

SpectraPure®

INNOVATORS IN WATER TECHNOLOGY

Ultra-High Efficiency RO/DI (MC-RODI-200UHE)



OWNER'S MANUAL & INSTALLATION INSTRUCTIONS

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.

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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OPERATIONAL SPECIFICATIONS

RO Feed Water Requirements

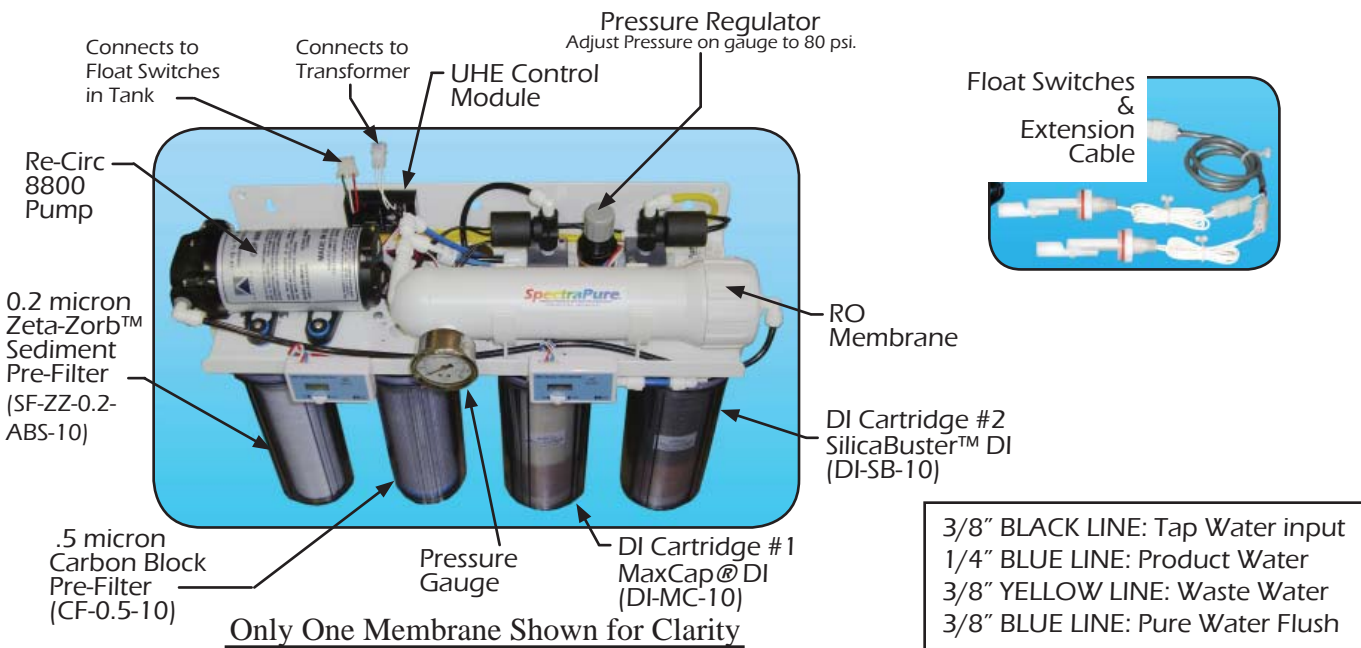
Tap Water Pressure:	30 psi.
pH Range:	3-11.
Max. Temperature:	100°F (38°C).
Max. Feed Turbidity:	1.0 NTU.
Max. Silt Density Index:	5.0 (based on 15 min. test time).
Maximum Chlorine:	< 0.1 ppm
Maximum TDS:	2000 ppm.
Maximum Hardness:	10 grains (170 ppm as CaCO ₃).
Maximum Iron:	< 0.1 ppm.
Maximum Manganese:	< 0.1 ppm
Maximum Hydrogen Sulfide:	0 ppm.
Langlier Saturation Index (LSI):	must be negative.

NOTE: MOST MUNICIPAL WATER SUPPLIES MEET THE ABOVE REQUIREMENTS. IF WELL WATER IS USED, PLEASE MAKE SURE THAT YOU OBTAIN A WATER TEST BEFORE INSTALLATION.

