

The Producer™

Reverse Osmosis Water Purification System



INSTALLATION AND OPERATING MANUAL

WARNING

Please read carefully before proceeding with installation. Failure to follow any attached instructions or operating parameter may lead to the product's failure and possible damage to property.

SpectraPure® Inc. assumes no responsibility for water damage due to leaks. It is the user's responsibility to determine that the system is leak-free.

Thank You for your purchase of a SpectraPure® System. With proper installation and maintenance, this system will provide you with high quality water for years to come. All SpectraPure® products are rigorously tested by us for safety and reliability. If you have any questions or concerns, please contact our customer service department at 1.800.685.2783 or refer to our online troubleshooting at www.spectrapure.com.

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SYSTEM DESCRIPTION

The Producer™ RO System is a three-stage reverse osmosis system.

1. First, the incoming feed water is passed through a Carbon Tank prefilter. This filter removes organics and chlorine from the feed water that may damage the membrane.
2. The second stage of filtration is a 0.5 micron Sediment prefilter. This filter is required to remove excess turbidity (particulate matter) that may cause the membrane to plug.
3. At this point you can add an (optional) Water Softener to increase the membrane life
4. The third filtration stage of the system is a high rejection thin film composite (TFC) reverse osmosis membrane. It removes over 98% of most inorganic salts, all microorganisms and almost all high molecular weight organics in the water.

Fig. A: Filter Diagram



SYSTEM SPECIFICATIONS:

Sediment Prefilter	1 micron MicroTec™ sediment prefilter
Carbon Filter	Granulated Activated Carbon
RO Membrane Type	Thin-Film Composite (TFC)
Rejection Rate	Greater than 98% average
Input Water Pressure	60 psi (4.15 bar) line pressure*
Input Water Temp	77°F (25°C)
Recovery Rate	20% (i.e. 20% of the water will be collected as pure water)

Nominal Membrane Flow Rates @ 60 psi, 77° F :

<u>GPD (lpd)</u>	<u>Product Water Flow Rate</u>	<u>Concentrate Flow Rate (3:1)</u>
600	25 gal/hr	264 ml/min
1400	105 gal/hr	420 ml/min

Reverse Osmosis Operating Limits:

Operating Pressure*	40 – 80 psi (2.75 – 5.5 bar)
pH Range	3 – 11
Maximum Temperature	100° F (38° C)
Maximum Turbidity	1.0 NTU
Maximum Silt Density Index	5.0 (based on 15 min. test time)
Maximum Chlorine	less than 0.1 ppm
Maximum TDS	2000 ppm
Maximum Hardness	10 grains (170 ppm as CaCO ₃)
Maximum Iron	less than 0.1 ppm
Maximum Manganese	less than 0.1 ppm
Maximum Hydrogen Sulfide	0 ppm
Langelier Saturation Index	LSI must be negative

*Operating pressure less than 40 psi will require a booster pump:

*Operating pressure greater than 80 psi will require a pressure regulator.

SYSTEM INITIALIZATION

If you are setting up your system for the first time or replacing a membrane, please adjust the ratio of waste to product as shown in steps 6-8.

Tap Water Hookup:

1. Attach the garden hose adapter to your *cold* water source. Never run hot water (greater than 100° F (38° C)) through the system.

Carbon Rinse:

2. Remove Sediment Filter from the 10" housing and screw the empty housing back on. (Do not tighten housing with provided filter wrench. The wrench is used to unscrew housings only). *Do not connect water to the membrane at this time.*
3. Run water through the Carbon tank until the water runs clear. Discard this water down the drain.
4. Once the water runs clear, re-install Sediment Filter and connect to RO membrane.

Reverse Osmosis (RO) Membrane Rinse:

