



Users Manual



SEA XCHANGE

XTC---600 XTC---1200 XTC---1800 XTC---2200

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INTRODUCTION

Your Sea Xchange XTC-Series Reverse Osmosis System is a durable piece of equipment that, with proper care, will last for many years. This User's Manual outlines installation, operation, maintenance, and troubleshooting details vital to the sustained performance of your system.

If your system is altered at the site of operation or if the feed water conditions change, please contact your local dealer or distributor to determine the proper recovery for your application.

NOTE: PRIOR TO OPERATING OR SERVICING THE REVERSE OSMOSIS SYSTEM, THIS USER'S MANUAL MUST BE READ AND FULLY UNDERSTOOD. KEEP THIS AND OTHER ASSOCIATED INFORMATION FOR FUTURE REFERENCE AND FOR NEW OPERATORS OR QUALIFIED PERSONNEL NEAR THE SYSTEM.

SAFETY

The safety section of this User's Manual outlines the various safety headings used throughout this manual's text and are enhanced and defined below:

NOTE: INDICATES STATEMENTS THAT PROVIDE FURTHER INFORMATION AND CLARIFICATION.



CAUTION: INDICATES STATEMENTS THAT ARE USED TO IDENTIFY CONDITIONS OR PRACTICES THAT COULD RESULT IN EQUIPMENT OR OTHER PROPERTY DAMAGE.



WARNING: INDICATES STATEMENTS THAT ARE USED TO IDENTIFY CONDITIONS OR PRACTICES THAT COULD RESULT IN INJURY OR LOSS OF LIFE. FAILURE TO FOLLOW WARNINGS COULD RESULT IN SERIOUS INJURY OR EVEN DEATH.



DO NOT UNDER ANY CIRCUMSTANCE; REMOVE ANY CAUTION, WARNING, OR OTHER DESCRIPTIVE LABELS FROM THE SYSTEM.

FEED WATER & OPERATION SPECIFICATIONS

Nothing has a greater effect on a reverse osmosis system than the feed water quality

NOTE: IT IS VERY IMPORTANT TO MEET THE MINIMUM FEED WATER REQUIREMENTS. FAILURE TO DO SO WILL CAUSE THE MEMBRANES TO FOUL AND VOID THE MANUFACTURER'S WARRANTY.

Maximum Feed Temperature °F (°C)	85 (29)	Maximum Free Chlorine ppm	0
Minimum Feed Temperature °F (°C)	40 (4.4)	Maximum TDS ppm	45,000
Maximum Ambient Temperature °F (°C)	120 (48.9)	Maximum Hardness gpg	0
Minimum Ambient Temperature °F (°C)	40 (4.4)	Maximum pH (Continuous)	11
Maximum Feed Pressure psi (bar)	85 (5.9)	Minimum pH (Continuous)	5
Minimum Feed Pressure psi (bar)	45 (3.1)	Maximum pH (Cleaning 30 Min.)	12
Maximum Operating Pressure psi (bar)	1000 (68.95)	Minimum pH (Cleaning 30 Min.)	2
Minimum SDI Rating SDI	<3	Maximum Turbidity NTU	1

Test Parameters: 35,000 TDS Filtered (5 Micron), De-Chlorinated, Feed Water, 65 psi (4.5 bar) Feed Pressure, 850 psi (58.61 bar) Operating Pressure, 77

Degrees F (25 Degrees C), Recovery as stated, 7.0 pH. Data taken after 60 minutes of operation.

NOTE: HIGHER TDS AND/OR LOWER FEED WATER TEMPERATURES WILL REDUCE THE SYSTEM'S PRODUCTION.

REJECTION, RECOVERY, & FLOW RATES

Sea Xchange XTC-Series Reverse Osmosis Systems are designed to produce product water at the capacities indicated. For example, the XTC 2200 produces 1.53 gallons per minute (2200/24/60R) of permeate water at the listed operating test conditions.

The amount of total dissolved solids (TDS) rejected by the membrane is expressed as a percentage. For example, a 99.4% rejection rate means that 99.4% of total dissolved solids do not pass through the membrane. To calculate the % rejection, use the following formula:

$$\% \text{ Rejection} = [(\text{Feed TDS} - \text{Product TDS}) / \text{Feed TDS}] \times 100$$

Example:

$$99.4\% = [(35,000 - 210) / 35,000] \times 100$$

NOTE: ALL TDS FIGURES MUST BE EXPRESSED IN THE SAME UNITS, TYPICALLY PARTS PER MILLION (PPM) OR MILLIGRAMS PER LITER (MG/L).

SX XTC-Series Reverse Osmosis Systems are designed to reject up to 99.4% NaCl, unless computer projections have been provided or stated otherwise.

The amounts of product water recovered for use is expressed as a percentage. To calculate % recovery and % rejection, use the following formulas:

$$\% \text{ Recovery} = (\text{Product Water Flow Rate} / \text{Feed Water Flow Rate}) \times 100$$

Example:

$$36\% = (1.52 / 4.22) \times 100$$

$$\% \text{ Rejection} = (\text{Feed TDS} - \text{Product TDS}) / (\text{Feed TDS}) \times 100$$

Example:

$$99.4\% = [(35,000 - 210) / 35,000] \times 100$$

NOTE: ALL FLOW RATES MUST BE EXPRESSED IN THE SAME UNITS.

SYSTEM REQUIREMENTS & OPERATION GUIDELINES

PLUMBING

The membranes and high pressure pumps used on XTC-Series Reverse Osmosis Systems require a continuous flow of water with a minimum feed pressure of 45 psi, not to exceed 85°F.

FEED WATER CONNECTION

From a dedicated thru hull, connect 3/4" hose to a sea strainer. Connect 3/4" hose from sea strainer to feed pump inlet. Locate the 3/4" FNPT Fitting at Pre filter Inlet. Attach piping from feed pump to the 3/4" FNPT fitting.

FRESH WATER FLUSH CONNECTION

Locate the 1/2" FNPT Solenoid Valve feed water inlet.

Attach the inlet piping from pressurized freshwater system to the 1/2" FNPT Solenoid Valve fresh water flush inlet.

PRODUCT WATER CONNECTION

Locate the 3/8" connection labeled product and attach to the storage tank. Ensure that the product water can flow freely with no backpressure. Backpressure can cause irreversible damage to the membrane elements. The 3/8" product line can be run to the holding tank with PVC fittings, or other FDA approved materials. This is so that the material being used does not leach into the product water.

PRODUCT REJECT (WASTE WATER) CONNECTION

Locate the 3/8" connection labeled product reject and attach to a drain. Run the product reject line to an open drain in a free and unrestricted manner (no backpressure). It is advised that an air-break be used on the product reject line to prevent siphoning of water from the pressure vessels when the system is in standby.

NOTE: DO NOT JOIN TOGETHER WITH CONCENTRATE UNLESS AT OVERBOARD FITTING

CONCENTRATE (OVERBOARD) CONNECTION

Locate 3/8" connection labeled concentrate and attach to a over board. Run the concentrate line in a free and unrestricted manner (no backpressure).



CAUTION: ANY RESTRICTIONS OR BLOCKAGE IN THE CONCENTRATE LINE CAN CAUSE BACKPRESSURE, WHICH WILL INCREASE THE SYSTEM'S OPERATING PRESSURE. THIS CAN RESULT IN DAMAGE TO THE SYSTEM'S MEMBRANES AND COMPONENTS.

ELECTRICAL

The XTC-Series systems pump and motor are available in 230 Volt, 50/60 Hertz, 1 Phase & 3 Phase

Ensure that the electrical circuit supplying the system is compatible with the requirements of the specific SE model you are installing.

NOTE: IT'S RECOMMENDED THAT A QUALIFIED ELECTRICIAN WIRE YOUR SYSTEM IN ACCORDANCE WITH ABYC REQUIREMENTS.



WARNING: TO REDUCE THE RISK OF ELECTRICAL SHOCK, THE INCOMING POWER SUPPLY MUST INCLUDE A PROTECTIVE GROUND.

PRE-FILTRATION

XTC-Series systems are supplied with a 20-micron and 5-micron sediment filters. Change the cartridge once a month or when a 10-15 psi differential exists between the pre-filter. Ask your local dealer or distributor about Pre-Filtration systems, if required.

NOTE: THE SYSTEM MUST BE OPERATED IN ACCORDANCE TO FEED WATER SPECIFICATIONS.

PUMP

The pump used on the XTC-Series systems is a piston style stainless steel type.

Follow these guidelines to ensure proper operation of the pump:

- Change oil after initial 50 hours of operation and every 500 Hours there after.
- The pump must **NEVER** be run dry. Operating the pump without sufficient feed water will damage the pump.
- **ALWAYS** feed the pump with filtered water. The pump is susceptible to damage from sediment and debris.
- If any damage occurs to your system's pump, a re-build kit is available. Contact your local dealer or distributor and inform them of your system's model and pump size.

MOUNTING

The freestanding system should be bolted down and securely fastened. Refer to mounting template inside of installation package.

MEMBRANE ELEMENTS

XTC-Series reverse osmosis systems come pre-loaded with FILMTEC® sea water membranes, unless otherwise specified. General membrane element performance characteristics are listed below:

SE30-2540-STANDARD

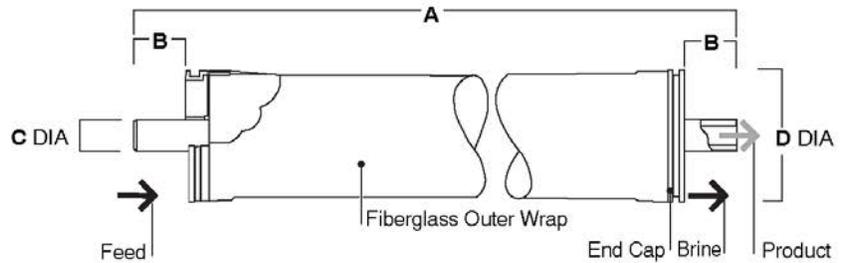
FILMTEC™ Membranes

FILMTEC Seawater RO Elements for Marine Systems

Product	Part Number	Active Area ft²(m²)	Applied Pressure psig (bar)	Permeate Flow Rate gpd (m³/d)	Stabilized Salt Rejection (%)
SE30-2540	80737	29 (2.8)	800 (55)	700 (2.6)	99.4
SX30-2521	80734	29 (2.8)	800 (55)	300 (1.1)	99.4

Product	gpm (m³/h)	A	B	C	D
SE30-2540	6 (1.4)	40.0 (1,016)	1.19 (30.2)	0.75 (19)	2.4 (61)
SX30-2521	6 (1.4)	21.0 (533)	1.19 (30.2)	0.75 (19)	2.4 (61)

Figure 1



- Maximum Operating Temperature 113°F (45°C)
- Maximum Operating Pressure 1,000 psi (69 bar)
- Maximum Pressure Drop 15 psig (1.0 bar)
- pH Range, Continuous Operation ^a 2 - 11
- pH Range, Short-Term Cleaning ^b 1 - 13
- Maximum Feed Silt Density Index SDI 5
- Free Chlorine Tolerance ^c <0.1 ppm

a. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).

b. Refer to Cleaning Guidelines in specification sheet 609-23010.

c. Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure.

Since oxidation damage is not covered under warranty, FilmTec recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to technical bulletin 609-22010 for more information.

Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system-operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

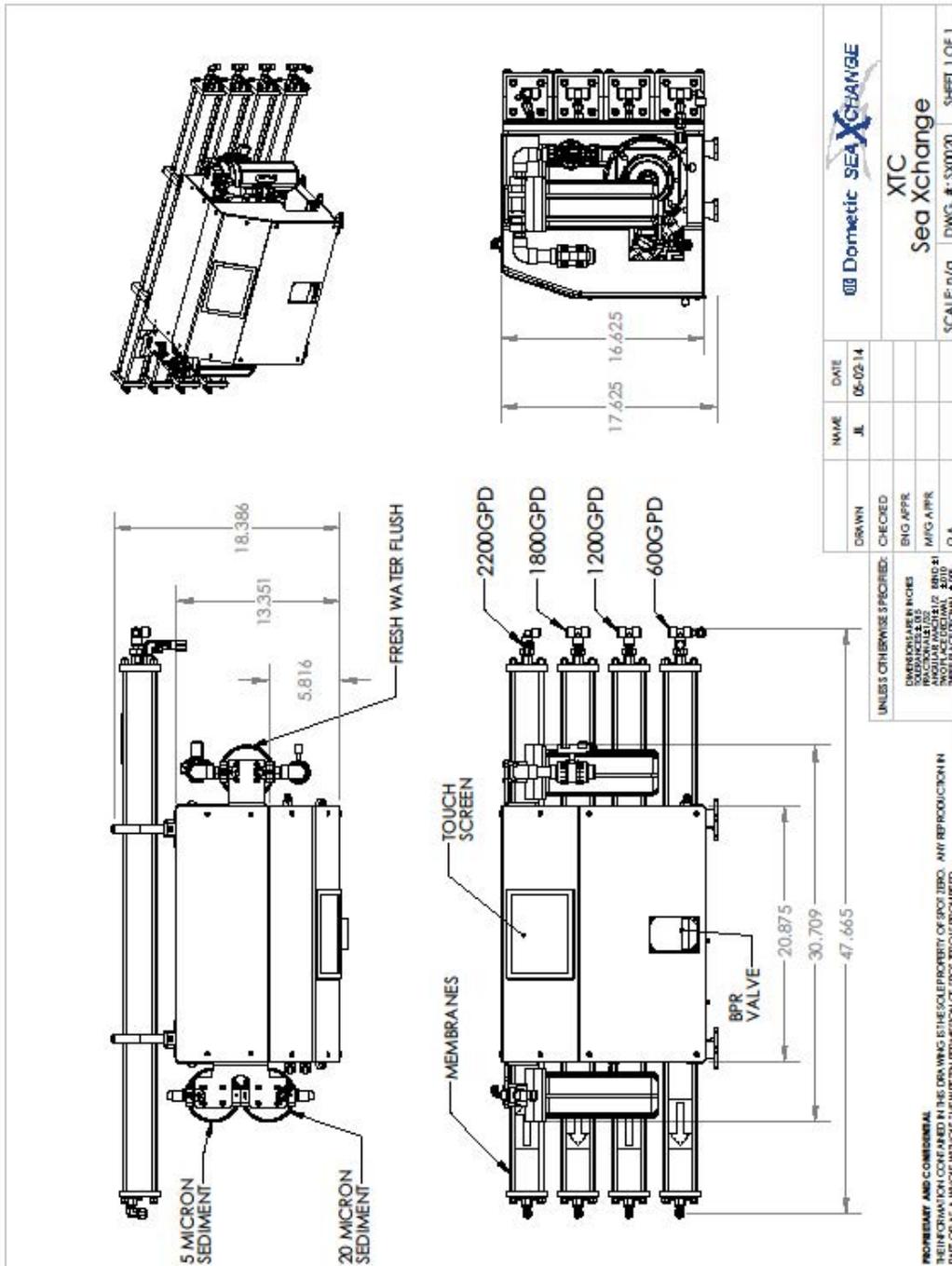
Before initiating system start-up procedures, membrane pretreatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Avoid any abrupt pressure or cross-flow variations on the spiral elements during start-up, shutdown, cleaning or other sequences to prevent possible membrane damage. During start-up, a gradual change from a standstill to operating state is recommended as follows:

- Feed pressure should be increased gradually over a 30-60 second time frame.
- Cross-flow velocity at set operating point should be achieved gradually over 15-20 seconds.
- Permeate obtained from first hour of operation should be discarded.

- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines given in this bulletin are not strictly followed, the limited warranty will be null and void.
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution.
- The customer is fully responsible for the effects of incompatible chemicals and lubricants on elements.
- Maximum pressure drop across an entire pressure vessel (housing) is 50 psi (3.4 bar).
- Avoid static permeate-side backpressure at all times.

XTC SERIES SYSTEM IDENTIFICATION



NAME	DATE	
JL	05-03-14	
DRAWN	CHECKED	XTC Sea Xchange SCALE: n/a DWG. #: SX0020 SHEET 1 OF 1
BNG APPR		
MFG APPR		
D.A.		

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONS ±0.005 DECIMALS ±0.010
 HOLE CIRCULAR ±0.010
 HOLE RECESSED ±0.010

PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SPOT ZERO. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SPOT ZERO IS PROHIBITED.

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SYSTEM PURGING

Carefully inspect your system before initial start-up. Check that all plumbing and electrical connections are not loose or have not come undone during shipment. A User's Manual, Test Results, and Filter Housing Wrench will accompany your XTC-Series Reverse Osmosis System.

NOTE: LEAVE THE POWER TO THE SYSTEM OFF FOR THIS PROCEDURE.

1. Redirect product water to the drain for this procedure.
2. Fully open the concentrate valve (Counter Clockwise). (Figure 1B, Page. 13)

INITIAL START-UP

1. Maintain the permeate water line to drain for this procedure.
2. Fully open the concentrate valve (Counter Clockwise). (Figure 1B, Page. 13)
3. Allow the system to run 30 minutes to flush the preservative solution from the system.
4. Turn the RO system on and adjust the concentrate valve to the specified system's production, or until system reaches 850 psi: whichever occurs first.
5. Inspect the system for leaks.
6. After 30 minutes, shut down the system.
7. Re-direct the permeate water back to the tank or point-of-use.
8. Record the readings daily for a week; after one week record the readings regularly.

DESIGN BASIS FOR SX SW-4125

Specifications

MODELS	SX SW-4125
Models	
Configuration	Single Pass
Feed Water Source	Sea Water
Standard Recovery Rate	
Rejection and Flow Rates	
Nominal Salt Rejection %	99.4%
Permeate Flow* gpm (lpm)	
Minimum Feed Flow gpm (lpm)	2.5 (9.5)
Minimum Concentrate Flow gpm (lpm)	1 (3.8)
Connections	
Feed inch	3/4" FNPT 19mm
Permeate inch	3/8" QC 9.5mm
Concentrate inch	3/8" QC 9.5mm
Membranes	
Membrane Per Vessel	1
Membrane Quantity	1
Membrane Size	2521
Vessels	
Vessel Array	1:1:1:1
Vessel Quantity	1-4
Pumps	
Pump Type	Piston
Motor HP (kw)	1.5
Booster Pump RPM @ 60 (50Hz)	1750 (1450)
Electrical	
Voltage	115/230V 50/60Hz 1PH
Voltage Amp Draw	29.8/14.9
System Dimensions**	
L x W x H inch (cm)	48" x 24" x 18.5" (121.9 x 70 x 47)
Weight lb. (kg)	145-175 (79.38)

OPERATING DO's & DON'Ts

DO:

1. Change the cartridge filters regularly
2. Monitor the system and keep a daily log
3. Adjust the system product to the recommended value
4. Always feed the pump with filtered water

DON'T:

1. Permit chlorine to be present in the feed water
2. Shut down the system for extended periods without preservation
3. Close the control valves completely
4. Operate the system with insufficient feed flow
5. Operate the pump dry
6. Do not tee together the product reject with the brine discharge unless directly at the overboard

OPERATION & MAINTENANCE

The reverse osmosis process causes the concentration of impurities. The impurities may precipitate (fall out of solution) when their concentration reaches saturation levels.

NOTE: PRECIPITATION CAN SCALE OR FOUL MEMBRANES AND MUST BE PREVENTED.

DO NOT OPERATE SYSTEM BEYOND RATED PRODUCTION

MEMBRANE REMOVAL & REPLACEMENT

Replacing membranes in the pressure vessels is an easy process if you have the proper information and tools at hand. Please refer to the following instructions when removing and replacing membrane elements:



WARNING: ALL PRESSURE GAUGES MUST READ ZERO BEFORE PROCEEDING. BEFORE ATTEMPTING, DISCONNECT THE POWER FROM THE SYSTEM AND BLEED ALL WATER PRESSURE FROM THE SYSTEM.

Remove the end plugs from the side of the pressure vessels. This is done by removing the four 3/8" nuts and washers. The end plugs should then freely slide out of the pressure vessel.

Remove the replacement membrane element(s) from the shipping box; the membrane(s) should be contained within a plastic oxygen barrier bag.

NOTE: WEAR GLOVES FOR THE FOLLOWING STEPS IN ORDER NOT TO CONTAMINATE THE MEMBRANE.

Cut the bag open as close as possible to the seal at one end of the bag, so the bag may be re-used if necessary.

Make sure that all parts are clean and free from dirt. Examine the brine seal, and permeate tube for nicks or cuts. Replace the O-rings or brine seal if damaged.

Flow directions should be observed for installation of each element into their respective pressure vessels.

REPLACING THE MEMBRANE ELEMENT:

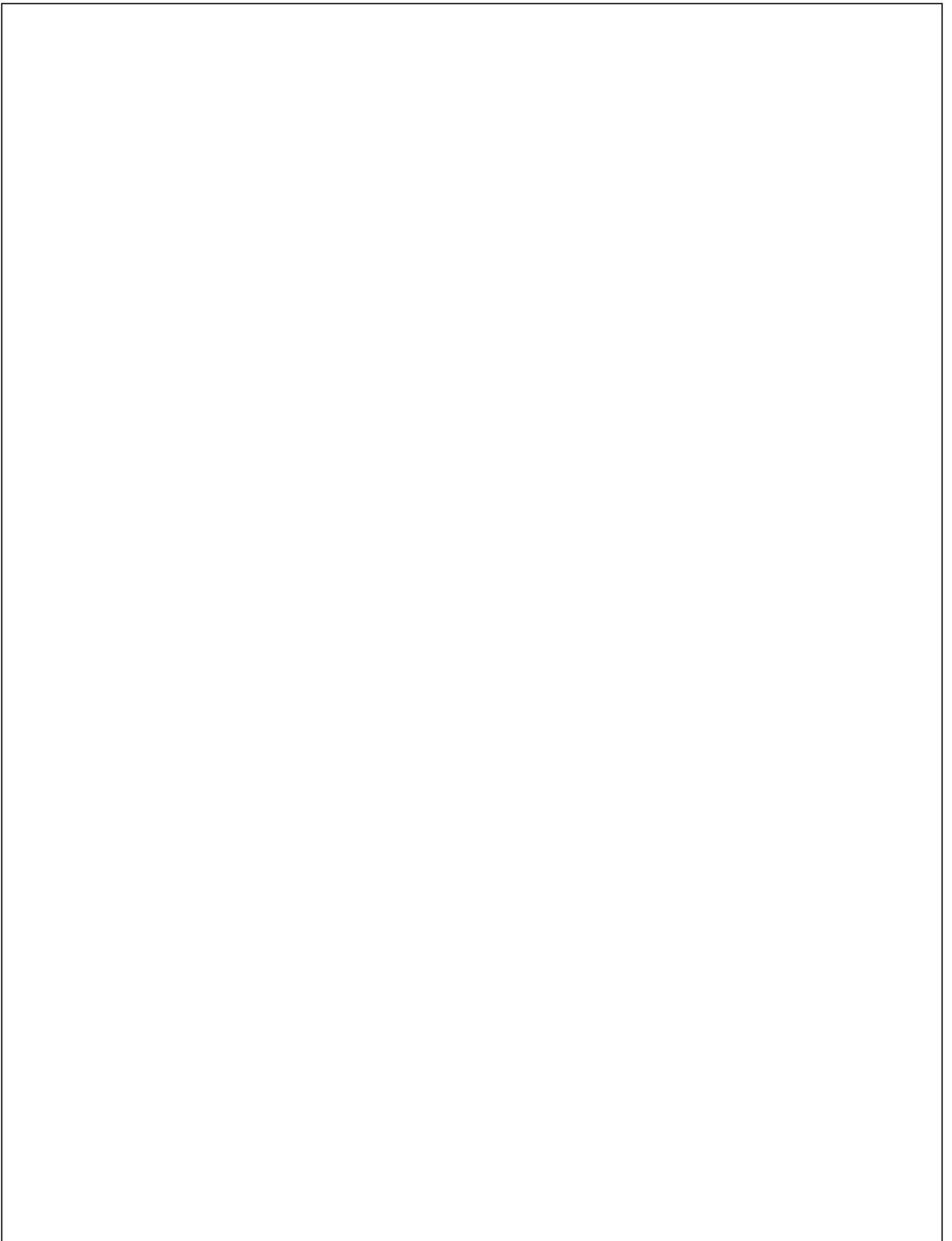


WARNING: THE BRINE SEAL MUST BE IN THE SAME POSITION FOR EACH MEMBRANE ELEMENT HOUSING, SO MARK EACH HOUSING PRIOR TO REMOVING THE MEMBRANE ELEMENTS. THE BRINE SEAL IS A RUBBER SEAL THAT PROTRUDES ON ONE SIDE OF THE MEMBRANE AND IS ALWAYS ON THE FEED SIDE OF THE MEMBRANE ELEMENT.

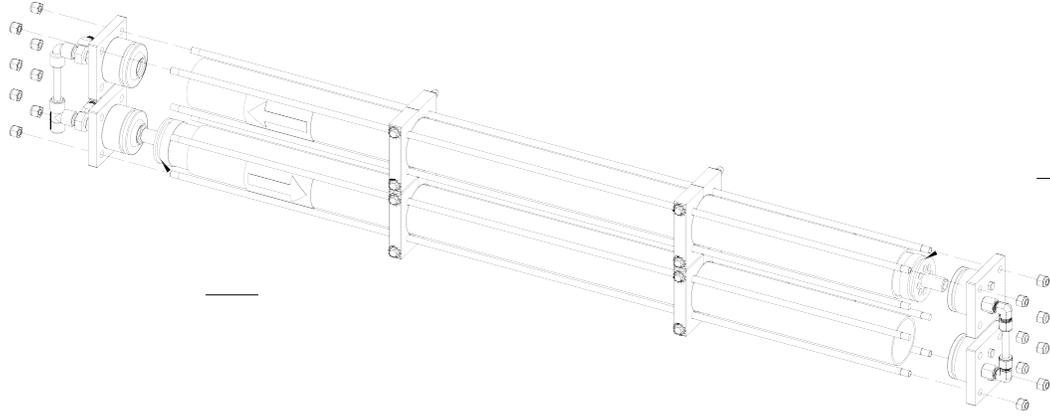
- Remove one membrane element at a time from the pressure vessels, from the side of each housing. Long nose pliers may be necessary to pull the old membrane element out of the membrane element housing.
- Lubricate the brine seal with a non-petroleum based lubricant, such as Dow Corning® 111.
- Install membranes with brine seal location depicted in (Figure 2, Page 20).
- With a smooth and constant motion, push the membrane element into the housing so the brine seal enters the housing without coming out of the brine seal groove.
- Re-install the end plugs by gently twisting the end cap while pushing it onto the housing. Ensure that you do not pinch or fatigue any O-rings while re-installing the end plug. Push the end plug on until the plug is flush with the pressure vessel.
- Insert the four rods through the plate and fasten using a 3/8 wrench and a flat screw driver.
- Reconnect any fittings that may have been disconnected when the membrane pressure vessels were disassembled.
- To Start-Up the system, please refer to the Initial Start-Up section of this manual. (See page 15)



CAUTION: WET MEMBRANES ARE SHIPPED IN A PRESERVATIVE SOLUTION. THE MEMBRANES MUST BE FLUSHED FOR AT LEAST 30 MINUTES TO REMOVE THE PRESERVATIVE FROM THE MEMBRANE. DISCARD ALL OF THE PERMEATE AND CONCENTRATE, WHICH IS PRODUCED DURING THE FLUSH PERIOD.



EXTRACT MEMBRANE FROM
THE FEED SIDE OF ARROW



EXTRACT MEMBRANE FROM
THE FEED SIDE OF ARROW

MANUALLY FLUSHING THE SYSTEM

The system should be flushed weekly to remove sediment from the surface of the membranes. To manually flush the system, follow the preceding steps:

- The system must be operating during the flush procedure.
- Fully open the concentrate valve. (Figure 1B, Page. 13)
- Allow the system to run for 10 to 20 minutes.
- After 10 to 20 minutes, close the concentrate valve to its previous setting. Ensure the proper concentrate flow rate is going to the drain.
- The system is now ready to operate.

PREPARING UNIT FOR STORAGE OR SHIPMENT



PRIOR TO SHIPPING OR STORING YOUR SYSTEM, THE SYSTEM SHOULD BE CLEANED WITH AN APPROPRIATE CLEANER, FLUSHED WITH WATER, AND PROTECTED FROM BIOLOGICAL ATTACK WITH AN APPROPRIATE SOLUTION FOR MEMBRANE ELEMENTS. THE MEMBRANE HOUSING(S) AND PLUMBING LINES OF THE SYSTEM MUST BE COMPLETELY DRAINED. ANY WATER REMAINING IN THE PLUMBING OF A SYSTEM MAY FREEZE, CAUSING SERIOUS DAMAGE.

PREPARING SYSTEM FOR STORAGE:

- Totally immerse the elements in the membrane housing in a solution of 2 % Memstor, venting the air outside of the pressure vessels. Use the overflow technique: circulate the Memstor solution in such a way that the remaining air in the system is minimized after the recirculation is completed. After the pressure vessel is filled, the Memstor solution should be allowed to overflow through an opening located higher than the upper end of the highest pressure vessel being filled.
- Separate the preservation solution from the air outside by closing all valves.
- Repeat this process at least once a month.

During the shutdown period, the plant must be kept frost-free, or the temperature must not exceed 113°F (45°C).

REVERSE OSMOSIS TROUBLESHOOTING

SYMPTOMS	POSSIBLE CAUSES	CORRECTIVE ACTION
LOW INLET PRESSURE	Low supply pressure	Increase Inlet Pressure
	Cartridge filters plugged	Change Filters
	Leaks	Fix any visible leaks
LOW PERMEATE FLOW	Cold feed water	See temperature correction sheet
	Low operating pressure	Adjust throttle and concentrate valve
	Defective membrane brine seal/ Membrane installed backwards	Replace brine seal and / or Reposition membranes
	Fouled or Scaled membrane	Clean membranes
	Damaged product tube O-rings	Inspect and/or replace
HIGH PERMEATE FLOW	Damaged or oxidized membrane	Replace membrane
	Exceeding maximum feed water temperature	See temperature correction sheet
	Low operating pressure	Adjust concentrate valve
POOR PERMEATE QUALITY	Damage product tube O-rings	Inspect and/or replace
	Damaged or oxidized membrane	Replace membrane
MEMBRANE FOULING		
	Scaling (CaSO ₄ , CaSO ₃ , BaSO ₄ , SiO ₂)	Reduce recovery. Clean with Acid Cleaners
	Biological Fouling	Clean Membranes
	Organic Fouling	Clean with high pH cleaner.
	Chlorine Oxidation	Check Chlorine feed equipment and de-chlorination system.

