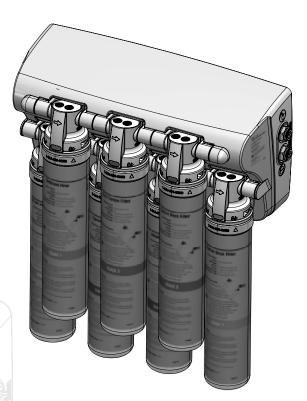
Installation, Operation & Service Instructions with Part List

7 Stage Water Filtration System



Improving water,

improving life...

One family at a time.

Model: 7QCRO

Attention Customer:

This system is intended for use on potable water supplies or disinfected water containing cysts. Do not use where water is microbiologically unsafe or with water of unknown quality. If bacterial contamination is present, a recognized method of water disinfection is required.

Check with your public works department for applicable local plumbing and sanitation codes. Follow your local codes if they differ from the standards used in this manual.

The 7 Stage Water Filtration System contains a replaceable membrane filter which is critical for the effective reduction of Total Dissolved Solids. The filtered water should be tested periodically to verify that the system is performing properly.

Safe Practices

Throughout this manual there are paragraphs set off by special headings.

NOTE: Note is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard. Example:

NOTE: The poly tube should be inserted well inside the quick connect fitting.

Caution!: Caution is used when failure to follow directions could result in damage to equipment or property. Example:

CAUTION! Disassembly while under water pressure can result in flooding.

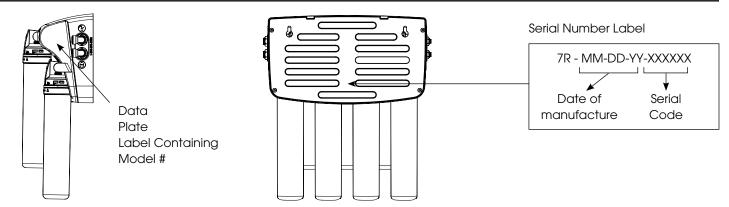
WARNING !: Warning is used to indicate a hazard which could cause injury or death if ignored. Example:

WARNING! Do not use where water is microbiologically unsafe.

Serial Number

The serial number is located on the rear of the manifold housing. Record this number on the warranty page located at the end of this manual.

NOTE: Do not remove or destroy the serial number. It must be referenced on requests for warranty repair or replacement.



This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication.

WARNING! If incorrectly installed, operated or maintained, this product can cause severe injury. Those who install, operate, or maintain this product should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to install, operate or maintain this product.

INTRODUCTION

Thank you and congratulations on making a smart decision to invest in a 7 Stage Water Filtration System.

You have joined an elite group of water enthusiasts who demand only the best when it comes to their health and the health of their family.

In order to fully enjoy your system, please read the users manual thoroughly before use and please use this manual for future reference.

Since your satisfaction is our priority, feel free to contact our service experts should you have any questions. You may reach us toll free at 1-866-293-8050.

We are proud of our product and we trust that our strict devotion to the highest quality assurance standards will provide you with years and years of clearer, treated, great tasting water.

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 7 Stage Water Filtration System and storage tank will easily fit into the desired location. This 7 Stage Water Filtration 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.

The water produced by the `7 Stage Water Filtration System' can be used for many purposes around the home.

- **Drinking Water** keep container of 7 Stage Water Filtration System water in the fridge to be able to enjoy the cleaner, fresher taste. Alternatively, take it directly from the tap.
- **Ice Cubes** use 7 Stage Water Filtration System water to fill ice cube trays. Ice cubes made from 7 Stage Water Filtration System water are typically clearer and better tasting than ice made from plain tap water.
- **Automatic Ice Makers** a water line from the 7 Stage Water Filtration System 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. 7 Stage Water Filtration System water is very low in dissolved minerals content, greatly reducing the chance of scale buildup.
- **Cooking** use 7 Stage Water Filtration System 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. Steamers & Portable Humidifiers -** 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 7 Stage Water Filtration 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 7 Stage Water Filtration System instead of dealing with the expense and hassle of bottled water delivery and also the impact of the water bottles to the environment.



Installation, Operation & Service Instructions with Part List

7 Stage Water Filtration System

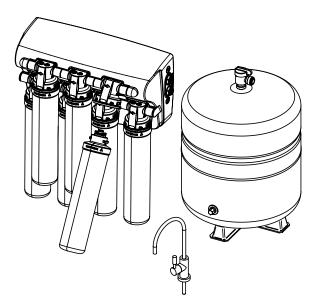


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Specifications and Performance Data Sheet

Model #	Part #	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Storage Tank	Faucet
7QCRO	940475	Sediment Filter	Activated Carbon Filter	Carbon Block Filter	100 GPD Membrane Filter	Ceramic Filter	Alkaline Filter	Carbon Block Filter	Metal Tank - 4.4 Gallons	Chrome - Standard

Daily Production Rate* L/day (G/day) 76.8 (20.3)
Efficiency Rating**%
Recovery Rating***
Average Reduction**** %
Typical System Flow SequenceSediment Filter \rightarrow GAC Carbon Filter \rightarrow Carbon Block Filter \rightarrow 100 GPD Membrane Filter \rightarrow Ceramic Filter \rightarrow Storage Tank \rightarrow Alkaline Filter \rightarrow Carbon Block Filter \rightarrow Dispensing Faucet
Sediment Filter (Stage 1) Sediment Reduction
GAC Carbon Block Filter (Stage 2) Polishing Taste and Odor
Carbon Block Filter (Stage 3) Chlorine Taste and Odor
100 GPD Membrane Filter (Stage 4) TDS Reduction
Ceramic Filter (Stage 5) Fine Particles
Alkaline Filter (Stage 6) Re-mineralization
Carbon Block (Stage 7) Chlorine Taste and Odor
Production Rate17QCRO100 gpd(37.8 L/day)Ratio of Product to Flush Flow2Standard Applications1:3 - 1:5Storage CapacityMetal - Capacity 4.4 Gallons (16.7 Liters)

¹ Rating at 50 psi, 77°F, 750 mg/L TDS influent, without storage tank. ² May vary with pressure.

 * $\,$ The daily production rate is the volume of product water produced by the system per day.

** Efficiency rating means the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage.

*** System's Recovery rating means the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is bypassed.

**** Minimum TDS reduction.

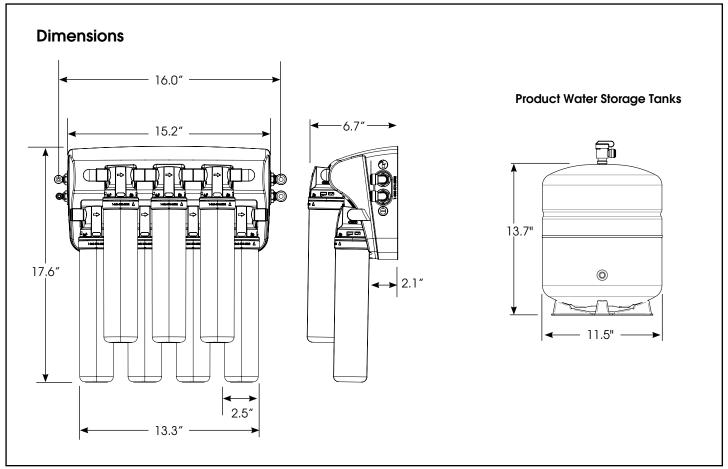


Figure 1

Recommended Influe	ent Water Characteristic	NOTES A booster is strongly recommended to improve the reduction c
Pressure 40 - 100 psi		TDS. Higher pressures will help maintain the membrane's maxin
Temperature	40 - 77 °F	 rejection performance. 2. The reverse osmosis membrane used in these systems may be
Total Dissolved Solids (TDS) ¹	0 - 2500 ppm (0 - 2500 mg/L)) damaged by chlorine. These systems include activated carbo
Н	5 - 10	which protect the membranes by reducing chlorine. Influent c should not exceed 3 mg/L.
Chlorine ²	0 - 3 ppm (0 - 3 mg/L)	3. A softener is strongly recommended for water over 10 gpg hard
Chloramine	0 - 3 ppm (0 - 3 mg/L)	Installing a system without a softener on water with hardness hig than 10 gpg will reduce the life of the membrane.
Turbidity	0 - 10 NTU	4. Additional information on factors that affect RO performance of
Hardness ³	0 - 10 gpg	found in the "Performance & Technical Information" section.
Iron	0 - 1 ppm (0 - 1 mg/L)	
Bacterial Quality	Potable	

Table 1

Safety Guidelines

- Read all steps and guides carefully before installing and using your 7 Stage Water Filtration System. Follow all steps exactly to correctly install.
- This system must be installed in accordance with applicable city, provincial, state and local plumbing codes.
- To ensure this system continues to operate at its optimum level, it is necessary to have a routine maintenance and replacement schedule. Please check the filter replacement frequency in the system specification section and maintenance section of this manual. Frequency at which filters must be changed will depend on quality of feed water supply and level of system usage. The replacement of the water treatment components of this unit is critical to maintain the performance of the system.
- This system should not be used where the water is microbiologically unsafe or with water of unknown quality without adequate disinfection before and/or after the filter. Please refer to the conditions use section in this manual.
- To prevent personal injury, completely relieve the system pressure before replacing or installing filters and membrane.
- Do not place this system where it will be exposed to the freezing and/or direct sunlight. Please refer to conditions for use section in this manual

NOTE: The water system contains a replaceable treatment component, critical for the effective reduction of total dissolved solids, and that product water shall be tested periodically to verify that the system is performing properly.

