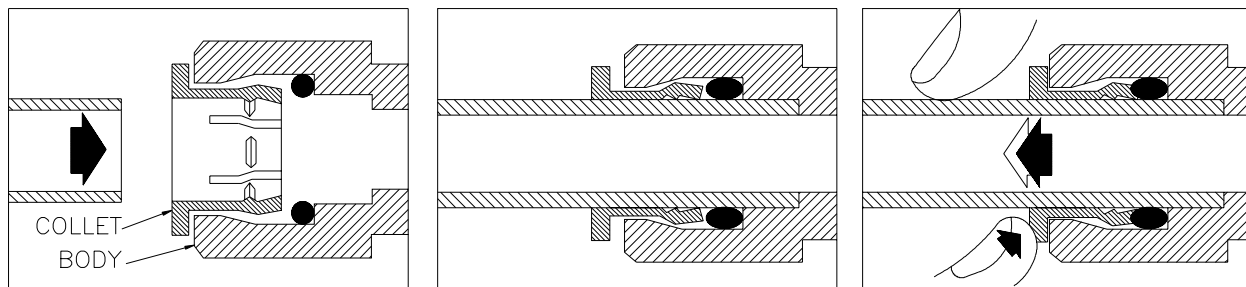
PLASTIC TUBING

1. Cut tube ends square and straight. Do not deform tube (i.e., cause tube to compress its diameter so it is no longer round).
2. Make sure outer surface of tube is clear of marks or scratches for a length equal to twice tube diameter. This allows "O" ring to seat properly against tube.
3. Avoid sharp changes in direction when routing tubing. Sharp turns cause tubing to flex and deform, which reduces its flow capacity and may increase lateral stress on the fittings, causing leakage.

QUICK-CONNECT FITTINGS

Fittings consist of two parts: a Body and a colored collet and symbol. Collet color and symbol corresponds to tubing to be used at that connection (Figure 2.A.).

1. To install a tube, push it through Collet until it seats firmly at bottom of fitting (Figure 2.A and 2.B.).
2. To remove a tube, push and hold Collet against Body while pulling tube out (Figure 2.C.).



A. Push tube through Collet into Body.

B. Tube must seat firmly at bottom of fitting.

C. Push Collet against Body to release tube.

Figure 2: How to Use Quick-Connect Fittings

INSTALLATION INSTRUCTIONS

SADDLE-TAPPING VALVE INSTALLATION ON COPPER TUBE

CAUTION: This saddle-tapping valve is not designed for installation on flex line tubing.

NOTE: For installation in Massachusetts, the Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system. The use of saddle (piercing) valves is not permitted.

1. **CAUTION:** If no shut off valve is installed under sink, close main water valve during this Installation.

Locate shut off valves on water lines under sink. To identify hot supply pipe and cold supply pipe, turn both faucets on and let water run. As water flows, hot water pipe becomes noticeably warmer.

2. **CAUTION:** Do not install feed water assembly on hot water line.

Turn off cold water supply by closing shut off valve. Drain line by opening sink faucet. Some mixing type faucets may require hot water supply be shut off as well.

NOTE: All instructions refer to components shown in Figure 3 unless otherwise noted.

3. **CAUTION:** Do not turn valve handle before or while installing saddle-tapping valve. Make sure piercing lance does not protrude beyond rubber gasket before installing valve.

Assemble saddle-tapping valve assembly on tube.

- a. Hold back plate against tube.
 - i. 3/8" copper tubing use back plate smaller radius.
 - i. 1/2" copper tubing, use back plate larger radius
- b. Hold valve saddle against tubing in a position directly opposite back plate.
- c. Tighten screw enough so valve saddle and back plate are held securely against tube.
- d. Rotate assembly so tubing connection is aligned toward RO Module feed port.
- e. Tighten screw firmly. Do not crush tube.

4. Connect source water feed tubing to valve body using compression fitting.
 - a. Slide nut and sleeve onto tubing (in that order).
 - b. Install insert into plastic tubing.
 - c. Install tube with insert and sleeve into valve body.
 - d. Thread compression nut onto valve body, tighten.
5. Turn saddle-tapping valve handle clockwise until it is firmly seated and piercing lance is fully extended.
6. **CAUTION:** Supply line is pierced and valve is closed. Do not open valve until system is activated (Page 9).

Turn on cold water supply. Check saddle-tapping valve installation for leaks. Allow water to run from faucet for a few minutes to clear any debris in the line caused by installation.

NOTE: If flow from sink faucet is reduced, clean faucet aerator.

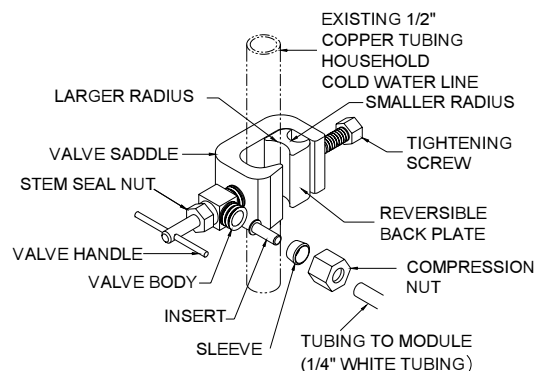


Figure 3: Saddle-Tapping Valve Assembly P/N 92276 installed on 1/2" Copper Tubing

7. Trim 1/4" white tube to desired length. Install 1/4" white tube into 1/4" white collet as shown in Figure 1.A.

ADDITIONAL POINT OF USE CONNECTION

NOTE: Icemakers typically use 1/4" tubing as feed line. Use a reducing union (P/N 92402) for this connection.

NOTE: Reduce the 3/8" Line to 1/4" as close as possible to the additional point-of use device to minimize flow loss.

1. To connect an additional point of use (icemaker, extra faucet in wet bar and/or another use for treated water), place a "tee" connector (P/N 92403) in 3/8" blue line between faucet and RO Module.
2. Connect "tee" to point-of-use with 3/8" blue tubing (P/N 87600). Connect tubing to point-of-use. Connector requirements are based on type of delivery device i.e., a typical icemaker uses 3/8" x 1/4" reducing device.