CONTENTS OF UHE WATER SYSTEM

UHE System Components

- (1) 5-Stage System
 - (2) Membrane (90 GPD)
 - (1) 0.2 Micron Zeta-Zorb™ Sediment Filter
 - (1) 0.5 Micron Carbon Block
 - (1) MaxCap® DI Cartridge
 - (1) Silica-Buster™ DI Cartridge
 - (1) High Flow Re-Circ Pump
 - (1) UHE Module
 - (1) Pressure Regulator
- (1) Pressure Gauge
- (2) Dual Probe In-Line TDS Meters
- (1) High & Low Float Switches (with 6ft extension cable)
- (1) 24VAC Transformer
- (1) Filter Wrench
- (2) Bulk-Head Fittings
(1/4" for Product Water and 3/8" for Pure Water Flush Cycle)



IF ANY OF THE ITEMS LISTED ABOVE ARE MISSING PLEASE CONTACT SPECTRAPURE PRIOR TO INSTALLATION. ALL RETURNS WITHOUT RMA# WILL BE REFUSED. CLAIMS MUST BE WITHIN 10 DAYS FROM RECEIPT.

OPERATION DESCRIPTION (how the system functions)

1. The incoming feed water (3/8" Black line) is passed through a 0.5 micron Micro-Tec sediment pre-filter. This filter is required to remove excess turbidity (particulate matter) that may cause the carbon block filter to plug.
2. The second stage of filtration is a 0.5 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 organics above 100 daltons molecular weight. A Flow Restrictor, located in the waste-water line, is pre-adjusted for your location's maximum tap water temperature. This Flow Restrictor regulates the amount of water going to drain and determines the waste-to-product ratio. At the maximum yearly tap water temperature, the ratio should be close to 1-to-1. As the water gets colder, the ratio will increase by a small factor.
4. The fourth and fifth stage filter are our *MAXCAP® DI* cartridge followed by our SilicaBuster™ DI cartridge. These two cartridges remove the remaining silicates, phosphates, and nitrates that get by the RO membrane.

High and Low Float Operation:

1. Floats are to be mounted horizontal when dry and float up when wet.
2. When the bottom float goes dry, the input solenoid (INSOL) is opened and one second later, the Re-Circ Pump (PUMP) turns on.
3. When the top float becomes wet, a Flush Cycle commences and then the System shuts off until the bottom float goes dry again.

Flush Cycle (flush cycle consumes only a couple of quarts of pure water):

1. As the system is running, a periodic sequence of flushes is performed.
2. When the top float gets wet, or every 8 hours of uninterrupted operation, the flush cycle is initiated.
3. After the flush cycle, the system shuts down if the tank is full or pauses for an hour to let the pure water soak the membrane before continuing.

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.

PREPARATION

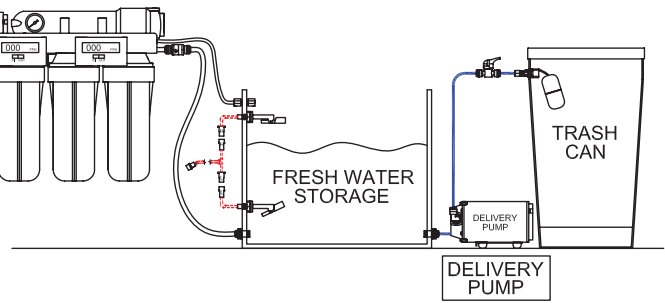
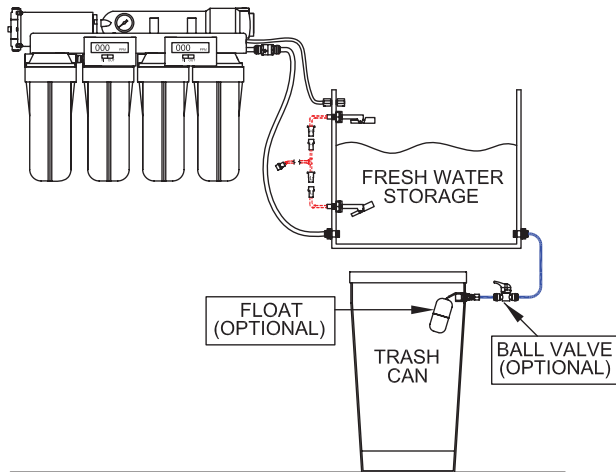
1. CHOOSING THE BEST MOUNTING LOCATION:

LIGHT SOURCE: Algae is more likely to thrive inside clear housings when exposed to ultraviolet light and other sources like metal halide lighting. Avoid installing the unit in bright light or direct sunlight.