SYSTEM SPECIFICATIONS

7 Stage Water Filtration System Item #: 940475 Model #: 7QCRO

Item #	Stage	Filter / Type	Specification	Function	Capacity
940477	First Stage (Pre Filter)	Sediment Filter	5 Micron Sediment Filter	Reduces suspended particles in water such as dirt or sediment. Reduces the particles 8 times smaller than what the naked eye can see.	7,570 L
940478	Second Stage (Pre Filter)	Granular Activated Carbon Filter	GAC Filter	Reduces chlorine from the water to protect TFC membrane.	7,570 L
940479	Third Stage (Pre Filter)	Carbon Block Filter	5 Micron Carbon Block Filter	Reduces taste & odor from water.	7,570 L
940480	Fourth Stage (TFC Membrane)	GPD Membrane	GPD Membrane	Reduces TDS from water.	37,000 L
940481	Fifth Stage (Post Filter)	Ceramic Filter	0.5 Micron Ceramic Filter	Reduces fine dirt particles from the water. This provides an added particulate reduction to 0.5 micron.	5,678 L
940482	Sixth Stage (Post Filter)	Alcaline Filter	Carbon Filter	Increase pH of water [‡] . Add minerals to improve the flavour of water so it is not "flat tasting."	5,678 L
940483	Seventh Stage (Post Filter)	Carbon Block Filter	Calcite Filter	Reduces taste and odor from the water	7,570 L
92371	Storage Tank	Metal	4.4 Gallon / 16.7 L Storage Capacity	Storage for Product Water	-

Table 2

Membrane Production Rate: 100GPD. Nominal product water ratings are based on the following conditions: Supply TDS of 250 ppm conditioned tap water, 50 psi, 77° F, pH 8 and 15% recovery with outlet to atmosphere

TDS Rejection Rate: 99%. Rejection percentages are dependent on the supply conditions and the substance being measured

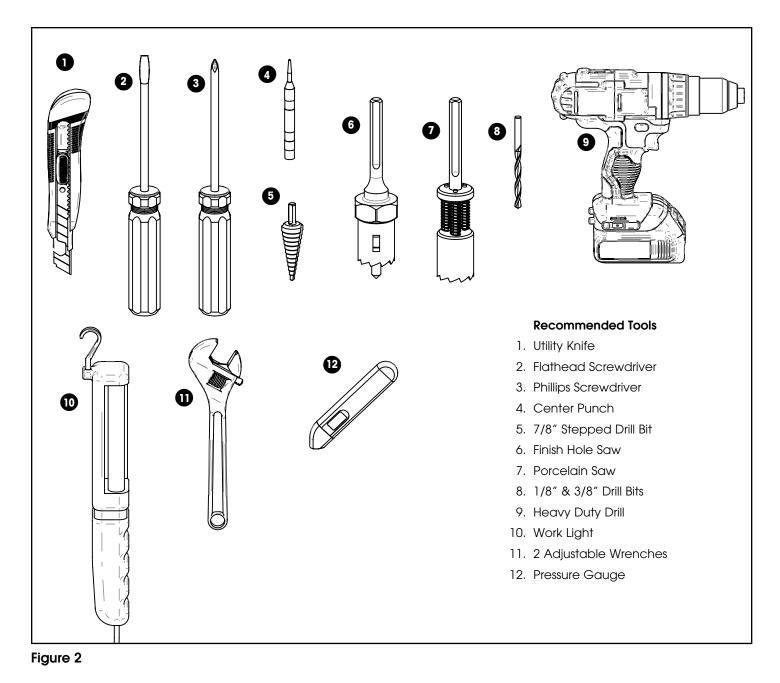
This system is not intended to be used for the treatment of water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Disclaimer: The performance of a reverse osmosis membrane is highly dependent upon pressure, temperature and TDS. The actual volume of product water and rejection percentage will vary with differences and the test conditions that membrane ratings are based upon.

‡ The processed water from TFC membrane has low pH and is aggressive and tends to dissolve substances with which it is in contact.

* TFC refers to reverse osmosis membrane constructed from a THIN FILM COMPOSITE

Pressure Regulator is recommended for feed water pressures exceeding 100 psi.

Suggested Installation Equipment



Overview of the 7 Stage Water Filtration System

1 Manifold

The manifold assembly serves as the functional hub of the water system by directing the flow through each of the system's main components.

2 Sediment Filter

The primary use is to remove sediment from the water. The secondary use is one of insurance against random increase in particulates on normally sediment free water supplies.

3 GAC Carbon Filter

Remove taste and odor from the water which is the number one issue sited by consumers. The filter also contain acid washed Granular Activated Carbon (GAC) for removal of chlorine and chloramines.

4 Carbon Block Filter

Remove taste and odor from the water which is the number one issue sited by consumers. This filter not only reduces taste and odor from water but also traps any fine particles escaped by sediment filter.

5 100 GPD Membrane Filter

Reduced dissolved substances and other microscopic impurities.

6 Ceramic Filter

Reduces very fine particles from the water.

7 Alkaline Filter

Used for re-mineralization of soft, acidic, or low pH water.

8 Carbon Block Filter

Remove taste and odor from the water which is the number one issue sited by consumers. This filter not only reduces taste and odor from water but also traps any fine particles escaped by sediment filter.

9 Automatic Shutoff

The automatic shutoff (9) automatically stops the flow of water through the water system when the storage tank is full.

Dispenser Faucet

The faucet (10) allows the product water to be drawn from the system with a simple rotation of the handle. This air gap style faucet prevents the unit from siphoning drain water back into the system. It features a built-in siphon break for concentrate discharge as required by most plumbing codes.

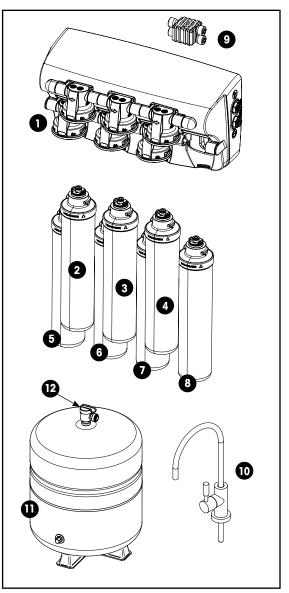
Storage Tank

The storage tank (11) collects and stores the water produced by the water system. A compressed air diaphragm drives the water to the polishing filter and faucet. The ball valve (12) provides a convenient way to lock water in the tank during transport and filter changes.

Ball Valve

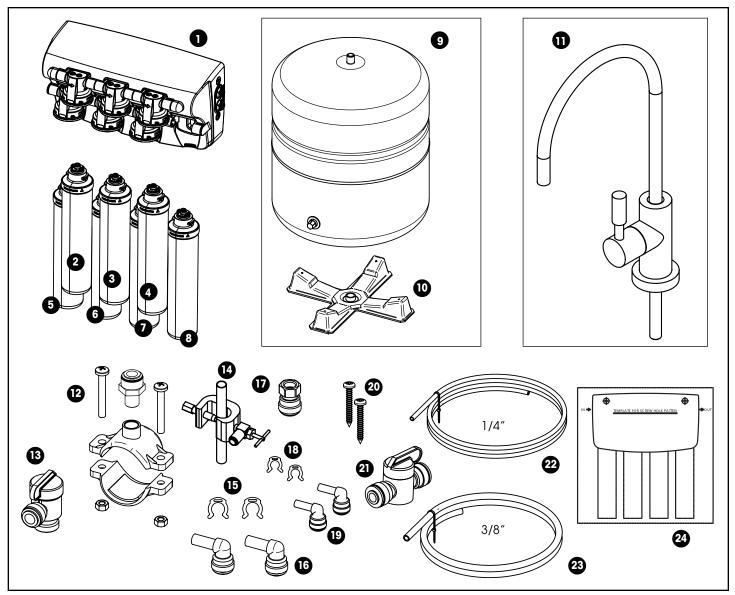
Lock water in the tank during unit maintenance.

