Two Year Limited Warranty

SpectraPure, Inc. warrants each new Reverse Osmosis system to the original owner only to be free of defects in material and workmanship for a period of two years from the date of receipt. SpectraPure's liabililty under this warranty shall be limited to repairing or replacing on 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 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 printed installation and operating conditions or damage caused by hot water, freezing, flood, fire, or acts of God.

SpectraPure Inc. will not be responsible for any consequential damages arising from installation or use of the product, including any water damage due to flooding which may occur due to malfunction or faulty installation, including, but not limited to failure of installer to tighten all fittings.

SpectraPure warrants (pro-rated) the performance of membrane elements 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 on page 3 of this manual.

* Most municipal water supplies meet these requirements.

Terms and Conditions of Sale

1. To obtain service under this warranty, the defective system or components must be returned to SpectraPure with proof of purchase, installation date and failure date.

2. Any defective product to be returned to the factory must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Goods Authorization must be included, if so instructed.

3. 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.

4. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages and some jurisdictions do not allow limitations on how long implied warranties may last. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary jurisdiction to jurisdiction.

5. Method of Payment: All orders will be shipped C.O.D. or require payment in advance.

6. SpectraPure, Inc. reserves the right to change prices without notice when necessary.

SpectraPure®Inc. 480.894.5437 Call us toll-free 1.800.685.2783
215 South Industrial Drive, Suite 2A Tempe, Arizona 85281-2941

SpectraPure®
MaxPure™ MPDI RO/DI System

Reverse Osmosis/Ion Exchange Water Purification System

(Single and Dual Membrane Models)

Installation and Operating Manual

REV - 03-01-08

Replacement Parts

Model	Replacement Part
SF-MT-1.0-10	1 micron MicroTec™ Sediment Filter
CF-10-10	10 micron Carbon Block Pre-Filter
SF-MT-0.5-10	0.5 micron MicroTec™ Sediment Filter (upgrade)
CF-0.5-10	0.5 micron Carbon Block Pre-Filter (upgrade)
TFC-25	25 gpd (95 lpd) TFC Membrane
TFC-40	40 gpd (151 lpd) TFC Membrane
TFC-60	60 gpd (228 lpd) TFC Membrane
TFC-90	90 gpd (340 lpd) TFC Membrane (use 2 for 180 gpd (680 lpd) System)
FR-25	Flow Restrictor for 25 gpd (95 lpd) System
FR-40	Flow Restrictor for 40 gpd (151 lpd) System
FR-60	Flow Restrictor for 60 gpd (228 lpd) System
FR-90	Flow Restrictor for 90 gpd (340 lpd) System
FR-180	Flow Restrictor for 180 gpd (680 lpd) System
DI-SB-CC-10	SilicaBuster™ Color Change DI Cartridge
GHA-4	1/4" (6.35 mm) Garden Hose Adapter
XWR-UNIV	Filter Wrench

Optional Accessories

Model	Optional Part
FAU-SMP	Quick Connect Faucet Coupler
TK-CL-25	Total Chlorine Test Kit
TS-C61	Conductivity (micro-Siemens)Tester
TS-T71	TDS (Total Dissolved Solids)Tester
VA-FVK-4	Flush Valve Kit
BPLF-MO-115	Low-Flow Booster Pump, 115V
BPLF-MO-230	Low-Flow Booster Pump, 230V
BPHF-MO-115	Hi-Flow Booster Pump, 115V
BPHF-MO-230	Hi-Flow Booster Pump, 230V

See our Catalog or our Web Site for Liquid Level Controls and other Optional Accessories

Choosing a Mounting Location

When considering a location for the installation of the RO System, consider the following factors:

Light Sources

1. 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.
2. Algae is more likely to thrive inside the clear filter housings when exposed to bright light.
3. Avoid installing this unit in bright light or direct sunlight.

Temperature Extremes

1. The unit must be kept out of areas that are subject to freezing temperatures.
2. High temperatures greater than 100° F (38° C) must be avoided. 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.