EXTREME TEMPERATURES: The unit **MUST** be kept out of areas that are subject to extreme temperatures like freezing or temperatures greater than 100° F (38° C)

FRESH WATER RESERVOIR: Mount system in an area that will have enough room for a small trash can or reservoir. This Fresh Water Reservoir is to be used for the Flush Cycle. (Reservoir needs to hold at least 10 gallons)

ELEVATION FOR SYSTEM: When mounting your UHE, make sure it is elevated above your fresh water reservoir:



USE DELIVERY PUMP TO DELIVER WATER WHERE NEEDED FOR SALT MIXING OR TO SUMP

GRAVITY DRAIN WATER FROM ELEVATED TANK TO TRASH CAN FOR SALT MIXING OR TO SUMP

2. TOOLS RECOMMENDED FOR INSTALLATION:

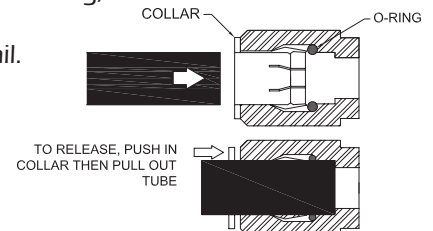


- Adjustable Wrench
- Sharp Exacto Knife
- Open End Wrench(s)
- Electric Drill
 - 5/8" Drill bit
 - 13/16" Drill bit
- Phillips Screw Driver
- Trash Barrel or Reservoir
- Optional Ball Valve or Float Valve. (as shown above)
- Optional Delivery Pump (as shown above)

3. INTRODUCTION TO PUSH FITTINGS:

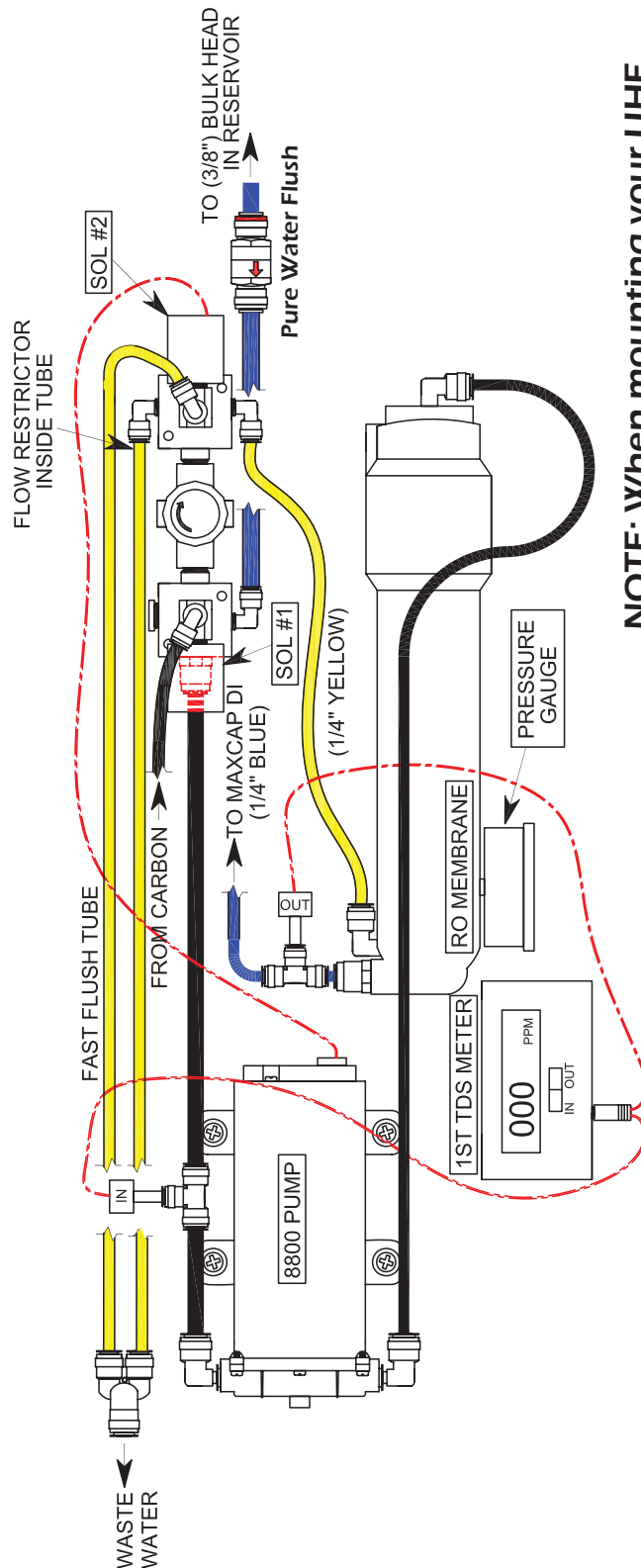
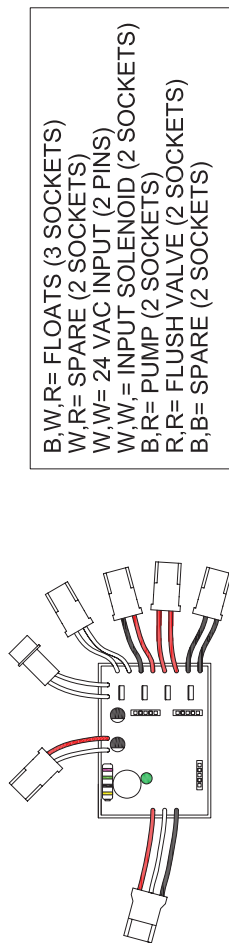
Push fittings are similar to a Chinese finger trap toy. In order to release its grip from tubing...