DRAIN OUTLET ASSEMBLY INSTALLATION

NOTE: State, provincial and local plumbing codes may prohibit use of saddle-tapping drain connections and may require use of an air gap.

NOTE: Location and orientation of drain outlet assembly is vital to system performance.

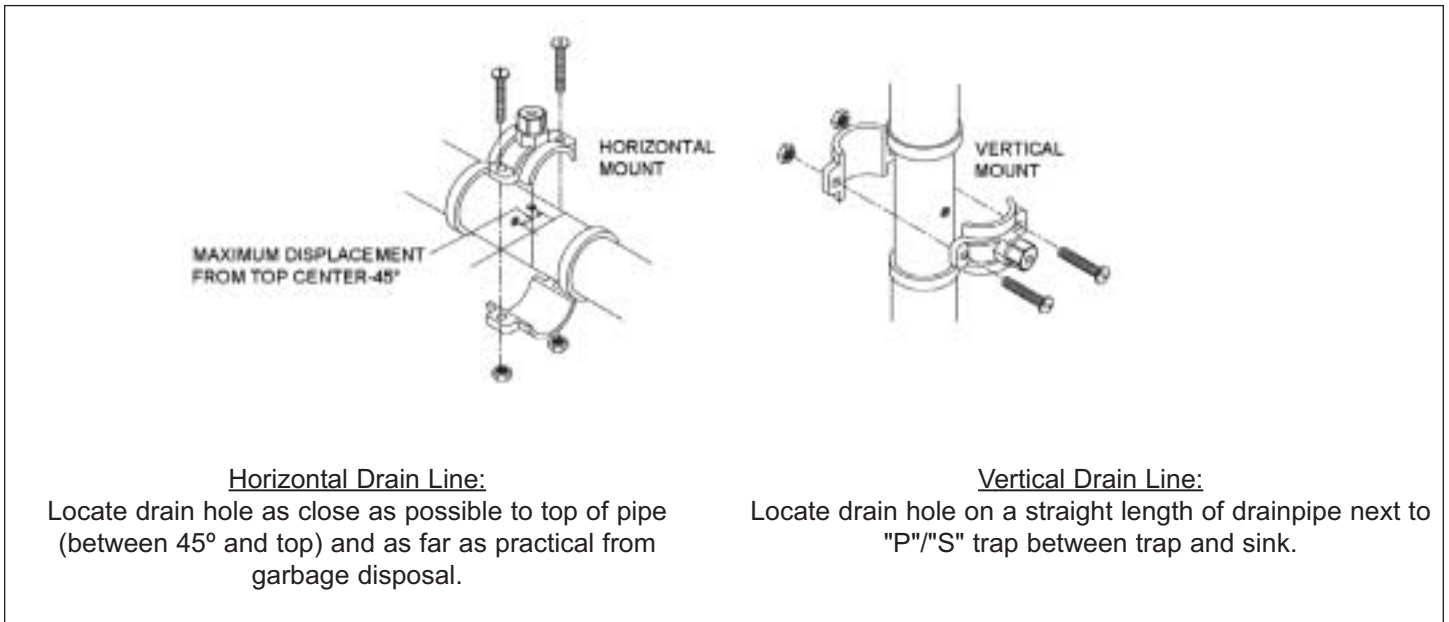


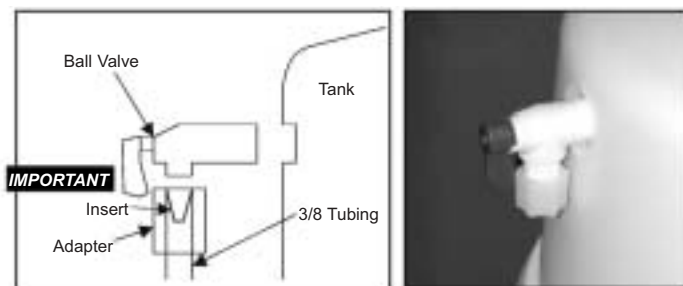
Figure 4: Drain Hole Location and Installation

1. Select a location for drain hole based on type of sink and orientation of drain line.
2. Position drain outlet saddle valve on drainpipe. Allow adequate space for drilling operation.
3. Tighten saddle bolts evenly on both sides. Avoid over-tightening.
4. Using opening in drain saddle outlet as a guide, drill a 3/8" to 7/16" diameter hole in drainpipe. Clean any debris out of drain saddle connection.

STORAGE TANK INSTALLATION

1. Hand-tighten the ball valve onto the RO storage tank. **CAUTION:** Do not over-tighten ball valve as this may strip threads or compromise the "O" ring seal.
2. Slide compression nut over 3/8" white tubing.
3. a. Make sure to install the "INSERT" in the 3/8" white tubing before tightening the nut of the ball valve.
b. Push 3/8" white tubing into the ball valve as far as possible.
4. While holding the 3/8" white tubing in the ball valve, hand-tighten the compression nut onto the ball valve.
5. Connect 3/8" white tubing to the tee fitting on the RO. **NOTE:** With the storage tank empty, ensure the air-cell pre-charge is set to manufacturers instructions marked on tank. Use a hand power air pump to top up if necessary.

WARNING: Never use an air compressor to fill air cell of a reverse osmosis system storage tank. Never tamper with the air valve located at the bottom of the tank.



PRODUCT WATER FAUCET SITE PREPARATION

Refer to Faucet Installation Instructions (Page 6) for site location and mounting hole specifications.

Primary considerations for site selection are convenience of use and an open area under sink. An existing 7/8" Sink Hole will also accommodate metal faucets with air-gap connections. Always check underside of selected location for obstructions.

PORCELAIN/ENAMEL OVER STEEL OR CAST IRON SINKS

1. **CAUTION:** A heavy duty, variable speed drill motor with a spring-loaded porcelain drill set (Figure 6) is strongly recommended for this procedure.

CAUTION: The plastic sleeve supplied on pilot drill (Figure 6.A) is to be positioned on drill bit against drill chuck. This prevents chuck from contacting porcelain after pilot hole has been completed.

NOTE: Practice on discarded sinks to familiarize yourself with operation of porcelain cutter kit.

Using carbide tipped bit with plastic sleeve (Figure 6.A.), drill pilot hole completely through porcelain and metal underneath.