NOTE: Cleanliness is essential in the Preparation procedure. Be sure to wash your hands thoroughly before handling filters. The use of surgical gloves is strongly recommended.





Package Contents



- 1. Manifold with Flow Control
- 2. Sediment Filter
- 3. GAC Carbon Filter
- 4. Carbon Block Filter
- 5. 100 GPD Membrane Filter
- 6. Ceramic Filter
- 7. Alkaline Filter
- 8. Carbon Block Filter
- 9. Storage Tank

- 10. Tank Base (Optional)
- 11. Faucet
- 12. Drain Saddle
- 13. Tank Shut-off Valve
- 14. Piercing Saddle Valve
- 15. 2X Locking Clip (3/8")
- 16. 2X 3/8" Elbow
- 17. Faucet Adapter
- 18. 2X Locking Clip (1/4")

- 19. 2X 1/4" Elbow
- 20. 2X #10 Phillips Self Tapping Screws
- 21. Shut off valve 1/4"
- 22. 1/4" Tubing (12 feet)
- 23. 3/8" Tubing (18 feet)
- 24. Installation Template

Product Information

This manual covers the technical aspects of 7QCRO drinking water systems. It is important to read this manual thoroughly so that you can properly apply, install, and service these systems.

The substances reduced by this system are not necessarily in the customer's untreated water.

Warranty

A limited warranty is extended to the original end user. This warranty is printed on the back cover of the Owner's Guide.

Application Guidelines

The system is designed for use on potable water supplies meeting the guidelines outlined in Table 1. The system should be installed on a home's cold water line. The flushing stream should discharge through an approved siphon break. Installation of this system must comply with state and local laws and regulations.

Package Content

The system is shipped from the factory in carton:

NOTE: The filter elements are shipped in their own sealed packaging. This will help to simplify preparation of the system and to maximize the shelf life of the membrane element.

Preparation

Tubing Connectors

The system features reliable and convenient push-to-connect tubing connectors. Tubing is easily connected and disconnected from these fittings as follows.

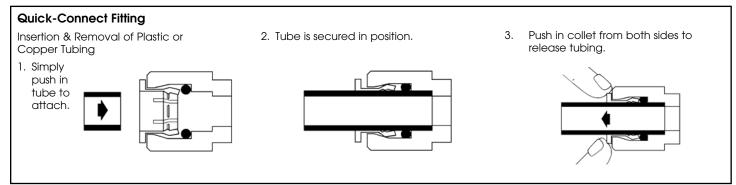


Figure 5

Connect:

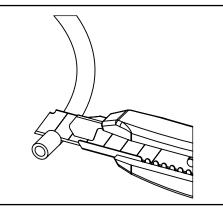
Cut the tubing squarely with a sharp knife. Be careful not to crush the tubing. To avoid leaks, make sure the tubing end is smooth and free of burrs and abrasions. Lubricate the end of the tube with water or a light coat of silicone and push the tube end firmly into the fitting. You should feel it push past the O-ring. Avoid bending the tubing sharply away from the fitting.

Disconnect:

Hold the collar against the fitting body and pull the tube from the fitting.

In the unlikely event that the connection leaks, remove and recut the tubing. Check the inside of the fitting for debris or O-ring damage. Reconnect.

Push-to-connect tubing connectors grip the outside diameter of the tube. To help assure a reliable connection, it is important to use high quality tubing with a consistent outside diameter.

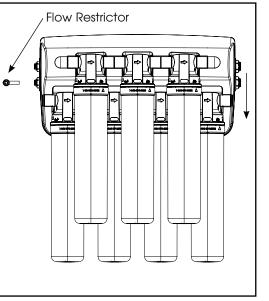


^{1.} Cut tube squarely with a sharp knife.

Verify Flow Control Location

The Water System manifold comes attached with the elbow fitting flow control.

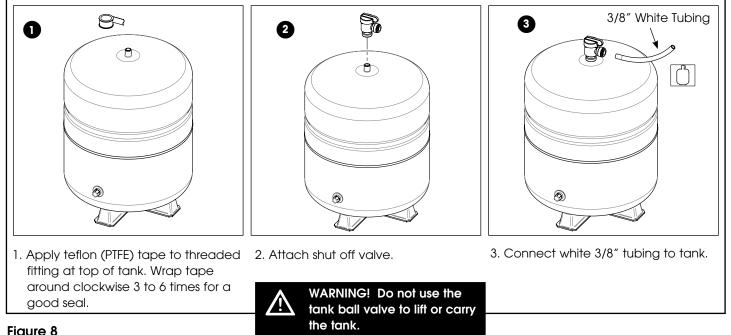
This flow control is attached to the manifold by quick disconnect fitting which allows it to be easily changed. Verify it is properly located in the outlet next to this symbol. h



Storage Tank Preparation

NOTE: Changing the air pressure will alter the amount of water stored in the tank. Increasing the pressure will decrease capacity while decreasing pressure will increase capacity.





Installation

The exact placement of the components will vary by installation. Although shown beneath a sink, it may be installed in a basement, crawl space, or in an adjacent cabinet. Regardless of where the system is installed, the flow sequence described by (figure 9) must be observed.

The drinking water system is designed to be mounted near a sink for easy access to cold water and drain lines. Lengths of 1/4-inch and 3/8-inch OD plastic tubing will be required to make this installation.

Evaluate the installation site to determine the easiest path for the plumbing to follow. Take care to make the installation as neat as possible.

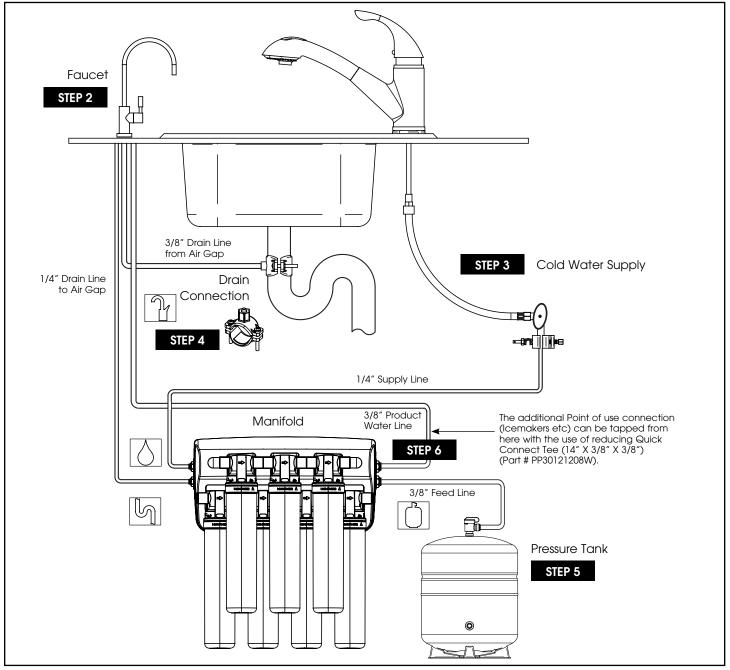


Figure 9

NOTE: Install the 3/8" drain line from the air gap faucet to the drain adapter so that it runs downward with no loops or low spots. Otherwise the unit will overflow at the air gap siphon break built into the faucet, or make irritating gurgling sounds. For standard faucet (non-air gap) installations simply route the drain line directly to the drain connection. The following steps will enable you to install the system quickly and orderly. Some variation may be necessary depending on the installation. See page 6 for a check list of tools.