- Firmly depress and hold the push-fitting collar down with your thumbnail.
- While the push-fitting collar is depressed, pull the tubing straight out of the push-fitting. Once the tubing is removed, release the collar.



4. GETTING TO KNOW YOUR SYSTEM: If you are setting up this system for the first time, or replacing either DI cartridges, it is very important that you rinse the MaxCap® DI cartridge with the downstream DI removed. There is a large ionic load present in a new MaxCap® DI cartridge. Failure to flush this cartridge, will shorten the life of the downstream DI.

UHE CONTROL MODULE



NOTE: When mounting your UHE, make sure it is elevated above your fresh water reservoir.

TOP VIEW
(One Membrane Shown for Clarity)

SET-UP PROCEDURES

STEP 1: Unscrew the third position housing (MaxCap® DI) and the fourth position housing (Silica-Buster DI) from the system and remove the DI Cartridges. Then, re-install the empty housings back onto the system.

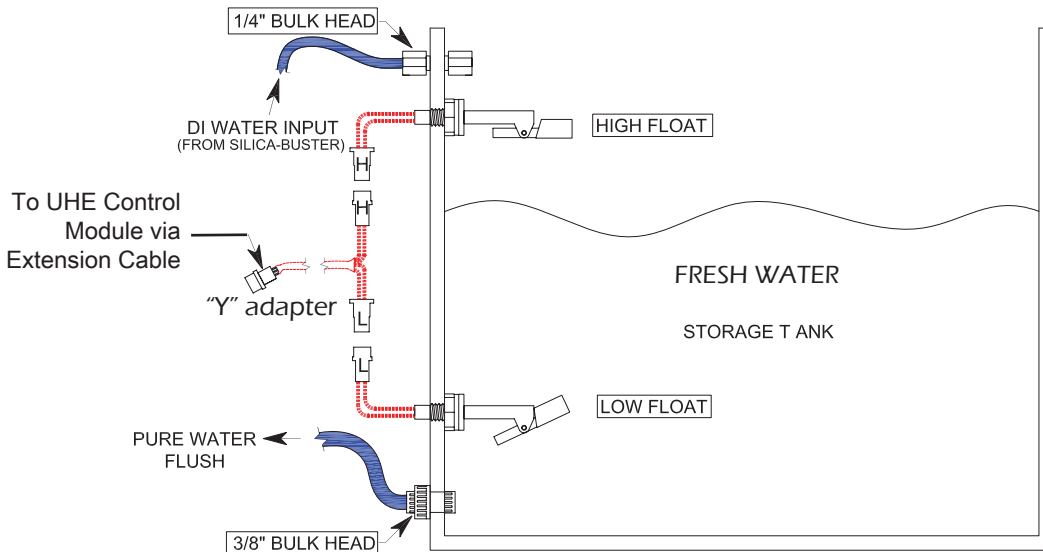
STEP 2: Connect the 1/4" Black Line to the cold water line by using either the garden hose adapter, which is provided with the system, or a Feed Water Adapter.



STEP 3: INSTALLATION USING THE HIGH & LOW FLOAT SWITCHES and BULKHEAD FITTINGS:

- A. Install both the High and Low Floats onto a open container, such as a Rubber Maid™ 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).
- B. Connect the floats to the "Y" adapter.
- C. Attach the 3-pin connector on the float switches to the UHE CONTROL MODULE.

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



NOTE: Floats must be installed in the FRESH WATER storage container. This system MUST be connected to the floats to operate the Flush Cycle. Failure to install the pure water flush connection for this unit will void any warranty.

STEP 4: For now, direct both the 1/4" blue (product or permeate) line and the yellow 3/8" (waste or concentrate) line to drain.

STEP 5: Open the cold water (tap water) feed, connected to the black line. Plug in the 24 V transformer to the UHE Module and connect to 120VAC power.

STEP 6: At this stage, the system will start producing water from the 1/4" blue and 3/8" yellow lines. Discard that water for approx. 15-20 min.

STEP 7: PRESSURE ADJUSTMENT USING THE PRESSURE REGULATOR:



- A. The Pressure Regulator, when pushed down, is in the lock position. Pull out on it to release lock.
- B. While the system is producing water, turn the Pressure Regulator clockwise to increase pressure or counter-clockwise to decrease pressure. Set the pressure to 80 PSI. Then, re-lock the pressure knob.

