

# Pro Elite™

## DRINKING WATER SYSTEM MODEL RO-450

INSTALLATION, OPERATION & SERVICE MANUAL



Tested and certified by NSF International against NSF/ANSI Standard 58 for the reduction of the claims specified on the Performance Data Sheet.

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## **CAUTION:**

The Centers for Disease Control and Prevention (CDC) and the Environmental Protection Agency (EPA) have issued guidance to people with severely weakened immune systems who may want to take extra precautions to reduce the risk of infection with Cryptosporidium from drinking water. This guidance pertains to people with HIV/AIDS, patients receiving treatment for cancer, recipients of organ or bone marrow transplants, transplant patients taking immunosuppressive drugs, and persons who have congenital immunodeficiencies.

The EPA has stated that they do not know the significance of drinking water compared to other possible sources of Cryptosporidium to determine how most people become infected. The CDC-EPA guidance suggests that immunosuppressed individuals discuss their risks with their health care provider.

This drinking water system is tested and Certified by NSF International to NSF/ANSI Standard 58 for cyst reduction. It meets the NSF/ANSI standard of reducing at least 99.95%\* of cysts (including Cryptosporidium), however, because this is not 100%, immunosuppressed individuals should take the extra precaution of boiling their drinking water. According to the CDC-EPA, bringing water to a rolling boil for one minute is the most certain approach for killing Cryptosporidium.

All individuals should take adequate precautions when changing the filter cartridges, including wearing protective gloves, to avoid direct contact with the exhausted cartridges.

\*For complete specifications, refer to the Performance Data Sheet.

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## SECTION I. INTRODUCTION

Your new Reverse Osmosis (R.O.) Drinking Water System uses a combination of filtration technologies to reduce unwanted contaminants in a water supply. The following steps combine to give you the best in clear sparkling drinking water:

**MECHANICAL FILTRATION/ACTIVATED CARBON**—The sediment/carbon module is designed to reduce the larger particles such as silt, rust and scale. Its 5 micron (equal to 0.0002 inch) nominal rating helps to give maximum life to the R.O. Membrane. The activated carbon in the Module has been designed to reduce any chlorine that may be present in the feed water. This pretreatment is also necessary for membrane protection.

**REVERSE OSMOSIS MEMBRANE**—The R.O. Membrane is the heart of the filtration system. It is designed to reduce the dissolved mineral content of the water. Minerals picked up in the environment by the water are measured as Total Dissolved Solids (TDS). In the Reverse Osmosis process, dissolved minerals are separated from the incoming water (Feed Water) to produce the product water (the Permeate). The excess minerals are rinsed to drain (the Reject Water).

The membrane is a specially constructed, fully aromatic polyamide film, and is classified as a Thin Film Composite (T.F.C.).

The spiral wound construction of the R.O. Membrane provides maximum surface area for water production and is less susceptible to fouling by particulate matter, turbidity and colloidal materials.

**ACTIVATED CARBON**—The Activated Carbon Module contains carbon particles with a vast network of pores. The tremendous surface area of these pores (typically 800–1200 square meters per gram of carbon) gives the carbon very good adsorptive sites for substances that contribute to tastes and odors.

**IN-LINE ACTIVATED CARBON POST FILTER**—The In-Line Activated Carbon Post Filter is located after the Holding Tank and has been designed to reduce the tastes and odors that may pass through the system. It adds a final polish to the water.

**AUTOMATIC SHUTOFF VALVE**—The ASO Valve senses when the Holding Tank is full and closes the feed water supply to prevent excess reject water from going to drain when the unit is not producing water.

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## **IMPORTANT NOTICES:**

This reverse osmosis system contains replaceable treatment components critical for effective performance. It is the user's responsibility to, and the manufacturer strongly recommends that the user, periodically test the product water to verify the system is performing satisfactorily. See the test kit(s) for sampling instructions.

This system is acceptable for treatment of influent concentrations of no more than 27 mg/L nitrate and 3 mg/L nitrite in combination measured as N and is certified for nitrate/nitrite reduction only for water supplies with a pressure of 280 kPa (40 psig) or greater.

This system conforms to NSF/ANSI Standard 58 for pentavalent arsenic reduction. See the Performance Data Sheet and Arsenic Facts section for an explanation of reduction performance.

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

Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.

## SSECTION II. SPECIFICATIONS

### TABLE A – QUALIFIED SYSTEM PERFORMANCE

Because the performance of an R.O. Membrane is highly dependent upon pressure, temperature and TDS, the following should be used for comparison purposes only.

	U.S.	Metric
Membrane Production <sup>1</sup>	41-53 gpd	155–201 lpd
Membrane TDS Reduction <sup>1</sup>	96% minimum	96% minimum
System Production <sup>2</sup>	12 gpd	45 lpd
Recovery Rating <sup>2</sup>	30%	30%
Efficiency Rating <sup>2</sup>	14%	14%
TDS Reduction <sup>2</sup>	90%+ typical	90%+ typical
Drain (reject water) Flow	3–5 x product flow	3–5 x product flow
Empty Storage Tank Precharge	5–7 psig air	35–48 kPa air
Storage Tank Capacity <sup>2</sup>	1.7 gallons	6.4 liters

<sup>1</sup> Industry standards measure R.O. Membranes performance with no backpressure on the product water, at 65 psig (448kPa) and 77°F (25°C). Further conditions on the above are 250 ppm TDS. Production rate and TDS reduction figures are for a new Membrane that has been rinsed for 24 hours. The production rate of a new Membrane can decrease by 10% per year or more, depending upon the scaling and fouling tendencies of the Feed Water.

<sup>2</sup> Measured at 50 psig, 77°±2° F, 750±40 mg/l TDS per section 6 of NSF/ANSI Standard 58. 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. 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. This reverse osmosis system contains a replaceable component critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specifications, as defined by the manufacturer, to assure the same efficiency and contaminant reduction performance.