Typical installations follow this sequence:

- 1. Select Component Installation Locations
- 2. Faucet Installation
- 3. Install Adapter Valve on Water Supply
- 4. Connect System Drain
- 5. Install Reservoir Tank
- 6. Install Filter System Assembly
- 7. Start-Up

Step 1 – Select Component Installation Locations

- **Dispenser Faucet** The faucet is designed to be mounted on the rear lip of the sink. It may be installed in an existing sprayer attachment hole or in a hole drilled at the time of installation. It may also be mounted to an adjacent counter top. It should be positioned so that water is dispensed over the sink. A 7/8" diameter hole is required.
- Important considerations:
 - Access to the bottom (undersink) of the faucet is required for attachment of product water line.
 - There should be no undersink obstructions which would prevent smooth tubing runs to the drain connection, or module assembly.
- Filter System Assembly The filter system assembly is designed to be mounted on any rigid vertical surface such as a cabinet sidewall, sheetrock in exposed stud. It should be positioned such that there is access to an inlet water source and drain. The installation should also allow convenient access for servicing.
- Inlet Water Supply Connection Once a location is chosen for installation of the filter system assembly, select a nearby cold water line to provide the water source for the system.

NOTE: Follow all local plumbing codes when connecting to service water.

• The Reservoir Tank – Position the reservoir tank near the faucet for optimum convenience. The reservoir tank will weigh about 28 pounds (13 kg) when full of water, so it must be positioned on a stand.

The reservoir operates best in the vertical position, but it will operate on its side.

• Drain Connection – The most convenient entry to the drain is directly above the P-trap of the kitchen sink. However, the drain water from the system can be connected to adjacent sinks or a floor drain. Extra care should be taken when entering drains near dishwashers or food waste disposals as back flow may occur through the air gap and cause flooding.

NOTE: Follow all local plumbing codes when connecting to drain.

Step 2 - Faucet Installation

To simplify its access and installation, we suggest you install the faucet on the rear lip of the sink. It should be evenly positioned with the sink faucet and spray attachment. Should the spray faucet hole not be available for the installation, the sink must be drilled.

NOTE: It is recommended retaining the services of a professional counter top craft person when a hole is needed in granite or other specialty counter top materials.

Sink Drilling Instructions

Stainless Steel Sink 3. Drill a 7/8" hole in the sink using a stepped 7/8" drill 2. Center punch hole to 1. Select and mark the bit. If no stepped bit is available, start by drilling proper faucet location. provide a starting point a 1/4" hole. Using this hole as a starting point for your drill. progressively drill larger holes. Increase drill size by

1/8" until you reach a 7/8" hole.

Figure 10

Porcelain Enamel Sink Follow these basic guidelines when drilling a porcelain sink: Pilot Drill Spring Loaded Porcelain Saw Finish Hole Saw Penetrate the porcelain to the base Protect the surrounding porcelain Use the appropriate tool to drill the material. material. base material.

Figure 11

One proven tool is the Relton porcelain cutter kit when used with a slow speed drill (300-400 rpm).

- Drill a pilot hole through the porcelain and base material with the carbide tip drill.
- Build a putty dam around the drill area. Add enough water to lubricate cutters and reduce cutting noise.
- Insert the porcelain cutter into the drill. Place the drill tip in the pilot hole. Check for free movement.
- Apply light pressure to the cutter tool and start the drill motor at low speed (300-400 rpm). When the initial cut has been made in the porcelain, speed may be increased. After a complete ring has been cut through the porcelain, change over to the metal cutter. Avoid contacting the outer rim of cut porcelain when drilling.

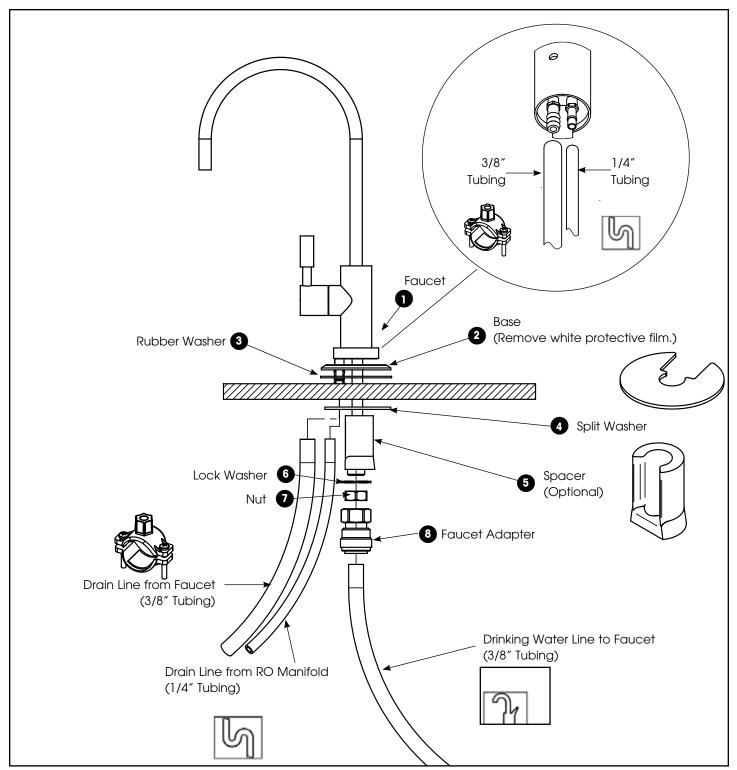


CAUTION! Avoid high drill speed during penetration of porcelain. A single speed drill can be used at a slow speed by switching it on and off quickly.

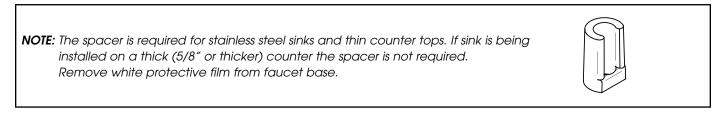
- Use a slow speed and light pressure to cut away the porcelain.
- Stop when you reach the metal under the porcelain. Remove the cutter and clean the porcelain chips from the surface. Continue cutting through the metal.

NOTE: Ceramic tile counters should be treated like porcelain when penetrating the surface, then treated as metal to complete the hole with carbide drills. Formica countertops can be drilled with a high-speed wood drill.

Faucet Installation







Faucet Installation

Remove white protective film from faucet base. Verify faucet body, metal base, and rubber base washer are in place above sink (Items 1, 3, and 2).

Lower faucet into mounting hole and place faucet over hole.

Install slotted washer, spacer, faucet washer, and nut onto faucet nipple below sink and snug them up (Items 4, 5, 6, 7 and 8). Be sure to properly align faucet before tightening. Do not over tighten. Install faucet connector (Item 9), packaged with faucet, onto faucet nipple.

The spacer is typically necessary on stainless steel sinks and thin counter tops. If counter top or sink is too think (5/8" or thicker) remove the spacer from the installation.



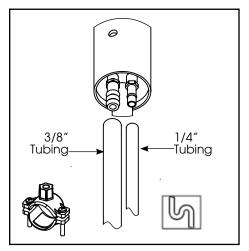
CAUTION! Plastic Parts will break if screws are over tightened!

Tubing Connections

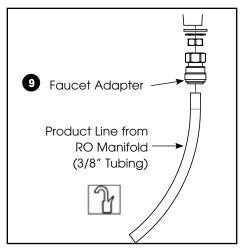
- At the bottom of the faucet assembly you will find three tubing connections;
 2 are barbed and one is a push in type fitting.
- 2. For the Air gap you will use the 2 barb fittings, the smaller fitting is for the 1/4" tubing and will be connected to the RO system. The larger barb fitting will use the 3/8" tubing and will be connected to the drain.

NOTE: If you have difficulty fitting the tubing onto the barbed fittings, try running hot water over the end of the tubes.

NOTE: Cut the tubing to be longer than what you will need because you will be able to trim it after you install the faucet assembly. Prepare the tubing with a fresh cut and make sure that it is free of dirt and any foreign materials.







3. Take another length of 3/8" tubing and make sure it is has a fresh cut and is free of foreign materials and any scratches on the outside surface. Install the tubing into the push in type fitting at the base of the faucet. Make certain that it is inserted all the way in; once inserted give it a slight pull to make sure it is locked into the fitting. You have now completed the tubing connections.

NOTE: To disconnect tubing from the product water fitting, hold the collet firmly against fitting body and pull the tube from the fitting. Repeated assembly and disassembly will cause wear to the inner body. Visually inspect for excessive wear and replace the inner body as needed to protect against any leaks.