ABNORMAL PERMEATE FLOW

As time progresses, the efficiency of the membrane will be reduced. In general, the salt rejection does not change significantly until two or three years after installation when operated on properly pretreated feed water. The permeate flow rate will begin to decline slightly after one year of operation, but can be extended with diligent flushing and cleaning of the system. A high pH and/or precipitation of hardness can cause premature loss in rejection.

Permeate flow should be within 20% of the rated production, after correcting the feed water temperatures above or below 77°F. Check your permeate flow meter to determine the permeate flow rate.

NOTE: TO DETERMINE THE TEMPERATURE CORRECTION FACTOR, LOCATE THE TEMPERATURE CORRECTION TABLE IN THIS USER'S MANUAL AND FOLLOW THE DIRECTIONS

TEMPERATURE CORRECTION FACTORS FOR MEMBRANE

Find the temperature correction factor (TCF) from the table below. Divide the rated permeate flow at 77°F by the temperature correction factor. The result is the permeate flow at the desired temperature. (See example on the next page)

Temperature °F (°C)	Temperature Correction Factor								
50.0 (10.0)	1.711	57.2 (14.0)	1.475	64.4 (18.0)	1.276	71.6 (22.0)	1.109	78.8 (26.0)	0.971
50.2 (10.1)	1.705	57.4 (14.1)	1.469	64.6 (18.1)	1.272	71.8 (22.1)	1.105	79.0 (26.1)	0.968
50.4 (10.2)	1.698	57.6 (14.2)	1.464	64.8 (18.2)	1.267	72.0 (22.2)	1.101	79.2 (26.2)	0.965
50.5 (10.3)	1.692	57.7 (14.3)	1.459	64.9 (18.3)	1.262	72.1 (22.3)	1.097	79.3 (26.3)	0.962
50.7 (10.4)	1.686	57.9 (14.4)	1.453	65.1 (18.4)	1.258	72.3 (22.4)	1.093	79.5 (26.4)	0.959
50.9 (10.5)	1.679	58.1 (14.5)	1.448	65.3 (18.5)	1.254	72.5 (22.5)	1.090	79.7 (26.5)	0.957
51.1 (10.6)	1.673	58.3 (14.6)	1.443	65.5 (18.6)	1.249	72.7 (22.6)	1.086	79.9 (26.6)	0.954
51.3 (10.7)	1.667	58.5 (14.7)	1.437	65.7 (18.7)	1.245	72.9 (22.7)	1.082	80.1 (26.7)	0.951
51.4 (10.8)	1.660	58.6 (14.8)	1.432	65.8 (18.8)	1.240	73.0 (22.8)	1.078	80.2 (26.8)	0.948
51.6 (10.9)	1.654	58.8 (14.9)	1.427	66.0 (18.9)	1.236	73.2 (22.9)	1.075	80.4 (26.9)	0.945
51.8 (11.0)	1.648	59.0 (15.0)	1.422	66.2 (19.0)	1.232	73.4 (23.0)	1.071	80.6 (27.0)	0.943
52.0 (11.1)	1.642	59.2 (15.1)	1.417	66.4 (19.1)	1.227	73.6 (23.1)	1.067	80.8 (27.1)	0.940
52.2 (11.2)	1.636	59.4 (15.2)	1.411	66.6 (19.2)	1.223	73.8 (23.2)	1.064	81.0 (27.2)	0.937
52.3 (11.3)	1.630	59.5 (15.3)	1.406	66.7 (19.3)	1.219	73.9 (23.3)	1.060	81.1 (27.3)	0.934
52.5 (11.4)	1.624	59.7 (15.4)	1.401	66.9 (19.4)	1.214	74.1 (23.4)	1.056	81.3 (27.4)	0.932
52.7 (11.5)	1.618	59.9 (15.5)	1.396	67.1 (19.5)	1.210	74.3 (23.5)	1.053	81.5 (27.5)	0.929
52.9 (11.6)	1.611	60.1 (15.6)	1.391	67.3 (19.6)	1.206	74.5 (23.6)	1.049	81.7 (27.6)	0.926
53.1 (11.7)	1.605	60.3 (15.7)	1.386	67.5 (19.7)	1.201	74.7 (23.7)	1.045	81.9 (27.7)	0.924
53.2 (11.8)	1.600	60.4 (15.8)	1.381	67.6 (19.8)	1.197	74.8 (23.8)	1.042	82.0 (27.8)	0.921
53.4 (11.9)	1.594	60.6 (15.9)	1.376	67.8 (19.9)	1.193	75.0 (23.9)	1.038	82.2 (27.9)	0.918
53.6 (12.0)	1.588	60.8 (16.0)	1.371	68.0 (20.0)	1.189	75.2 (24.0)	1.035	82.4 (28.0)	0.915
53.8 (12.1)	1.582	61.0 (16.1)	1.366	68.2 (20.1)	1.185	75.4 (24.1)	1.031	82.6 (28.1)	0.913
54.0 (12.2)	1.576	61.2 (16.2)	1.361	68.4 (20.2)	1.180	75.6 (24.2)	1.028	82.8 (28.2)	0.910
54.1 (12.3)	1.570	61.3 (16.3)	1.356	68.5 (20.3)	1.176	75.7 (24.3)	1.024	82.9 (28.3)	0.908
54.3 (12.4)	1.564	61.5 (16.4)	1.351	68.7 (20.4)	1.172	75.9 (24.4)	1.021	83.1 (28.4)	0.905
54.5 (12.5)	1.558	61.7 (16.5)	1.347	68.9 (20.5)	1.168	76.1 (24.5)	1.017	83.3 (28.5)	0.902
54.7 (12.6)	1.553	61.9 (16.6)	1.342	69.1 (20.6)	1.164	76.3 (24.6)	1.014	83.5 (28.6)	0.900
54.9 (12.7)	1.547	62.1 (16.7)	1.337	69.3 (20.7)	1.160	76.5 (24.7)	1.010	83.7 (28.7)	0.897
55.0 (12.8)	1.541	62.2 (16.8)	1.332	69.4 (20.8)	1.156	76.6 (24.8)	1.007	83.8 (28.8)	0.894
55.2 (12.9)	1.536	62.4 (16.9)	1.327	69.6 (20.9)	1.152	76.8 (24.9)	1.003	84.0 (28.9)	0.892
55.4 (13.0)	1.530	62.6 (17.0)	1.323	69.8 (21.0)	1.148	77.0 (25.0)	1.000	84.2 (29.0)	0.889
55.6 (13.1)	1.524	62.8 (17.1)	1.318	70.0 (21.1)	1.144	77.2 (25.1)	0.997	84.4 (29.1)	0.887
55.8 (13.2)	1.519	63.0 (17.2)	1.313	70.2 (21.2)	1.140	77.4 (25.2)	0.994	84.6 (29.2)	0.884
55.9 (13.3)	1.513	63.1 (17.3)	1.308	70.3 (21.3)	1.136	77.5 (25.3)	0.991	84.7 (29.3)	0.882
56.1 (13.4)	1.508	63.3 (17.4)	1.304	70.5 (21.4)	1.132	77.7 (25.4)	0.988	84.9 (29.4)	0.879
56.3 (13.5)	1.502	63.5 (17.5)	1.299	70.7 (21.5)	1.128	77.9 (25.5)	0.985	85.1 (29.5)	0.877
56.5 (13.6)	1.496	63.7 (17.6)	1.294	70.9 (21.6)	1.124	78.1 (25.6)	0.982	85.3 (29.6)	0.874
56.7 (13.7)	1.491	63.9 (17.7)	1.290	71.1 (21.7)	1.120	78.3 (25.7)	0.979	85.5 (29.7)	0.871
56.8 (13.8)	1.486	64.0 (17.8)	1.285	71.2 (21.8)	1.116	78.4 (25.8)	0.977	85.6 (29.8)	0.869
57.0 (13.9)	1.480	64.2 (17.9)	1.281	71.4 (21.9)	1.112	78.6 (25.9)	0.974	85.8 (29.9)	0.866

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32$$

$$\text{Corrected Flow Rate} = (\text{Measured Flow Rate}) \times (\text{TCF @ Feed Water Temp.})$$

If a system is rated to produce 5 gpm of permeate water @ 77° F. The same system will produce more water at a higher temperature. It will also produce less water at a lower temperature. Use the temperature correction table to obtain the correct flow.

Example:

1.25 gpm @ 59° F ($1.25 \div 1.42 = .88$ gpm)

1.25 gpm @ 77° F ($1.25 \div 1 = 1.25$ gpm)

1.25 gpm @ 84° F ($1.25 \div 0.89 = 1.4$ gpm)

SERVICE ASSISTANCE

If service assistance is required, please complete the following process:

Contact your local dealer or distributor.

2000 N Andrews Ext.
Pompano Beach, FL 33069
Ph (425) 577-8851
www.sea-xchange.com.net

Prior to making the call, have the following information available: system installation date, serial number, daily log sheets, current operating parameters (e.g. flow, operating pressures), and a detailed description of the problem.

OPERATION

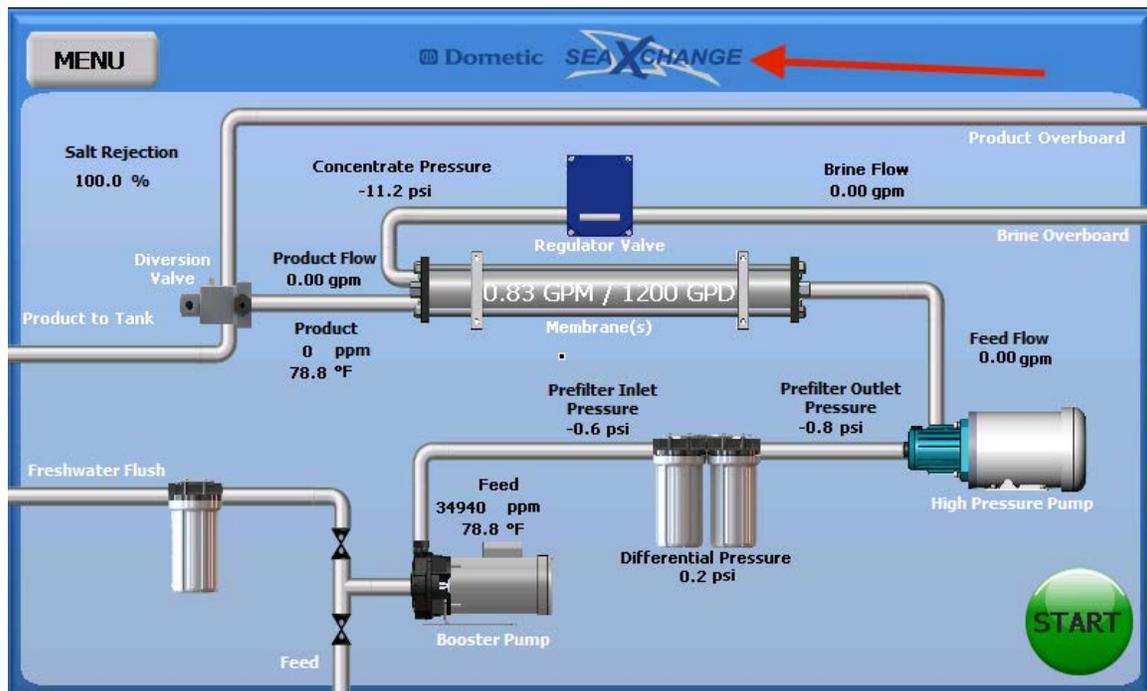
Company: _____	Date of Start-Up: _____
Location: _____	Date of Last Cleaning: _____
Week Of: _____	
System Serial #: _____	

DATE					
TIME					
HOUR OF OPERATION					
FILTER INLET PRESSURE (PSI)					
FILTER OUTLET PRESSURE (PSI)					
CONCENTRATE PRESSURE (PSI)					
PUMP DISCHARGE PRESSURE (PSI)					
FEED FLOW (GPM)					
PERMEATE FLOW (GPM)					
CONCENTRATE FLOW (GPM)					
RECYCLE FLOW (GPM)					
RECOVERY %					
FEED TEMPERATURE					
FEED TDS (PPM)					
PERMEATE TDS (PPM)					
REJECTION %					
FEED PH					
PERMEATE PH					
SCALE INHIBITOR FEED (PPM)					
IRON (mg/L)					
FREE CHLORINE (mg/L)					
HARDNESS (GPG CaCO ₃)					

SEA XCHANGE XTC TOUCHSCREEN NAVIGATION

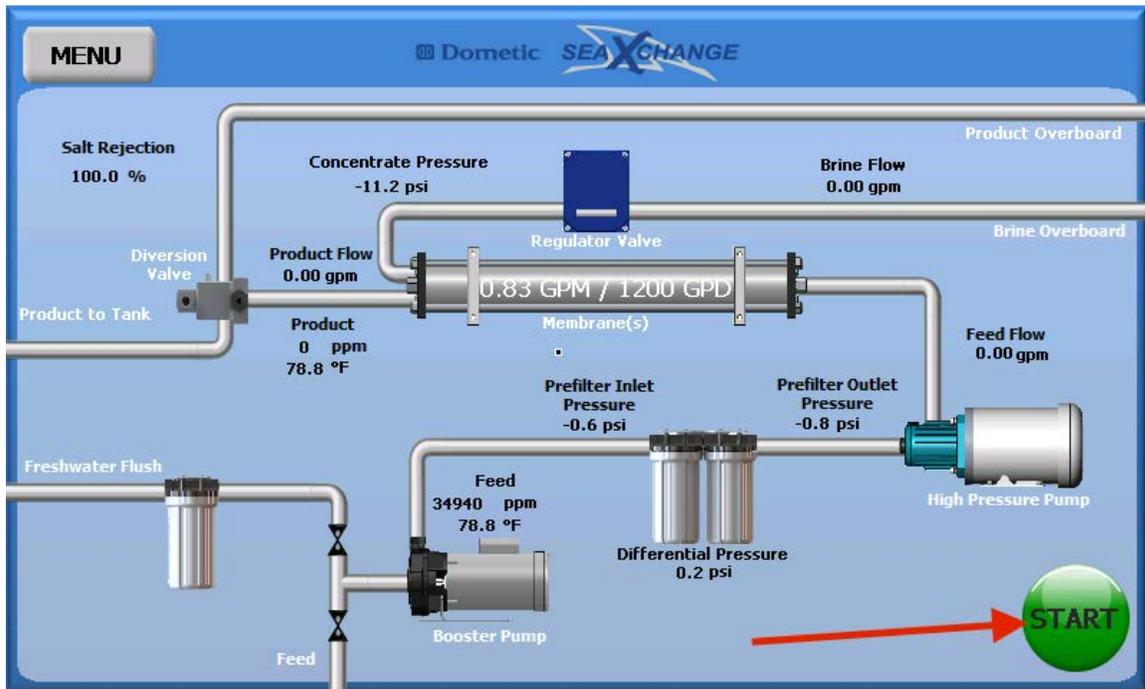
Home Screen

From any screen the Sea Xchange icon can be pressed to return to this home screen. There is also a lot of information on this home screen that is important to the operation of this system. Some of the images can be pressed to bring up different information and setting choices. Also the menu button can be pressed to access more information. This manual will go through these options.