STEP 8: RE-INSTALLING AND FLUSHING DI CARTRIDGES:

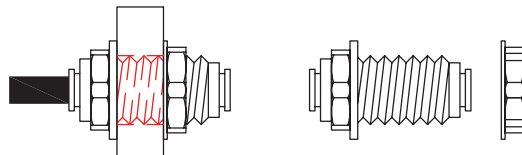
- A. Disconnect power to the system and turn off the water supply line.
- B. Unscrew the third clear housing and re-install the MaxCap® Cartridge.
NOTE: at this time, leave the fourth clear housing empty.
- C. Turn on water supply line and re-connect power to system. Allow water to run through the MaxCap® Cartridge and down the drain, until the right-hand meter (SET TO "IN") reads "000".
- D. Then, follow step A and place the Silica-Buster™ DI in the fourth clear housing.
- E. Finally, turn the water supply line back on, plug the power back in and allow the water to run through the Silica-Buster™ DI Cartridge and down the drain, until the right-hand meter (SET TO "OUT") reads "000".

Note: At least 2 gallons (7.57 liters) of purified water should be discarded during the flushing procedure before you can collect purified water for use.

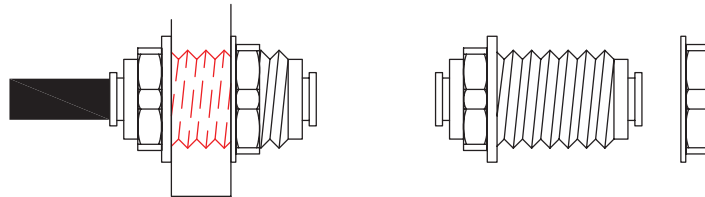
Upon start-up, air may be trapped in the DI cartridges (housings may not appear full), this is a normal condition and will not affect the operation of the RO/DI system.



STEP 9: CONNECT BULKHEAD FITTINGS:
(Bulkhead Fittings **MUST** be installed on the same container that the floats are on, SEE DIAGRAM ON PAGE 7)



1/4" BULK HEAD FITTING: Use a paddle bit and carefully drill a 5/8" hole for installation at the top of the reservoir (above the high level float).



3/8" BULK HEAD FITTING: Use a paddle bit and carefully drill a 13/16" hole for installation at the bottom of the reservoir (below the low level float).

STEP 10: FINAL CONNECTION:

- A. Direct the waste line (yellow) to a drain or connect it permanently to a drain pipe via a Drain Saddle. (Drain Saddle is not included with system)

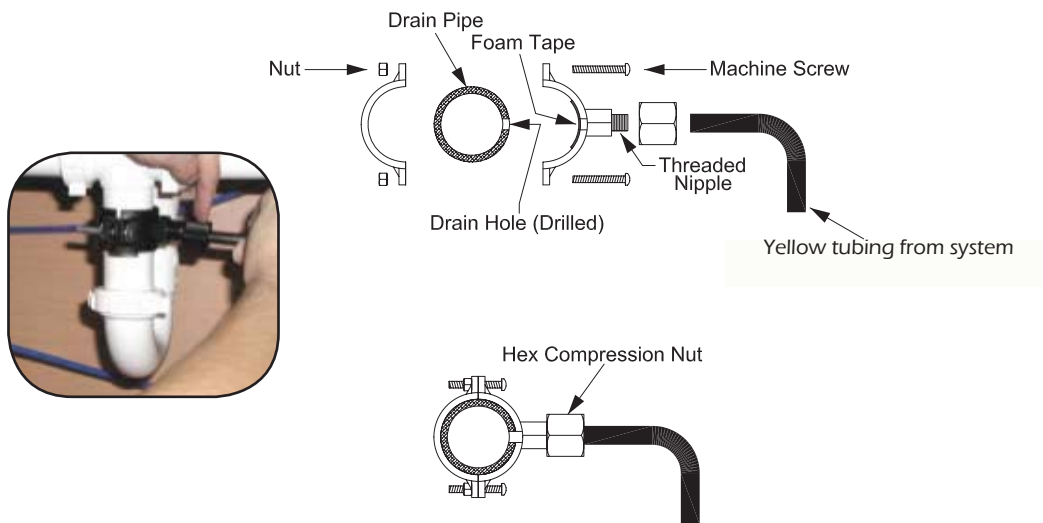
Inspect for leaks and do not leave the system alone until you are sure there are no leaks. Monitor the system for 72 hrs.

Special Note:

If you are having trouble with the UHE siphoning the tank water after shutdown, you must have an extremely long drain line that is *pulling* the water past the 4# check valve. We assume you have already installed the system above the tank.