### TABLE B – RECOMMENDED OPERATING LIMITS FOR FEED WATER

Specifications	T.F.C. Membrane
Water Pressure	40–100 psig (280–690 kPa)
TDS	2000 ppm (also mg/l) max.
Temperature	40–100°F (4–38°C)
pH	4–11 (optimum rejection at pH 7.0 - 7.5)
Hardness	Less than 10 gpg (170 mg/l) or soften
Iron	Less than 0.1 ppm (also mg/l)
Manganese	Less than 0.05 ppm (also mg/l)
Hydrogen Sulfide	None
Chlorine	See note
Bacteria	Must be potable**

**NOTE: Chlorine will damage a T.F.C. Membrane. The Sediment/Carbon Prefilter has been designed to reduce chlorine from the incoming water. Change filter every 6 to 12 months, more often if the water contains more than 1 ppm chlorine.**

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

## SECTION III. PREPARATION

### A. Major System Components

The following components comprise the R.O. Drinking Water System. (Refer to Fig. 1, below for general system layout.)

- An R.O. Manifold assembly.
- Housings and Housing O-rings.
- A Drinking Water Holding Tank.
- A Dispensing Faucet.\*
- A Feed Water Valve.\*
- A Drain Clamp.
- Plastic Tubing and tube connectors.

- A Reverse Osmosis Membrane sealed in a plastic bag.
- A Sediment/Carbon Module, shrink wrapped.
- An Activated Carbon Module, shrink wrapped.
- An In-Line Activated Carbon Post Filter, shrink wrapped.
- Other items necessary for installation may include wood screws or machine screws and nuts for mounting the manifold, or concrete anchors for hanging on basement wall. Additional tubing or tube connectors. Plastic wire ties for organizing tubing.

\* Not part of this certified system.

### TYPICAL RO-450 UNDER SINK INSTALLATION DIAGRAM

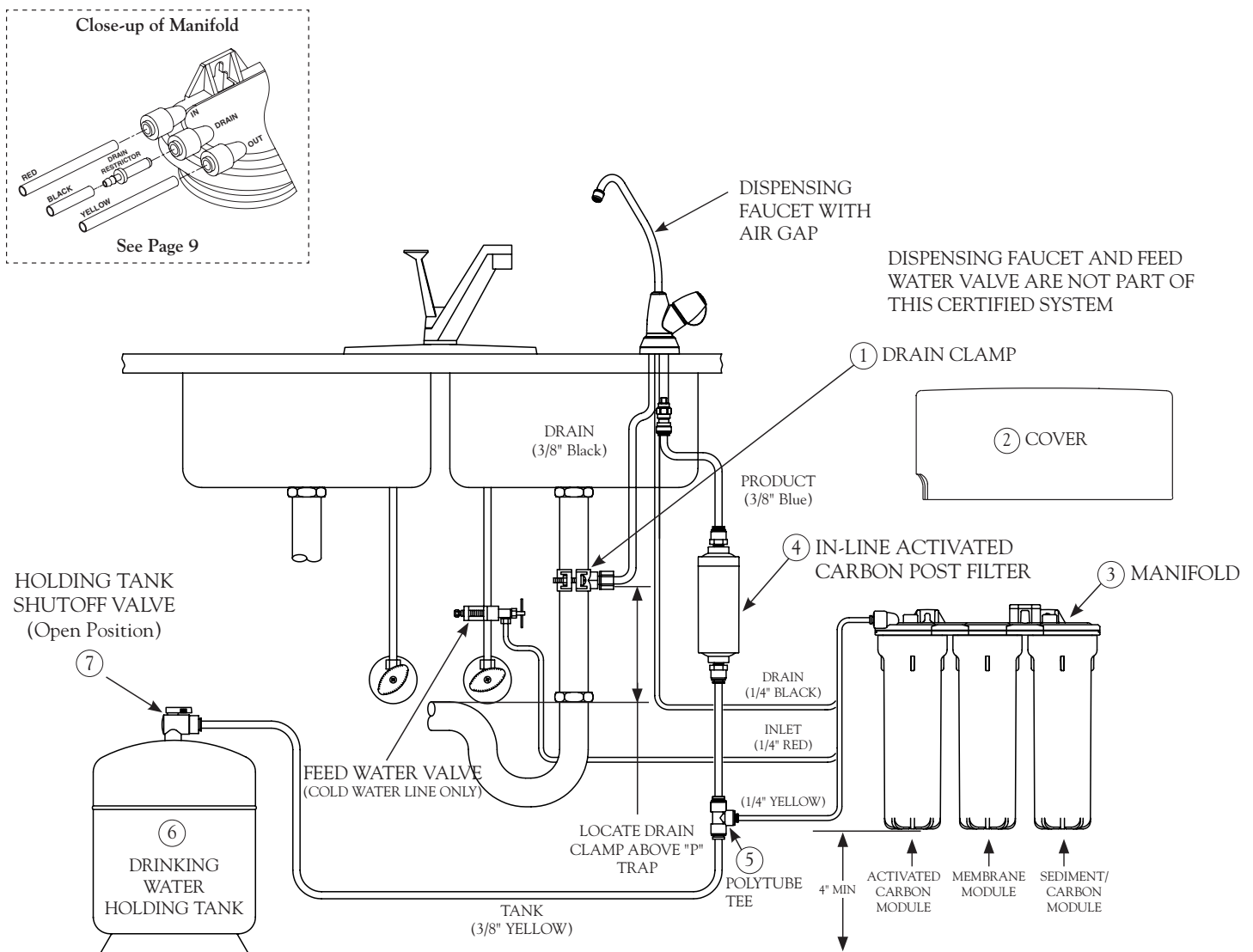
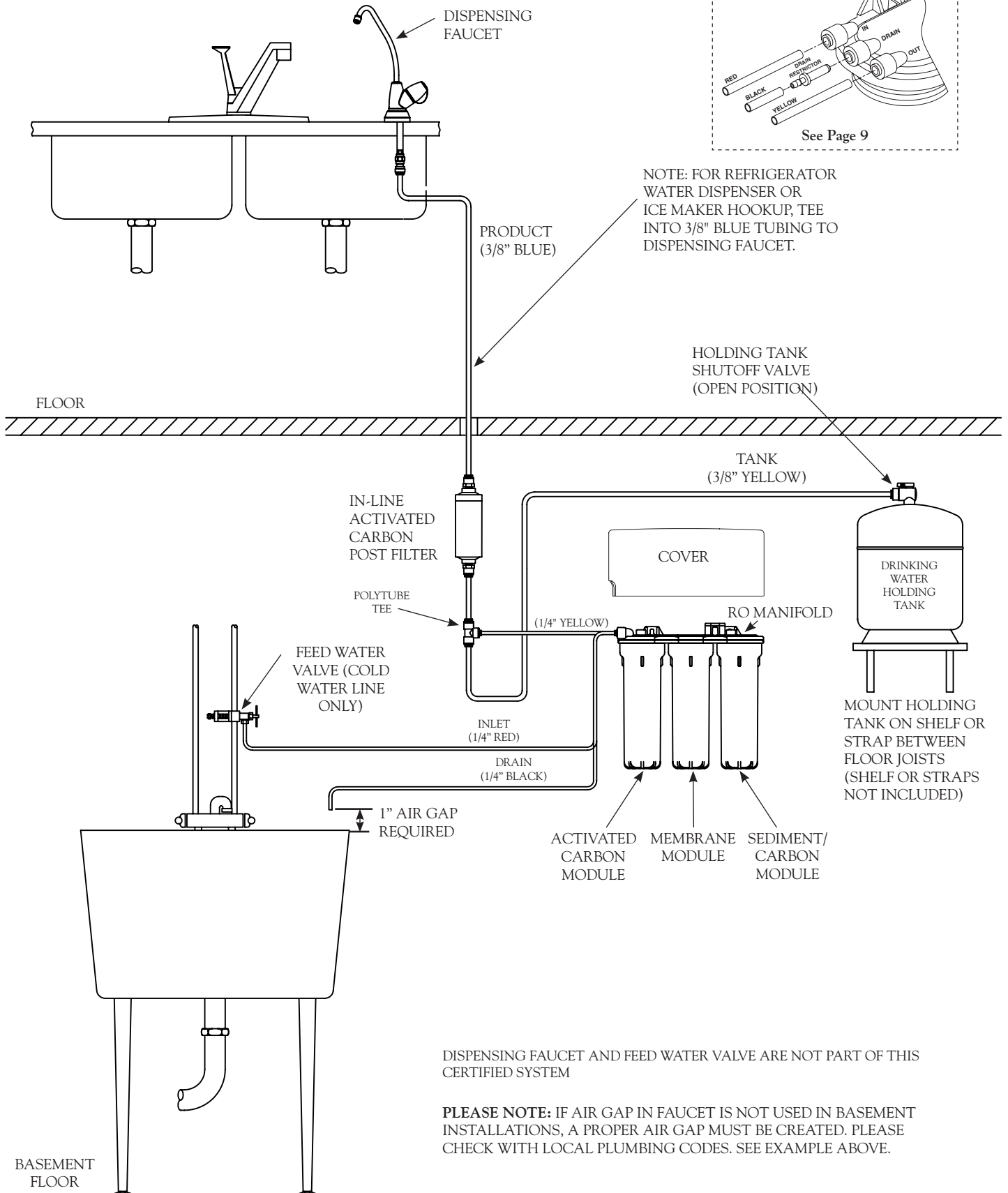
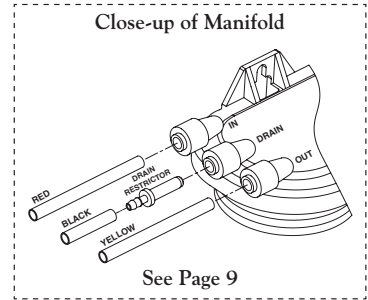