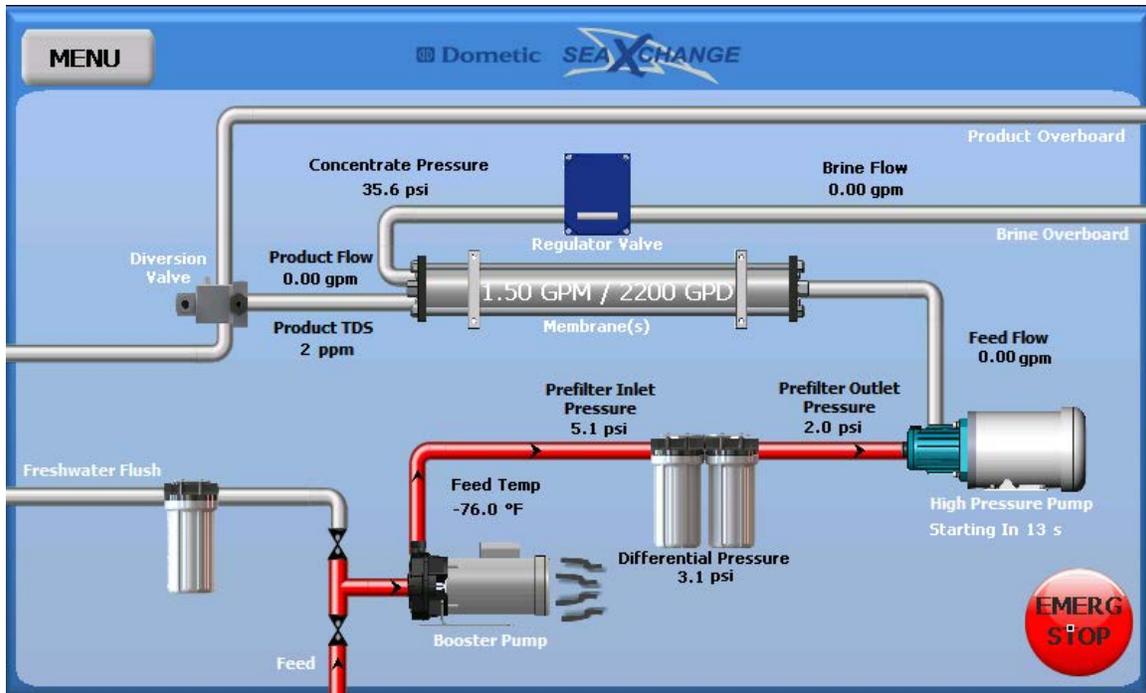


PGD Touch Screen Operation Procedure

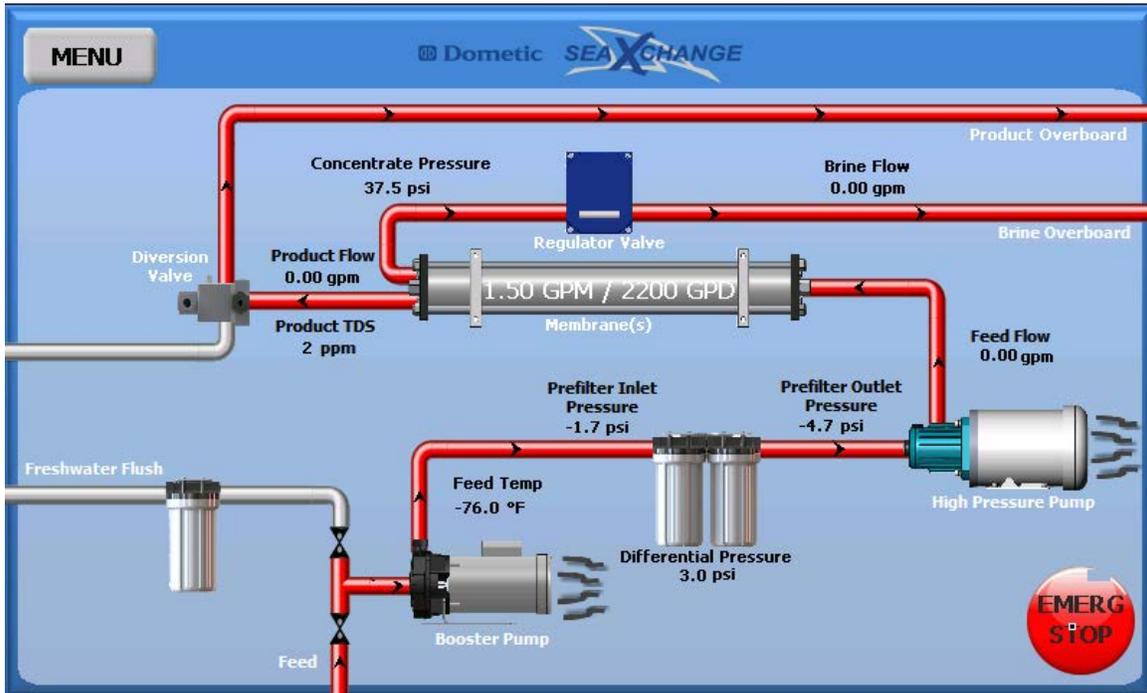
1. Press the Start button. The capacity of the system is shown on the membrane in the center of the screen. This is set at the factory, and is based on the amount, and size of the membranes, and the size of the pump.



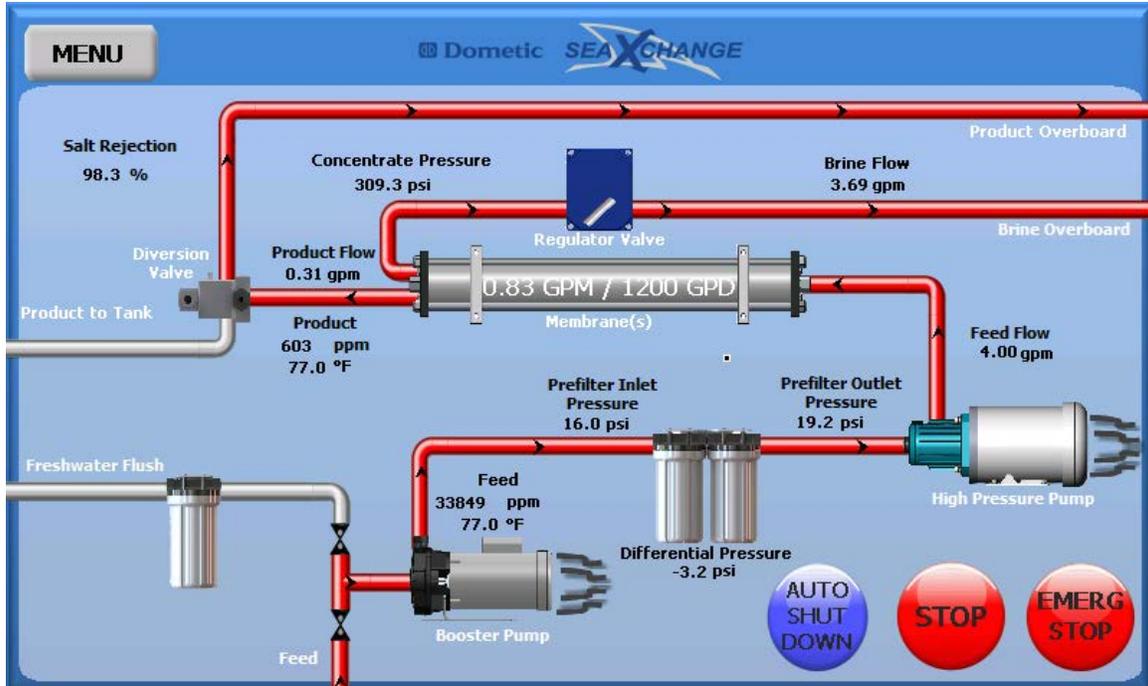
2. The booster pump will start to run, and the high pressure pump will start to count down its delay. The screen will indicate water flow, inlet pressure, outlet pressure, and feed temperature. It will also show the pressure differential between the pre-filters. The emergency stop button will appear at this time if a shut down is necessary.



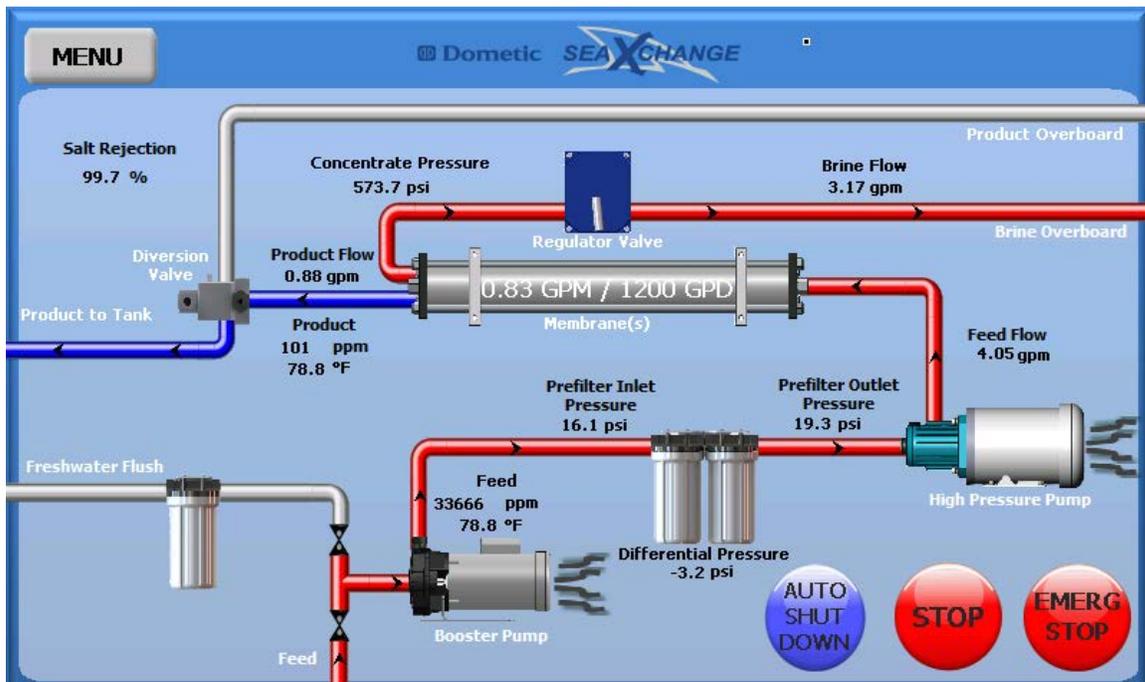
3. After the high pressure pump delay has expired it will begin to operate. The regulator valve will start to close automatically to the systems rated flow. The flow rates, and pressures will start to register.



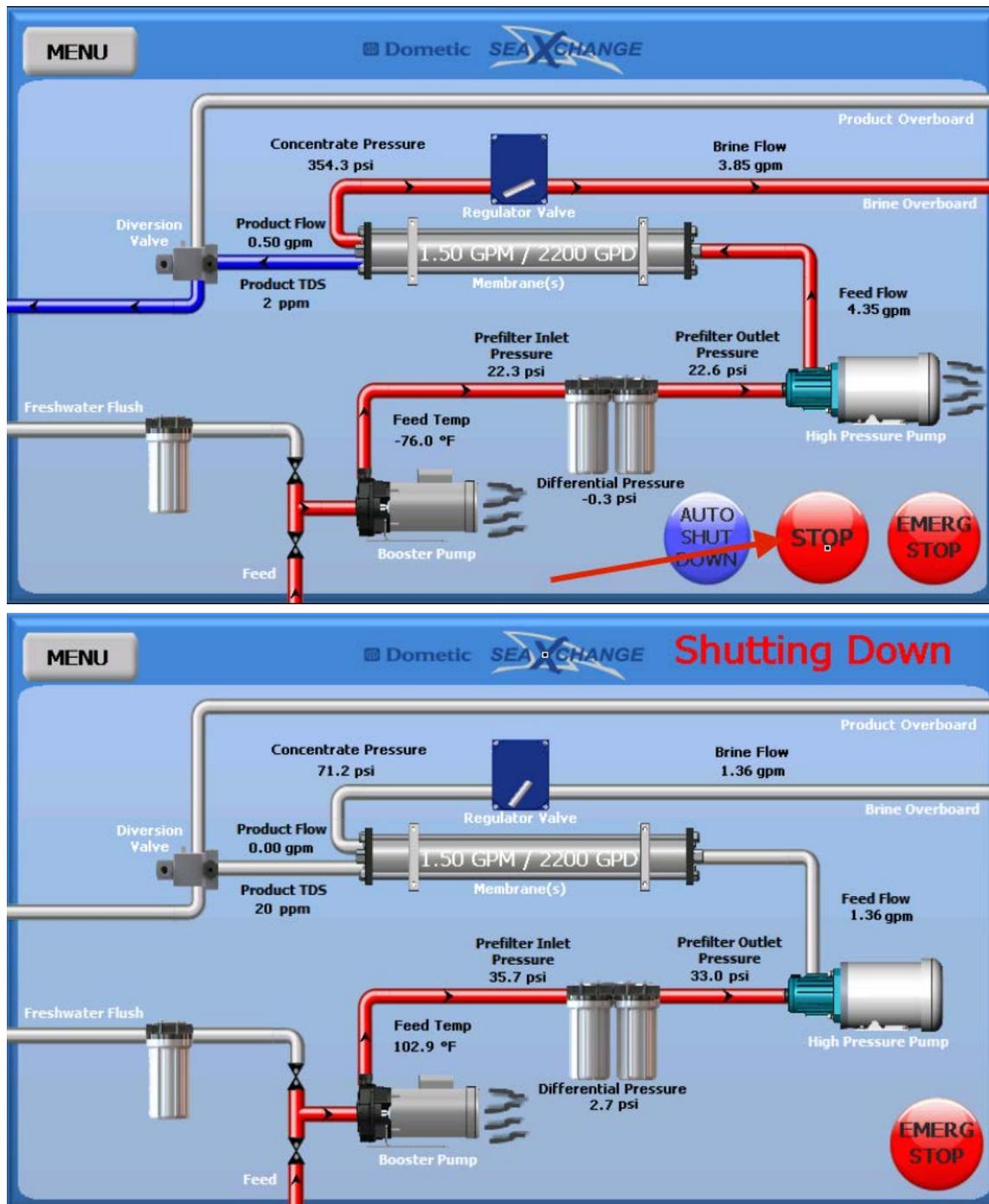
4. As the unit operates and pressure starts to build up, the stop and the auto shut down buttons will appear.



