# Reverse Osmosis Installation Manual

Genesis ▪ Classic ▪ Express ▪ Slimline


please read entire service manual prior to installation

**Operating Parameters:**

| | |
|---|---|
| Water supply: | Potable water |
| Feed water temperature: | 33º F - 113º F |
| Safe operating pressure: | 40-80 PSI |
| Recommended Turbidity: | <5 NTU |
| Recommended pH Range: | 4-11 |
| Recommended Max. Hardness: | 7 GPG (120 PPM) |
| Total Dissolved Solids (TDS): | 2000 PPM |
| Tank Air Pressure: | 8-11 PSI (empty) |

**Warning:**

- Open the spigot to flush water from first tank.
- After installation check the unit for leaks.
- Do not connect to hot water supply.
- Change filters regularly
- Do not freeze unit
- Heed source water operating parameters
- Do not use with microbiologically unsafe water
- Do not use with water of unknown quality

**Common System Stages** **stages and filters will vary by model and series*

| | | |
|---|---|---|
| Stage 1 (FS105) | Sediment filter 5 micron | Change: 6 months – 1 year |
| Stage 2 (FCGAC10K) | Granular Activated Carbon (GAC) filter | Change: 6 months – 1 year |
| Stage 3 (FCGAC10K) | Granular Activated Carbon (GAC) filter | Change: 6 months – 1 year |
| Stage 4 (MTFC50) | Reverse Osmosis membrane (TFC) | Change: 3 years – 4 years |
| Stage 5 (FINC1014S) | In-line carbon polishing filter | Change: 6 months – 1 year |

## Introduction

Our reverse osmosis drinking water systems have been designed for quick and simple installation and maintenance. By carefully reading this instruction manual and following the operational guidelines you will insure a successful installation and reliable operation. Routine maintenance is essential to the longevity and performance of the system. Filters should be changed regularly, depending on the quality of the feed water supply and quantity of water used.

## Liability:

The installer is responsible for any leaks resulting from installation of tubing or related fittings. The installer must check over the entire unit completely while under pressure to ensure unit is not leaking and functioning properly. Liability resulting from failure to check for leaks while under pressure is the sole responsibility of the installer. Maximum pressure rating is 85 PSI. If local water pressure exceeds 75 PSI, a pressure regulator must be installed, reducing the water pressure into the system.

## Starting Your Installation

Component Checklist:
1 – Storage Tank
1 – RO System
1 – Faucet (with faucet install kit)
1 – Installation Kit

Avoid installation locations where the system might come in contact with hot water pipes or other hazards. Determine the location for the faucet. Check to see that drilling the faucet hole will not damage pipes or wires underneath the sink. Determine the location for the storage tank. A maximum distance of 15 feet from tank to faucet is possible. A shorter tubing run from tank to faucet will produce a faster flow out of the faucet.

**Tubing and Fittings**

To insure an optimal seal, tubing should be cut with the end square. An angled cut or distortion or kink of the tubing will not provide an efficient seal and may cause leaks.

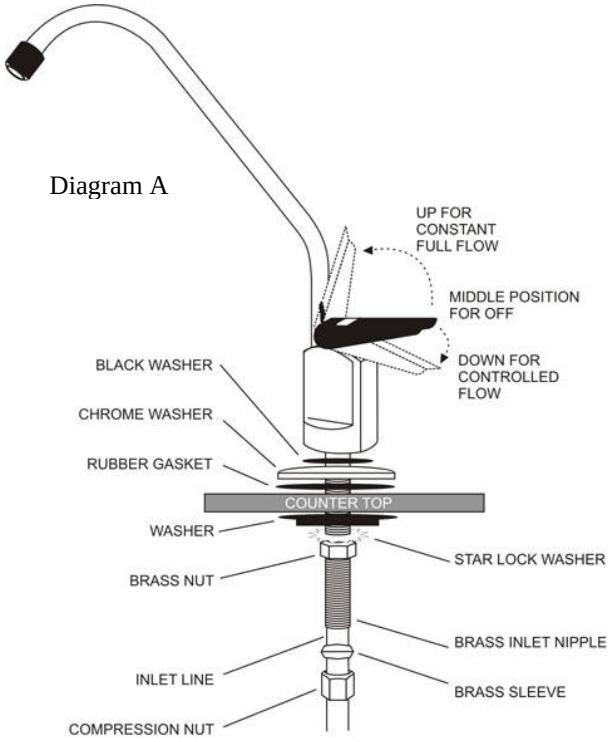
Your system may come with quick-connect or standard compression fittings. With quick-connect style fittings, simply push the tube into the collet ring until you feel the tubing click into place. To remove, hold the collet ring flush against the fitting while pulling the tube out in the opposite direction. Standard compression fittings will usually have a nut, ferrule and insert. First slide the nut over the tubing end followed by the ferrule, then slide the insert inside the tubing end. Push the tubing into the fitting as far as possible then tighten down the nut on the threads.