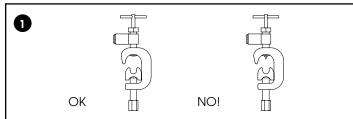
Figure 14

Cleaning the Faucet

Wipe the faucet with a soft cloth, avoid abrasive cleansers.

Step 3 - Install Adapter Valve on Water Supply

1. Locate shut off valves on water lines under sink. To identify hot & cold supply pipes, turn on both faucets and let water run. Hot water pipe will be the warmer pipe. Turn off cold water supply valve. Open sink faucet to drain line. Some mixing faucets may require shutting off the hot water valve as well.



CAUTION! Do not turn valve handle before or

Figure 15

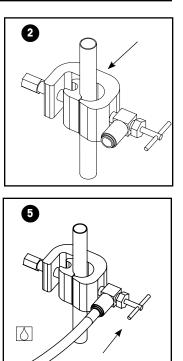


CAUTION! If no shut off valve is installed under sink, close main water valve. Do not install feed water assembly on hot water line.

- 2. Hold saddle valve against pipe.
- 3. Slide back plate into position.
 - Use small radius side for 3/8" copper pipe.
 - Use large radius side for 1/2"copper pipe.
- 4. Tighten screw firmly so saddle valve is held securely in place. Do not crush tube.
- 5. Connect feed tubing to valve body using quick connect.

NOTE: Do not use brass sleeve on plastic tubing.

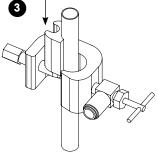
Figure 16

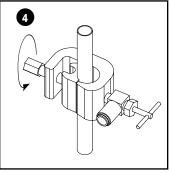


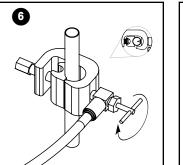
6. Turn handle clockwise until firmly seated and piercing valve has extended fully.

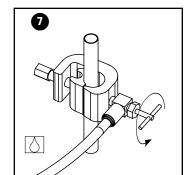
Step 4 - Connect System Drain

during installation of saddle valve. Be sure piercing lance does not protrude prior to installing valve.









7. Once all lines are connected to the RO system turn on cold water supply. Turn Valve counter-clockwise and check for any leaks. Run water from the faucet to clear any debris caused by installation.

NOTE: If flow from sink faucet isreduced, clean faucet aerator.

Plumbing codes require that the drain from water system be discharged through an air gap siphon break. The faucet incorporates an air gap into its body. The discharge from the air gap must be connected to the plumbing system for proper drainage. This connection can usually be made beneath the sink. Incorrect installation may result in overflow of the air gap or excessive noise. If the concentrate water is discharged to an open drain, the air gap may not be necessary.

For Air Gap installations select the 3/8" saddle, for Standard installations use the 1/4" saddle.

Connections to undersink plumbing can be made with a saddle clamp designed to accept the drain tubing from the faucet. Drain Saddle Kit is supplied for 1-1/2" undersink drain plumbing (Figure 18). **Be sure to check and follow local** *plumbing codes prior to installation.*

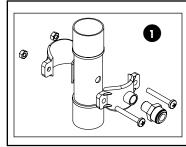


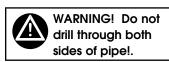
Figure 17

 Install the drain saddle valve on to the drain pipe. See figure 7 on page 11 for its location. Use 3/8" saddle for air gap faucets or 1/4" saddle for standard faucets.

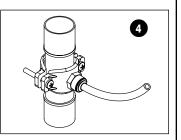


2. Tighten the clamps with the help of the two bolts.

2



- 3. For standard faucets drill a 1/4" hole through one side of the pipe. For air gap faucets drill a 3/8" hole. The drill should be kept straight and centered to avoid damaging the saddle valve. Do not drill through both sides of the pipe!



4. Attach 3/8" tube by slipping the tube through the black compression nut and hand tighten the nut on to the saddle valve.

CAUTION: The drill should be kept straight and centered to avoid damaging the saddle valve.

Many homes are equipped with disposals and dishwashers. Special care must be taken when these appliances are present to prevent improper air gap performance. Home drain plumbing must be free of any blockage since this may cause a backup of dishwasher and disposal waste into the air gap outlet tube and result in improper air gap performance.

To perform a simple drain check, fill the sink basin with several inches of water, pull the plug, and observe the drainage. If water backs up into the second sink (if present), or if drainage is slow or there is excessive gurgling, drain blockage may be present.

Undersink drain plumbing usually resembles one of the following descriptions. In all cases, the drain tubing from the air gap (water system outlet) should run downward, free of dips and loops. The air gap outlet must not be connected to the effluent side of the trap. This can vent sewer gas, which will produce foul odors.

Single basin sink without disposal

- Connect the water system outlet to the tailpiece directly beneath the sink.
- If a dishwasher drain connection is present, the water system outlet must be connected above it.

Single basin sink with disposal

- Connect the water system outlet to the dishwasher drain port on the disposal if available.
- If the dishwasher drain port is not available, other arrangements must be made such as running the water system outlet to a basement sump.
- Do not connect the water system outlet to the plumbing below the disposal.

Double basin sink with disposal, single trap

- The fitting which joins the drains from the disposal and second sink should be directional. If not, then we recommend that it be replaced.
- Connect the water system outlet to the tailpiece just below the second sink.
- If a dishwasher drain is present and cannot be relocated, the water system outlet must be connected above it.
- Do not connect the water system outlet to the horizontal plumbing between the two sink drains.

Sink Disposal Do not install here Install here



Double basin sink with disposal, double trap

- Connect the water system outlet to the tailpiece just below the second sink.
- If a dishwasher drain is present and cannot be relocated, the water system outlet must be connected above it.

Step 5 - Install Reservoir Tank

Place the reservoir tank in the location previously selected.

Step 6 - Install Filter System Assembly

The mounting bracket contains four mounting slots. The holes are sized to accept #10 round head wood screws (supplied). Some types of surfaces such as particle board or drywall, may require the use of plastic screw anchors or toggle bolts to provide adequate support for the unit.

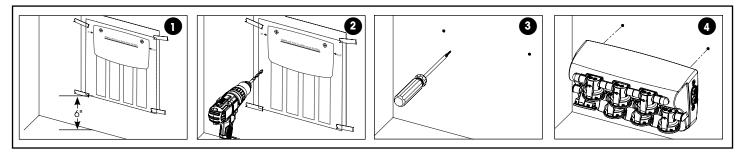


Figure 19

- 1. Tape the paper template included with this unit to the wall at desired location. Be sure to leave adequate space (9 1/2" or more from the centerline) on both sides of the template.
- 2. Drill 1/8" hole at each location as indicated on the template.
- 3. Remove template. Thread one of the included wood screws into each hole leaving approximately a 1/2" space between the screw head and mounting surface.
- 4. Hang the manifold on the mounting screws. If unit is loose, tighten the screws further.

Install Filter Cartridges

Push the cartridge (1) and twist (2) to lock into the manifold (as shown)

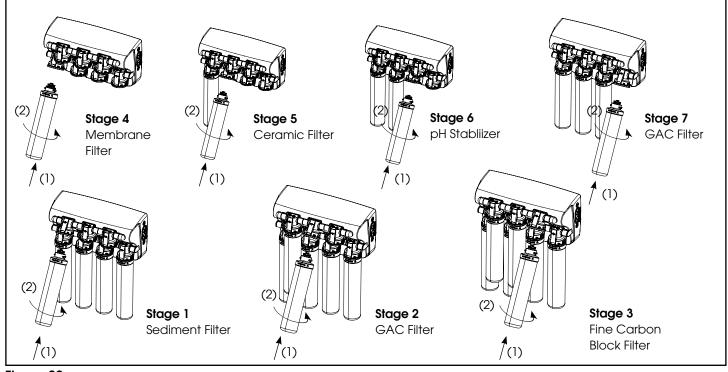
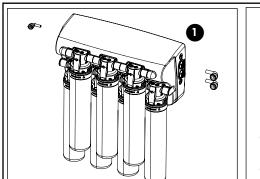


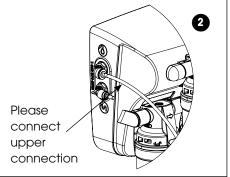
Figure 20

Connect System

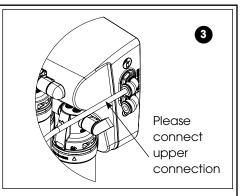
When cutting plastic tubing, use a sharp utility knife. Cut the tubing squarely. See page 7 for cutting and connecting tubing.