Figure 1

# OPTIONAL RO-450 BASEMENT INSTALLATION DIAGRAM



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## B. Tools Recommended for Installation

The following tools will cover most of the installation sites encountered:

1. 3/8" variable speed electric drill.
2. Extension work light with outlet.
3. Safety glasses.
4. Porcelain hole cutter kit.
5. Greenlee hole punch and 1/8" and 1/2" metal drill bits for pilot hole.
6. Center punch and hammer.
7. Wood bit.
8. Concrete drill bits.
9. Assorted wood and metal drill bits including 7/32" metal drill bit.
10. Phillips head and flat blade screwdrivers.
11. 1/2", 9/16" and 5/8" open end wrenches.
12. Teflon tape.
13. Wide masking tape or duct tape.
14. Plastic tubing cutter.
15. Extra plastic tubing.
16. Low range air pressure gauge.
17. Bicycle hand air pump.
18. Small bottle of liquid chlorine bleach.
19. Graduated measuring cylinder.
20. Paper towels, wisk broom and assorted clean up materials.

## C. Site Selection for Major System Components

The R.O. System was designed to fit under a sink, however, because of space limitations or other reasons, the system's flexible design allows for other locations. When determining the location remember that access to a cold water tap line, the household drain, and ease of filter replacement are important considerations.

All components and tubing should be located in an area not exposed to freezing temperatures. If winter temperatures are severe, the area should be above the minimum temperature listed in Table B, page 4 for proper performance. Do not expose unit or tubing to direct sunlight.

1. **Dispensing Faucet**—The faucet should be placed near the sink where drinking water is normally obtained. Convenience of use (filling of water pitchers and glasses), and an open area beneath the faucet under the sink for attaching tubing are considerations.
2. **Drinking Water Holding Tank**—The Holding Tank may be placed where it is convenient within 10 feet of the faucet; under the sink or in an adjacent cabinet are best the choices. If a longer run of tubing is required, the tubing should be the 3/8" diameter OD size to prevent a high pressure drop. Remember, these tanks can weigh up to 30 pounds when full of water; a firm, level area is required.
3. **R.O. Manifold Assembly**—The manifold can be installed on either the right or left side of the under-sink area or a cabinet. The right side is recommended because all the tubing will be to the back of the cabinet and out of the way. Installation in the basement is also an option; one location is near the laundry/utility sink where cold potable water and drain access are handy. The mounting location should allow adequate clearance and accessibility for cartridge changes.
4. **Feed Water Connection**—The Feed Water Valve should be located as close to the manifold assembly as possible. **USE A POTABLE COLD WATER SUPPLY ONLY.** Softened water is preferred as it will extend the life of the R.O. Membrane.
5. **Drain Connection**—The waste water must go to drain through an anti-siphon air gap. The air gap is provided for in the base of the faucet. If discharging into a utility sink or standpipe, an air gap of greater than 1" above the flood rim must be provided.  
  