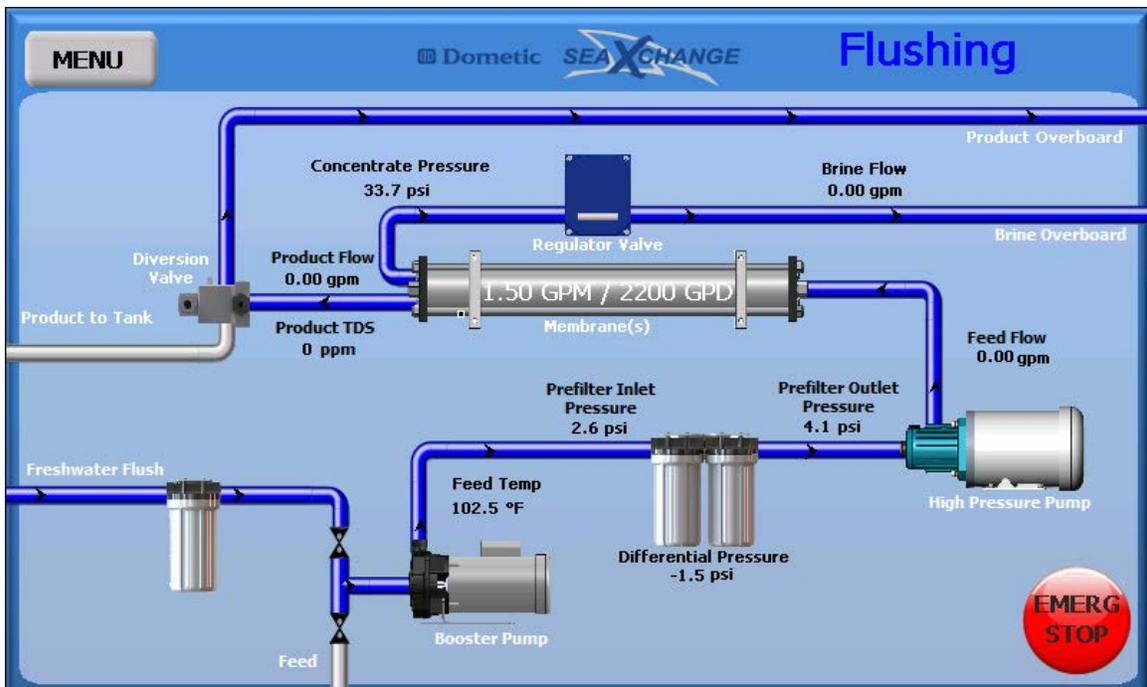
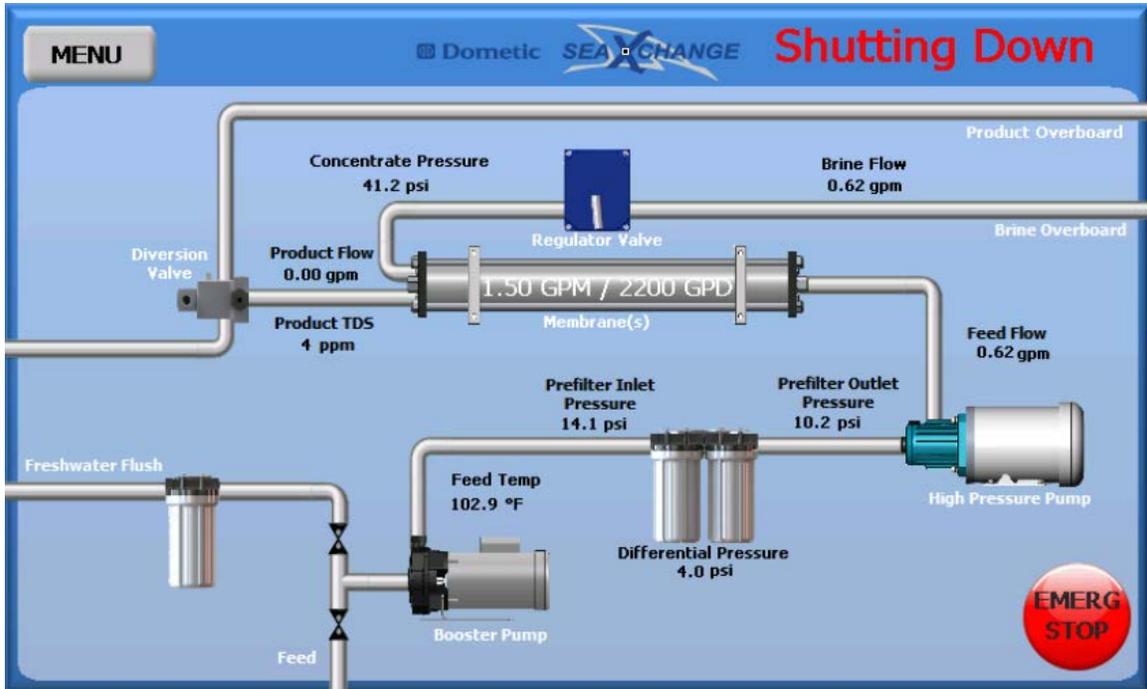
5. When the unit starts to make product water that is below the diversion valve set point, the valve will activate, and send the good product water to the vessels fresh water tank.



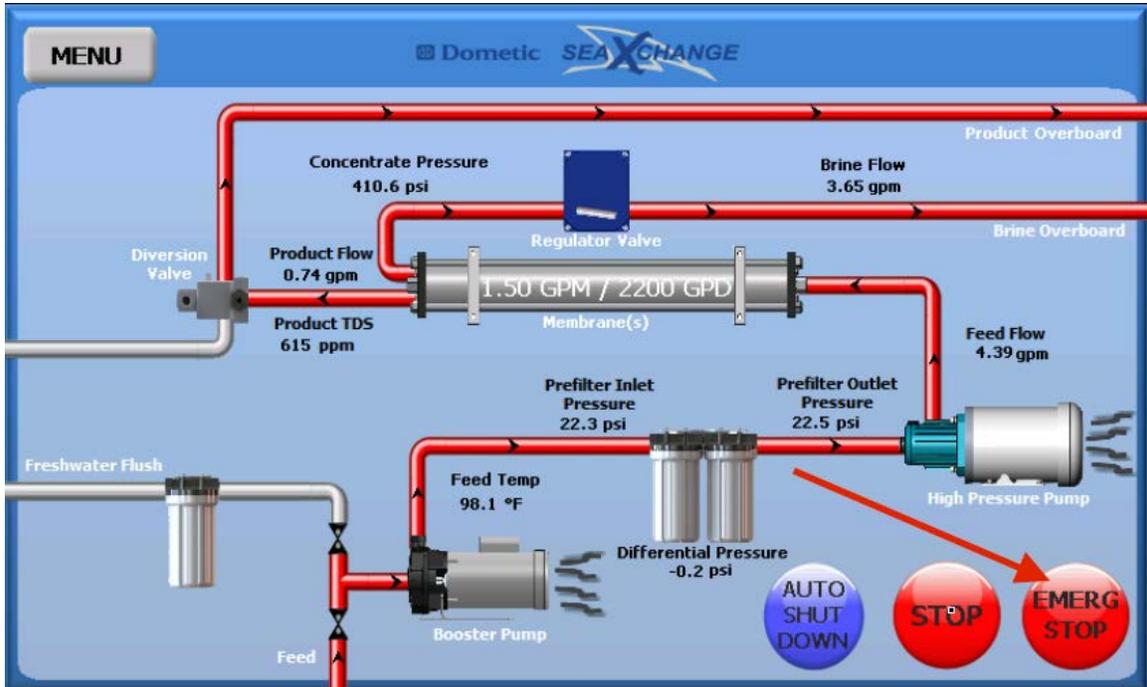
6. To stop operation of system there are three choices. (1) Normal shut down process is to press the stop button. Shutting down will appear on the screen and the high pressure pump will stop, and the regulator valve will begin to open.



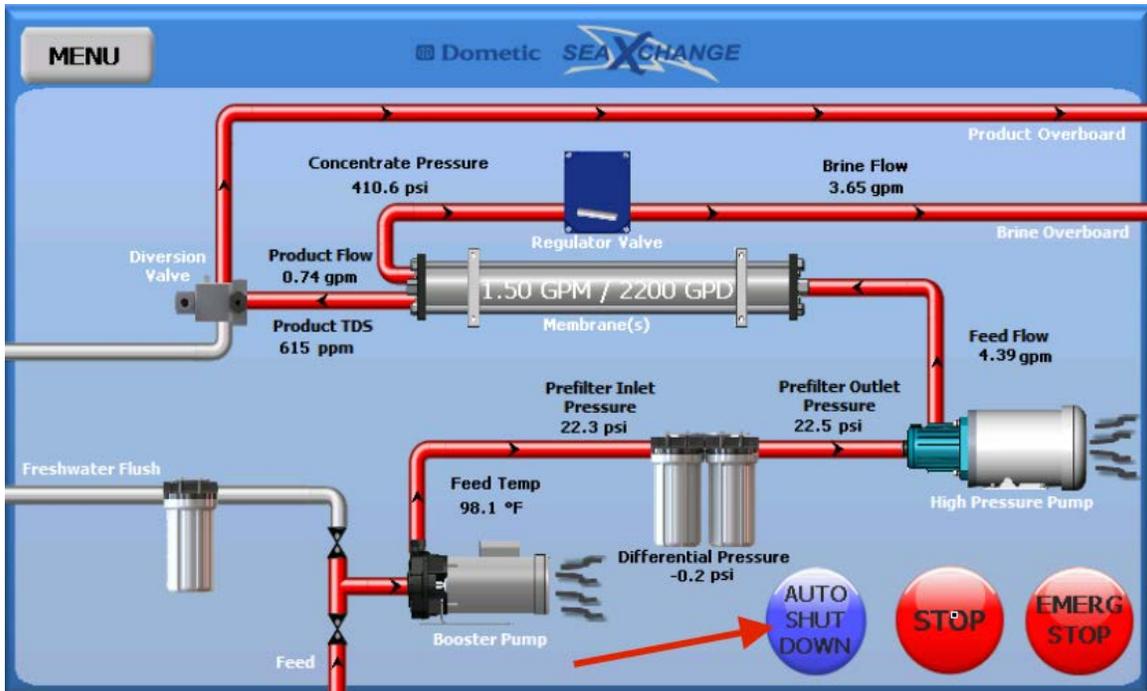
7. After the valve is all the way open, the booster pump will stop. After the system has shut down, it will do an automatic fresh water flush.



8. Option (2) for shut down is an emergency shut down. Selecting the emergency stop button will shut the unit down as fast as possible, and it will not do a fresh water flush.



9. Option (3) for shut down is the auto shut down. Press the auto shut down button. There are two choices for the auto shut down, (a) Time, and (b) Volume.