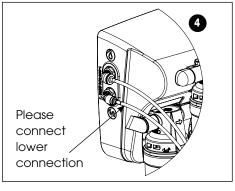
1. Connect quick connect elbows to the three open connection locations on the unit. Firmly push the fittings into place, then pull back lightly to lock them in.



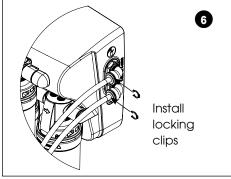
2. Connect 1/4-inch OD plastic tubing from the feed water supply source to the system inlet on the manifold.



3. Connect 3/8-inch OD plastic tubing from the product water faucet to the manifold.



- Connect the 1/4" OD tubing from the air gap inlet of the faucet to the concentrate outlet on the RO manifold.
- Please connect lower connection
- Connect the 3/8" OD product water tube from the tank to the manifold.



 Attach locking clips to each elbow fitting. Do not attach one to the blue flow control. Clips should slide in behind collet on the fittings.

Figure 21

Step 7 - Start-Up

- 1. Sanitize the storage tank (see page 23 and 25 for sanitization procedure).
- 2. Check system to verify all components are correctly installed
- 3. Open inlet valve and tank valve.
- 4. Check system thoroughly for leaks. If any are found, shut off both inlet and tank valves and correct the issue.
- Allow system to run & fill tank for 1-2 hours. You will hear the water running to drain while the unit is running. Once the water stops running to drain the tank is full.
- 6. Open faucet to flush carbon fines & sanitization solution. Once the flow begins to slow down (around 20 minutes after opening) turn off the faucet.
- 7. Refer to optional flushing instructions on page 28.
- 8. Allow the tank to fill completely again.
- 9. Once full, open the faucet and allow the water to run for 24 hours to break-in the RO membrane and completely flush the system. This will allow your system to run at optimal efficiency.
- 10. Close faucet and allow tank to fill.
- 11. System is ready to use

NOTE: It is normal if the air gap faucet makes gurgling noises and drips small amounts of water during start-up procedure. This should subside once start-up procedure is complete.

WARNING! Do not drink water produced by the system until the start-up procedure has been followed completely!

DO NOT USE THE FIRST TWO STORAGE TANKS OF WATER

Performance & Technical Information

The performance of the system can be characterized and judged by the quality and quantity of the water produced by the system. By measuring the contaminant removal performance and flow rates of the system, its operating status can be easily evaluated.

Factors Which Affect Performance

Performance of the reverse osmosis membrane is affected by several factors which must be considered when judging the condition of the system. The main factors which affect system performance are pressure, temperature, total dissolved solids level, recovery and pH.

Pressure

Water pressure affects both the quantity and quality of the water produced by the membrane. Generally, the more water pressure, the better the performance of the system. Be careful not to go below 40 psi or exceed 100 psi, the minimum and maximum operating pressure of the system.

Temperature

The reverse osmosis process slows with decreasing temperature. To compensate, a temperature correction factor is used to adjust the actual performance of the membrane filter to the standard temperature of 77°F (25°C). This allows the performance of the unit to be accurately gauged against published standards. Temperature does not affect the concentrate flow rate.

Total Dissolved Solids

The minimum driving force which is necessary to stop or reverse the natural osmosis process is termed osmotic pressure. As the total dissolved solids level of the feed water increases, the amount of osmotic pressure increases and acts as back pressure against the reverse osmosis process. Osmotic pressure becomes significant at TDS levels above 500 mg/L (ppm).

Hardness

Hardness is the most common membrane foulant. If ignored, this relatively harmless component of feed water will scale a membrane over time. Use of a softener will reduce the fouling effect on a membrane. One way to detect too much hardness in the feed water is the weight of a membrane installed for a period of time. A fouled membrane (dried) will weigh significantly more than a new membrane. The increase in weight is a result of precipitated hardness inside the membrane.

Iron

Iron is another common membrane foulant. There are a variety of types of iron, some of which cannot be removed by an iron filter. Clear water iron can be removed more effectively by a softener. Particulate iron can be removed more effectively by a 1 micron filter. Organic-bound iron can be removed only by activated carbon or macroporous anion resin. If there is enough iron to exceed the EPA secondary drinking water standard and softening the water is not an option and the iron is soluble, then an iron filter is appropriate. If none of these are an option then regular replacement of membranes will have to be accepted.

NOTE: Increased weight of the cartridge may be a foulant other than hardness.

Product Water Recovery

Product water recovery plays an important role in determining membrane and system performance. Recovery refers to the amount of water produced in relation to the amount of water sent to drain. The standard calculation is:

% Recovery = Product Water ÷ (Product Water + Waste Water) x 100

The system uses a flow control assembly to restrict the flow of waste water to the drain. This restriction helps maintain pressure against the membrane. The sizing of the flow control assembly determines the recovery rating of the system. The system is manufactured with a recovery rating designed to be around 25%. Depending on temperature, pressure and tolerances the actual recovery value may be slightly different for each system.

Performance Measurements

When collecting water samples from the manifold, insert a short 2"-3" length of tubing into the fitting on the manifold to catch the water sample.

TDS can be measured with an electronic TDS meter. PN 66760

Installing the Water System to Service Other Water Using Appliances

Pressure, Pressure, Pressure

If you are installing a service line from an the Water System storage tank to an appliance with a minimum pressure requirement then you may need to consider the following options so as not to operate below the operating limits of that appliance.

Installation of a booster pump (92325)

Placing this pump before the Water System will increases overall pressure to the system. If you boost the water pressure from 40 to 80, then the full pressure in the storage tank will be around 53 psi. Increasing the overall pressure in the system will allow more volume to be drawn from the tank before the pressure dips below a shutoff value.

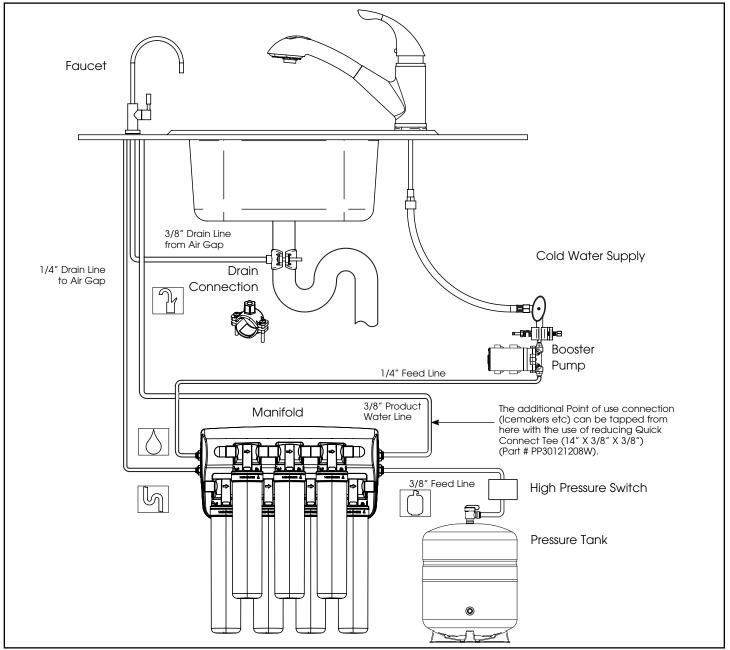


Figure 22

ADDITIONAL POINT OF USE CONNECTION (Fittings and tubing for additional point of use connection is not supplied with this system) NOTE: Icemakers typically use 1/4" tubing as feed line.

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 PP30121208W) in 3/8" blue line between faucet and Module.

2. Connect "tee" to point-of-use with 1/4" tubing. Connect tubing to point-of-use. If point of use connection requires 3/8" fitting, use of 3/8" Tee and 3/8" tubing

Service and Maintenance

Service Schedule

To keep the water system operating properly, it is necessary to change the filters and sanitize the system periodically. Typically, this should be done on an annual basis. Service frequency may vary depending on local water conditions. High sediment, chlorine, turbidity, or hardness levels may require more frequent service. Use the following as a guide.

As needed

Clean the faucet with a soft cloth, avoid abrasive cleaners.