## 1. Faucet Installation

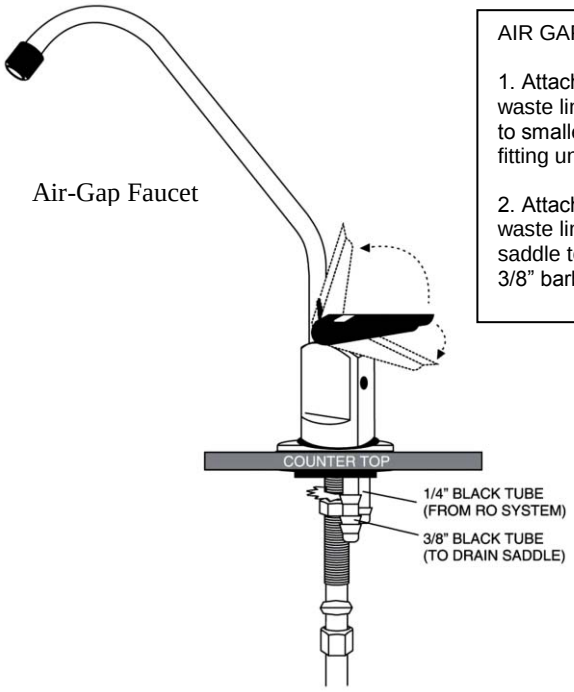
**Drilling the Faucet Hole**

The product water faucet may be installed on any flat surface at least 2" in diameter. Check the underside of the location for interference. Drill a hole through the countertop where the faucet will be mounted at least 7/16" (11mm) in diameter. (Most faucets will mount to a hole diameter of up to 1 ¼") Drilling a ¼" (6mm) pilot hole first may be helpful. Take caution when drilling the faucet-mounting hole. Different countertops may require special drill-bits and or installation methods.

Diagram A




Air-Gap Faucet




AIR GAP FAUCETS

1. Attach ¼" black waste line from RO to smaller ¼" barb fitting under faucet.

2. Attach the 3/8" waste line from drain saddle to the larger 3/8" barb.

*Note: Some states require the use of an air gap faucet. Check your local plumbing code to assure compliance.*

**Mounting the Faucet**

Insert the faucet shank down through the drilled hole. Be sure the faucet body, faucet base, and the rubber faucet base washer are in place above the sink as shown in Diagram A. Install the star lock-washer and nut, and then tighten firmly while faucet is aligned in the desired location. Do not over tighten. *Tip: This step may be easier with 2 people. One person holds the faucet in place from above, while the other tightens the faucet from underneath.*

Note: To connect an additional point of use outlet (icemaker, extra faucet, etc.) place a tee-fitting connector along the line between the faucet and the RO system. A line can then be run from the tee to the outlet device. Additional fittings and/or connectors may be required. Icemakers may have proprietary connections and/or specific pressure requirements. Check with your manufacturer for details.

## 2. Feed Water Assembly

Turn off cold water supply to the sink using the supply valve located under the sink. Different systems will come with different adapters types and styles. Shown below are a few of the most common options. Only install to cold water supplies and do not over tighten fittings.