Autoshutdown Mode

Select one

Select one

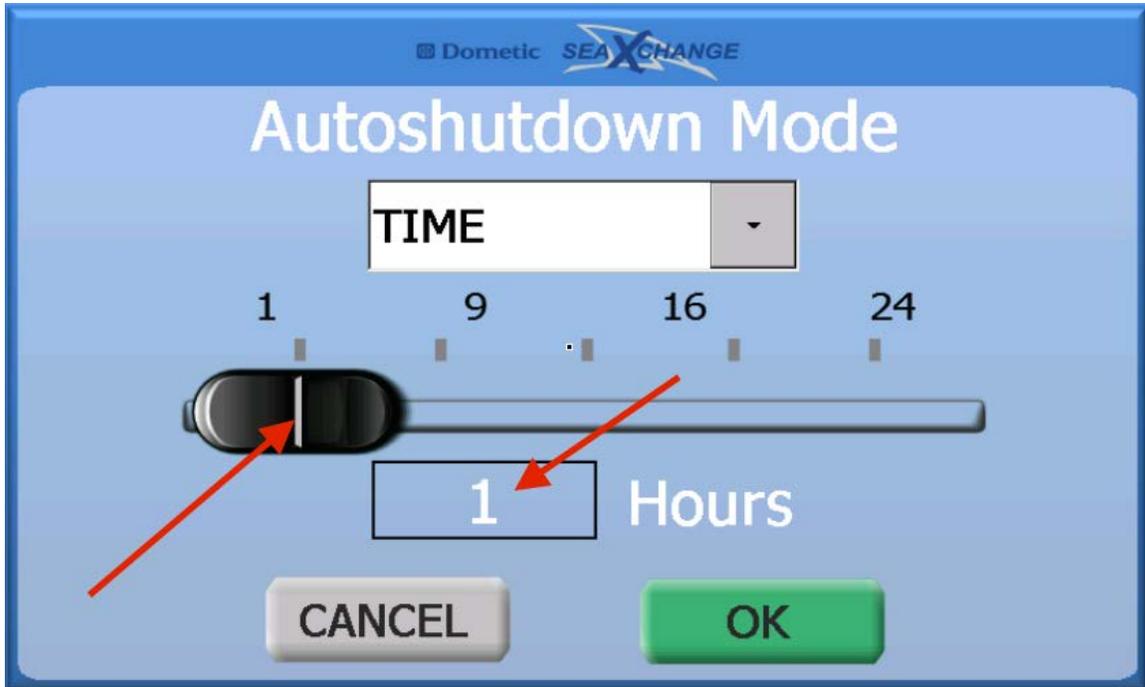
TIME

VOLUME

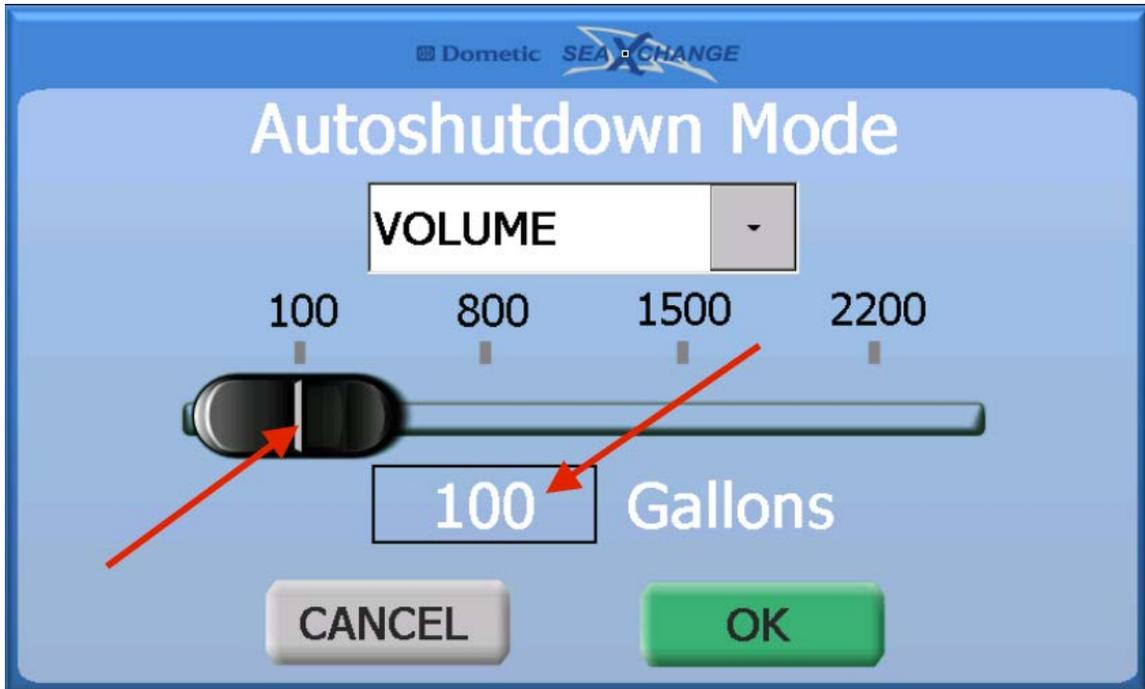
CANCEL

OK

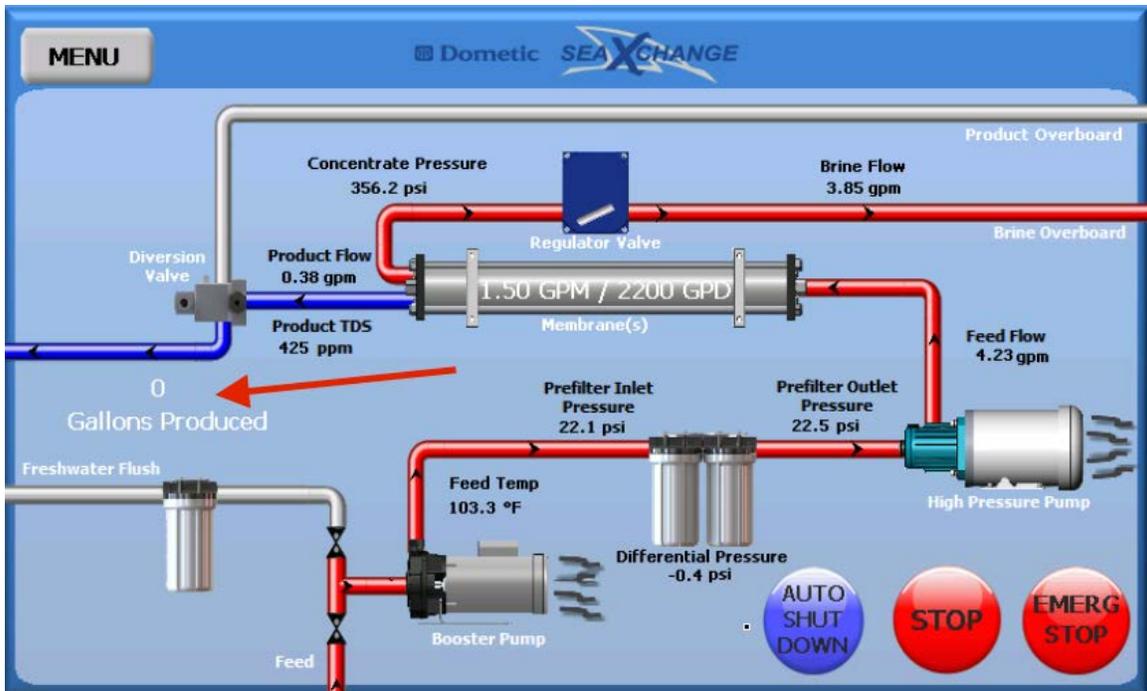
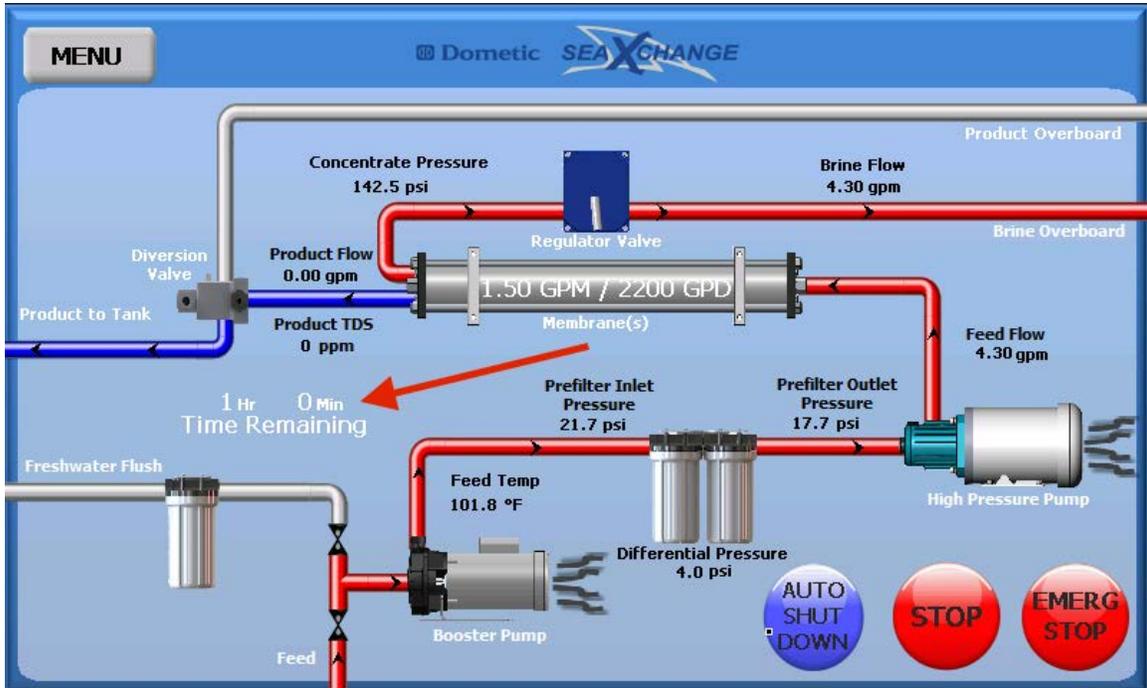
10. When (a) Time is selected, there will be a sliding scale to select the amount of time the system will operate for. Or touch the hours box and manually type in the hours, and press enter. Then press ok.



11. When (b) Volume is selected, there will be a sliding scale to select the volume of water the system will produce. Or touch the gallons/liters box and manually type in the volume, and press enter. Then press ok.



12. When the system is in auto shut down mode, there will be a count on the home screen that will track the production or the time of operation. When the system has satisfied the setting, it will shut down and do a fresh water flush.



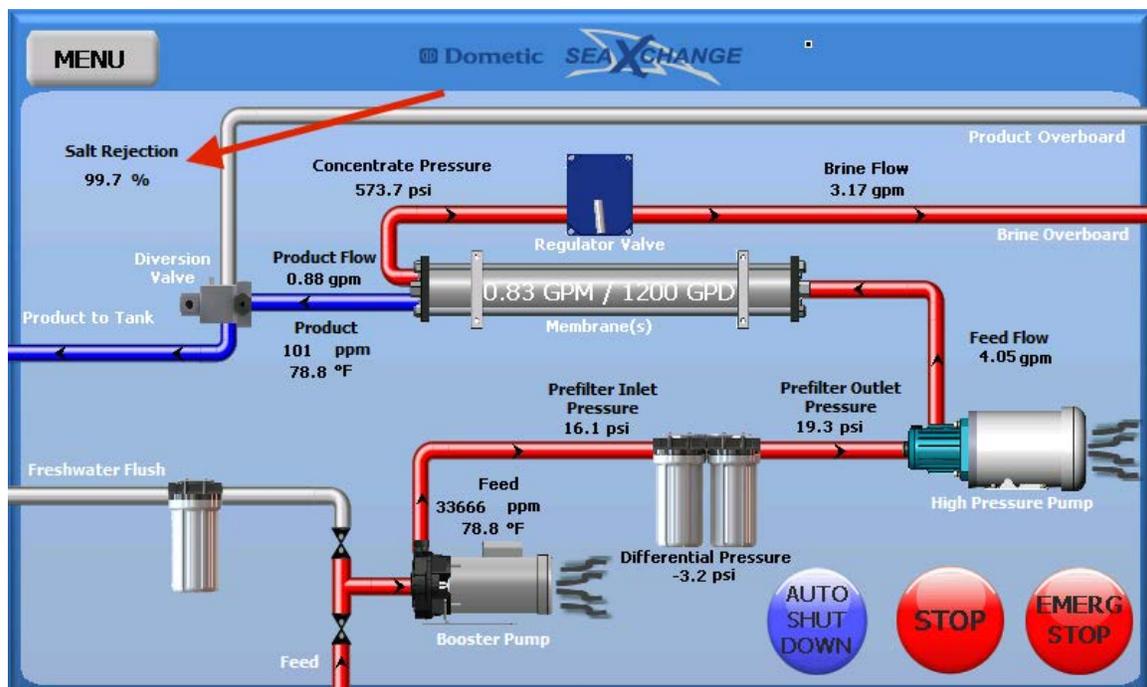
Salt Rejection

The XTC Sea XChange reverse osmosis system is designed to reject up to 99.4% NaCl. The rejection percentage is calculated by the following formula.

$$\% \text{ Rejection} = (\text{Feed TDS} - \text{Product TDS}) / (\text{Feed TDS}) \times 100$$

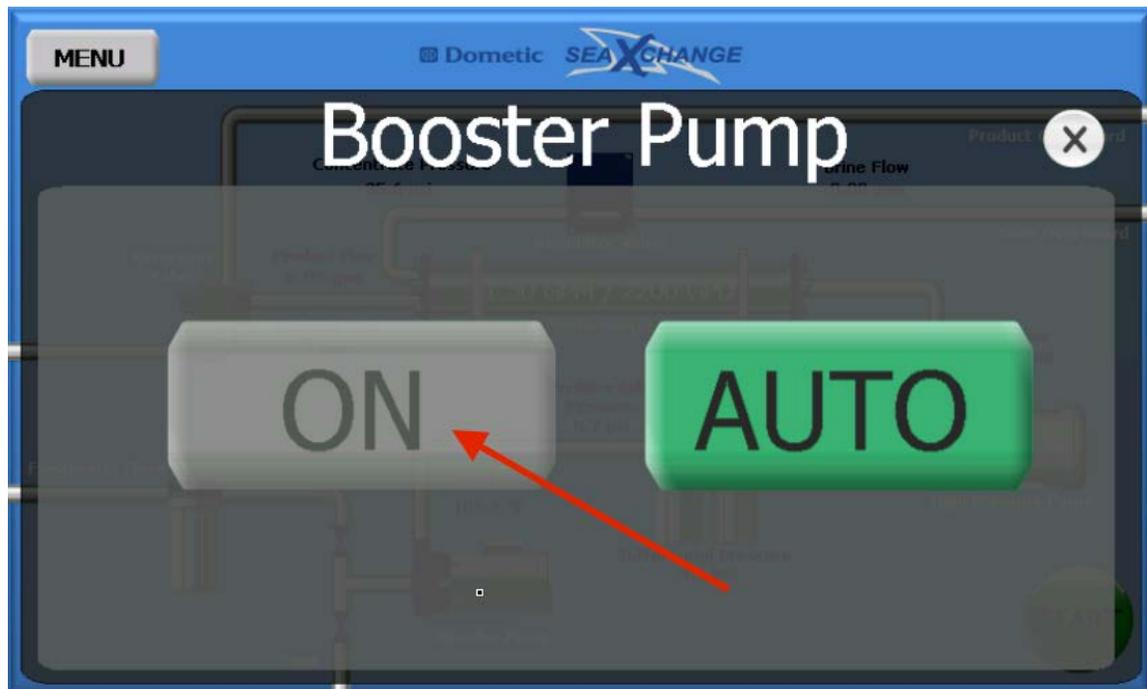
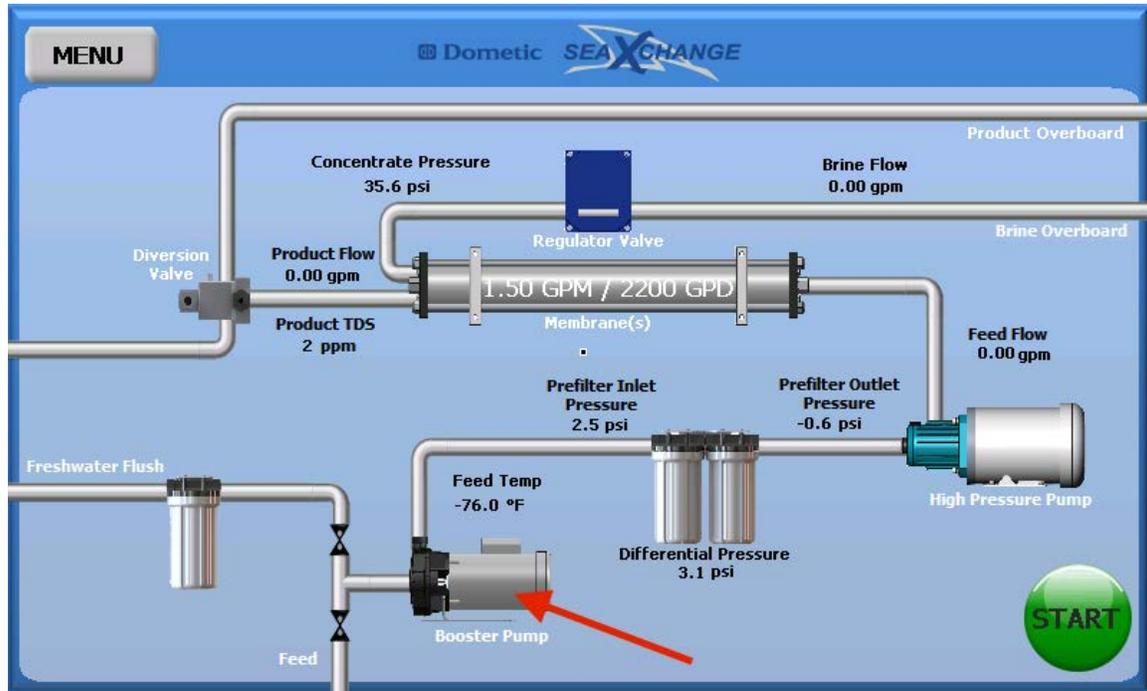
Example: $99.4\% = (35,000 - 210) / (35,000) \times 100$

This calculation is done automatically and displayed in the upper left hand corner of the XTC home screen. This will allow the user to see how well the membranes are performing at all times.