After	7,570 liters (2,000 gallons)
Replace	
Stage 1 Sediment Filter (940477)	
Stage 2 Carbon Block Filter (940478)	
Stage 3 Fine Carbon Block Filter (940479)	
Stage 7 Carbon Block Filter (940483)	

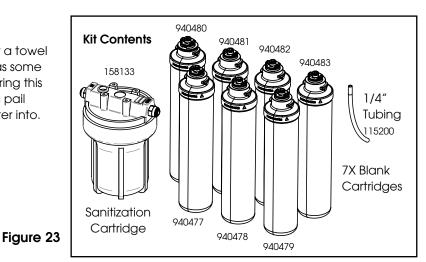
After 5,678 liters (1,500 gallons)			
Replace	Check	Sanitize the system	
Stage 5 Ceramic Block Filter (940481)	 At least once in 12 months 		
• Stage 6 pH Stabilizer (940482)	 TDS of incoming and product water 		
	Tank Pressure		

NOTE: The reverse osmosis membrane (Stage 4) Part # 940480 is recommended to be changed after 37,000 liters (10,000 gallons).

Drinking Water System Sanitization Kit (PN: 42903018)

Preparation

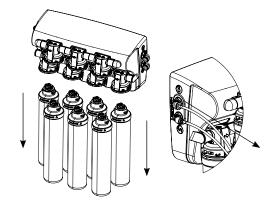
Place some rags or a towel below the system as some water may leak during this procedure. Have a pail handy to drain water into.



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Procedure

• Shut off the water supply to the system at the adapter valve. Open the faucet and allow the system to drain completely. Shut off the faucet once drained.

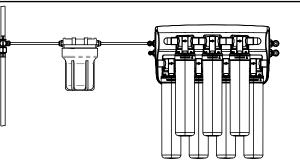


Disconnect all 4 cartridges and replace them with the blank cartridges included in this kit. Disconnect the inlet line from the system and drain excess water into a pail.

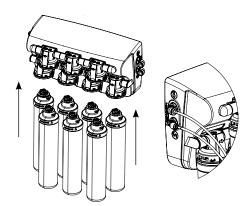
NOTE: If sanitizing unit be sure to insert proper blank cartridge in stage 4.



Add either ½1/2 teaspoon of household bleach or 1 packet of Sani-System Liquid Concentrate (#50035) to the clear sanitization cartridge and seal the cartridge tightly.

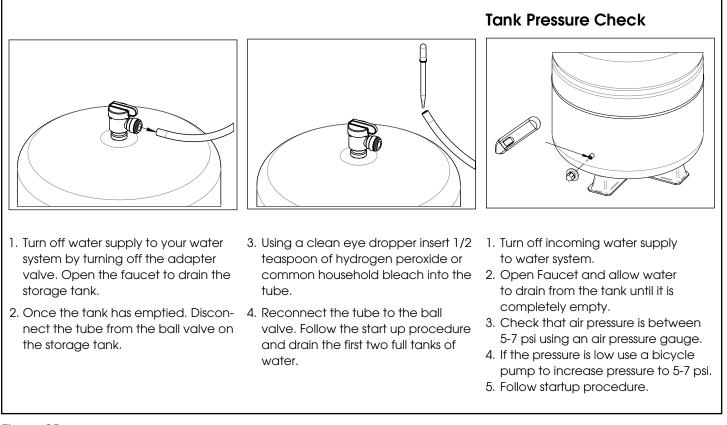


- Using the tubing included in the kit, connect the sanitization cartridge between the adapter valve and the inlet
 port on the system.
- Turn on the water at the adapter valve. If sanitizing an RO allow the system to fill the tank for 30 minutes. Next, turn on the faucet and allow the system to run for 30 minutes.
- **6** Leaving the faucet open, shut off inlet water and let the system drain completely.

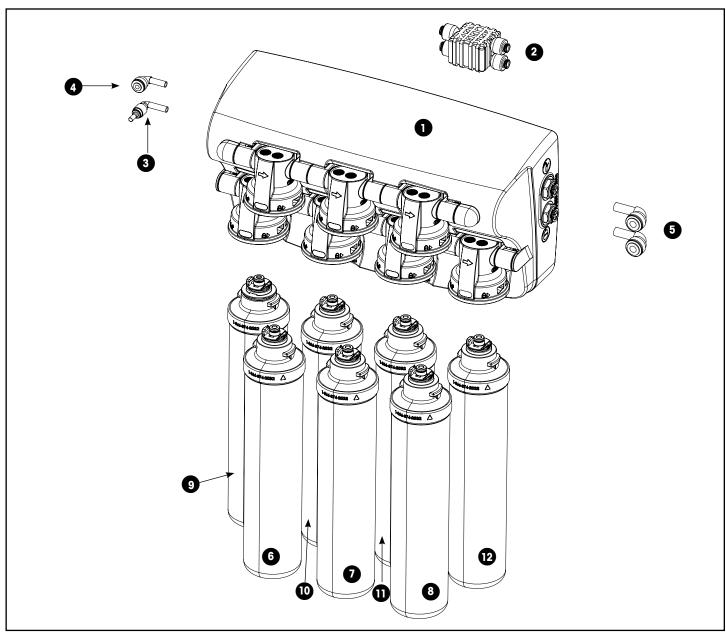


- Disconnect the sanitization cartridge from the inlet line and system. Reconnect the inlet line to the system and replace cartridges on system.
- 3 Turn on the inlet water and check for leaks. If sanitizing an RO, allow the tank to fill for 30 minutes and discard the first tank. Allow tank to refill for 30 minutes.

Your system is now clean and ready to use!



Parts Breakdown



#	Item #	Description	Qty.
1	940476	Manifold 7QCRO	1
2	92223	Valve Auto Shut-off	1
3	92800	Fitting, Drain Control	1
4	PP220808W	Elbow, 1/4" Stem	2
5	PP221212W	Elbow, 3/8" Stem	2
6	940477	CARTRIDGE, SEDIMENT, 7QCRO, 1ST STAGE	Filter Stage #1
7	940478	CARTRIDGE, GAC, 7QCRO, 2ND STAGE	Filter Stage #2
8	940479	CARTRIDGE, CARBON BLOCK, 7QCRO, 3RD STAGE	Filter Stage #3
9	940480	CARTRIDGE, MEMBRANE, 7QCRO, 4TH STAGE	Filter Stage #4
10	940481	CARTRIDGE, CERAMIC, 7QCRO, 5TH STAGE	Filter Stage #5
11	940482	CARTRIDGE, ALKALINE, 7QCRO, 6TH STAGE	Filter Stage #6
12	940483	CARTRIDGE, CARBON BLOCK, 7QCRO, 7TH STAGE	Filter Stage #7

Packaging Kit BOM

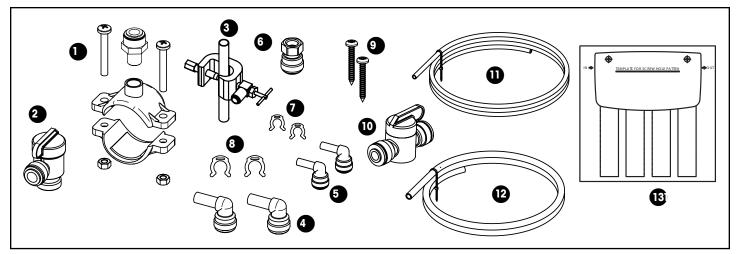
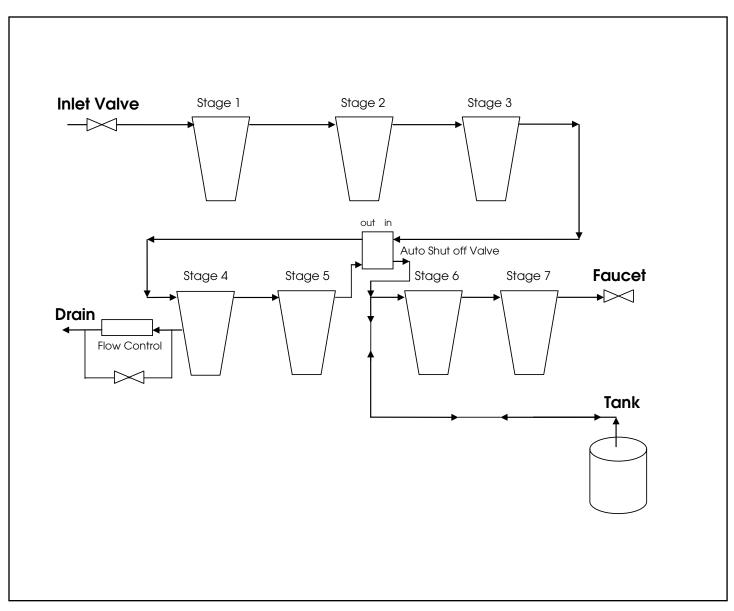


Figure 27

Item #	Description	Item #	Qty.
1	Drain Saddle	92656	1
2	Tank Shut-off Valve	PPSV501222W	1
3	Piercing Saddle Valve	92655	1
4	2X 3/8" Elbow	PP221212W	2
5	2X 1/4" Elbow	PP220808W	2
6	Faucet Adapter	PP3212U7W	1
7 2X Locking Clip (1/4")		PIC1808R	2
8 2X Locking Clip (3/8")		PIC1812R	2
9 2X #10 Phillips Self Tapping crews			2
10	Shut Off Valve, 1/4" QC	PPSV040808W	1
11 1/4" Tubing		92600	12 ft.
12	3/8" Tubing	115207	18 ft.
13 Installation Template		52384	1

Table 4



7 Stage Water Filtration System Flow Diagram

Figure 28

Refer to page 3 of this manual on the description and function of stages.