*Note: Some shut off valves have an extra port or a separate valve plumbed for an icemaker or filter system. In either of these cases you will not need the feedwater adapter, just hook the feed line directly to this access point.*

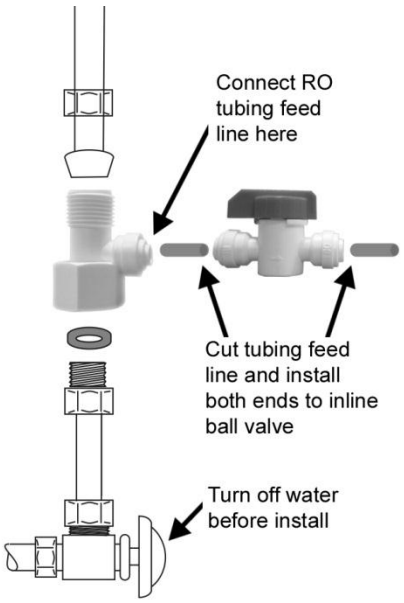
**Scenario 1** Plastic Feed Water

Make sure the black washer is seated in the feedwater adapter. Tighten feedwater adapter to the valve with an adjustable wrench. Tighten until snug but do not over tighten. Connect the tubing feed line (usually red in color) by plugging the tubing end into the feed water connector collet, cut the tubing line anywhere along it, and install the inline ball valve, again by pushing the tubing ends securely into the collets.

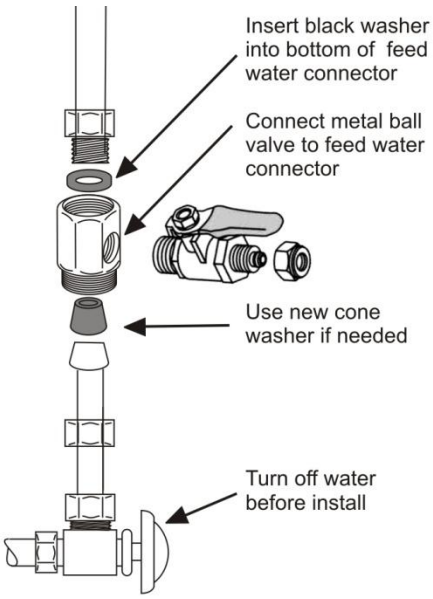
**Scenario 2** Feed Water
The feedwater adapter can be installed where the cold water line meets the kitchen faucet. Disconnect the line and install adapter accordingly. Slip the black washer into the feedwater adapter. Tighten feedwater adapter to the valve with an adjustable wrench. Tighten until snug. Insert the metal ball valve into the feedwater adapter after applying Teflon tape to the threads.

**Scenario 3** Self-Piercing Feed Water
Only install self piercer adapters on smooth metal water lines. Place the self piercer around the metal water line. Adjust the aluminum bracket to your tube and tighten the tightening screw until the clamp is firmly attached to the water line. To pierce the line, simply screw the T-handle valve clockwise until it stops. If by chance the water line is not adequately pierced, the performance of the RO may be reduced due to insufficient water flow. To remedy open and close the T-handle several times.

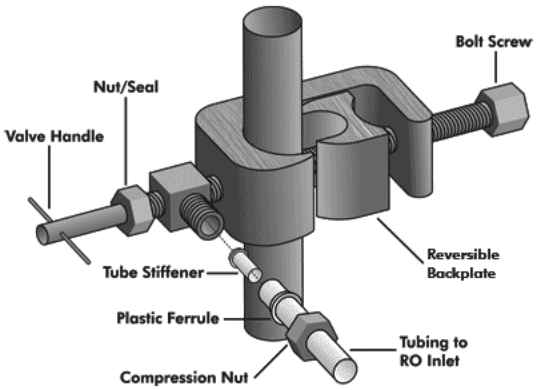
**Scenario 1**



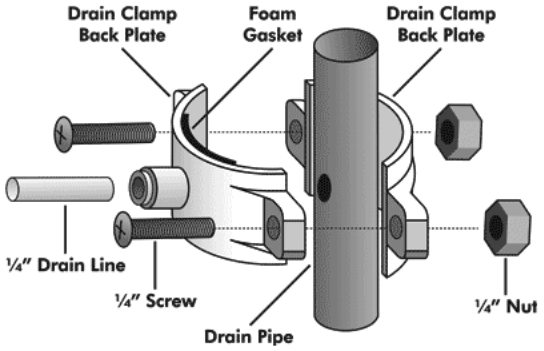

**Scenario 2**




**Scenario 3**




**(Quick-connect style drain saddle)**




## 3. Drain Installation

Peel the protective film off of the sponge gasket and apply to inside of drain saddle, using care to align sponge gasket hole with drain port. Position the drain saddle on the vertical or horizontal drainpipe from your sink. Position as far away from the garbage disposal as possible and after the P-trap.