Do NOT connect the system drain line to the dishwasher drain or near the garbage disposal. Backpressure from these units may cause the air gap to overflow.

## SECTION IV. INSTALLATION STEPS

All plumbing should be done in accordance with state and local plumbing codes.

**NOTE:** Some codes may require installation by a licensed plumber; check with the local plumbing authority prior to installation.

In restricted under-sink areas, it may be easier to install the faucet first. Allow adequate tubing lengths for any final component position.

### A. Faucet Installation

This certified system does not include a faucet. Select a faucet that has a  $\frac{3}{8}$ " tubing connection and install per faucet manufacturer's instructions.

Connect  $\frac{3}{8}$ " blue tubing to faucet treated water port and if using air gap faucet connect  $\frac{1}{4}$ " and  $\frac{3}{8}$ " black tubing.

In order to maintain integrity of this NSF/ANSI Standards 58 listed Drinking Water System, faucet shall meet NSF/ANSI Standards 61/372, material and structural integrity requirements of NSF/ANSI Standards 42 or 58, and have an air gap with connections complying to local plumbing codes. Consult factory for approved faucets.

### B. Feed Water Valve Installation

In order to maintain integrity of this NSF/ANSI Standard 58 listed Drinking Water System, the feed water valve hardware connecting the  $\frac{1}{4}$ " red tubing to the plumbing system shall meet NSF/ANSI Standards 51 and 61/372. Consult factory for approved hardware.

Decide on location. Do NOT connect to a hot water feed line. If you are not sure of the supply, run the hot water and feel the supply piping. Water over 100°F may cause permanent damage to the Membrane.

1. Shut off the water supply and drain the line.
2. Hardware to connect the  $\frac{1}{4}$ " red tubing to the plumbing system is not part of this certified system. Install hardware in accordance with plumbing codes that will allow connection of  $\frac{1}{4}$ " red tubing.

## 3/8" DRAIN CLAMP ASSEMBLY

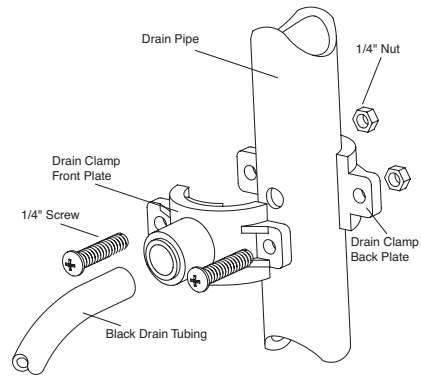


Figure 3

### C. Drain Clamp Installation

The following are instructions for discharging into the sink drain pipe. (Refer to Fig. 1.)

1. Position the Drain Clamp on the sink drain pipe above the drain trap. Allow room for drilling. Tighten securely.
2. Use a battery powered or properly grounded drill. Using the Clamp port as a drill guide, drill a  $\frac{7}{32}$ " hole through the wall of the drain pipe. Do NOT penetrate the opposite side of the pipe.
3. Locate the  $\frac{3}{8}$ " Black Drain Tubing connected to the Dispensing Faucet. Route to the tubing to the Drain Clamp and trim to length.

**NOTE:** When cutting the polytubing make clean, square cuts, failing to do so could result in poor connections and possible leaks.

**CAUTION:** The lowest point of the line should be the point of connection to the Drain Clamp. There should be no sag in the line as this may cause excessive noise as the reject water is flowing to drain.

Insert the tubing into the Drain Clamp. Make sure the tubing is pressed in all the way.

### D. R.O. Manifold Assembly Installation

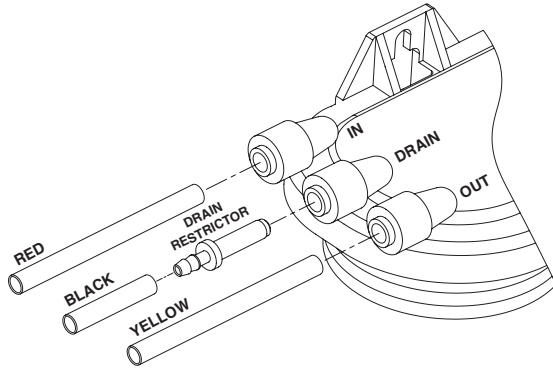
Various installation sites will require different types of mounting fasteners; be sure the fastener selected will provide a firm, solid mounting. A support panel may be necessary on thin cabinet walls or to span between wall studs on particleboard or drywall.

Do not drill through exterior cabinet walls or leave sharp wood screw points exposed in readily accessible cabinet interiors.



The close proximity of a dishwasher or a trash compactor may require special fabrication of a mounting plate.

1. The mounting bracket will accept either #10 or #12 (5mm) mounting screws spaced on 6" (15 cm) centers. Allow at least 4" (10 cm) of clearance beneath the filter housings to accommodate filter changes. Mark the two locations (the bracket can be used as a template). Install the screws and tighten them until the heads are about  $\frac{5}{8}$ " from the wall.