2. **CAUTION:** Avoid high motor R.P.M. during initial penetration of porcelain, as high drill speed will cause excessive chipping.

Place spring-loaded porcelain saw (Figure 6.B.) into drill chuck. Make sure pilot guide is inserted tightly. Insert pilot guide into pilot hole. Push down gently on drill motor to apply light pressure to porcelain surface. Start drill motor turning as slowly as possible.

After initial cut has started, motor speed may be gradually increased. The cut may require three to four minutes to complete. Going faster could result in excessive chipping. Be sure a complete ring has been cut through porcelain to material underneath.

3. Place finish hole saw (Figure 6.C.) into drill chuck. Make sure pilot guide is inserted tightly. Insert pilot guide into pilot hole. Begin cut using a slow speed and light pressure until porcelain (inside ring cut in Step 2) has been penetrated to material underneath.
4. Remove saw from hole and clean all debris from porcelain surface. Re-insert saw into hole and cut through remaining material.
5. Installation hole is ready, install faucet.

TILE COUNTER TOP

1. Follow procedures detailed in section labeled "Porcelain/Enamel Over Steel" (substitute "tile" for "Porcelain" in instructions).

STAINLESS STEEL SINK

1. Use a center punch to make a small indentation to mark center of desired location.
2. Drill a pilot hole with a 1/8" metal drill bit, then enlarge hole with a 9/16" metal drill bit.
3. Complete hole size by using a 1 1/4" chassis punch.
4. Installation hole is ready, install faucet.

A. PILOT DRILL



B. SPRING LOADED PORCELAIN SAW



C. FINISH HOLE SAW

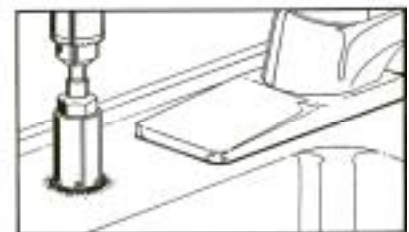


Figure 6

PRODUCT WATER FAUCET INSTALLATION

New Faucet Installation

Refer to Faucet Site Preparation, selection on the last page.

1. Lower faucet into mounting hole and place faucet over hole.
2. Install washer, spacer, faucet washer, and nut onto faucet nipple below sink and snug them up. Be sure to properly align faucet before tightening. Do not over tighten.
3. Install faucet connector. Apply food grade teflon tape, packaged with faucet, onto faucet nipple. Install 3/8" blue tube into faucet connector.
4. Install 3/8" blue tube into RO module.



Installation of Filters

Unscrew the sumps with the help of wrench provided and install the filters as follows:

- A. Sump #1 - Install Sediment Pre-filter 5 micron Cartridge
- B. Sump #2 - Install Carbon Pre-filter Cartridge
- C. Sump #3 - Install Carbon Post-filter Cartridge

Installation of Membrane

Important: Keep the membrane and your hands clean in order to avoid bacterial contamination of the membrane.

1. Disconnect the hose on the end of the membrane housing end cap from the quick connect elbow.
2. Unscrew the end-cap.
3. Hold the membrane upside down, cut the plastic bag at the bottom, and drain off any liquid.
4. The bottom tip of the membrane must seat firmly in the protruding female socket inside the membrane housing.
5. Without touching the membrane, slide it into the membrane housing and discard the plastic bag. With your thumb or the palm of your hand, push the membrane all the way into the housing.

Important: Do not use force, and ensure that the membrane is not protruding from the housing.

6. Replace the membrane housing end cap and hand tighten.
7. Push the tubing back into the quick connect fitting. Ensure the tubing is all the way in.