System Specifications

Sediment Pre-Filter	1 micron MicroTec™ sediment pre-filter
Carbon Filter	10 micron carbon block pre-filter
RO Membrane Type	Thin-Film Composite (TFC)
DI Cartridges	SilicaBuster™ Color-Indicating DI Cartridge
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 :

GPD (lpd)	Product Water Flow Rate	Concentrate Flow Rate
25 (95)	66 ml/min	264 ml/min
40 (151)	105ml/min	420 ml/min
60 (228)	158 ml/min	632 ml/min
90 (340)	235ml/min	940 ml/min
180 (680)	470ml/min	1880 ml/min

Reverse Osmosis Feed Water Requirements

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 CaCO3)
Maximum Iron	less than 0.1 ppm
Maximum Manganese	less than 0.1 ppm
Maximum Hydrogen Sulfide	0 ppm
Langlier Saturation Index	LSI must be negative

*Operating pressure less than 40 psi will require a booster pump:
less than 49 GPD use BPLF-MO-115(-230),
more than 49 GPD use BPHF-MO-115(-230).

*Operating pressure greater than 80 psi will require a pressure reducing valve.

System Description

The MaxPure™ MPDI System is a four stage reverse osmosis/ de-ionization system.

1. First, the incoming feed water is passed through a 1 micron micro-tec sediment pre-filter. This filter is required to remove excess turbidity (particulate matter) that may cause the membrane to plug.
2. The second stage of filtration is a 10 micron carbon block pre-filter. This filter removes organics and chlorine from the feed water that can damage the membrane.
3. 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 micro-organisms and almost all high molecu lar weight organics in the water.
4. The fourth stage moves water through a color change strong based anion cartridge. The anion exchange resin removes all negative ions and replaces them with hydroxyl ions.

This super-capacity RO/DI system consists of newly developed color-indicating DI resin cartridges with twice as much phosphates/silica removal resin as in previous designs.

It is recommended that you keep replacement cartridges on hand, ready to install as soon as the cartridge becomes exhausted.

Operating the Push-Fittings

The push-fittings used on SpectraPure products can be easily serviced. To remove the tubing from its push-fitting:

a.) Firmly depress and hold the push-fitting collar down with your thumbnail.

b.) While the push-fitting collar is depressed, pull the tubing straight out of the push-fitting. Once the tubing is removed, release the collar.

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. Replacement of 10 micron carbon block filter at least once every 6 months or when chlorine breakthrough occurs. This will ensure good membrane life and protect the membrane from chlorine damage.
3. Membrane should not be operated at lower than the recommended concentrate to purified water ratios, as described on page 6.
4. Operating reverse osmosis systems on softened feed water greatly reduces the chances of membrane fouling.
5. Use the optional flush kit valve after each use of the system to extend membrane life up to 6 months.

Storage

1. It is recommended that you store your RO System in a cool place when not being used.
2. Your RO System must be protected from freezing or temperatures above 100° F (38°C).

System Troubleshooting Guide

Product Water - Low Production Rate

Cause	Corrective Action
Plugged pre-filters	Replace pre-filters
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 % 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 not to be used on softened water sources.

To re-insert the tubing into its push-fitting:

a.) Moisten the O-ring seal inside the concentrate outlet fitting by dripping a few drops of clean water into the fitting.

b.) Grasp the yellow tubing near the flow restrictor end, and insert the tubing into the push-fitting. Push the tubing into the fitting until resistance is felt, approximately 1/2 inch (12.7 mm). The tubing is now resting on the O-ring seal inside the fitting.

c.) Firmly push the tubing approximately an additional 1/4 inch (6.35 mm) further into the fitting to completely seat the line into the fitting and O-ring seal.