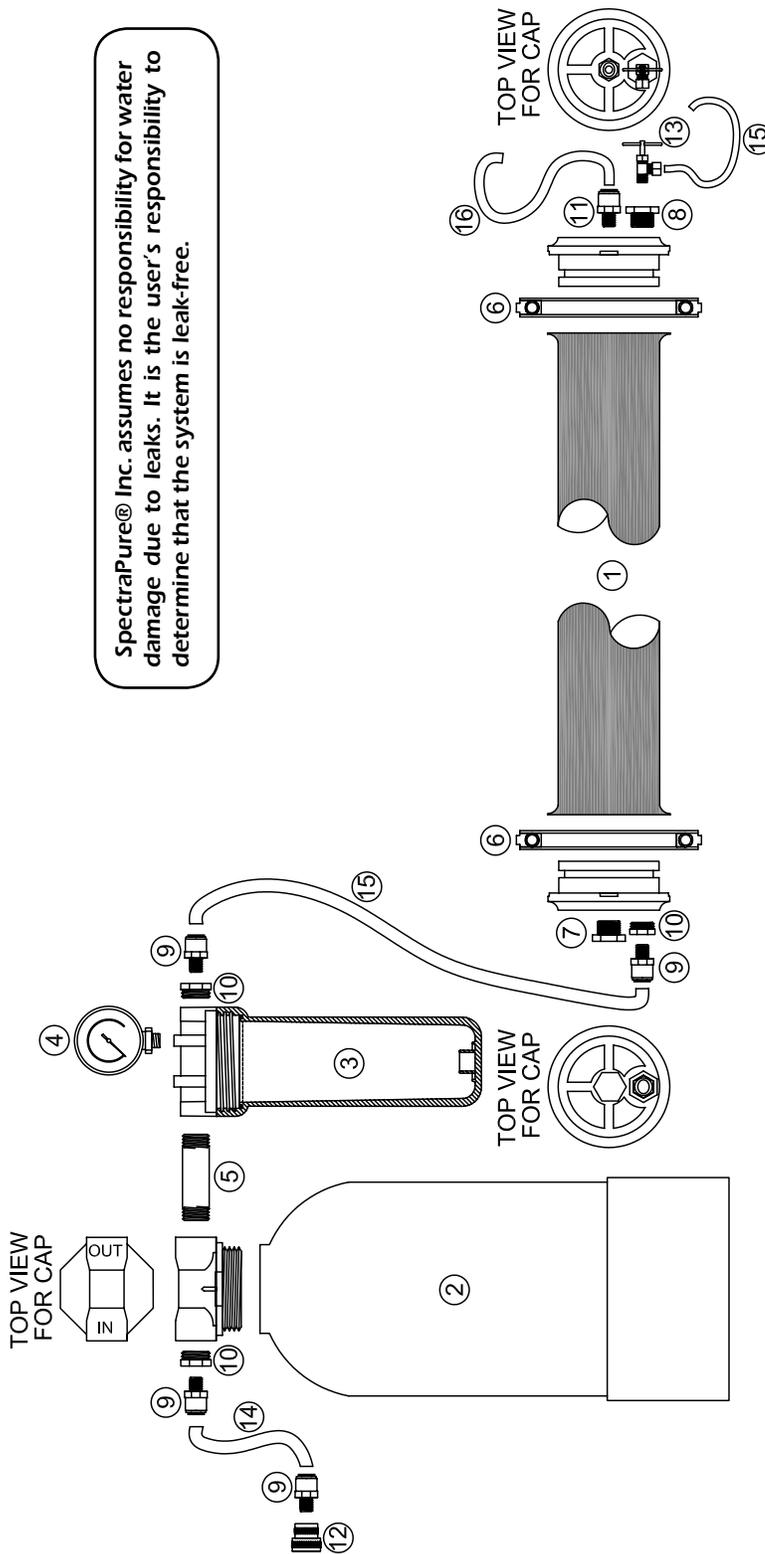
5. You must rinse out the membrane preservative by running 2 gallons of purified water. If you have DI resin cartridges after the membrane, rinse the membrane with the down-stream DI's removed. Discard this water down the drain.

NOTE: When replacing the membrane, bypass the RO water to a drain for 2 gallons.

Waste to Product Flow Adjustment:

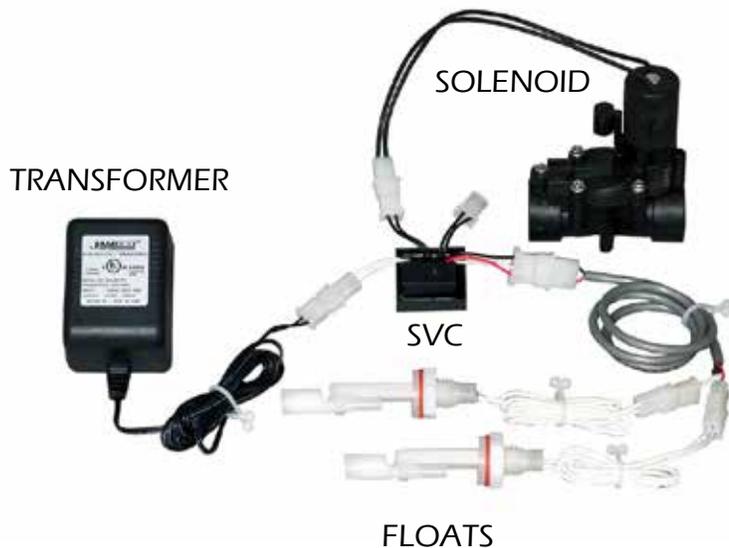
6. Place the yellow concentrate tubing and the blue purified water tubing into a drain. Do not restrict flow from these lines.
7. Open the cold water supply valve. You may use pressure up to 80 psi (5.5 bar).
8. Adjust the flow restrictor needle valve, page 6, (#13) until you receive a 3:1 ratio of waste to product water by measuring product and waste water production for 1 minute each.
9. Check the system to ensure that all fittings are tight and leak-free before leaving the system unattended.