Drill 1/4" (6mm) hole into the drainpipe where the drain saddle will be mounted. Do not drill all the way through—stop after piercing the first wall of the pipe. Mount the drain saddle and align the hole using a small drill bit or other small straight object. Gently tighten the two screws evenly on both sides of the clamp until the clamp is snug on the pipe. Do not over tighten.

## 4. Storage Tank Installation

The storage tank may be placed in either the vertical or horizontal position without affecting system performance. Put 4 to 5 wraps of Teflon tape around the metal stem at the top of the tank. Hand-tighten the plastic shut off ball valve found in the installation packet down on to the tank stem. Do not over tighten. *Note: Tank air pressure can be measured at the air stem on the opposite side of tank. It may be covered with a blue cap. Tank air pressure should be between 8-11 PSI when empty.*

## 5. Tubing Connections

**systems may not have color-coded tubing or different color codes*

Feed (Red) – connects main water supply feed to elbow fitting on right side of unit (ball valve for Genesis Series)
Drain (Black) – connects drain saddle to bottom fitting on membrane housing (**flow restrictor necessary on this line**)
Tank (White) – connects tank ball valve to tee fitting on inline filter (tee fitting on filter housing for Genesis Series)
Faucet (Blue) – connects faucet to elbow fitting on left side of inline filter (front of filter housing for Genesis Series)

UV LIGHT INSTALLATION (Optional Accessory)
*Note: UV lamps should be replaced annually to remain effective.*
Turn off water supply and de-pressurize unit. If needed cut the faucet line where the UV is to be installed. Attach the 2 tubing ends to the UV, flow direction does not matter. Plug the transformer and UV light connectors together. Plug transformer into an appropriate voltage electrical outlet. On some models, one end of the UV tube will illuminate.


UV UNIT

BOOSTER PUMP INSTALLATION (Optional Accessory)
*Note: Booster pumps are installed before the RO membrane.*
Turn off water supply and de-pressurize unit. Cut tubing line going to the storage tank and connect tubing ends to the pressure shut off switch (TSOS). Connect one TSOS wire connector to the transformer and the other to pump connector.

Optional Solenoid: Cut feed line to the RO system and connect tubing ends to the solenoid shut off switch (P-ESOS). *Note flow direction arrow.* Use Y-splitter (P-TSOY) to link, pump, shut-off and transformer. *Refer to schematic on page 7.* After all connections are made, plug the transformer into an appropriate voltage electrical outlet.


PUMP UNIT


## 6. Unit Start Up

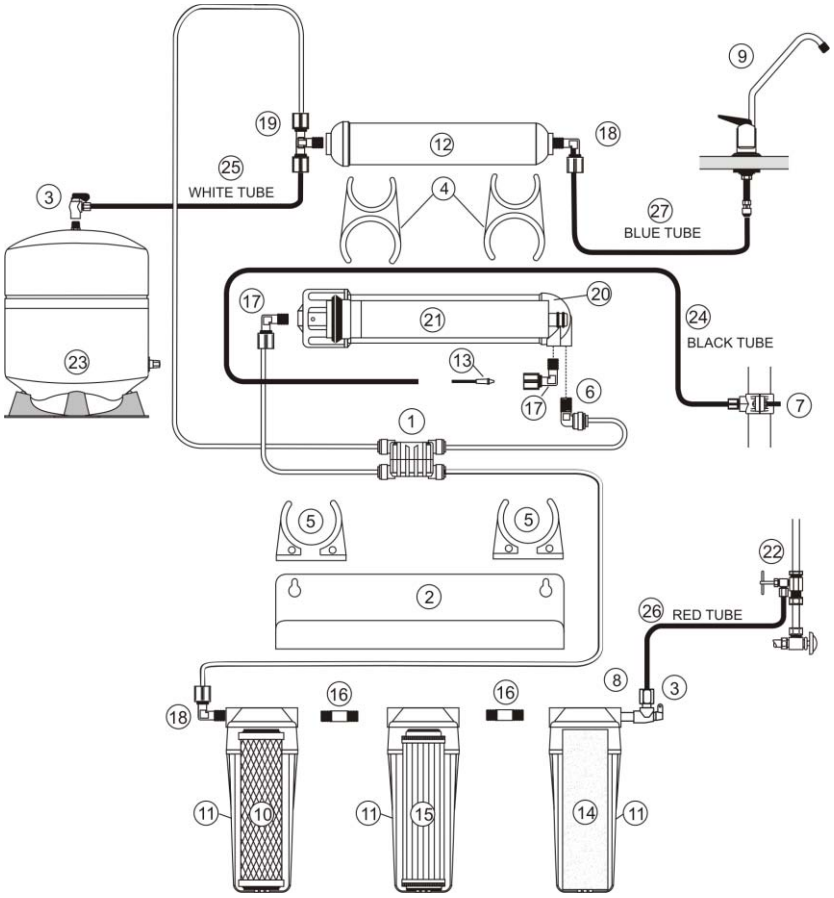
The RO unit may be mounted on the wall though not necessary. To mount, use the bracket holes on the RO unit as a guide, and with the screws provided in the install pack, mount the system in the desired location.