Fig. A: System Diagram

System Initialization & System Start-Up

If you are setting up your system for the first time or replacing the RO membrane:

1. Remove the DI cartridge from the right-most housing and re-install the empty housing.
2. Attach the garden hose adapter to your cold water source. Never run hot water (greater than 100° F (38° C)) through the system.
3. Place the yellow concentrate tubing and the blue purified water tubing into the drain. Do not restrict flow from these lines.
4. Slowly open the cold water supply valve and allow the first two housings to fill. You may use pressure up to 80 psi (5.5 bar).
5. Check the system to ensure that all fittings are tight and leak-free before leaving the system unattended.
6. Allow the system to produce at least 2 gallons (7.57 liters) of purified water and discard.
7. Check the Concentrate to Purified Water Ratio by following the set-up instructions on the next page.
8. Close the cold water supply valve. Locate and re-install the DI cartridge.
9. Slowly open the cold water supply valve and discard the first gallon of product water.

Note: Air trapped in the DI cartridges is a normal condition and will not affect the operation of the DI cartridges. Mounting the blue product water tubing so that at least a short length of tubing is higher than the filter unit can often alleviate this condition.

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.

Membrane Output Calculation Example

What is the expected GPD from a 75 GPD System at 40 psi pressure and 60°F water temperature?

PCF = 40 ÷ 60 = 0.666
TCF = 0.754 (from Table 1)
Expected GPD = 75 × 0.666 × 0.754 = 37.7 GPD ± 15%

37.7 GPD would be the Actual Production Rate

Testing the Quality of the Membrane

The performance of a RO membrane is measured by its ability to reject salts (or TDS (Total Dissolved Solids)).

Important: Test the quality of the membrane once every 6 months.

Note: This procedure will require a Conductivity Meter (TS-C61) or (TS-T71).

Procedure:

1. Measure tap water conductivity. (Call it X)
2. Run the system for 15-20 minutes.
3. Rinse test instrument cell 2-3 times with RO water.
4. Measure RO water conductivity directly from the blue product water line. (Call it Y).
5. Subtract RO water conductivity from tap water conductivity. (X - Y)
6. Divide this quantity by tap water conductivity. (X - Y) ÷ X
7. Rejection = [(X - Y) ÷ X] ×100

* Conductivity in the above procedure could be replaced by hardness, alkalinity, nitrate, phosphate, silica etc. (measured in ppm or mg/l).

Rejection of the RO Membrane Calculation Example

1. Tap water hardness = 150 ppm (X)
2. RO water hardness = 7 ppm (Y)
3. X - Y = 143 ppm
4. (X - Y) ÷ X = 143 ÷ 150 = 0.953
5. Rejection = [(X - Y) ÷ X] ×100 = 0.953 ×100 = 95.3

Membrane Hardness Rejection = 95.3 % : Rejection rates less than 95% may indicate that the membrane should be replaced.

Membrane Output Calculation

Membranes produce the rated gallons per day (GPD) at 60 psi (4.1 bars) operating pressure, 77°F (25°C) operating temperature and 500 ppm total dissolved solids.

Membrane output gallons per day (GPD) depends on operating pressure, water temperature and the ppm TDS in the feed water.

Expected GPD = Rated GPD × PCF × TCF

PCF is the pressure correction factor
TCF is the temperature correction factor

Calculation of Pressure Correction Factor (PCF): The output (GPD) from the membrane is directly proportional to the applied pressure.

Note: The membrane is rated to produce the rated GPD at 60 psi. For any pressure other than 60 psi the output GPD is multipled by the PCF.

PCF = Line Pressure (in psi) ÷ 60

Calculation of Temperature Correction Factor (TCF): The output (GPD) also decreases with decrease in temperature. This is because water viscosity increases with decrease in water temperature.