Route the yellow 3/8" waste water line up above the system as high as possible. Run a 1/2" drain pipe (or a garden hose) from the drain location up vertically to the elevated yellow 3/8" waste water line. Insert the waste water line down into the 1/2" drain line a few inches to create a "siphon-break".

OPTIONAL INSTALLATION FOR WASTE WATER LINE (USING A DRAIN SADDLE)



CHECK BEFORE LEAVING SYSTEM UNATTENDED:

- Ensure that all fittings are tight and leak-free before leaving the system unattended.
- The concentrate line (yellow) includes a smaller capillary tube (flow restrictor) that is located "inside" of the tubing. Do not remove or discard this restrictor; the system will not produce permeate water without the flow restrictor.
- The following conditions must be met before water can be produced: The water source must be turned "ON" and the water level in the reservoir tank must be below the low level float.

MAINTENANCE REGIMEN

Maintenance and trouble-shooting procedures have been made easy and effective with a combination of the (2) Dual TDS meters and a built-in pressure gauge. It is recommended that you keep replacement cartridges on hand, ready to install as soon as the monitor indicates that the cartridge in use is exhausted.

METERING AND DIAGNOSTICS:

The digital TDS meter (left side) will provide a reliable means of evaluating the efficiency of the RO membrane. This meter will indicate the tap water conductivity (IN PROBE) and the RO water conductivity (OUT PROBE). The difference between the two meter readings can be used to calculate the percentage rejection of the (TFC) RO membrane. (as shown on page 12)

The Digital TDS meter (right side) will be used to determine the condition of the two DI stages. When the reading on the (IN PROBE) reads 50% of the left-side meter's OUT reading, then the MaxCap® DI Cartridge needs to be replaced. When a reading on the (OUT PROBE) is higher than 001 PPM, replace the Silica-Buster Cartridge.

SHELF LIFE FOR FILTERS:

PRE-FILTERS (Sediment & Carbon Block Filters): Pre-Filters have an infinite shelf life.

REVERSE OSMOSIS MEMBRANE (RO:) Purchase an RO membrane when needed. If you would like to keep one on hand, you can store it in the refrigerator for up to 1 year. (Keep in its sealed, original packaging). You should always see moisture inside the bag. If the membrane dries out, it will not produce water and any warranty will be voided).

DE-IONIZING CARTRIDGES (DI)

Replacement DI cartridges are shipped in a Mylar® Bag. Keep them in their sealed, original packaging until use. You can store them for up to 1 year.

SEDIMENT PRE-FILTER REPLACEMENT:

For maximum contaminant removal and long membrane life, the sediment pre-filter must be changed when the system fails to maintain the pre-set pressure of 80 PSI. If your water contains a great deal of sediment, the pre-filter may require more frequent changes to maintain adequate production rate and extended membrane life.

Materials Required: 0.2-micron Zeta-Zorb™ Sediment Filter (SF-ZZ-0.2-10), Filter Wrench. (Failure to use a Zeta-Zorb sediment filter as the replacement will void the system's warranty.)

Procedure: (FIRST FILTER ON LEFT)

1. Turn off water supply to the system.
2. Using the provided filter wrench, remove the first housing on 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 **hand tighten only**. **NOTE: Do not use filter wrench to tighten housings. Over-tightening will damage housings and void your warranty.**
6. Proceed with carbon block filter replacement.

CARBON BLOCK PRE-FILTER REPLACEMENT:

For maximum contaminant removal and long membrane life, the Carbon pre-filter must be changed when the Chlorine Test Kit shows more than 0.1ppm of chlorine in the waste water stream.

Materials Required: 0.5 micron Carbon Block Filter (CF-0.5-10), Filter Wrench, Chlorine Test Kit (TK-CL-5-KIT)

Procedure: (SECOND FILTER ON LEFT WHEN FACING SYSTEM)

1. Perform steps 1-5 for the second housing on page 11.
2. Turn on system's water supply and check for leaks.

REVERSE OSMOSIS MEMBRANE DIAGNOSTICS:

Although RO membranes are capable of maintaining high water quality over extended periods of time, they eventually will begin to deteriorate. Normally, the conductivity of the permeate water will increase as the membrane ages. By comparing the difference in TDS readings between the Tap water TDS and the RO water TDS, the "percentage rejection" of the RO membrane may be calculated and the resultant value may then be used to determine the condition of the membrane. In this way, the operator will know when the membrane needs to be replaced. Membrane failure will be indicated by a reduction in the percentage rejection which will be determined by calculating the differential between the input and output TDS readings.