Sump #3 Sump #2 Sump #1

Figure 7 - Front View

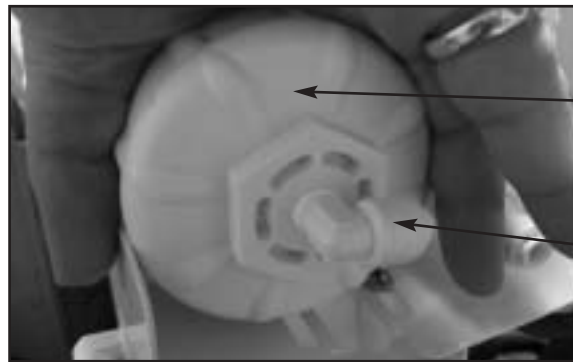


Figure 8A - Installing membrane without touching

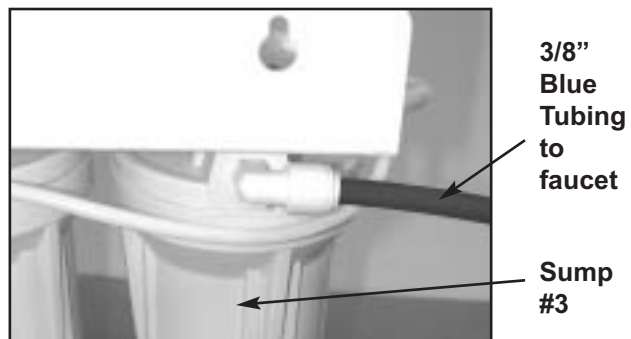


Figure 8B - Installing membrane - Remove cap

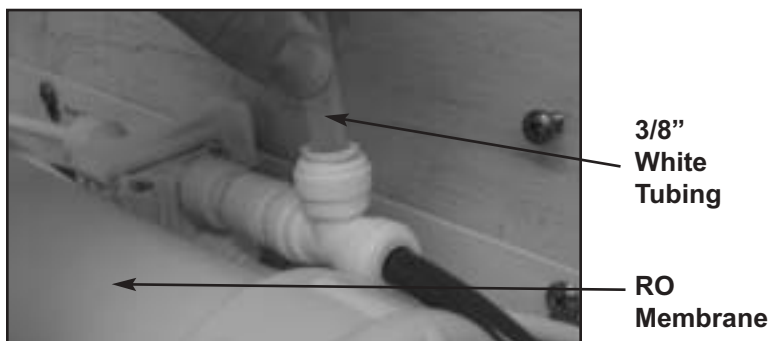
Connecting Components



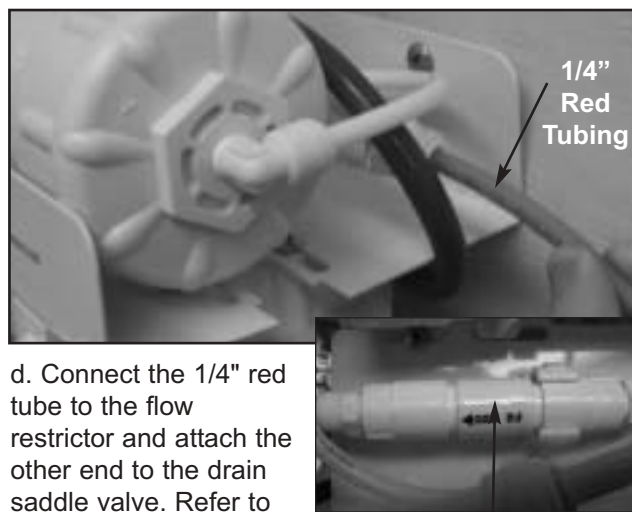
a. Connect the 1/4" white tube to the elbow of sump #1. The other end of the elbow should be connected to inlet saddle valve. Refer to inlet saddle valve installation on page 6.



b. Cut 3/8" blue tubing supplied to the desired length. Connect the 3/8" blue tube from the (90° elbow) granular activated carbon post-filter (Sump #3) fitting to the quick connect fitting on the faucet adapter. Refer to faucet installation on page 9.



c. Connect the 3/8" white tube to the center of the male tee located on the top of the bracket. Connect the other end of the tube to the storage tank. Refer to the storage tank connection installation on page 7.



d. Connect the 1/4" red tube to the flow restrictor and attach the other end to the drain saddle valve. Refer to the drain saddle valve installation on page 7.

Start-Up Procedure

WARNING: To prevent microbiological growth and freezing, this reverse osmosis system contains a preservative solution which, if ingested, may cause irritation of the gastrointestinal tract, colic, diarrhea or other similar symptoms. Therefore, 5 gallons (approximately two full tanks) must be drawn from the spigot to flush out the preservative. This may represent two or three days of running, depending on conditions of the feed water.

The carbon filters require some rinsing to remove carbon fines. The filters will rinse out on their own by allowing the system to produce 2 full tanks of water and discarding the RO product water. The following procedure may be followed if it is desired to rinse the filters immediately before producing an RO product water.

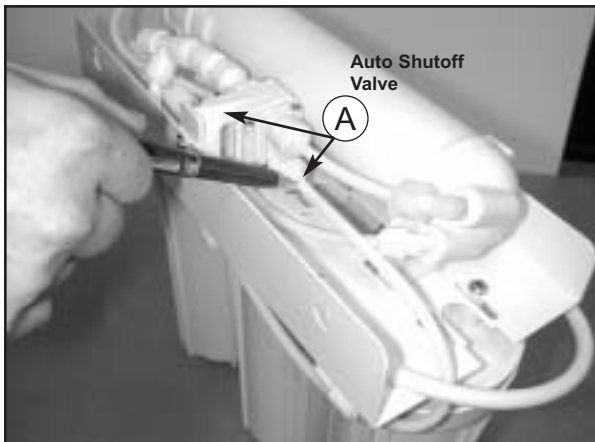


Figure 9 - Disconnect pre-carbon outlet tube from shutoff valve

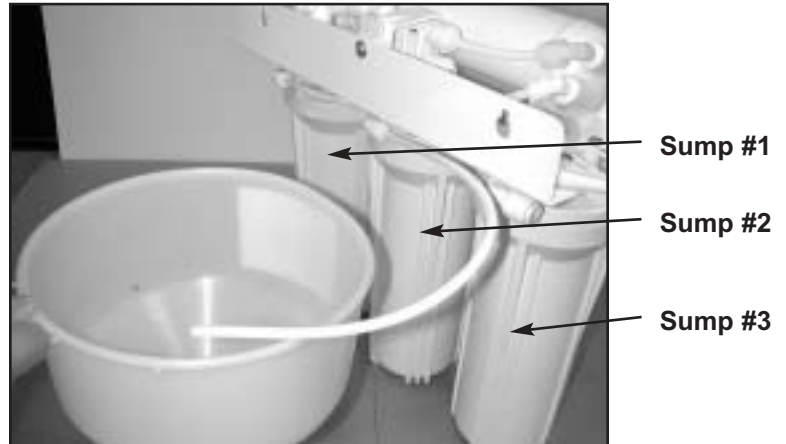


Figure 10 - Direct flushed water and carbon fines into container

- a. Disconnect the line from the auto shut off valve that runs from the outlet side of the Pre-Carbon Filter (Sump #2) to the Auto Shut Off Valve. Direct tubing into a pail or catch basin (See A in Figure 9).
- b. Turn on the feed water by opening the needle valve on the feed water saddle valve and catch the water in the pail. The water rinsing the filter will appear grayish until the fines are rinsed out. When the water returns to clear, close the inlet water valve. Re-connect the white tubing back into the Auto Shut Off Valve. The filters are now rinsed.
- c. Turn on feedwater by opening the inlet water valve. Immediately check for any signs of a leak. Correct any problems if necessary. Turn on storage tank valve.
- d. It will not be uncommon to experience air bubbles or dissolved air in the product water. This will disappear after the unit is in service for a short period of time.
- e. The first two full tanks must be discarded to flush the membrane preservative out of the system as well as flush the carbon fines from the Post Carbon Filter (Sump #3).

Maintenance Schedule

This schedule is designed for the average potable water supply and should be followed to ensure the proper functioning of your drinking water system.

Pre-Filter - The pre-filter contains a 5 micron mechanical filter element. Its function is to remove suspended particles from the feed water, thus reducing the possibility of clogging the reverse osmosis membrane. The pre-filter element should be replaced every twelve months or earlier depending on the quality of the feed water.

Pre-Carbon Filter -The pre-filter contains a granular activated carbon. Its function is to remove chlorine from the incoming water to prevent any damage to the TFC membrane. The Pre-Carbon filter cartridge should be replaced every 24 months.