Temperature Correction Factor Table (TCF)

°F /°C	TCF	°F \°C	TCF	°F \°C	TCF
41.0 /5	0.521	59.0 /15	0.730	77.0 /25	1.000
42.8 /6	0.540	60.8 /16	0.754	78.8 /26	1.031
44.6 /7	0.560	62.6 /17	0.779	80.6 /27	1.063
46.4 /8	0.578	64.4 /18	0.804	82.4 /28	1.094
48.2 /9	0.598	66.2 /19	0.830	84.2 /29	1.127
50.0 /10	0.620	68.0 /20	0.857	86.0 /30	1.161
51.8 /11	0.640	69.8 /21	0.884	87.8 /31	1.196
53.6 /12	0.661	71.6 /22	0.912	89.6 /32	1.232
55.4 /13	0.684	73.4 /23	0.941	91.4 /33	1.267
57.2/14	0.707	75.2 /24	0.970	93.2 /34	1.304

Checking the Concentrate to Purified Water Ratio

This procedure will assure you of maximum life and reliability of your SpectraPure System.
Failure to perform this procedure can permanently damage the membranes and will void the pro-rated Membrane Warranty.

In order to maximize the life of your SpectraPure RO Membrane, you may need to adjust the ratio of the concentrate to purified water. If not enough concentrate is allowed to flow past the membrane during operation, the impurities will precipitate out on the membrane surface, clogging the RO Membrane. To keep this from happening, the Concentrate to Purified Water Ratio **must** be checked and adjusted in order to compensate for pressure and temperature variations that exist in all water supplies. The flow rate of the concentrate must be a minimum of 4X the product flow rate. 4X to 6X is an acceptable concentrate flow rate.

Procedure:

1. Open the cold water supply valve and let the system run for 15 minutes.
2. Collect product water from the blue tubing into a measuring cup for two minutes. Measure the collected amount in milliliters and divide by 2. The resultant is the **product flow rate in Milliliters per Minute.**

   (Although not needed in this proceedure, the daily product flow rate in Gallons per Day (GPD) can be calculated to be equal to the product flow rate times **0.38**).
3. Use the procedure and tables on the following pages to determine the optimum length of the flow restrictor capillary tubing. After adjusting the flow restrictor, repeat the above procedure and recheck the Concentrate to Purified Water Ratio.

Flow Restrictor Removal, Adjustment, and Replacement

1. Locate the yellow concentrate tubing (Fig. B). Remove the tubing from its push-fitting at the membrane as follows:
   a.) Firmly depress and hold the push-fitting collar down with your thumbnail.
   b.) While the push-fitting collar is depressed, pull the tubing straight out of the push-fitting. Once the tubing is removed, release the collar.

2. Carefully remove the flow restrictor assembly, now visible as a plastic insert in the end of the yellow tubing (Fig. C). You may use an object such as a dull knife to help pry the flow restrictor insert from the end of the tubing. The entire flow restrictor (consisting of the insert plug and thin capillary tubing) may then be gently extracted.

Note: Take care not to crush or otherwise damage the delicate capillary tubing.

3. Refer to the Flow Restrictor Tables (Fig. D). Find the table that represents the Flow Restrictor Assembly for the membrane that you have. Find the **product water flow rate** in the left-hand column and the **length of the flow restrictor** in the right-hand column.

   Example: If your Flow Restrictor Assembly is for a 90 GPD Membrane and the product water flow rate is 175 mL/Min, then the flow restrictor length should be 6 inches (15.2 cm)

4. Using a new single-edge razor blade, carefully measure and then cut the flow restrictor to the length indicated.

5. Re-insert the flow restrictor assembly into the yellow tubing and firmly re-seat the insert into the end of the yellow tubing by carefully pressing on the insert with your thumbnail. Care should be taken not to crush or otherwise damage the end of the capillary tubing protruding from the end of the insert.

Deionization Cartridge Diagnostic

The DI stage is an anion cartridge #DI-SB-CC-10. In order to determine the condition of the cartridge, watch for the color to change from the bottom to the top. The color will change from a very dark blue to a lighter blue or tan color. Once the cartridge has changed color by 70 to 80% it **must** be replaced. **Failure to replace the DI cartridge upon exhaustion will contaminate the product water.**

(For "down flow" DI systems or systems that incorporate a permeate pump, the color will change from the top to the bottom).