With all tubing connections complete, turn on the cold water supply to the RO unit and open all ball valves. Ball valves are open when the handle runs parallel to the tubing. Immediately check the entire system for leaks. If you notice any leaks turn off water supply and tighten where necessary. With the RO system on, lift the drinking faucet handle until water begins to drip out. Next, close the faucet to allow the tank to fill. This may take 3-4 hours depending on size of system. Once the tank is full it is recommended to flush completely. Open and leave open the drinking water faucet until the water coming out again slows to a dribble. This signifies the tank is empty. The drinking faucet can then be closed to allow the tank to fill again. At this point the water is ready for consumption.

*Note: The first tank of water is not recommended for consumption. Additionally, carbon filters may leach carbon dust fines on startup. This may discolor the water initially, but should clear up quickly.*

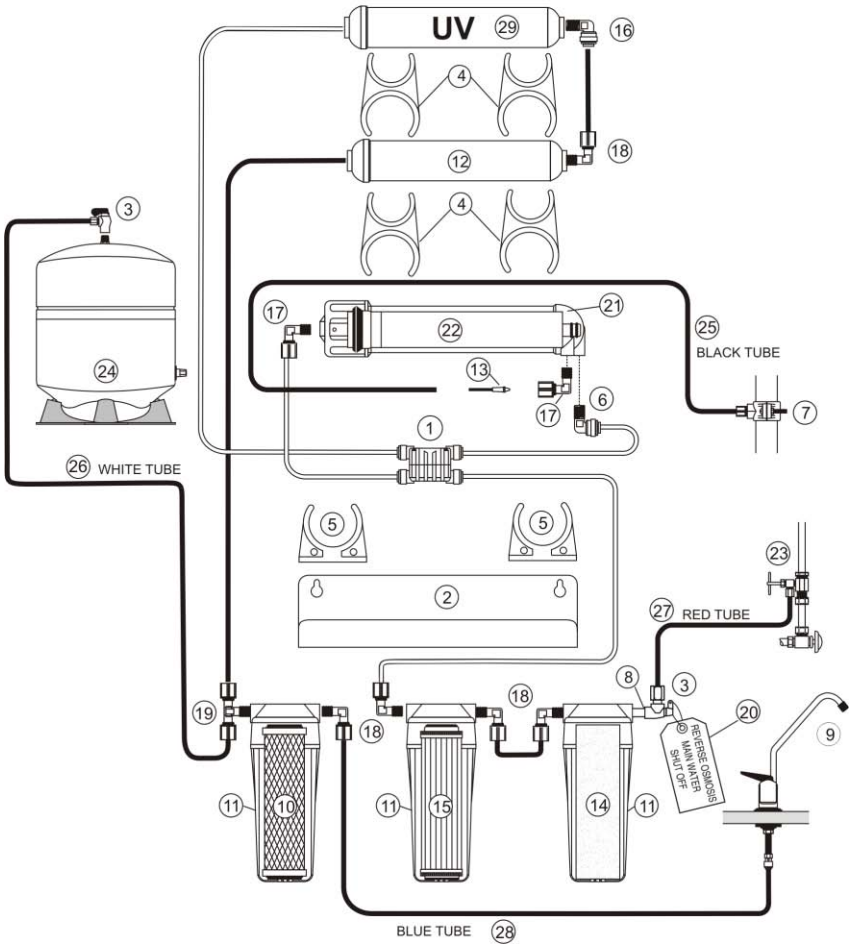
**Typical Reverse Osmosis Contaminant Removal:** **Results will vary based on feed water quality*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Giardia cysts | 100% | Criptosporidium cysts | 100% | DDT | >99.9% | PCB | >99.9% |
| E.coli bacteria | >99.9% | Fecal bacteria | >99.9% | Lindane | >99.9% | Salmonella typhi | >99.9% |
| Vibrio choleriae | >99.9% | Shigella disinteriae | >99.9% | Serratia marcescenes | >99.9% | Toluane | >99.9% |
| Sodium Fluoride | 99% | Calcium Cloride | 99% | Sodium Chloride NaCl | 99% | Sucrose | 99% |
| Magnesium Cloride | 99% | Nickel Sulfate NiSO4 | >99% | Copper Sulfate CuSO4 | >99% | Lactic Acid pH5 | 99% |
| Glucose | 98% | Sodium Nitrate NaNO3 | 97-99% | Chlorinated Pesticides | 99.9% | Silica SiO2 | 98% |
| Sodium | 95-99% | Nickel | 95-99% | Chloride | 99.9% | Radioactivity | 95-99% |
| Potassium | 92-99% | Zinc | 95-99% | Bicarbonate | 99% | Sulfate | 95-99% |
| Calcium | 95-99% | Strontium | 95-99% | Nitrate 3 | 90-99% | Ferro cyanide | 96-99% |
| Magnesium | 95-99% | Cadmium | 95-99% | Fluoride | 90-95% | Arsenic +3 | 95-99% |
| Iron | 95-99% | Silver | 95-99% | Silicate | 95-99% | Arsenic +5 | 95-99% |
| Aluminum | 95-99% | Mercury | 95-99% | Phosphate | 95-99% | Lead | 95-99% |
| Ammonium | 95-99% | Barium | 95-99% | Chromate | 95-99% | Copper | 95-99% |