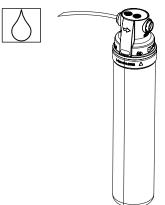
Optional Flushing Instructions

Flush Type	Required for	Procedure	Time
Single Filter	Flush fines from Carbon and	See Single Filter Procedure	5 Minutes
	Ceramic filters. Optional.		for each filter

Table 5

Single Filter Procedure:

If flushing Filter Stage # 1, 2, 3, 5, 6 and 7 use part number 940484. If flushing Filter Stage # 4 use Part Number 940485. Connect the ¼" tube from the inlet saddle valve and let the water run through the filter for five minutes.



Troubleshooting Guide

If a problem cannot be corrected through the use of this troubleshooting guide please have the following information ready prior to calling the 1-800 number on the back of this manual:

- Serial #
- Model #

Table 6

Problem	Possible Cause	Remedy
1. Insufficient quantity of	a. Service greater than unit's specified output.	a. Use optional large tank for more storage capacity.
product water available to service.	b. Insufficient feed water flow.	 b. 1. Clogged shut-off valve or feed tubing; clean out or replace. 2. Clogged prefilter; replace. 3. Clogged manifold; clean or replace.
	c. Insufficient feed water pressure	c. 1. Same as (b) above.2. Change in line pressure; install booster pump.
	d. Increase in feed water TDS.	d. 1. Same as (a) above.2. Install booster pump.
	e. Reduced feed water temperature.	e. Same as above.
	f. Plugged prefilter.	f. Replace filter element.
	g. Plugged polishing filter.	g. Replace polishing filter.
	h. RO membrane fouled with sediment.	h. Replace RO membrane and prefilter elements.
	i. Shutoff malfunction.	i. Clean or replace shutoff.
2. Poor product	a. All of (1) above except (a) and (e).	a. All of (1) above except (a), (e), and (g).
water quality.	b. RO membrane filter worn out.	b. Replace RO membrane.
	d. Shutoff malfunction.	d. Replace shutoff.
3. Bad tasting product water.	a. Decrease in product quality; see (2) above.	a. Same as (2) above.
	b. Foreign matter in storage tank.	b. Clean, sanitize, and flush storage tank.
	c. Polishing filter exhausted.	c. Replace polishing filter
	d. Plugged capillary tube.	d. Replace capillary tube; replace prefilter, if necessary.
	e. Storage tank bladder is ruptured.	e. Replace storage tank and check precharge pressure.

Problem		Possible Cause	Ren	nedy			
4.	External leakage.	a. Tubing not fully seated in fitting	a. Check all fittings for tightness.				
		b. Tubing abraded in seal area.	b.	Recut tubing and redo connection.			
5.	Overflow at faucet air gap (gurgling sounds).	a. Concentrate tubing plugged.	a.	Clean concentrate tubing of debris.			
		b. Air gap plugged.	b.	Clean with vinegar and/or soap.			
		c. Concentrate tubing not in continuous downward slope.	C.	Eliminate loops or low spots in tubing.			
		d. Obstructed home drain pipe.	d.	Free obstruction.			
6.	Foaming at faucet tip.	a. Storage tank is positioned on side (Dissolved air cannot escape.)	a.	Place tank in vertical position.			
7.	Foaming at air- gap	a. Concentrate tubing connected to same drain line as dishwasher, etc.	a.	Find different drain for system.			
		b. When sink is full of soapy water and plug is pulled, can back up at air-gap.	b.	Obstructed home drain, free obstruction.			
		c. Obstructed home drain.	C.	Free obstruction.			
8.	Bad smell from product water.	a. Polishing filter exhausted.	a.	Replace polishing filter.			
		b. Prefilter element.	b.	Replace filter element.			
		c. Unit needs disinfection.	C.	Sanitize unit.			
9.	Fast flow to drain.	a. Defective flow control assembly.	a.	Replace flow control assembly.			
10.	Black specks in product water.	a. Carbon fines.	a.	Flush polishing filter.			
11.	Low faucet pressure.	 a. Inadequate pre-charge pressure in storage tank. 	а.	Determine the minimum pressure using the 70% guideline.			
		b. Polishing filter plugged.	b.	Replace polishing filter.			
12.	Flow control plugging.	a. Excessive turbidity.	-	Install another 5 micron filter in series with existing one or substitute carbon block filter for granular activated carbon filter.			
		b. Iron fouled.	b.	Pretreat for iron removal.			
		c. Iron-bacteria fouled.	C.	Sanitize plumbing.			

IMPORTANT NOTE:

This service record is your warranty. it is your (the customer's) responsibility to keep the below chart up to date in order to receive the benefitS of the warranty described on the next page. It is the customers' responsibility to see that the chart below is KEPT up-TO-date.

SERVICE RECORD												
	Membrane Post Filter Service Date											
MM/DD/YY	SED	CAR	BLOC	Installed by	Customer Initials	MM/DD/YY	MEM	CER	ALK	CAR	Installed by	Customer Initials

Serial # /	Installed by (PRINT) /
Installation Date /	Distributor Name /
Customer Name /	Distributor Address /
Customer Address /	Distributor Phone Number /

To order replacement parts, refer to distributor information above.

Notes

Limited Lifetime Warranty

Subject to the conditions and limitations described below, we warrant its Model 7QCRO 7 Stage Water Filtration Systems (excluding replacement membrane, cartridge and inline filters), when installed in accordance with our specifications, to be free from defects in materials and workmanship under normal use within the operating specifications for a lifetime period provided that our approved filters and TFC membrane service is done in a timely manner as described in this manual, by an authorized dealer and the service record sheet is up to date. The membrane and filters come with a warranty of one year under the conditions stated above. It is the customers responsibility to ensure that our approved parts are used.

Use of non-brand approved replacement parts will void all warranties.

ANY WARRANTY IMPLIED OR EXPRESSED OTHER THAN THE WARRANTY PROVIDED BY US (MANUFACTURER) IS THE SOLE RESPONSIBILITY OF SELLING DEALER AND DISTRIBUTOR.

THIS WARRANTY IS FULLY TRANSFERABLE IF A PROOF OF PURCHASE IS FURNISHED AND THE SERVICE RECORD IS KEPT UP-TO-DATE BY THE END USER.

IF THE 7 STAGE WATER FILTRATION SYSTEM IS DESTROYED BY A RESIDENTIAL FIRE, IT WILL BE REPLACED BY US (MANUFACTURER) UPON VERIFICATION FROM THE FIRE DEPARTMENT.

SHOULD YOU AT ANYTIME DECIDE TO TRADE THIS 7 STAGE WATER FILTRATION SYSTEM MODEL WITH A NEW 7 STAGE WATER FILTRATION SYSTEM MODEL, THIS WARRANTS THAT YOU SHALL RECEIVE A 50% DISCOUNT OFF THE CURRENT RETAIL PRICE OF THE NEW MODEL AS A TRADE-IN ALLOWANCE (NO CASH VALUE).

Any other part found defective within the terms of this warranty will be repaired or replaced by us or its dealers. If any part is found defective, we also reserve the right to replace the drinking water appliance with a comparable 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, 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 our specifications. If the drinking water system is altered by anyone other than us or its dealers the warranty shall be void.

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.

OUR 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 provinces/states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Similarly, some provinces/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 province to province or state to state.

For questions or in case of emergency, please refer to the service record page.



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