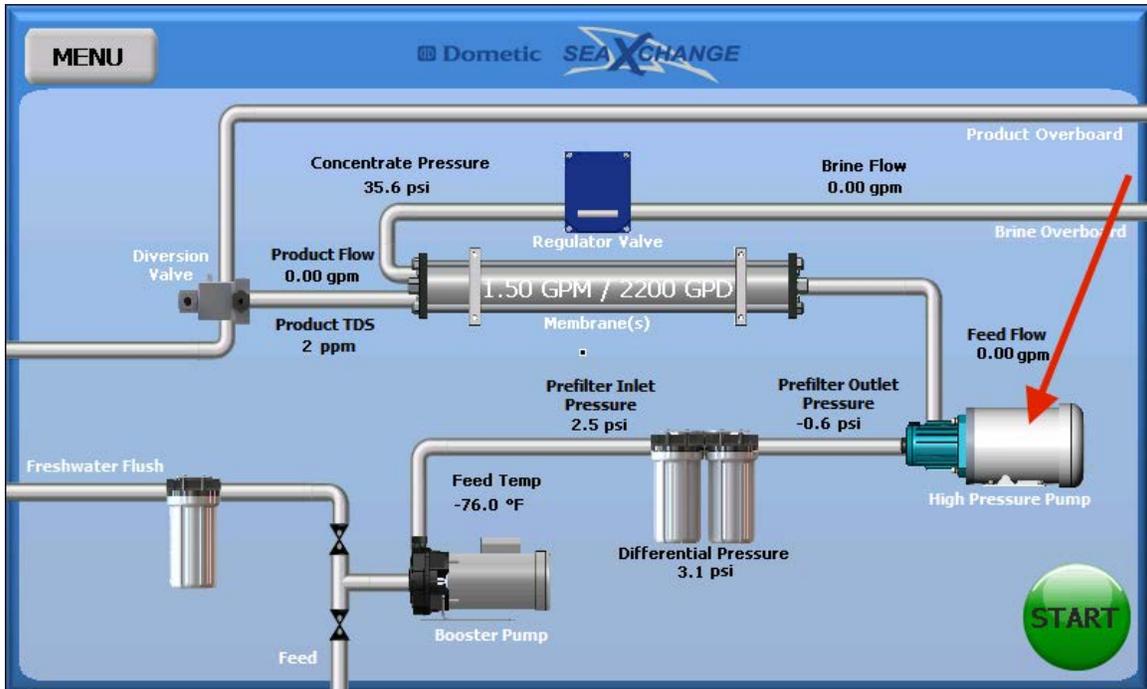


Manual Run Procedure

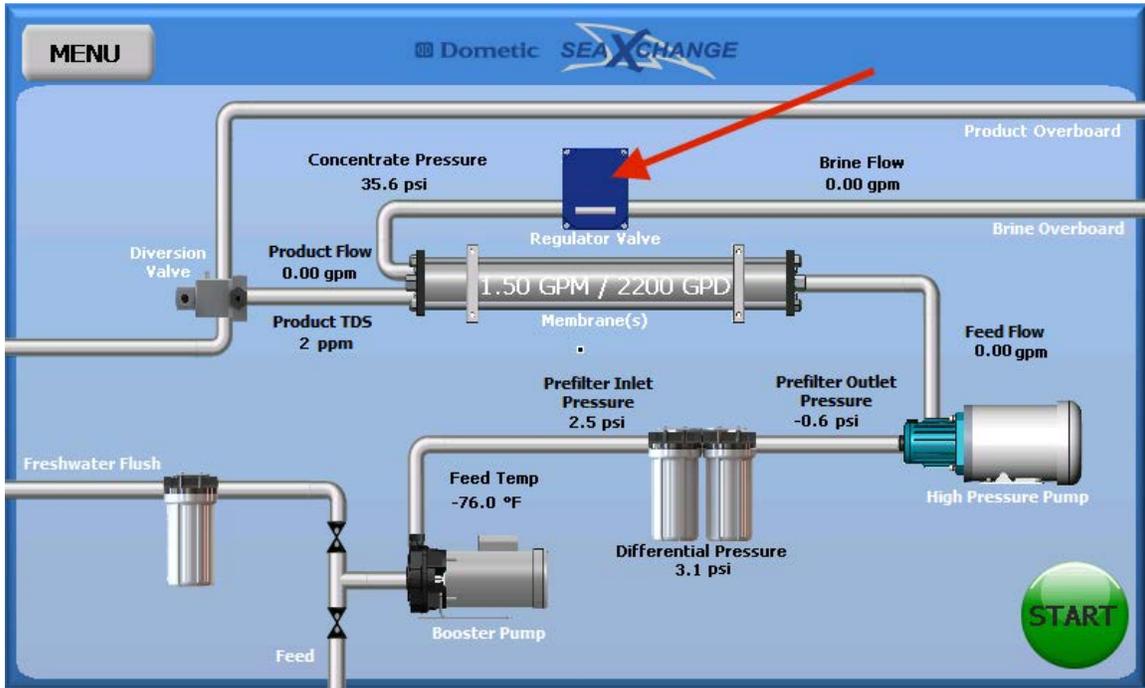
1. Prime the system by touching the booster pump image, and then press the on button. Press the X button to exit to the home screen. When the motors are running wavy lines will appear by them.



2. Be sure water is flowing, and there is pressure at the pre-filters. Then press the high pressure pump image, and press on.



3. Next press the regulator valve icon, a menu will pop up, press the arrow to see the options.



SERVICE Dometic SEA XCHANGE

Back Pressure Regulator Valve

Product Flow	0.00 gpm
Concentrate Pressure	35.6 psi
Valve Position Feedback	1.5 %
Valve Position Command	0.0 %

Automatic 

A red arrow points to the dropdown arrow icon.

There are three options for the regulator valve, the normal selection is automatic, the other two are for troubleshooting, and manual operation. If Manual-PLC is pressed the regulator valve can be set electronically to close or open the valve by a percentage, by pressing the up and down arrows or just typing in a percent.

SERVICE Dometic SEACHANGE

Back Pressure Regulator Valve

Product Flow	0.00	gpm
Concentrate Pressure	35.6	psi
Valve Position Feedback	1.5	%
Valve Position Command	0.0	%

Automatic
Automatic
Manual - PLC
Manual - Hand

A red arrow points to the 'Manual - PLC' option in the dropdown menu.

SERVICE Dometic SEACHANGE

Back Pressure Regulator Valve

Product Flow	0.00	gpm
Concentrate Pressure	33.7	psi
Valve Position Feedback	1.5	%
Valve Position Command	0.0	%

Manual - PLC

Manual - PLC Valve Position

0.0 %

+

-

Red arrows point to the '+' and '-' buttons.

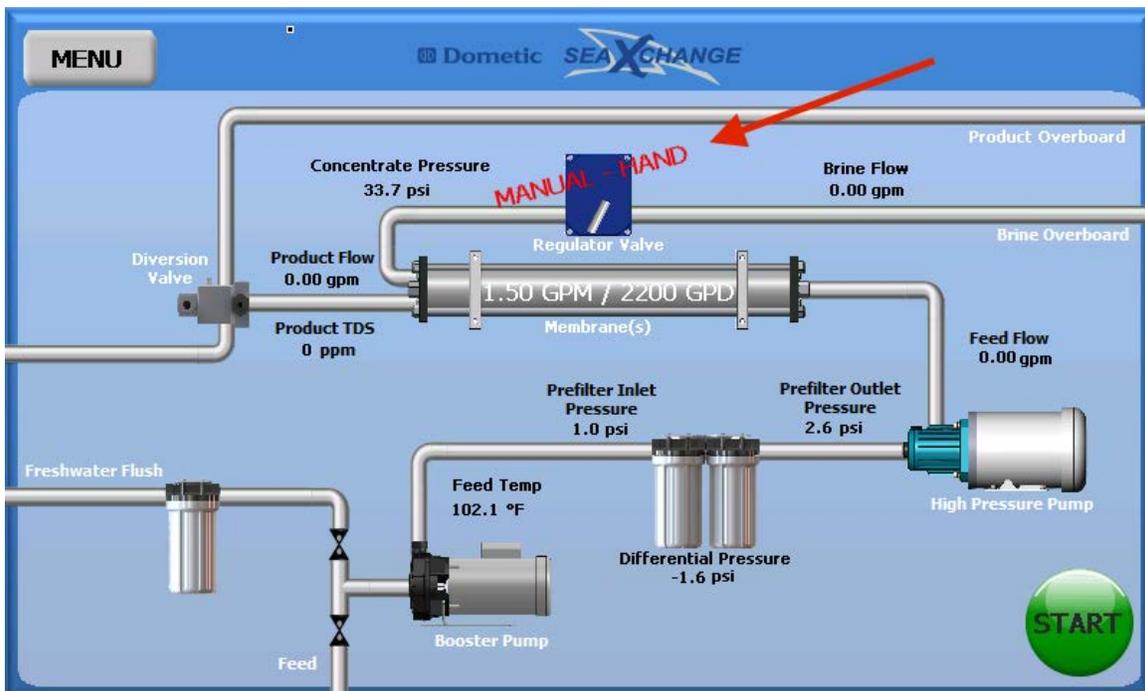
When the Manual - Hand selection is pressed the electronics are cut from the regulator valve, and it may be turned by hand.

SERVICE Dometic SEAXCHANGE

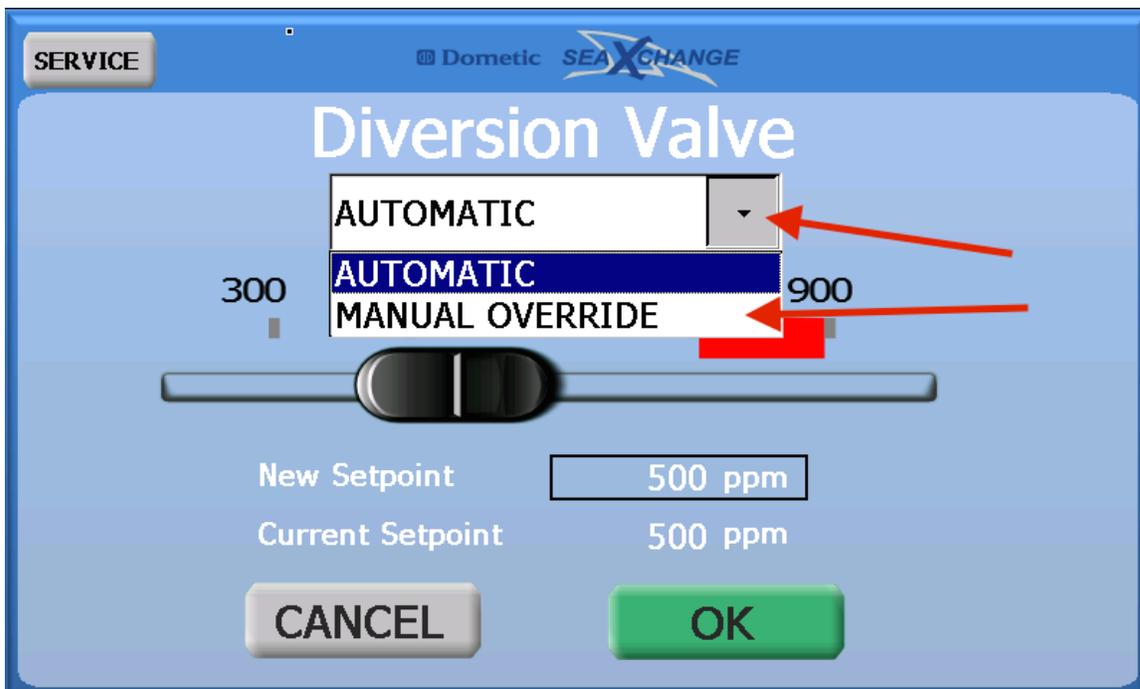
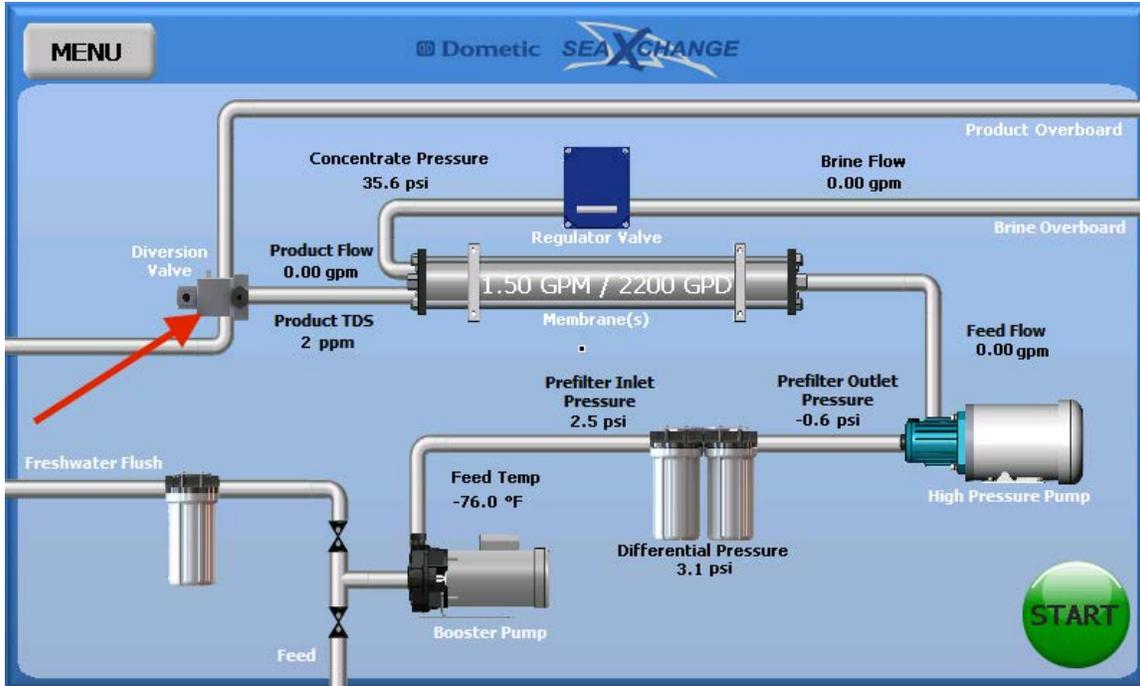
Back Pressure Regulator Valve

Product Flow	0.00 gpm
Concentrate Pressure	35.6 psi
Valve Position Feedback	1.5 %
Valve Position Command	0.0 %

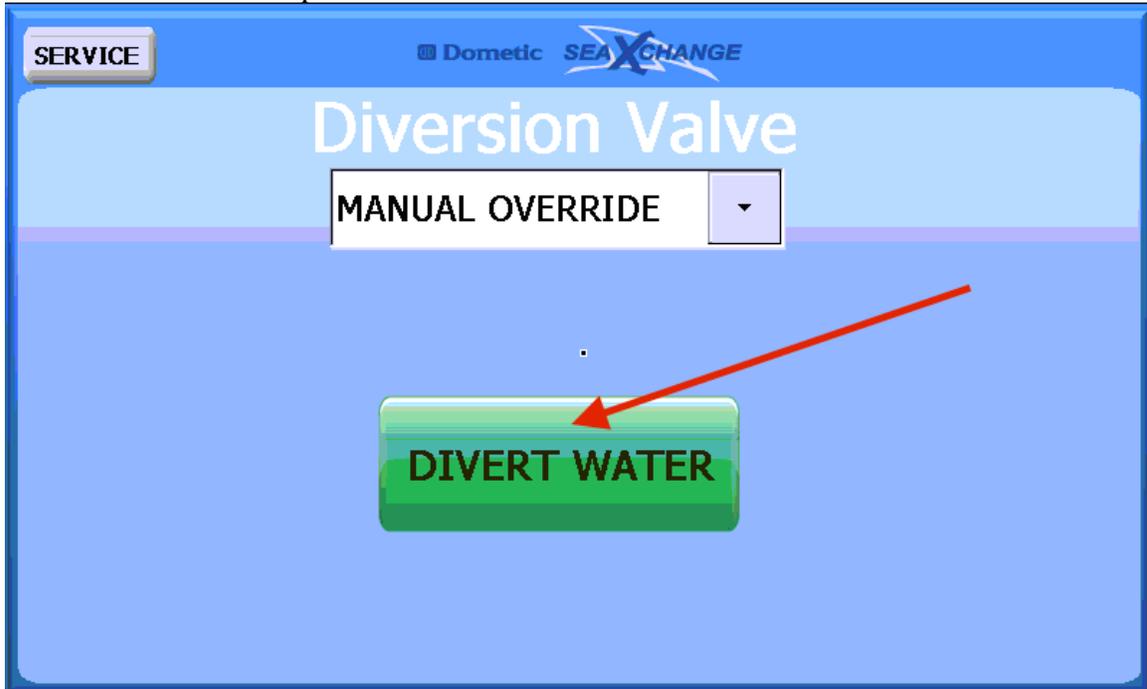
Automatic
Automatic
Manual - PLC
Manual - Hand