In order to accurately determine the condition of the RO Membrane, a conductivity tester (TDS meter) capable of reading the tap water conductivity and the permeate water conductivity has been provided with this system. With the assistance of the left-hand (meter #1) Dual TDS meter, you will be able to easily determine the RO membrane's condition.

Before performing the diagnostic test on the RO membrane, make sure that the RO system has been "ON" and producing pure water for a minimum of 10 minutes. Also check the brine (yellow) line to make sure that water is flowing and that the flow ratio between the brine water and the permeate water is at a ratio that is between 1:1 and 2:1. (NOTE: The pressure gauge should indicate a pressure reading of 80 PSI during this 15-20 minute test period.

Procedure:

1. Turn on the left-side meter by depressing the "ON" button.
2. Locate the meter slide switch on the front of the DM-1 TDS meter.
3. Slide the switch to the left "IN" position and read the Tap water conductivity, then record the reading _____.
4. Next, slide the switch the to right "OUT" position and read the Permeate water conductivity, then record the reading _____.
5. Use the two reading to apply them to the calculation below:

$$\frac{(X - Y) = Z}{X} = \% \text{ REJECTION BY MEMBRANE}$$

TAP WATER TDS = X
RO WATER TDS = Y

EXAMPLE: $(500 - 20) = 480 / 500 = \mathbf{0.96 (96\% \text{ rejection})}$

6. The general rule to knowing when to replace your Reverse Osmosis (RO) Membrane is when the % rejection falls below 95%.

REVERSE OSMOSIS MEMBRANE PERFORMANCE TESTING:

Actual performance of a membrane is dependent on two factors:

Tap Water Pressure and Tap Water Temperature.

Pressure & Temperature Compensation: In order to characterize a membrane, there must be common testing data. Industry standards for testing membrane performance is:

60 PSI tap water pressure and 77 degree tap water temperature.

Most locations will not have exactly 77 degree water. The UHE System is set to run at 80 psi.

Use the calculation below to determine what the membrane should produce with your water conditions.

PRESSURE COMPENSATION:

The UHE System uses a nomially-rated 90 GPD at 60 psi RO Membrane. The pressure compensation can be considered to be: $80/60 \times 90$, or 120 GPD.

TEMPERATURE COMPENSATION:

Look up the water temperature on the chart below to determine the Temperature Compensation Factor (TCF) value. Multiply it by the pressure-compensated flow rate of 120 GPD.

For Example, if your tap water temperature is 59 degF. The TCF is 0.730.

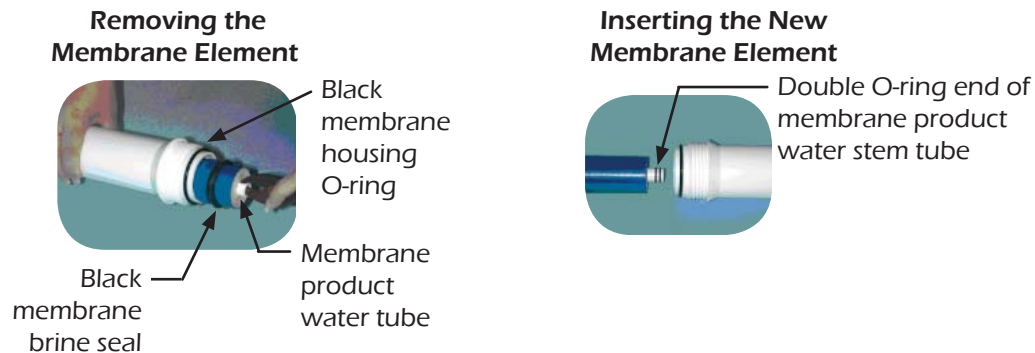
Multiplying 120 GPD by 0.730 results in a temperature-compensated flow rate of 87.6 GPD.

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

REVERSE OSMOSIS MEMBRANE REPLACEMENT:

1. Turn off the water supply to the RO system and unplug the transformer. 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.
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.
6. Remove the black housing O-ring. 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. 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.



TIPS FOR LONG MEMBRANE LIFE:

1. Replacement of 0.2 micron ZetaZorb™ sediment filter once every 6 months. This will prevent membrane fouling due to silt or sediment depositing on the membrane.
2. Replacement of 0.5 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. Soft water will greatly increase the life of an RO membrane.
4. Membrane should not be operated at lower than the pre-set concentrate to purified water ratios.
5. Operating reverse osmosis systems on softened feed water greatly reduces the chances of membrane fouling.