NOTE: If the unit is not used for several days, run the system for at least 15 minutes before collecting any water.



SpectraPure® Inc. assumes no responsibility for water damage due to leaks. It is the user's responsibility to determine that the system is leak-free.

- 1 - Stainless Steel Housing (HSG-M-SS-4x40)
- 2 - Carbon Tank w/ Cap (CF2050-0.5CF)
- 3 - Clear SlimLine 10" Sediment Housing (HSG-F-12-# 10-SL-CLR)
- 4 - Wet Pressure Gauge (GA-W-2.0-B-1/4-160)
- 5 - Brass 4" Nipple (BR-NP-12-4.00)
- 6 - Membrane Housing Clamps (CLIP-CLIC-4.0)
- 7 - Nylon Plug (NY-PL-8)
- 8 - Nylon Hex Bushing, 3/4MPT x 1/8FPT (NY-HB-12-2)
- 9 - Push Fitting Connections, 1/2T x 1/2MPT (DM-10-8-8)
- 10 - Nylon Hex Bushing, 3/4MPT x 1/2FPT (NY-HB-12-8)
- 11 - Push Fitting Connection, 3/8T x 1/2MPT (DM-10-6-8)
- 12 - Brass Swivel Garden Hose Adapter, FGH x 1/2FPT (GHA-8FPT-BR)
- 13 - Flow Restrictor 1/4" Needle Valve
- 14 - Tap Water "IN" Black Tubing, 1/2" (TUB-8BK)
- 15 - Waste Water "OUT" Yellow Tubing, 1/4" (TUB-4YW)
- 16 - Product Water "OUT" Blue Tubing, 3/8" (TUB-6BL)



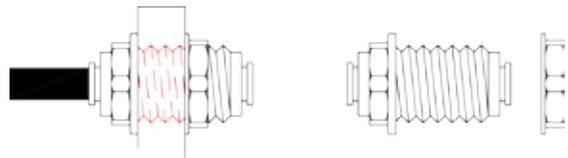
NOTE: Floats are to be mounted horizontal when dry and float up when wet. In most instances we recommend locating the low float approximately halfway down your reservoir. DO NOT OVERTIGHTEN when installing the floats.

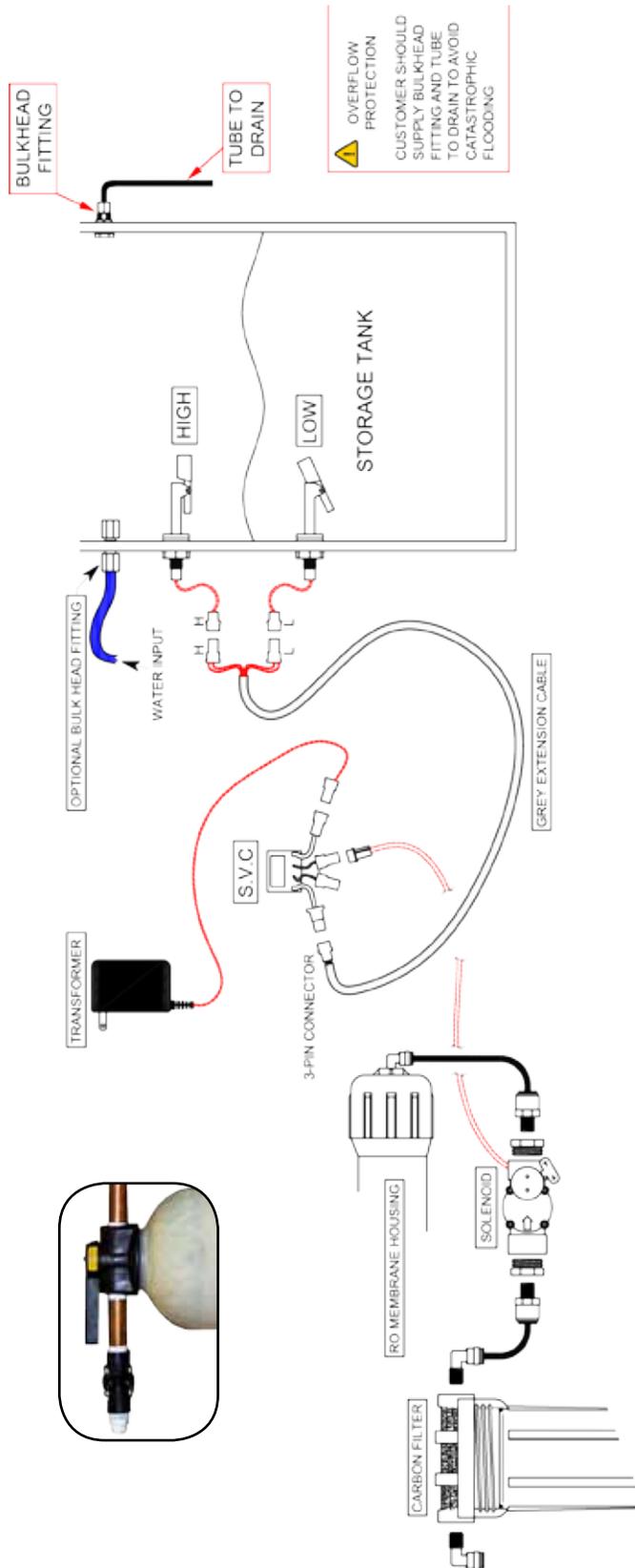
Float Installation:

1. Install both the High and Low Floats onto a open container like a RubberMaid™ trash can. The floats can be mounted by drilling a 5/8" hole. (The High Float shuts down the system, while the Low Float turns the system on).
2. Connect the floats to the grey electrical extension cable and then to the 3-socket connector on the S.V.C.

Solenoid Installation:

3. Unscrew current push fitting from the carbon tank. (This fitting is the input connection for the tap water).
4. Thread on the Brass Nipple to the Carbon Tank and then the Solenoid. (Arrow on Solenoid points in the direction where the water flows). PAGE 8.
5. Connect electrical cable to S.V.C. and thread last two fittings onto the solenoid as shown on page 8.
6. 3/8" BULK HEAD FITTING: Use a paddle bit and carefully drill a 13/16" hole for installation at the top of the reservoir (above the high level float)
7. Provide overflow plumbing suitable for your storage tank and installation.





MAINTENANCE

Using the Pressure Gauge

The pressure gauge is used to monitor the condition of the prefilters. When the prefilters are new, the gauge will indicate the actual available water pressure. As the filter collects particulates, the pressure will begin to drop.

Sediment Prefilter and Carbon Tank:

1. A 10-15% (or more) drop in pressure would indicate that the Sediment and/or Carbon Prefilter needs to be replaced. To determine which needs to be changed, follow this procedure:
 - a. Note the pressure reading on the gauge.
 - b. Remove the Sediment Prefilter out of the 10" housing and screw the empty housing back on.
 - c. Run water through the system to see if you get an increase in pressure on the gauge.
 - * If you do get an increase in pressure when running this test, then the sediment filter needs to be replaced.
 - * If the pressure stays the same, then you need to back wash the carbon tank. (An optional manual back wash valve is available for the carbon tank).
 - * If the carbon tank plugs prematurely and you do not have a manual backwash valve, please contact us for further instructions.
2. Monitor the Carbon tank for chlorine removal by using a chlorine test kit (TK-CL-10-KIT). If there is any presence of chlorine after the carbon tank, change the carbon.

TROUBLESHOOTING GUIDE:

Product Water - Low Production Rate

Cause	Corrective Action
Plugged prefilters	Replace prefilters
Low water temperature	Heat feed water or use higher GPD membrane
Low water pressure	Use booster pump or use higher GPD membrane
Fouled membrane	Replace membrane

MEMBRANE TROUBLESHOOTING GUIDE

The following chart illustrates the procedure for determination of RO membrane performance. However, the chart represents only rough guidelines for determining performance of RO membrane. Depending on your tap water chemistry, the rejection characteristics of the membrane may vary significantly.

Method of Testing	Calculate % of Rejection	Test Results	Conclusion
TDS/Conductivity Tester	Measure feed water (X) RO product water (Y) for TDS/Conductivity	Is Rejection greater than 95%?	No - Replace Membrane Yes - Membrane OK
Alkalinity Test Kit	Measure feed water (X) RO product water (Y) for Alkalinity	Is Rejection greater than 90%?	No - Replace Membrane Yes - Membrane OK
Hardness Test Kit	Measure feed water (X) RO product water (Y) for Hardness	Is Rejection greater than 90%?	No - Replace Membrane Yes - Membrane OK

**Caution: This test is will not work on softened water sources.

TIPS FOR LONG MEMBRANE LIFE:

1. Replacement of 1 micron sediment filter once every 6 months. This will prevent membrane fouling due to silt or sediment depositing on the membrane.
2. Membrane should not be operated at lower than the recommended concentrate to purified water ratios, as described on page 5.
3. Operating reverse osmosis systems on softened feed water greatly reduces the chances of membrane fouling.