2. Locate the  $\frac{1}{4}$ " Red Feed Water Tubing. Remove the red plug from the fitting labeled "In" on the manifold and insert the tubing. Reference the special supplement sheet in the carton for proper connection of all tubing and removal of plugs. Run the tubing along its course to the Feed Water Valve, trim to length. (Refer to Fig. 1.)
3. Locate the  $\frac{1}{4}$ " Black Drain Tubing connected to the Dispensing Faucet. Remove the black plug from the fitting labeled "Drain" on the manifold. The end of the Black Drain Tubing that should be inserted into the "Drain" port will have a drain restrictor in it.
4. Locate the  $\frac{1}{4}$ " yellow tubing with the tee attached to one end. Remove the yellow plug from the fitting labeled "Out" on the manifold and insert the tubing.
5. Locate the  $\frac{3}{8}$ " Blue Product Water Tubing attached to the Dispensing Faucet. Firmly press one end into the tee. (Refer to Fig. 1.) The fittings will grab the tubing and seal it in place. Make sure the tubing is pressed all the way in to create a pressure tight connection.
6. Hang the Manifold Assembly on the mounting screws and tighten. **DO NOT OVERTIGHTEN.**

7. Remove the wrapping from the In-Line Activated Carbon Post Filter. Slice the  $\frac{3}{8}$ " Blue Polytube where it would be convenient to install and change the In-Line Filter. Make a clean straight cut to insure proper connections. The "Out" port on the In-Line Filter should be towards the faucet. Firmly press in the tubing. The fittings will grab the tubing and hold and seal it in place. Make sure the tubing is pressed all the way in to create a pressure tight connection.

#### **E. Position the Drinking Water Holding Tank and Make the Final Hose Connections.**

1. Check the tank precharge pressure. Make sure it is between 5 to 7 psig. If not, use a bicycle hand pump or other pump to bring the pressure up to the 5 to 7 psig range.
2. Pull the cap/plug off the top of the tank where the Tank Shut-Off should go. (Refer to Fig. 1.)
3. Wrap Teflon tape three times around the  $\frac{1}{4}$ " male outlet thread. Wrap in the direction of the threads (clockwise when looking down on the Holding Tank). The tape will act as a thread sealant. Screw on the Holding Tank Shut-Off Valve.
4. Locate the  $\frac{3}{8}$ " Yellow Tubing. Firmly press one end into the Holding Tank Shut-Off Valve and the other end into the tee. (Refer to Fig. 1.) The fittings will grab the tubing and seal it in place. Make sure the tubing is pressed all the way in to create a pressure tight connection.

#### **F. Start Up**

1. Installing the modules and membrane and sanitizing the holding tank.
  - Open the Dispensing Faucet and close the Holding Tank Shut-Off Valve (the handle should be perpendicular to the valve body).
  - Remove the plug on the underside of the manifold labeled "SEDIMENT/CARBON". Unwrap the Sediment/Carbon Module. Make certain the Module O-ring is pressed firmly in the groove. Engage and firmly tighten the module hand tight only.

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- Remove the plug labeled "Membrane" from the underside of the manifold. Trim top of membrane bag, exposing the white plastic seal. While holding onto bag, insert membrane firmly into manifold. (The O-rings should be up towards the manifold.) Remove the bag from the membrane. Take the remaining housing and insert housing O-ring into its groove. Engage and firmly tighten housing hand tight only.

- Remove the plug labeled "ACTIVATED CARBON" from the underside of the manifold. Unwrap Activated Carbon Module. Make certain Module O-ring is firmly pressed in groove. Engage and firmly tighten the module hand tight only.

- Close the Holding Tank Valve.

- Disconnect the yellow product water tubing that runs from the Holding Tank to the Tee (see Fig. 1). Put 50 drops of bleach (this is ½ tsp. or 3 ml) into the tubing and reconnect the Tee.

## 2. Rinsing the system:

- Slowly open the Feed Water Valve fully counter clockwise.

- Open the Holding Tank Valve.

- Check the Air Gap on the Dispensing Faucet to be sure that the drain water is flowing. The R.O. System is now making water.

- Do not open the Faucet for at least 8 hours.

- Do not use the first three full tanks of water.

**CAUTION:** The R.O. Membrane is shipped with a preservative in it. To ensure proper rinsing of the R.O. Membrane it is important to wait at least 8 hours before emptying each tank.

When the Faucet is first opened, expect air and carbon fines (very fine black powder) from the In-Line and Activated Carbon Post Filters to be rinsed out. This is normal for the first tank of water or after the Activated Carbon Post Filters are changed.

## SECTION V. OPERATION & MAINTENANCE

### A. Normal Operation

1. It is normal for the Total Dissolved Solids (TDS) of the water to be higher than normal during the first 5 gallons of operation; this is due to the sanitizing solution and the new

Post Filters. After this water is rinsed to drain, the removal rate should stabilize at a value of greater than 75%. Water pressure affects the production rate and quality.

2. R.O. systems produce drinking water at relatively slow rates; it can take up to 5 hours or more to fill the Holding Tank. Normal operation is to let the Holding Tank fill with water and then draw water as is needed. When the pressure in the Holding Tank falls to a given pressure (as the water is being used) the Automatic Shut-Off Valve (ASO Valve) will start water production and the system will refill the Holding Tank. When the Holding Tank is full and no water is being used, the ASO Valve will automatically shut off the feed water to conserve water. The more water that is used (up to the capacity of the system) the better the R.O. system will function. Other uses for the water are flowers, pets and rinsing glassware.

With each use it is recommended that you run the faucet for at least 10 seconds prior to using water. This is especially important if the system has not been used daily. After periods of non-use, such as a week of vacation, it is better to empty the Holding Tank and allow the system to produce fresh water for use. If the system is not used for 3-4 weeks or longer, it is a good idea to resanitize the system and to change the prefilter and post filters.

### B. Changing Modules

THIS R.O. SYSTEM CONTAINS MODULES WHICH MUST BE REPLACED AT REGULAR INTERVALS TO MAINTAIN PROPER PERFORMANCE. USE ONLY FACTORY APPROVED MODULES.

All individuals should take adequate precautions when changing the filters, including wearing protective gloves, to avoid direct contact with the exhausted filters.

The recommended interval for changing the modules (not the R.O. Membrane) is every 6 to 12 months. Typical T.F.C. Membrane life expectancy is three years. Local conditions may dictate more frequent changes.