Reverse Osmosis Module - The reverse osmosis module contains a semi-permeable membrane. Its function is to separate water molecules from dissolved impurities in the feed water. This is accomplished by application of hydraulic pressure greater than the osmotic pressure in water containing dissolved solids. The life of the membrane can be determined by measuring the percentage of rejection of total dissolved solids in the water. The membrane should be replaced every 24 to 36 months when its efficiency will decrease.

Post-Carbon Filter - The post-filter contains a granular activated carbon. Its function is to remove any taste and odor from the water prior to delivering it to the spigot. The post-filter cartridge should be replaced every 24 months.

Activating the System

CAUTION: Make sure all water supply lines, drain lines, and fittings are secure and free from leakage.

1. Open source water supply valve. Close product water faucet. Check for leakage.
2. Turn tank valve one-quarter turn counter- clockwise to open valve (handle should be in line with tubing as it enters connection).
3. Confirm system is producing water. Module will be sending rinse water to drain.
4. Open product water faucet and let water flow until all air has been expelled from system.
5. Close product water faucet. In 30 minutes, check connections for leaks and correct if necessary.
Icemaker/Extra point of use: Check connections on these supply lines for leaks.
6. Allow storage tank to fill overnight.
7. **WARNING: DO NOT USE THE FIRST FULL STORAGE TANK OF WATER**
Discard (to drain) first full tank of water by opening product water (and extra point-of-use) faucet until water flow stops, then close faucet. This will flush sanitizing solution from system.
Icemaker: Let tray/bin fill with ice cubes. Discard all ice cubes. This flushes sanitizing solution from lines to icemaker.
8. Check the TDS reduction using a TDS Meter.
9. System is ready to use. Should there be any aftertaste or odor to water or ice cubes, repeat Steps 6 and 7.

DO NOT USE THE FIRST STORAGE TANK OF WATER

Allow storage tank to fill overnight. Dispense this water to drain. This process removes factory-installed sanitizing solution from the entire system and sends it to drain. This process also sanitizes fittings and tubing used during installation.

Changing Filters

Important: This RO System contains filters, which must be replaced at regular intervals to maintain proper performance. See Maintenance Schedule for the recommended interval for changing the filters. Local conditions may dictate more frequent cartridge replacement. Use a drip pan to catch any water that may spill when the housings are removed. Use only factory approved filters.

1. Close the saddle valve and open the faucet by lifting the handle. Allow storage tank to empty.
2. Loosen and remove the appropriate filter housing(s). Discard the cartridge(s).
3. Wash the inside of the housings using a mild detergent and a soft cloth. Do not use abrasive cleaners or pads. Thoroughly rinse all soap from the housing before re-assembly.



Figure 11 - Using sump wrench to change filter cartridges

Sanitization Procedures for your Reverse Osmosis System

Sanitization is a simple but important part of a regular maintenance routine required to keep your Reverse Osmosis Drinking Water System operating properly.

Recording the dates of all maintenance and sanitization done on the unit is a good idea as well as marking on your calendar future service interval dates. Your water system installer may have a maintenance service program to deal with cartridge replacement and system sanitization by setting up regular scheduled service calls.

Sanitization maintenance of the Reverse Osmosis Drinking Water System should be performed:

- Upon installation
- At least every 6 - 12 months as part of a regular maintenance routine.
- Whenever the pre-filter and post-filter cartridges are replaced as part of a regular maintenance routine.
- Whenever the reverse osmosis membrane is replaced.
- After the system requires any servicing or routine maintenance by your local water treatment specialist.
- After long periods of time when system is not used (approximately 30 days or more)
- Whenever evidence of harmful bacteriological contamination of the system has been discovered. In this case contact your local water treatment specialist to disinfect your reverse osmosis system, and identify and eliminate the source of contamination.

IMPORTANT: This Reverse Osmosis Drinking Water System should not be used on any water supply sources that are microbiologically unsafe or of unknown quality without adequate disinfection before and/or after the system.

Materials required for Sanitization of the Reverse Osmosis Drinking Water System:

- Mild soap solution to clean various components. Soap used should be as basic as possible and not contain any fragrances or additives.
- Soft brush to assist cleaning various components. (DO NOT USE SCOURING PADS OR ANY OTHER TYPE OF INSTRUMENT THAT COULD POTENTIALLY SCRATCH THE SURFACES OF THE UNIT.)
- Measuring spoon or device.
- Household bleach, typically containing 5.25% of chlorine.
- One (1) Gallon of potable water to mix up a disinfectant solution. (DO NOT USE WATER THAT IS NOT CONSIDERED POTABLE OR IS OF A QUESTIONABLE NATURE TO MIX UP THE DISINFECTANT SOLUTION)
- Drip pan or catch basin to collect any solution or water spilled along with paper towels to cleanup any spills.
- Silicone Based Lubricant to apply to O-Rings. (DO NOT USE PETROLEUM BASED LUBRICANTS)

Available Item # 13691 - 60 gram vial (Certified ANSI/NSF 61, FDA Registration No. 21 CFR 715.300)

Other important requirements of note:

- Before beginning installation and/or sanitization procedure, make sure that all tools used are disinfected.
- Thoroughly wash hands with soap before beginning installation and/or sanitization procedure. If your hands come into contact with any unsanitary surface while performing this procedure or the installation, hands should be rewashed with soap.
- Any surfaces used to work with to set various components on to dry, should be cleaned and disinfected.
- Any replacement cartridges, membranes and cleaned components should be handled as little as possible.
- A new pair of latex or surgical type gloves may be used to perform any sanitization procedure, but also be aware that if the gloves surface comes into contact with any unsanitary surface while performing this procedure or the installation, the gloves should also be re-disinfected or replaced.

Sanitization Steps

STEP 1: TURN OFF WATER SUPPLY - CLOSE INLET SUPPLY ALL THE WAY

STEP 2: DEPRESSURIZE SYSTEM - OPEN FAUCET SUPPLY UNTIL ALL WATER IS EMPTIED

Use a clean drip pan or basin to continue to catch any spilled water remaining in the housings as you remove the membrane and cartridges.