DE-IONIZATION CARTRIDGE MAINTENANCE AND REPLACEMENT

Maintenance for MaxCap® DI Cartridge:

Procedure:

1. When the reading on the right-hand TDS meter (set to "IN") displays 50% (or greater) of the reading on the left-hand TDS meter (set to "OUT"), it is time to replace the *MAXCAP® DI* cartridge.
2. Follow the directions below to replace the *MAXCAP® DI* cartridge.
3. Make sure the DI cartridge is installed in the correct direction as marked on the cartridge shell and be sure that the top seal is securely attached to the top of the cartridge.
4. Tighten the cartridge housing by rotating it clockwise and hand tighten.
5. Turn on system and check for leaks.

Maintenance for Silica-Buster™ DI Cartridge:

Procedure:

1. When the reading on the right-hand TDS meter (set to "OUT") displays "001" (or greater), it is time to replace the SilicaBuster™ DI cartridge.
2. Follow the directions below to replace the SilicaBuster™ DI cartridge.
3. Make sure the DI cartridge is installed in the correct direction as marked on the cartridge shell and be sure that the top seal is securely attached to the top of the cartridge.
4. Tighten the cartridge housing by rotating it clockwise and hand tighten.
5. Turn on system and check for leaks.

REPLACEMENT PROCEDURE FOR DI CARTRIDGES:

Materials Needed: Filter wrench and DI cartridges.

Procedure:

When replacing the MaxCap® DI Cartridge:

- A. Disconnect power to the system and shut down the water supply line.
- B. Unscrew the third clear housing and insert the new Cartridge. Discard the old one to the trash.
NOTE: at this time leave the fourth clear housing empty.
- C. Turn on supply line, plug the power back in, and re-direct the product water to drain. Allow water to run through the MaxCap® DI Cartridge until the reading on the right-hand meter (POSITIONED "IN") is "000".

When replacing the Silica-Buster™ DI Cartridge:

- D. Follow step A-B and install the Silica-Buster™ DI Cartridge into the fourth clear housing.
- E. Turn the supply line back on, plug the power back in, re-direct the product water to drain and allow the water to run through the Silica-Buster™ DI Cartridge until the right-hand meter (POSITIONED "OUT") is "000".

NOTE: When replacing DI cartridges, ALWAYS flush the MaxCap® DI with the down-stream cartridge removed.

TROUBLE SHOOTING GUIDE

	Problem		Cause		Corrective Action
1.	Low production rate.	a.	plugged pre-filters.	i.	Replace pre-filters.
		b.	low water temperature.	ii.	Use higher GPD membrane.
		c.	fouled membrane.	iii.	Replace membrane.
		d.	plugged flow restrictor.	iv.	Replace flow restrictor & membrane.
2.	Zero production rate.	a.	Dried membrane.	i.	Replace membrane.
		b.	Power supply not plugged in	ii.	Plug power in.
		c.	Both floats need to be dry	iii.	Both floats need to be dry and level, not drooping
3.	Extremely high production rate.	a.	Ruptured membrane.	i.	Replace it.
4.	Milky colored water.	a.	Air in system.	i.	Air in the system is a normal occurrence with initial start-up of the RO/DI system. This milky appearance will disappear during normal use within 1-2 weeks. If condition re-occurs after filter changes, drain tank 1 or 2 times.
5.	The water in the Pure-Water container drains out when not used.	a.	The system is not elevated higher than the Pure-Water container	i.	Elevate the system higher than the Pure-Water container to avoid siphoning.
		b.	Check Valve on Pure Water Flush is not functioning	ii.	Replace Check Valve
		c.	An air gap is needed	iii.	Create an air gap in the waste water line.

THREE YEAR MANUFACTURERS WARRANTY

Effective on products purchased after March 10, 2005.

SpectraPure, Inc.® warrants the product to the original owner only to be free of defects in material and workmanship for a period of one year 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 pre filters and membranes are not covered under the two year warranty.

SpectraPure warrants (pro-rated) 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 pro-rated 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 (RGA) 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**

REPLACEMENT & OPTIONAL PARTS

Replacement Parts

No.	Catalog No.	Replacement Parts	Description
1.	SF-ZZ-0.2-10	ZetaZorb™ Sediment Filter	0.2 Micron Sediment Filter (1st Stage) <i>(Failure to use a Zeta-Zorb® sediment filter for replacement will void the system's warranty.)</i>
2.	CF-0.5-10	Carbon Filter	0.5 Micron Carbon Pre-Filter (2nd Stage)
3.	MEM-0090	RO Membrane	90 GPD Membrane (3rd Stage)
4.	DI-MC-10	MaxCap® DI	MaxCap® De-ionization Cartridge (4th Stage)
5.	DI-SB-10	Silica-Buster™ DI	Silica-Buster De-ionization Cartridge (5th Stage)
6.	FR-90	Flow Restrictor	Flow Restrictor modified for maximum water temperature