**NOTE:** If the R.O. Membrane is to be replaced, see Sec. IV, F.1-2, for the proper procedure.

Use a drip pan to catch any water that may spill when the Filter Modules are removed. Refer to Fig. 1 for component location.

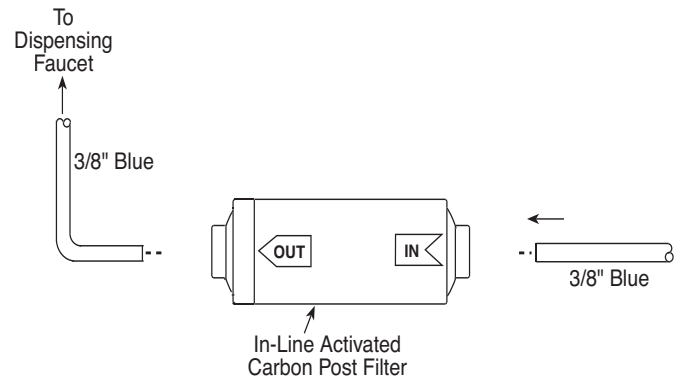
1. Close the Feed Water Valve by turning fully clockwise and open the Dispensing Faucet. Allow the Holding Tank to empty.
2. Loosen and remove the Sediment/Carbon Module and the Activated Carbon Module. Discard the modules.
3. To sanitize the system and replace the modules:

- Unwrap the new Sediment/Carbon Module.
- Using an eyedropper put 5 ml (this is approximately 1 tsp.) of a good quality unscented 5¼% liquid household chlorine bleach down the center tube of the Module.
- Check the Module O-ring for proper position in its groove, engage and tighten the Module hand tight only.
- Unwrap the new Activated Carbon Module.
- Check the Module O-ring for proper position in its groove, engage and tighten the Module hand tight only.
- Close the Holding Tank Valve.
- Disconnect the yellow product water tubing that runs from the Holding Tank to the Tee (see Fig. 1, page 5). Put 50 drops of bleach (this is ½ tsp. or 3 ml) into the tubing and reconnect it to the Tee.

**NOTE:** Now is the convenient time to change the In-Line Activated Carbon Post Filter, see Sec. V, C.1–6.

- Slowly open the Feed Water Valve. When water begins dripping out of the Dispensing Faucet, in the following order, close the Faucet and then open the Holding Tank Valve.
- Do not open the Faucet for at least 8 hours.
- Discard the first three full tanks of water produced, they will contain chlorine.

### IN-LINE ACTIVATED CARBON POST FILTER ASSEMBLY



**Figure 4**

### C. Changing the In-Line Activated Carbon Post Filter

1. Close the Feed Water Valve by turning fully clockwise.
2. Close the Holding Tank Valve and then open the Dispensing Faucet to release the pressure.
3. Remove the In-Line Activated Carbon Post Filter. Disconnect the used Post Filter by pressing in the connector's collar and at the same time pulling the tube out of the fitting.
4. Firmly reconnect the polytubes to the new Post Filter. (Refer to Fig. 4.) Make sure the tubing is pressed all the way in to create a pressure tight connection.
5. Slowly open the Feed Water Valve.
6. When water begins dripping out of the Faucet, in the following order, close the Faucet and open the Holding Tank Valve. When the Faucet is first opened, expect air and carbon fines (very fine black powder), from the new Post Filter to be rinsed out. This is normal for the first tank of water.

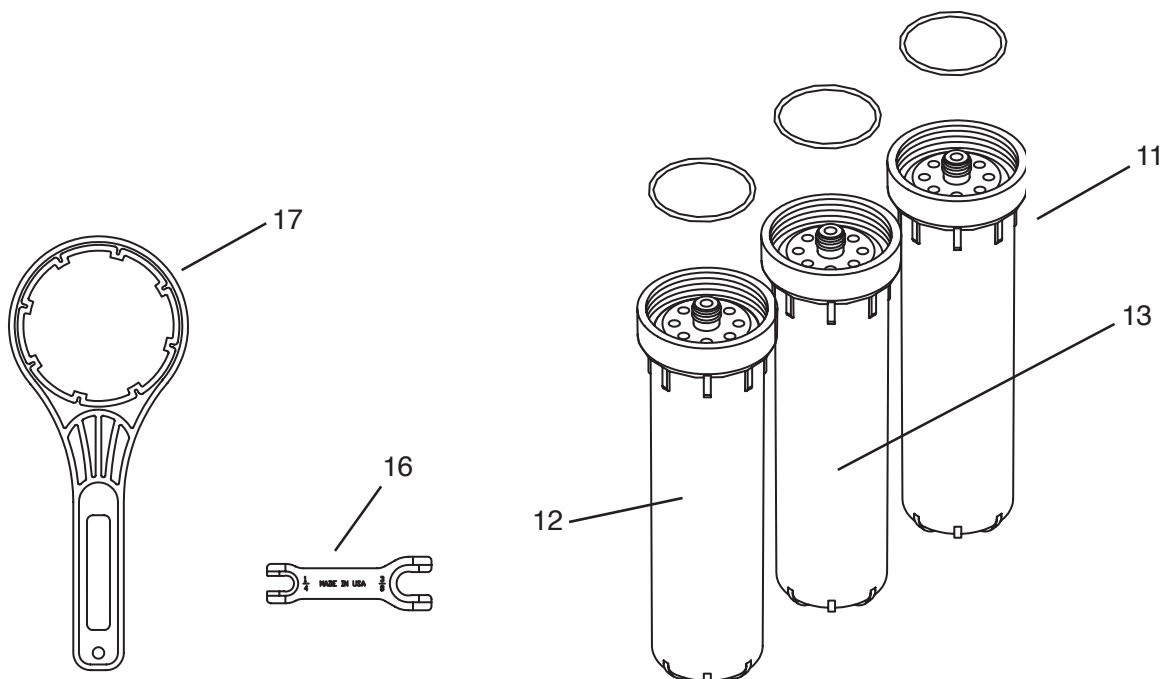
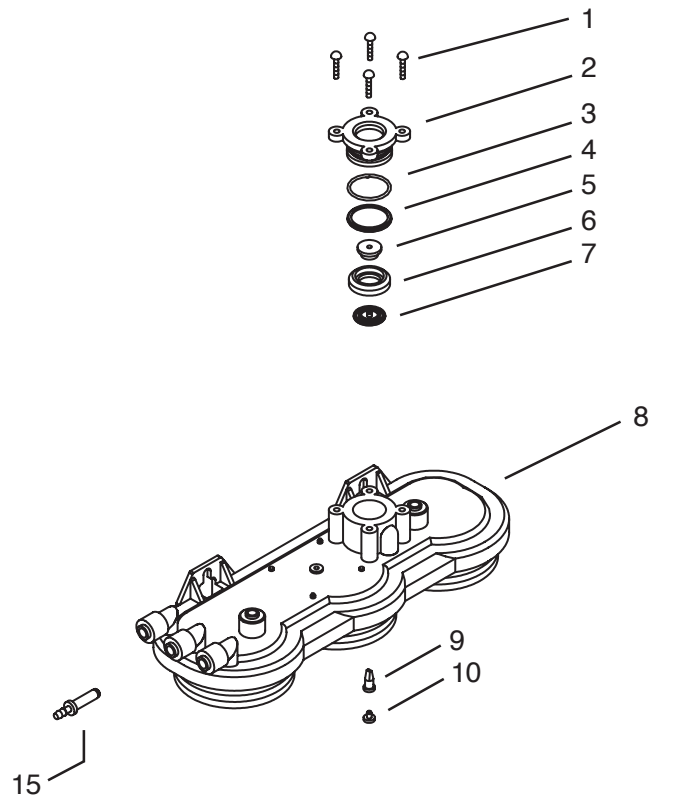
## SECTION VI. TROUBLE SHOOTING GUIDE