STEP 3: (Refer to Figures 12, 13 and 14) DISCONNECT THE FEED TUBE FROM THE MEMBRANE HOUSING MODULE. UNSCREW THE MEMBRANE HOUSING MODULE END CAP AND REMOVE THE MEMBRANE ELEMENT. PUT THE MEMBRANE ELEMENT ASIDE ON A CLEAN DISINFECTED SURFACE.

(Unless the membrane element is being replaced at this time, then discard the old membrane.)

STEP 4: OPEN THE FILTER SUMPS WITH THE SUMP WRENCH SUPPLIED AND REMOVE THE CARTRIDGES.

STEP 5: CLEAN THE FILTER SUMPS WITH SOAP AND CLEAN WATER. USE A CLOTH OR SOFT BRUSH AS REQUIRED. CLEAN THE INSIDE OF THE MEMBRANE HOUSING AS WELL.

(You may need to pay close attention to the O-Ring seals and re-grease them afterwards with silicone lubricant)

STEP 6: REINSTALL THE FILTER SUMPS (EXCEPT THE 1ST PRE-FILTER SUMP) AND THE MEMBRANE CAP AND RECONNECT THE INLET TUBING TO THE MEMBRANE HOUSING CAP.

STEP 7: MIX UP A DISINFECTANT SOLUTION OF 1 TEASPOON OF 5.25% BLEACH IN 1 GALLON OF WATER.

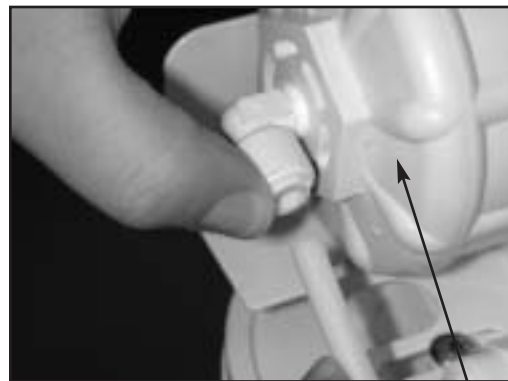


Figure 12 - RO Membrane Housing

RO Membrane Cap



Figure 13

O-ring



Figure 14

STEP 8: POUR THE MIXED DISINFECTANT SOLUTION INTO THE 1ST PRE-FILTER SUMP AND RE-INSTALL.

STEP 9: OPEN THE INLET VALVE AND OPEN THE FAUCET. WHEN WATER BEGINS RUNNING FROM THE FAUCET AGAIN, CLOSE THE FAUCET AND ALLOW THE PRESSURE TANK TO FILL FOR 5 - 10 MINUTES. WHEN THE PRESSURE TANK FEELS LIKE IT HAS FILLED, CLOSE THE INLET SUPPLY VALVE.

STEP 10: ALLOW THE SYSTEM TO SIT WITH THE DILUTED SANITIZING SOLUTION FOR APPROXIMATELY 20 MINUTES.

STEP 11: OPEN THE FAUCET AND PURGE THE TANK AND SYSTEM OF THE SANITIZING SOLUTION.

STEP 12: REINSTALL THE MEMBRANE AND REPLACE THE CARTRIDGES. PURGE THE PRE-CARBON CARTRIDGE OF FINES (as per installation instructions). OPEN THE INLET SUPPLY NEEDLE VALVE AND ALLOW SYSTEM TO FILL.

OPEN THE FAUCET AND DISCARD THE FIRST TANK FULL OF WATER. (IF A NEW MEMBRANE ELEMENT IS INSTALLED A THIS TIME, DISCARD THE FIRST TWO TANKS FULL OF WATER).



Figure 15



Figure 16

Reverse Osmosis Drinking Water System Maintenance Record

Installation Date: _____

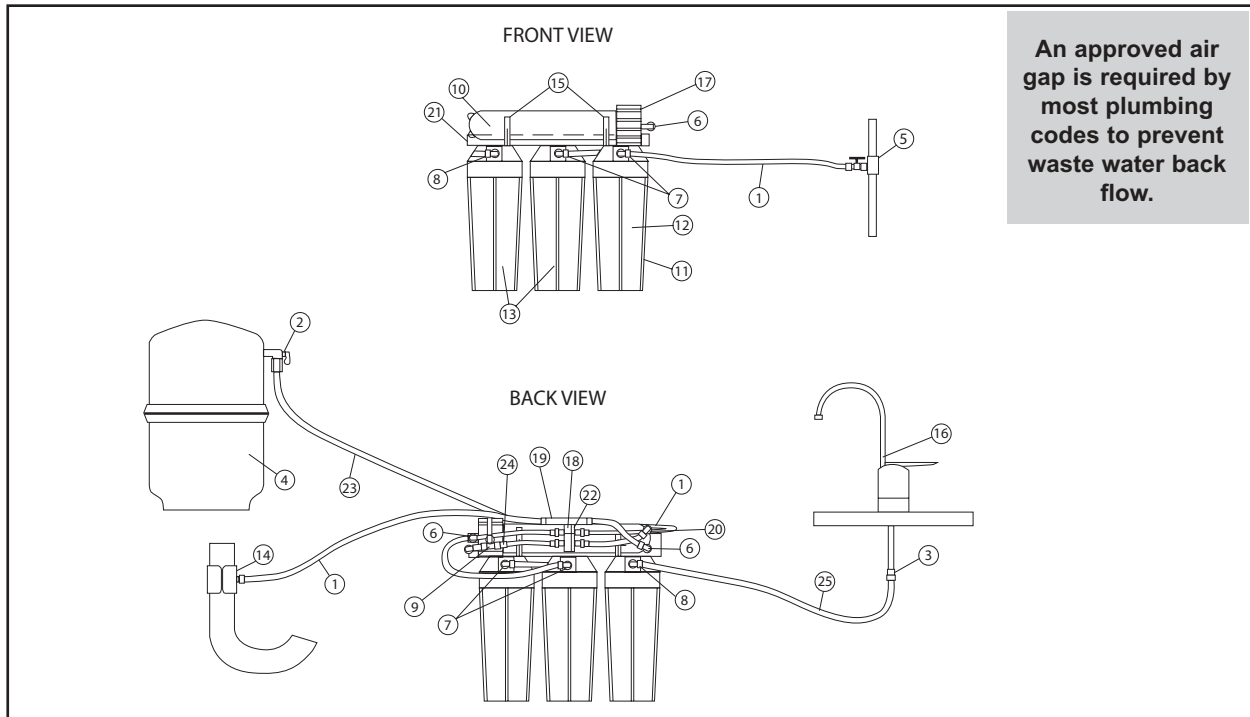
Use this chart to record the dates of any cartridge changes. It is meant to assist you on keeping track of this maintenance.