**Express & Economy Series Schematic (5 stage)**

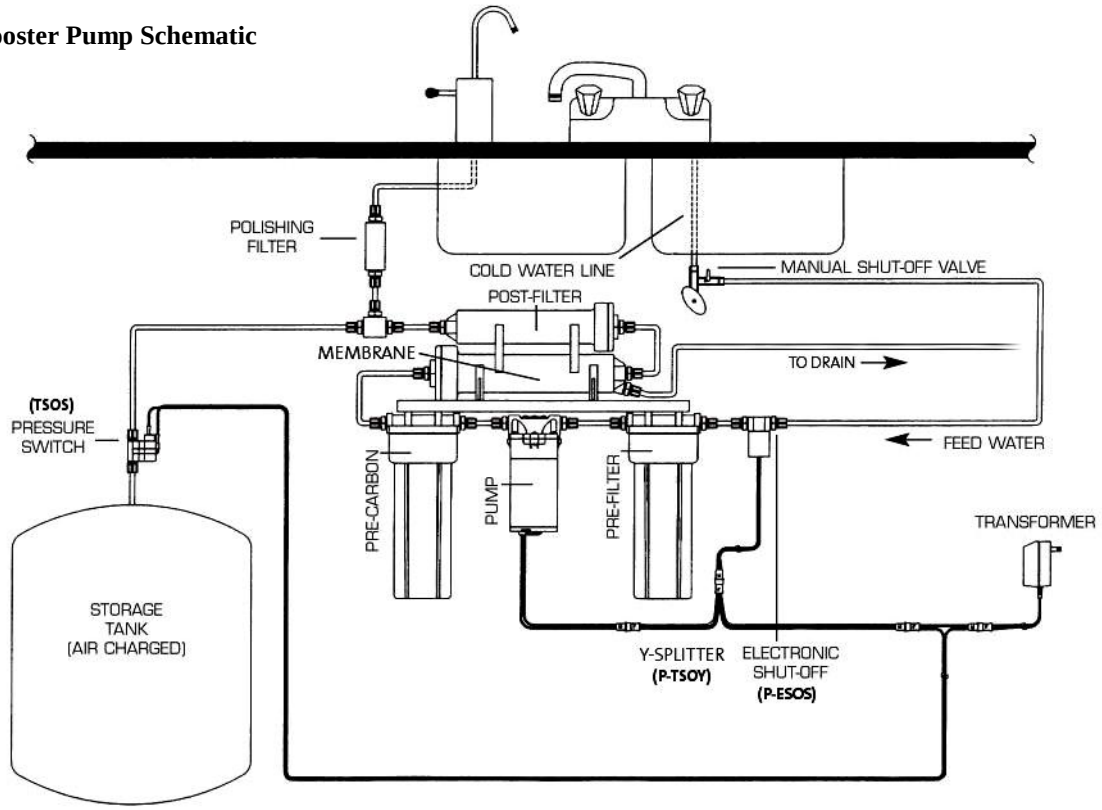
| | | |
|---|---|---|
| 1 | Auto Shutoff | AS3WJG14 |
| 2 | Bracket | B3PW |
| 3 | Ball Valve | BVPAWFM14 |
| 4 | Mem / Omni Clip | CDW |
| 5 | Membrane Clip | CSWM |
| 6 | Check Valve | CVHSS18EA |
| 7 | Drain Saddle | DSM14 |
| 8 | Elbow Adapter | E5 |
| 9 | Faucet | FATLR |
| 10 | CTO Filter | FCCTO10 |
| 11 | Filter Housing | FH8W1014 |
| 12 | Inline Filter | FINC1014S |
| 13 | Flow Restrictor | FRCT |
| 14 | Sediment Filter | FS105 |
| 15 | GAC Filter | FCGAC10 |
| 16 | ¼" Nipple Fitting | NH14 |
| 17 | Elbow Fitting | K4042 |
| 18 | Elbow Fitting | K4044 |
| 19 | Tee Fitting | K6044 |
| 20 | Membrane Housing | MH4A |
| 21 | Membrane | MTFC |
| 22 | Feed Water Kit | FWC14K |
| 23 | Storage Tank | TATW |
| 24 | Drain Line | TPB14 |
| 25 | Tank Line | TPW14 |
| 26 | Feed Line | TPR14 |
| 27 | Faucet Line | TPBL14 |