Note: If the pH of your tap water is too high, the resin may not change color.

Deionization Cartridge Replacement

Materials Needed: One DI-SB-CC-10 Deionizaton cartridge, filter wrench.

Procedure:

1. Remove the filter housing from its cap by unscrewing it counter clockwise as viewed from the bottom.
2. Remove and discard the old cartridge from the housing.
3. Thoroughly wash out the housings with hot soapy water to which a few teaspoons of household bleach have been added. Rinse well with clean hot water.
4. Install the new deionization cartridge. Make sure the cartridge is installed in the correct direction as marked on the filter housing and that the top seal is securely attached to the top of the cartridge
5. Re-install the bottom housing onto the cap by rotating it clockwise and tighten with the wrench.
6. Turn on system and check for leaks.

from the yellow tubing (see Flow Restrictor Removal, Adjustment, and Replacement). Reconnect the tubing to the membrane housing. Place the flow restrictor in a safe location where it will not be accidentally crushed or damaged.

11. Put the yellow concentrate tubing and the blue product water tubing in the drain and turn on the system water supply. Allow the system to flush for several minutes to remove any loose particles.
12. Turn off the water supply to the system. Remove the yellow tubing from the membrane tubing from the membrane housing and replace the flow restrictor assembly as described on page 9.
13. Re-insert the flow restrictor end of the yellow tubing into its push-fitting at the RO membrane and reconnect the yellow con centrate tubing to the membrane housing.
14. Turn on the water supply to the system and check for leaks. Check, and if necessary adjust, the Concentrate to Purified Water Ratio per the procedures described in that section.

Fig. F: Removing the Membrane Element

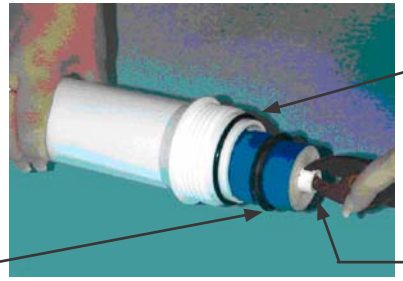


Fig. G: Inserting the New Membrane Element

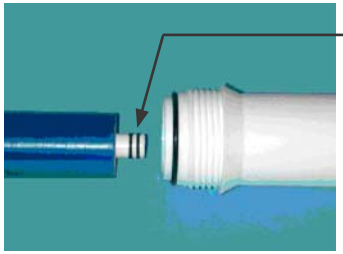


Fig. B: Reverse Osmosis Assembly
Top/Rear View

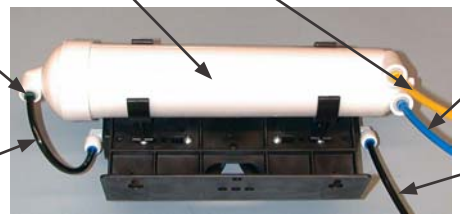
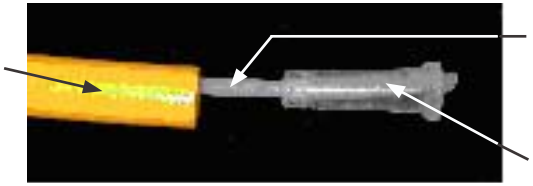


Fig. C: Flow Restrictor Assembly



7. Re-insert the yellow tubing into its push-fitting in the RO membrane as follows:
   a.) Moisten the O-ring seal inside the concentrate outlet fitting by dripping a few drops of clean water into the fitting.
   b.) Grasp the yellow tubing near the flow restrictor end, and insert the tubing into the push-fitting. Push the tubing into the fitting until resistance is felt, approximately 1/2 inch (12.7 mm). The tubing is now resting on the O-ring seal inside the fitting.
   c.) Firmly push the tubing approximately an additional 1/4 inch (6.35 mm) further into the fitting to completely seat the line into the fitting and O-ring seal.