#26091 WSW-05B <i>5 micron Sediment Cartridge</i>	#26081 WCB-10 <i>Carbon Cartridge</i>	#92035 and 92022 TFC RO Membrane <i>50 or 75 USGPD Rated Membrane</i>	Sanitization Procedure <i>(refer to instructions)</i>
3 sump models	3 sump models (x2)	refer to model	all models
Every 12 months	Every 24 months	24-36 months*	Every 6-12 months

* The replacement frequency of the R.O. membrane is somewhat dependent on the feed water quality. If the product water quality has decreased or the production of water had dropped off, the membrane requires replacement.

Parts List and Drawing - Models E(50 & 75) TFC-3SF

Note: There may be some parts listed, which are not included with this model.

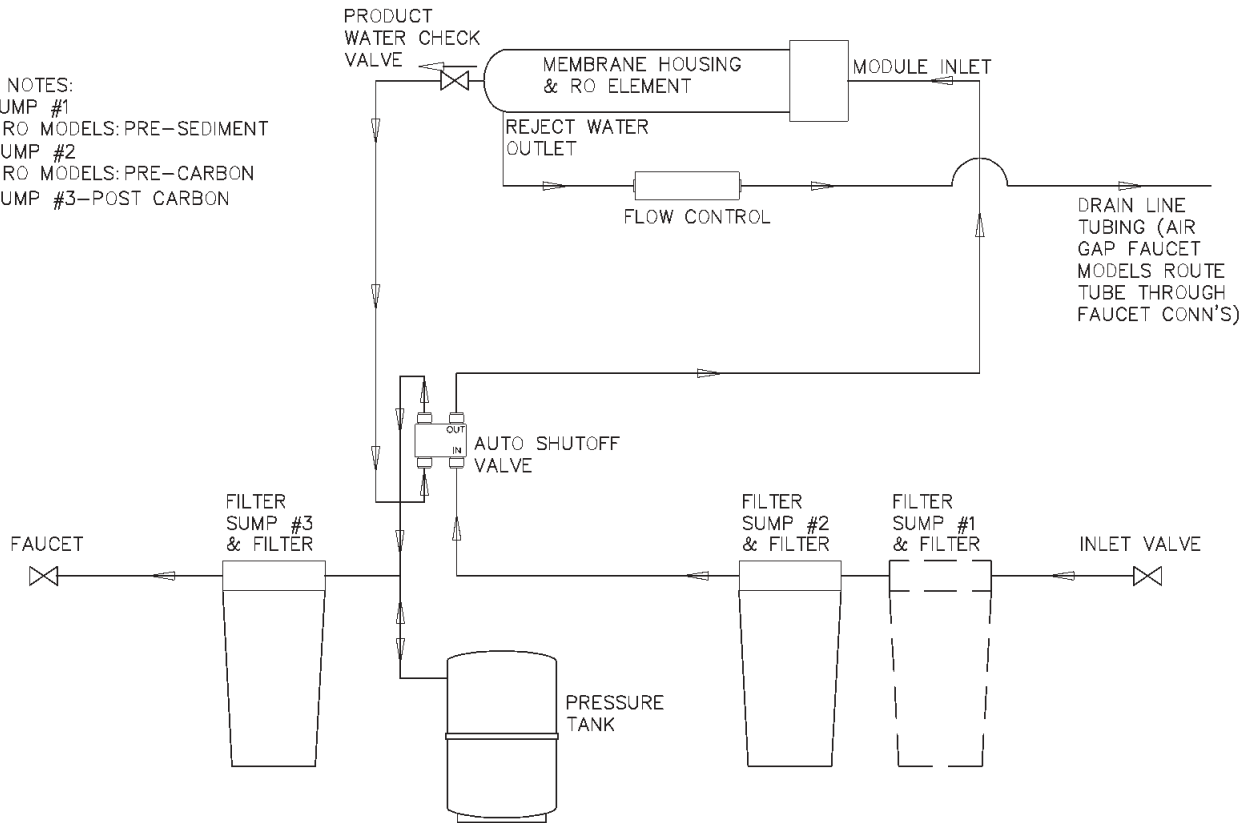


<u>Drawing No.</u>	<u>Description</u>	<u>Item No.</u>
1.....	Tubing, 1/4" OD, poly, natural	115200
2.....	Valve, 3/8", Shut Off	80704
3.....	Adapter, faucet, 3/8", QC	92407
4.....	Tank, storage, RO, 3800, white, c/w shut off	92313
5.....	Feed water adapter c/w ball valve	92469
6.....	Elbow, male, 1/4" x 1/8" npt	92406
7.....	Elbow, male, 1/4" x 1/4" npt	92405
8.....	Elbow, male, 3/8", tube, QC	92404
9.....	Tee, 3/8" x 1/4" npt	92403
10	Membrane, RO	
50 GPD, TFC	92035
75 GPD, TFC	92022
11	Housing, cartridge, white/black	92026
12	Cartridge, pre-filter, 5 micron	26091
13	Cartridge, carbon	26081
14	Saddle, drain, set, RO, 3/8"	92160
15	Clip, pipe, 2", set	92162
16	Faucet, standard	87511
16	Faucet, standard, <i>OPTIONAL WQA CERTIFIED</i>	92609
17	Vessel, membrane	92211
18	Valve, shut-off, auto	92223
19	Control, flow	
300 ml, RO 50 GPD	92263
400 ml, RO 75 GPD	92328
20	Valve, check, product water	92612
21	Bracket, RO, 3 housing	92279
22	Bracket, Shut Off, Auto	92224
23	Tubing, 3/8" OD, poly, natural	115207
24	Reducer 1/4" x 3/8" Stem x QC	92468
25	Tubing, 3/8" OD, poly, blue	87600

Reverse Osmosis Drinking Water System Flow Diagram (all models)

ADDITIONAL NOTES:

1. FILTER SUMP #1
- a. 3 SUMP RO MODELS: PRE-SEDIMENT
2. FILTER SUMP #2
- a. 3 SUMP RO MODELS: PRE-CARBON
3. FILTER SUMP #3-POST CARBON



Trouble Shooting Guide

Probable Cause	Solutions
No water or not enough water	
<ol style="list-style-type: none"> 1. Feed water shut off 2. Storage tank valve shut off 3. Plugged or crimped lines 4. Pre-filter cartridge clogged 5. Low feed water pressure 	<p>Turn on feed water</p> <p>Open tank valve</p> <p>Remove blockage or crimp in lines</p> <p>Replace pre-filter cartridge</p> <p>Feed water pressure at membrane must be at least 50 psi</p>
Low flow rate from faucet	
<ol style="list-style-type: none"> 1. Low air pressure in storage tank 2. Storage tank valve partially closed 	<p>Increase air pressure to 7 psi in storage tank with product water drained</p> <p>Open tank valve completely</p>
High product water TDS	
<ol style="list-style-type: none"> 1. Insufficiently flushed filters 2. Increase in feed water TDS 3. Membrane life expired 	<p>5 gallons (approx. 2 full tanks) must be drawn from spigot to sufficiently flush filters</p> <p>Contact dealer for revised product water TDS</p> <p>Replace membrane</p>
Bad tasting water	
<ol style="list-style-type: none"> 1. Taste from glass or plastic containers 2. Post carbon filter cartridge exhausted 3. Storage tank and/or system contaminated 4. Membrane life expired 	<p>Contact dealer for explanation</p> <p>Replace post carbon filter cartridge</p> <p>Contact dealer for assistance</p> <p>Replace membrane</p>
Cloudy water	
<ol style="list-style-type: none"> 1. Dissolved air in feed water gets concentrated in product water. 	<p>Condition usually clears up eventually as feed water changes. Letting water stand will allow dissolved air to dissipate.</p>
Cloudy ice cubes	
<ol style="list-style-type: none"> 1. See cloudy water 2. Certain ice cube shapes trap dissolved air more than others. The larger, more squared off cubes are clearest, smaller rounded surface ice cubes are cloudier 	<p>See cloudy water</p> <p>Change ice cube mold shape, make cubes manually if using automatic ice cube maker, let stand to release dissolved air before freezing</p>

Reverse Osmosis Accessories

PUMPS

- 92287 BOOSTER, 6800, RO SYSTEMS UP TO 50 GPD
- 92317 BOOSTER, 8800, RO SYSTEMS UP TO 120 GPD
- 92325 BOOSTER, KEMFLO, RO SYSTEMS UP TO 75 GPD



TANKS

- 92313 STORAGE, RO, PRO3800W-KFV38



FAUCETS

- 87511 LONG, REACH, STANDARD, NON AIR GAP
- 92192 LONG, REACH, C/W AIR GAP

Tomlinson Designer Series

- 87546 AIR GAP, TOMLINSON, ANTIQUE BRONZE
- 87543 AIR GAP, TOMLINSON, BISCUIT
- 87544 AIR GAP, TOMLINSON, BLACK
- 87547 AIR GAP, TOMLINSON, BRIGHT NICKEL
- 87548 AIR GAP, TOMLINSON, BRUSHED STAINLESS FINISH
- 87545 AIR GAP, TOMLINSON, POLISHED BRASS
- 87540 AIR GAP, TOMLINSON, POLISHED CHROME
- 87541 AIR GAP, TOMLINSON, SATIN NICKEL
- 87542 AIR GAP, TOMLINSON, WHITE



Tomlinson Contemporary Series

- 87553 AIR GAP, TOMLINSON, CONTEMPORARY, ANTIQUE BRONZE
- 87554 AIR GAP, TOMLINSON, CONTEMPORARY, BRUSH STAINLESS
- 87551 AIR GAP, TOMLINSON, CONTEMPORARY, POLISH CHROME
- 87552 AIR GAP, TOMLINSON, CONTEMPORARY, SATIN NICKEL

CHILLER

- 2878 CHILLER, RO, R1P



Limited Warranty

Subject to the conditions and limitations described below, WaterGroup warrants its Economy Reverse Osmosis Drinking Water Treatment Systems (excluding membrane and cartridge filters), when installed in accordance with WaterGroup specifications, to be free from defects in materials and workmanship under normal use within the operating specifications for a period of one (1) year from date of purchase (with bill of sale) or 18 months from product date code, whichever occurs first.

Other than the membrane and cartridge filters, any part found defective within the terms of this warranty will be repaired or replaced by WaterGroup. If any part is found defective, WaterGroup also reserves the right to replace the drinking water appliance with a comparable WaterGroup drinking water system of equal or greater quality. You pay only freight for repaired or replaced parts from our factory and local dealer charges, including but not limited to labor charges, travel and transportation expenses and handling fees.

This warranty shall not apply to any part damaged by accident, fire, flood, freezing, Act of God, bacterial attack, membrane fouling and/or scaling, sediment, misuse, misapplication, neglect, alteration, installation, or operation contrary to our printed instructions, or by the use of accessories or components which do not meet WaterGroup specifications. If the drinking water system is altered by anyone other than WaterGroup the warranty shall be void.

ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THE PERIOD SPECIFIED ABOVE FOR THE PARTS DESCRIBED IN THIS LIMITED WARRANTY.

As a manufacturer, we do not know the characteristics of your water supply. The quality of water supplies may vary seasonably or over a period of time. Your water usage may vary as well. Water characteristics can also change if the drinking water appliance is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligation for us. Further, we assume no liability and extend no warranties, express or implied, for the use of this product with a non-potable water source or a water source which does not meet the conditions for use as described in this Owners Guide.

WATERGROUP'S OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED TO THE REPAIR OR REPLACEMENT OF THE FAILED PARTS OF THE DRINKING WATER SYSTEM, AND WE ASSUME NO LIABILITY WHATSOEVER FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, GENERAL OR OTHER DAMAGES, WHETHER FROM CORROSION OR OTHER CAUSES.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Similarly, some states do not allow the exclusion of incidental or consequential damage, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights that vary from state to state.