**Genesis Series Schematic (6 stage with UV)**

| | | |
|---|---|---|
| 1 | Auto Shutoff | AS3WJG14 |
| 2 | Bracket | B3PW |
| 3 | Ball Valve | BVPAWFM14 |
| 4 | Mem / Omni Clip | CDW |
| 5 | Membrane Clip | CSWM |
| 6 | Check Valve | CVHSS18EA |
| 7 | Drain Saddle | DSM14 |
| 8 | Elbow Adapter | E5 |
| 9 | Faucet | FATLR |
| 10 | CTO Filter | FCCTO10 |
| 11 | Filter Housing | FH8W1014 |
| 12 | Inline Filter | FINC1014S |
| 13 | Flow Restrictor | FRCT |
| 14 | Sediment Filter | FS105 |
| 15 | GAC Filter | FCGAC10 |
| 16 | QC Elbow Fitting | GCI480822W |
| 17 | Elbow Fitting | K4042 |
| 18 | Elbow Fitting | K4044 |
| 19 | Tee Fitting | K6044 |
| 20 | Shut-off Tag | LMSO |
| 21 | Membrane Housing | MH4A |
| 22 | Membrane | MTFC |
| 23 | Feed Water Kit | FWC14K |
| 24 | Storage Tank | TATW |
| 25 | Drain Line | TPB14 |
| 26 | Tank Line | TPW14 |
| 27 | Feed Line | TPR14 |
| 28 | Faucet Line | TPBL14 |
| 29 | UV Light | UVO1 |

**Booster Pump Schematic**




*Note: not all system schematics are shown above. Quick connect units, like the one pictured to the left, follow similar setup procedures. Please contact your dealer with any questions on installation or servicing of your RO system.*

**WARRANTY INFORMATION**
All reverse osmosis systems carry a limited liability warranty. Warranty period will vary per model and system options. Contact your local dealer for details on warranty information.