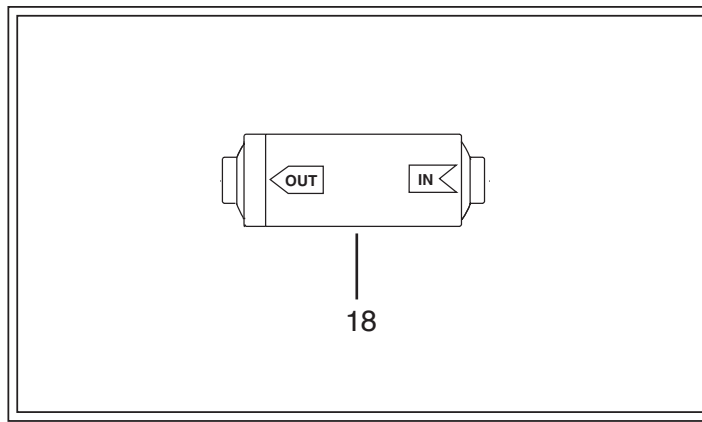
<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
<b>Low quantity of Product Water from Holding Tank</b>	Feed Water Valve is plugged or closed.	Open Valve or unclog.
	Clogged Sediment/Carbon Module or Activated Carbon Module.	Replace Modules.
	Low water pressure.	Feed Water pressure must be above 40 psig.
	R.O. Membrane is fouled.	See Feed Water operating limits (Table B). Correct cause of fouling, replace Membrane module.
	Plugged In-Line Activated Carbon Post Filter.	Replace Post Filter.
	Air precharge pressure in Holding Tank is too high.	Empty water from Holding Tank, and with the faucet open, adjust air pressure to 5–7 psig (35–48 kPa) range.
	Air precharge is too low	
	Air bladder in the Holding Tank is ruptured.	Replace tank.
	Holding Tank Valve is closed.	Open Valve.
	No drain flow, the drain Drain Restrictor is plugged.	Clear or replace Drain Restrictor.
	No drain flow, the drain orifice in the Dispensing Faucet is plugged.	Clear or replace the Dispensing Faucet.
	The Check Valve is stuck.	Free check.
	The ASO Valve is malfunctioning.	Replace ASO Valve components.
<b>Low pressure at the Dispensing Faucet</b>	In-Line Activated Carbon Post Filter is plugged.	Replace Post Filter.
	Air precharge in the Holding Tank is too low.	Empty water from Holding Tank and with the faucet open, adjust the air pressure to 5–7 psig (35–48 kPa) range.
		Check for leakage at the Air Valve Stem.
	Holding Tank Valve is partially closed.	Open Valve.
	The Dispensing Faucet is out of adjustment or faulty.	Repair or replace Dispensing Faucet.
	Heavy water use, Holding Tank is depleted.	Allow Holding Tank to refill (adding a second Holding Tank will increase storage capacity).
	Low Water Production.	See Low Quantity of Product Water from Holding Tank section above.
<b>High Total Dissolved Solids (TDS) in the Product Water</b>	Clogged Sediment/Carbon Module or Activated Carbon Module.	Replace Modules.
	Low Water Pressure.	Feed Water Pressure must be above 40 psig.
		Check Feed Water Valve.
	R.O. Membrane O-ring is crimped.	Check O-ring.
	R.O. Membrane brine seal is not sealing up into the manifold head.	Check the brine seal.
	R.O. Membrane is expended.	If Membrane life is unusually short, find and correct the problem. Replace Membrane.