8. Turn on the system water supply and check for leaks prior to further use or testing. If a leak is observed, you may not have pushed the yellow tubing into the push-fitting far enough to seal the tubing against the O-ring. Turn off the system water supply and reseat the tubing as described above.

Fig. D: Flow Restrictor Tables
(For 4:1 Concentrate to Product Ratio)

FR-25 & FR-40

PRODUCT RATE ml./min.	gpd	CUT TO LENGTH in.	cm.
110	42	1	2.5
84	32	2	5.1
75	29	3	7.6
69	26	4	10.2
63	24	5	12.7
60	23	6	15.2
55	21	7	17.8
51	19	8	20.3
47	18	9	22.9
45	17	10	25.4
44	17	11	27.9
42	16	12	30.5
40	15	13	33.0
39	15	14	35.6
38	14	15	38.1
37	14	16	40.6

FR-60

PRODUCT RATE ml./min.	gpd	CUT TO LENGTH in.	cm.
158	60	1	2.5
130	49	2	5.1
123	47	3	7.6
110	42	4	10.2
99	38	5	12.7
94	36	6	15.2
93	35	7	17.8
88	33	8	20.3
84	32	9	22.9
79	30	10	25.4
76	29	11	27.9
74	28	12	30.5
71	27	13	33.0
68	26	14	35.6
66	25	15	38.1
66	25	16	40.6

FR-90

PRODUCT RATE ml./min.	gpd	CUT TO LENGTH in.	cm.
269	102	1	2.5
233	88	2	5.1
213	81	3	7.6
198	75	4	10.2
183	69	5	12.7
175	67	6	15.2
164	62	7	17.8
154	58	8	20.3
148	56	9	22.9
141	54	10	25.4
136	52	11	27.9
133	50	12	30.5
129	49	13	33.0
128	48	14	35.6
124	47	15	38.1
124	47	16	40.6

FR-180

PRODUCT RATE ml./min.	gpd	CUT TO LENGTH in.	cm.
490	186	1	2.5
460	175	2	5.1
430	163	3	7.6
400	152	4	10.2
379	144	5	12.7
356	135	6	15.2
344	131	7	17.8
326	124	8	20.3
311	118	9	22.9
300	114	10	25.4
289	110	11	27.9
281	107	12	30.5
270	103	13	33.0
263	100	14	35.6
259	98	15	38.1
256	97	16	40.6

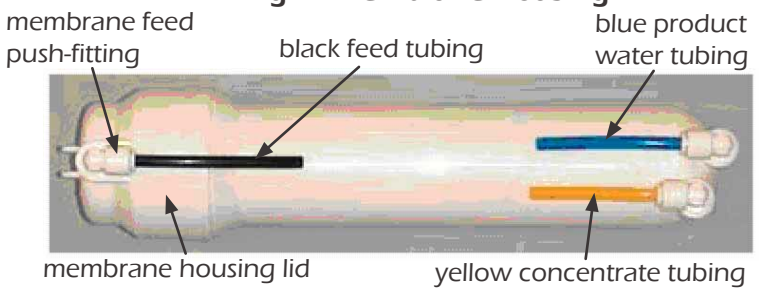
RO Membrane Replacement

1. Turn off the water supply to the RO system. Place the system where the membrane housing is easily accessible.
2. Remove the black tubing from the membrane feed push-fitting by depressing the collar on the fitting with your thumb and pulling the tubing from the push-fitting (Fig. E).
3. Lift the membrane housing from the retention clips.
4. Unscrew the membrane housing lid. This may require two people.
5. Use a pair of pliers to grasp the membrane stem and pull the membrane from the housing (Fig. F).
6. Remove the black housing O-ring (Fig. F). Wash the empty housing with soapy water. Rinse thoroughly with hot, clean water.
7. Insert new membrane into the housing, with the double O-ring end first (Fig.G). The tube must fit into the recess at the bottom of the membrane housing. When the membrane is aligned with the hole, firmly push the membrane into the hole until it bottoms out.
8. Place the black housing O-ring on the housing rim and carefully screw the lid back on to the base.
9. Reconnect the black tubing to the membrane feed push-fitting.