STORAGE

1. Your RO System must be protected from freezing or temperatures above 100° F (38°C). If the unit is used outside, avoid putting the system in direct sunlight or connecting it to a garden hose that may be exposed to sunlight.

Light Sources

- A. Most of the components of this system are plastic and are subject to damage by ultraviolet light from the sun and other sources such as metal halide lighting.
- B. Algae is more likely to thrive inside the clear filter housings when exposed to bright light.
- C. Avoid installing this unit in bright light or direct sunlight.

REPLACEMENT PARTS

<u>Model</u>	<u>Replacement Part</u>
SF-MT-1-10	1 micron MicroTec™ Sediment Filter
AC-20x50-COCO	Carbon bag refill (refills tank twice)
MEM-1000	Replacement membrane for 600 gpd system
MEM-2600	Replacement membrane for 1400 gpd system
GHA-8FPT-BR	Garden Hose Adapter with 1/2" Push Fitting
WR-UNIV	Universal Filter Wrench

ONE YEAR LIMITED WARRANTY:

Effective on products purchased after March 10, 2005.

All standard water purification products manufactured by SpectraPure have a 3 year limited warranty, except the Eliminator™, MarinePro™, Industrial, Laboratory, Custom Systems, Commercial and electrical products which have a 1 year limited warranty. LiterMeters™ and UPLC™ have a 5 year limited warranty. OEM equipment resold by SpectraPure (pumps and monitors) carry the original manufacturer's warranty.

SpectraPure, Inc.® warrants the product to the original owner only to be free of defects in material and workmanship for a period of three years from the date of receipt. SpectraPure's liability under this warranty shall be limited to repairing or replacing at SpectraPure's option, without charge, F.O.B. SpectraPure's factory, any product of SpectraPure's manufacture. SpectraPure will not be liable for any cost of removal, installation, transportation or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by SpectraPure are subject to the warranty provided by the manufacturer of said products and not by SpectraPure's warranty. SpectraPure will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair or, if the product was not installed in accordance with SpectraPure's or other manufacturer's printed installation and operating conditions, or damage caused by hot water, freezing, flood, fire or acts of God.

SpectraPure will not be responsible for any consequential damages arising from installation or use of the product, including any water or mold damage due to flooding which may occur due to malfunction or faulty installation, including, but not limited to failure by installer to over- or under-tighten fittings, housings, and/or push-style fittings, or improper installation of push-style fittings. Consumable items such as prefilters and membranes are not covered under the 3 year warranty.

SpectraPure warrants (prorated) the performance of tested SpectraSelect™ RO membrane elements only, for one year from date of receipt by the buyer, providing that the loss of performance was not caused by fouling, neglect or water conditions exceeding the feed water parameters listed in the applicable product manual (refer to detailed membrane warranty information). SpectraPure will, on confirmation of loss of performance during the warranty period, credit the prorated amount of the current catalog price of the element. The disposable filters and cartridges are not covered under the warranty.

To obtain service under this warranty, the defective system or components must be returned to SpectraPure with proof of purchase, installation date, failure date and supporting installation data. Any defective product to be returned to the factory must be sent freight prepaid. Documentation supporting the warranty claim and a Return Goods Authorization (RMA) number must be included. SpectraPure will not be liable for shipping damages due to the improper packaging of the returned equipment and all returned goods must also have adequate insurance coverage and a tracking number.

SpectraPure will not pay for loss or damage caused directly or indirectly by the presence, growth, proliferation, spread or any activity of "fungus", wet or dry rot or bacteria. Such loss or damage is excluded regardless of any other cause or event that contributes concurrently or in any sequence to the loss. We will not pay for loss or damage caused by or resulting from continuous or repeated seepage or leakage of water, or the presence or condensation of humidity, moisture or vapor, that occurs over a period of 14 days or more. "Fungus" and "fungi" mean any type or form of fungus or Mycota or any by-product or type of infestation produced by such fungus or Mycota, including but not limited to, mold, mildew, mycotoxins, spores, scents or any biogenic aerosols.

SpectraPure will not be liable for any incidental or consequential damages, losses or expenses arising from installation, use, or any other causes. There are no expressed or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

* The three year limited warranty does not apply to consumable items, including but not limited to, filters and cartridges unless specifically stated above.