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
<b>High Total Dissolved Solids (TDS) in the Product Water (continued)</b>	The Product Water and Drain Water lines are reversed.	Correct plumbing.
	No drain flow, Drain Restrictor is clogged.	Clear or replace Drain Restrictor.
	No drain flow, the drain orifice in the Dispensing Faucet is plugged.	Clear or replace Dispensing Faucet.
	The ASO Valve is not closing.	Repair or replace the ASO Valve Components
	New Activated Carbon Module or In-Line Post Filter not rinsed completely.	Flush with several full tanks of Product Water.
	The Feed Water TDS has increased.	An increase in Feed Water TDS will give a corresponding increase in Product Water TDS.
<b>Tastes and odors in the Product Water</b>	The Activated Carbon Module or In-Line Post Filter is exhausted.	Replace Filters.
	There is foreign matter in the Holding Tank.	Clean, flush and sanitize the system. Replace the filters.
	The Product Water and Drain Water lines are reversed.	Correct plumbing.
	Dissolved gasses in the Feed Water.	Pretreat Feed Water to remove dissolved gasses.
	Increase in Product Water TDS.	See high TDS in the Product Water section.
<b>Drain Water overflows at the Dispensing Faucet</b>	Air Gap is blocked.	Clear Air Gap.
		Rinse with vinegar for removal of calcium buildup.
	Drain tubing is clogged.	Clear tubing.
	Drain Clamp hole is misaligned.	Align with hole in the drain pipe.
	Excessive drain flow rate.	Replace Drain Restrictor.
<b>Faucet leaks or drips</b>	Leaks from base of the delivery tube.	O-ring is bad, replace O-ring.
<b>Fitting leaks in general</b>	Close the Feed Water Valve and relieve pressure before disconnecting any tubing or replacing any fitting. Before replacing a fitting, re-cut the tubing and re-insert into the fitting to see if that solves the leak. If pipe threads are leaking, remove and retape with Teflon tape.	

# EXPLODED VIEW & PARTS LIST

14.....Water Quality Test Kit  
19.....Nitrate/Nitrite Test Kit





DRAWING NO.	PART NO.	DESCRIPTION
1.....	S2009.....	Self Tapping Screw
2.....	S2005.....	ASO Cap
3.....	S2013.....	ASO Cap O-Ring
4.....	S2011.....	ASO Diaphragm – Large
5.....	S2007.....	ASO Piston
6.....	S2006.....	ASO Piston Ring
7.....	S2010.....	ASO Diaphragm – Small
8.....	NSCTA0405MNGDRLD ..	Manifold Plate Assembly (Includes diagram numbers 1 through 10 and 15.)
9.....	S1276.....	Check Valve
10.....	S1277.....	Check Valve Retainer
11.....	S7228X .....	Sediment/Carbon Module
12.....	S7225X .....	Activated Carbon Module
13.....	S1340RSX-LE.....	T.F.C. RO Membrane Module 50 gpd/189 lpd
14* .....	S1580.....	Water Quality Test Kit
15.....	S2116-6.....	Drain Restrictor 60 GPD/227 lpd
16.....	S1405.....	1/4"-3/8" Fitting Wrench
17.....	S3072.....	Wrench for Housing
18.....	S7206W-JG.....	In-Line Activated Carbon Post Filter
19* .....	S1447.....	Nitrate/Nitrite Test Kit

\*Not shown

**OTHER COMPONENTS AS SHOWN IN FIGURE 1, PAGE 5.**

DRAWING NO.	PART NO.	DESCRIPTION
1.....	S1117-01 .....	3/8" Drain Clamp Assembly
2.....	S2123-SLTD.....	Cover
5.....	JG-PI301208S.....	3/8" x 3/8" x 1/4" Union Tee
6.....	C2000F .....	Holding Tank
7.....	JG-PPSV501222W .....	Holding Tank Shut-Off Valve

Dispensing Faucet and Feed Water Valve are not part of this certified system.

## ProElite Water Treatment System Lifetime Limited Warranty

# Pro Elite™

The LeverEdge (hereinafter LE) warrants any ProElite brand water treatment system manufactured by LE and installed by a duly authorized ProElite dealer, to be free from defects in materials and workmanship to the original residential purchaser (hereinafter CONSUMER) from the date of purchase. All aspects of this Warranty are subject to the following limitations, terms and conditions.

### 1. DURATION OF WARRANTY

If LE Equipment consisting of the Mineral and Storage Tanks, Controls and Valves, Pumps and Switches, Ion Exchange Resin and Treatment Media, Reverse Osmosis/Water Filters (excluding replacement cartridges) and Ultraviolet Lights (excluding bulbs and sleeves) is determined to have failed as a result of a manufacturing defect, LE will, at its sole discretion, repair or replace the defective part at NO CHARGE to the CONSUMER (excluding labor, and applicable shipping and handling costs) for the duration of the CONSUMER'S ownership of the original equipment (hereinafter "LIFETIME").

### 2. LIMITATIONS OF COVERAGE

This Warranty extends only to the CONSUMER for damage resulting from defects in materials and workmanship, and does not include renewable components. It does not extend to damage caused by the CONSUMER'S neglect or abuse, or by accident, to damage caused by wind, hail or abnormal weather conditions, or to damage caused by acts of God, civil insurrection or extraordinary circumstances beyond the control of LE.

LE shall not be liable for any direct or indirect damage resulting from the use of the Equipment, and in no event shall the extent of this Warranty coverage exceed the purchase price of the Equipment.

LE cannot know the characteristics of a CONSUMER'S water supply or the purpose for which one is purchasing ProElite Equipment. Also, water qualities vary seasonally and over time. Therefore, LE assumes no liability for the determination of the proper equipment necessary to meet a CONSUMER'S requirements, nor does it authorize others to assume such obligations on its behalf.

This Warranty excludes any Equipment which was not manufactured by LE and installed by an authorized ProElite dealer or on which the date code has been removed or altered. Any tampering or attempted repair performed by anyone other than an authorized dealer, including the CONSUMER, voids this Warranty.

### 3. MISCELLANEOUS

In order to be considered for validation, all claims for Warranty coverage must be accompanied by a copy of the purchase agreement indicating the date of initial installation, and a copy of the CONSUMER'S current utility bill. LE reserves the right to inspect the ProElite Equipment prior to honoring any Warranty claim.

This Warranty gives you specific legal rights, and you may have other rights which may vary from state to state. Any and all inquiries or claims under this Warranty must be submitted in writing to The LeverEdge, Attn: Warranty Department, 1423 Gunn Highway, Odessa, FL 33556.

**The LeverEdge**  
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Odessa, FL 33556  
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