Note: If you have a dual-membrane system, perform steps 2 thru 9 on the second membrane now.

10. Disconnect the yellow concentrate tubing (Fig. B) from the membrane housing and remove the flow restrictor (Fig. C)

Fig. E: Membrane Housing



RO Membrane Diagnostic

In order to accurately determine the condition of the RO Membrane, a conductivity tester capable of reading the tap water conductivity and the product water conductivity would typically be required.

You may also use an alkalinity test kit (on softened water sources) or a hardness test kit (cannot be used on softened water sources).

Before performing any membrane test, the DI cartridge must be removed and the empty housing re-installed; also, the waste -to-product water ratio must be 4 to 1 or greater.

Procedure:

1. Turn on the system, let it operate long enough to fill the empty DI housing, then let it run for an additional 20 minutes.
2. See the section on Testing the Quality of the Membrane, page 19. Perform the test using your chosen method.
3. Turn off the system, drain the DI housing, re-install the DI cartridge, and turn on the system.

Note: All water sources are different and are subject to changes in conductivity from season to season which could affect the monitor reading depending on the time of the year. For this reason we recommend the use of a conductivity tester in order to register the most accurate measurement for determining the condition of the RO membrane.

Sediment Pre-Filter Diagnostic

For maximum contaminant removal and long membrane life, the sediment and carbon pre-filters must be changed at least 6-month intervals.** If your water contains a great deal of sediment or chlorine, the pre-filters may require more frequent changes to maintain adequate production rate and extended membrane life.

Sediment Pre-Filter Replacement

Materials Required: 1-micron MicroTec™ Sediment Filter (SF-MT-1-10), Filter Wrench

Procedure:

1. Turn off water supply to the system.
2. Refer to Fig. A (System Diagram). Using the provided filter housing wrench, remove the first housing from the left. Unscrew it counterclockwise as viewed from the bottom.
3. Remove the old filter and discard.
4. Thoroughly wash the housing with a mixture of hot soapy water and a few teaspoons of household bleach. Rinse well with clean hot water.
5. Install the new pre-filter into the housing, screw the housing back onto the assembly, and tighten securely using the supplied filter wrench.
6. Proceed with carbon block filter replacement.

**NOTE: A drop in the system's production is "in most cases" an indication that the sediment and/or carbon filter has become saturated with contaminants and will need to be replaced.

Carbon Block Filter Diagnostic

Replace the Carbon Block Filter at least every 6 months OR when chlorine breakthrough greater than 0.1 ppm occurs in the yellow concentrate line**. To test for chlorine breakthrough , collect a 10 ml sample of the concentrate from the yellow tubing and test the chlorine concentration using test kit TK-CL-25. If the chlorine concentration is above 0.1ppm, replace the carbon pre-filter.

Carbon Block Filter Replacement

Materials Required: 10 micron Carbon Block Filter (CF-10-10), Filter Wrench, Chlorine Test Kit (TK-CL-25)

Procedure:

1. Turn off water supply to the system.
2. Refer to Fig. A (System Diagram). Using the provided filter housing wrench, remove the second housing from the left. Unscrew it counterclockwise as viewed from the bottom.
3. Remove the old filter and discard.
4. Thoroughly wash the housing with a mixture of hot soapy water and a few teaspoons of household bleach. Rinse well with clean hot water.
5. Install the new carbon block filter, making sure that the black gaskets on both ends of the filter are firmly seated in the gasket recesses.
6. Screw the housing back onto the assembly, and tighten securely using the supplied filter wrench.
7. Turn on system water supply and check for leaks.

**NOTE: A drop in the system's production is "in most cases" an indication that the sediment and/or carbon filter has become saturated with contaminants and will need to be replaced.