**Important Information**

| Serial Number: | Installation Date: | Model Number: |
|---|---|---|
| | | |

**Service Record (Last Service Date)**

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|---|---|---|
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# TROUBLESHOOTING GUIDE

### Not Enough Water From Holding Tank

| Possible Cause | Solution |
|---|---|
| Feed water valve is plugged or closed. | Open valve or unclog. |
| Sediment/Carbon filter(s) clogged. | Replace Filters. |
| Low incoming water pressure. | Incoming water pressure must be above 40 PSI. Install Booster or Permeate Pump. |
| Reverse Osmosis Membrane is fouled. | Make sure incoming water pressure is within operating limits. Make sure drain line is not clogged. (See High TDS) Correct cause of fouling and replace RO Membrane. |
| Air pressure in holding tank is incorrect. | Empty water from holding tank. Air pressure in valve stem should be between 6-8 PSI. |
| Air Bladder in Holding Tank is ruptured. | Replace Holding Tank. |
| Holding Tank valve is closed. | Open valve. |
| No water to drain. Drain Flow Restrictor is clogged. | Replace Drain Flow Restrictor. |
| No water to drain. Air Gap Faucet is clogged. | Clear or replace Air Gap Faucet. |
| Check Valve on RO Membrane Housing is stuck. | Replace Check Valve. |
| Automatic Shut-Off Valve Malfunctioning. | Replace Automatic Shut-Off Valve. |

### Low Water Pressure From Dispensing Faucet

| Possible Cause | Solution |
|---|---|
| Air Pressure in Holding Tank is incorrect. This is the #1 reason for low flow from Reverse Osmosis Faucet. | Open faucet and empty water from holding tank. Shut off feed water to system and remove holding tank from under sink. Locate the air valve stem (just like on a car or bicycle tire) and add air. If there is still water in the tank, continue to add air until all the water is removed. Once all the water is removed, continue to add air and pressurize to 6-8 PSI. Re-install the tank under the sink, turn on feed supply to the system and allow the tank to fill. |
| Carbon Post Filter is clogged. | Replace Post Filter |
| Holding Tank Valve is partially closed. | Open Valve. |
| Faucet is out of adjustment or faulty. | Repair or replace Faucet. |
| Heavy water use. Holding Tank empty. | Allow Holding Tank to refill. |
| Low Water Production. | See previous section on Low Quantity of Water From Holding Tank. |

### Product Water is High in Total Dissolved Solids (TDS)

| Possible Cause | Solution |
|---|---|
| Clogged Prefilter. | Replace Filter. |
| Low incoming water pressure. | Incoming water pressure must be > 40 PSI. Install Booster or Permeate Pump. |
| RO Membrane is not correctly sealed in Housing. | Check that RO Membrane is correctly installed. |
| Reverse Osmosis membrane is expended. | If Membrane life is unusually short, find and correct the problem. (Average life is 2 - 3 years.) Replace RO Membrane. |
| Product water and drain water lines are reversed. | Correct plumbing. |
| No water to drain. Drain Flow Restrictor is clogged. | Replace Drain Flow Restrictor. |
| No water to drain. Air Gap Faucet is clogged. | Clear or replace Air Gap Faucet. |
| The Automatic Shut-Off Valve is not closing. | Repair or replace Automatic Shut-Off Valve. |
| New Carbon Postfilter has not been rinsed completely. | Drain Holding Tank twice to rinse new Carbon Postfilter. |
| The incoming feed water TDS has increased. | An increase in feed water TDS will also give an increase in Product Water TDS. |

### Tastes and Odors in Product Water

| Possible Cause | Solution |
|---|---|
| Carbon Post Filter is exhausted. | Replace Filter. |
| There is foreign matter in Holding Tank. | Clean, flush and sanitize the Holding Tank. Replace filters. |
| Product water and Drain water lines are reversed. | Correct plumbing. |
| Dissolved gases in feed water. | Pre-treat feed water to remove gasses. |
| Increase in Product Water TDS. | See High TDS in Product Water Section |

### Drain Water Overflows at the Air Gap Faucet

| Possible Cause | Solution |
|---|---|
| Air Gap is clogged. | Clear Air Gap |
| Drain line is clogged. | Clear tubing. |
| Drain flow rate is too high. | Replace Flow Restrictor. |

### Faucet Leaks or Drips

| Possible Cause | Solution |
|---|---|
| Water leaks from faucet spout. | Adjust faucet by turning the tee bar located under the handle to provide a small amount of free play in the handle when shut off. Should this not work, repair or replace the faucet. |
| Leaks from beneath the handle. | Repair or replace the faucet. |