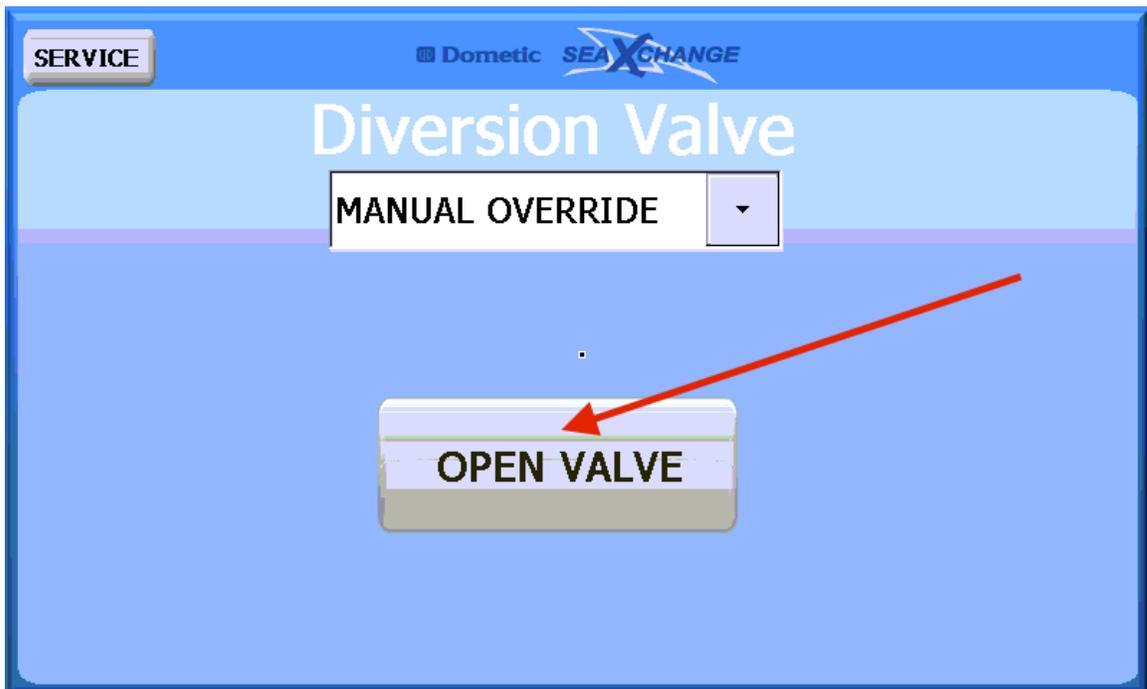
4. The diversion valve is factory set at 500 ppm, to change the set point, the diversion valve image can be pressed or it can be selected in the service menu. The sliding scale can be used to select the set point, or simple press the box and type in the set point. To manually operate the diversion valve, select that function.



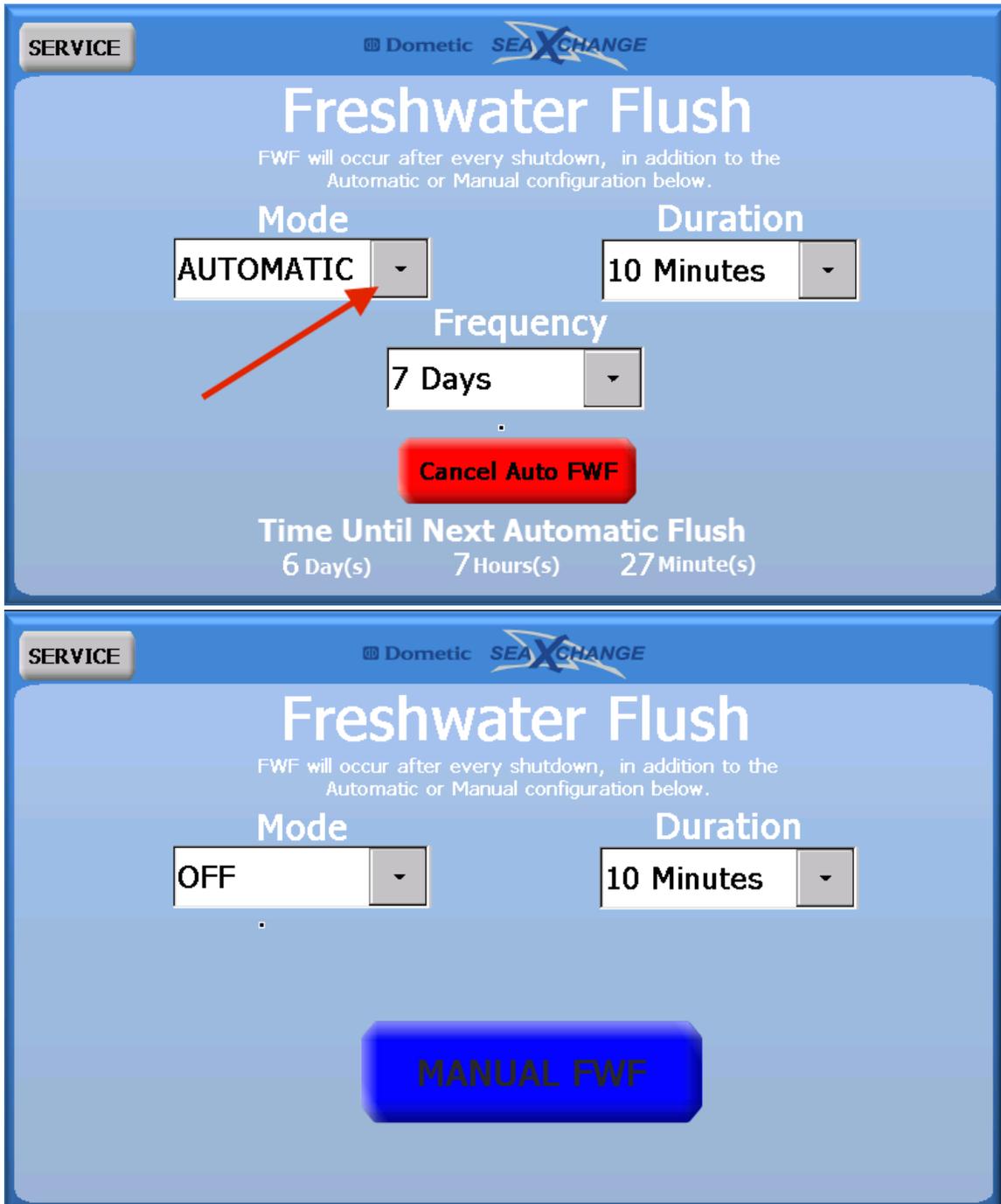
Press Divert water to put water into vessels tanks.



Press open valve to send water overboard.

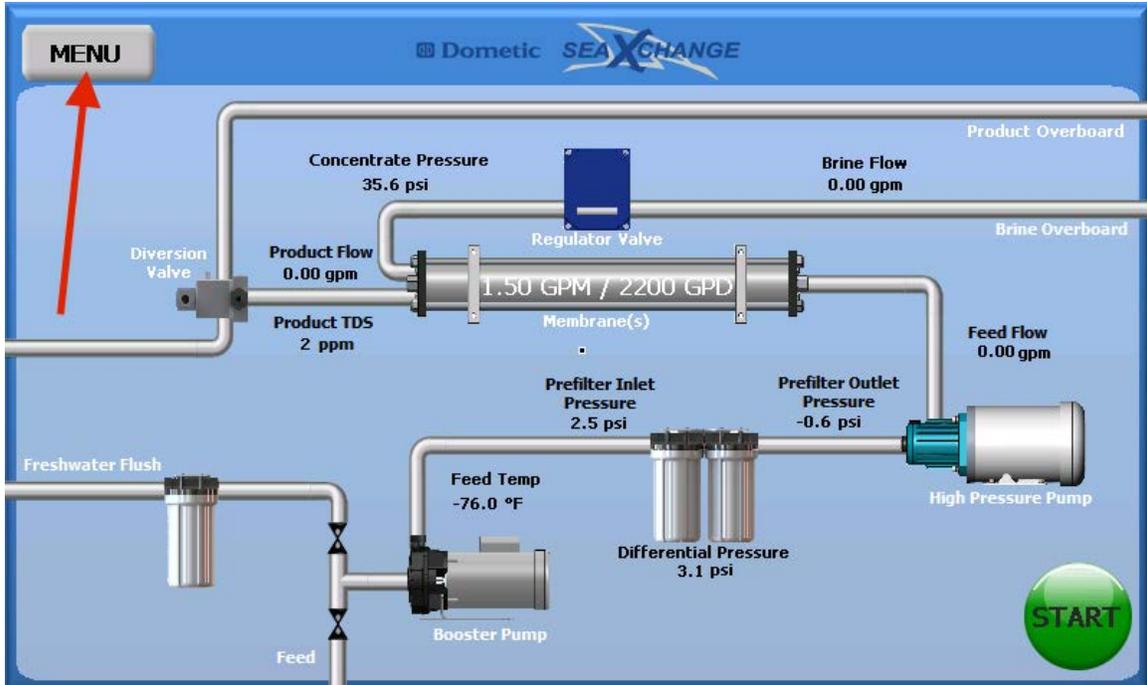


5. To shut down the system simply do the reverse of the previous steps. Then do a fresh water flush of the system. Press the fresh water flush image, or select fresh water flush from the service menu. The mode, duration and frequency of the flush can be changed in this menu. At the bottom of the screen the time until the next automatic flush will be counted down. When the off mode is selected a manual flush may be performed.

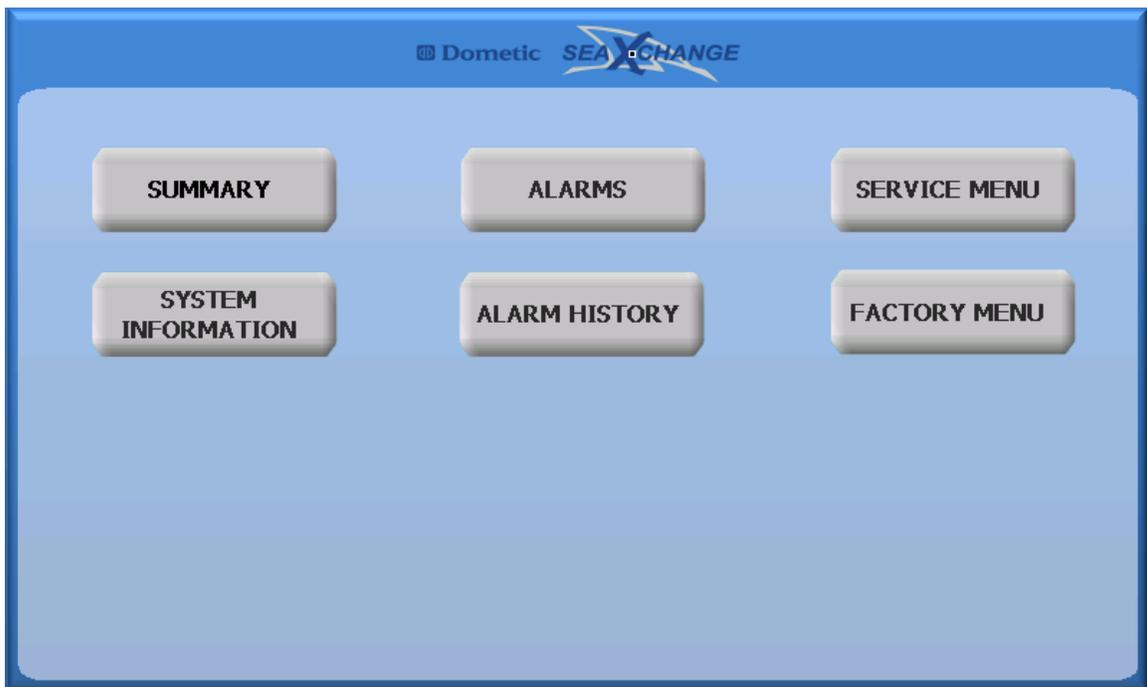


Menu Options

Press the menu button in the upper left hand corner. Pressing the SEA XCHANGE logo will return to home screen.

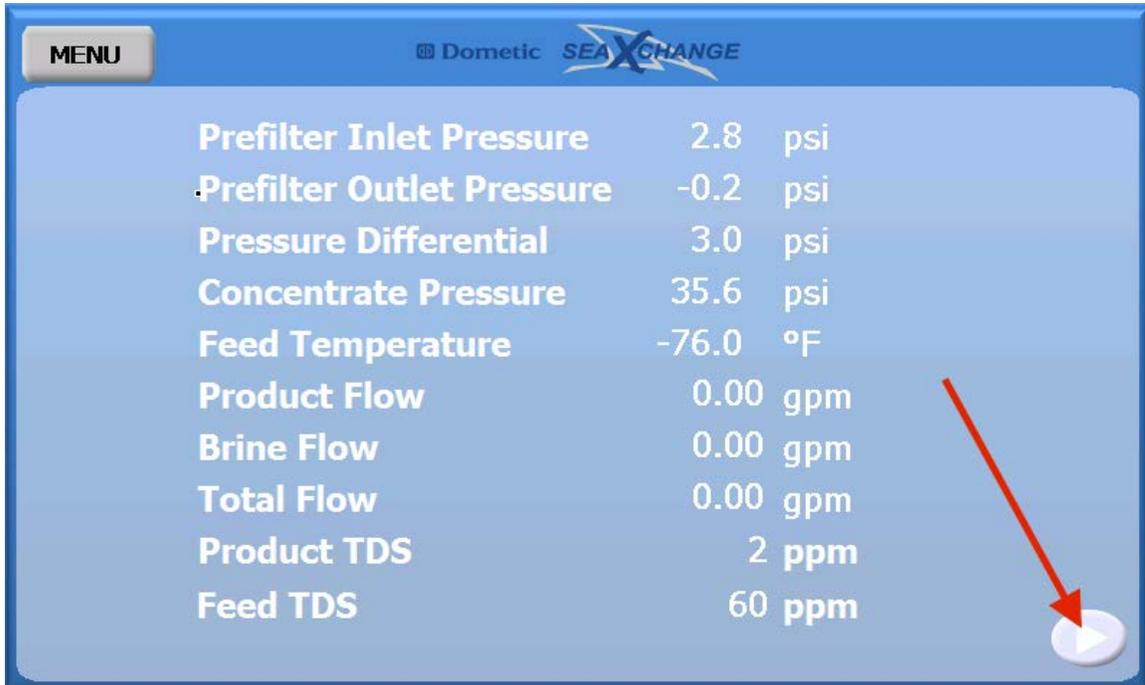


*NOTE: The factory menu is password protected and for factory use only.

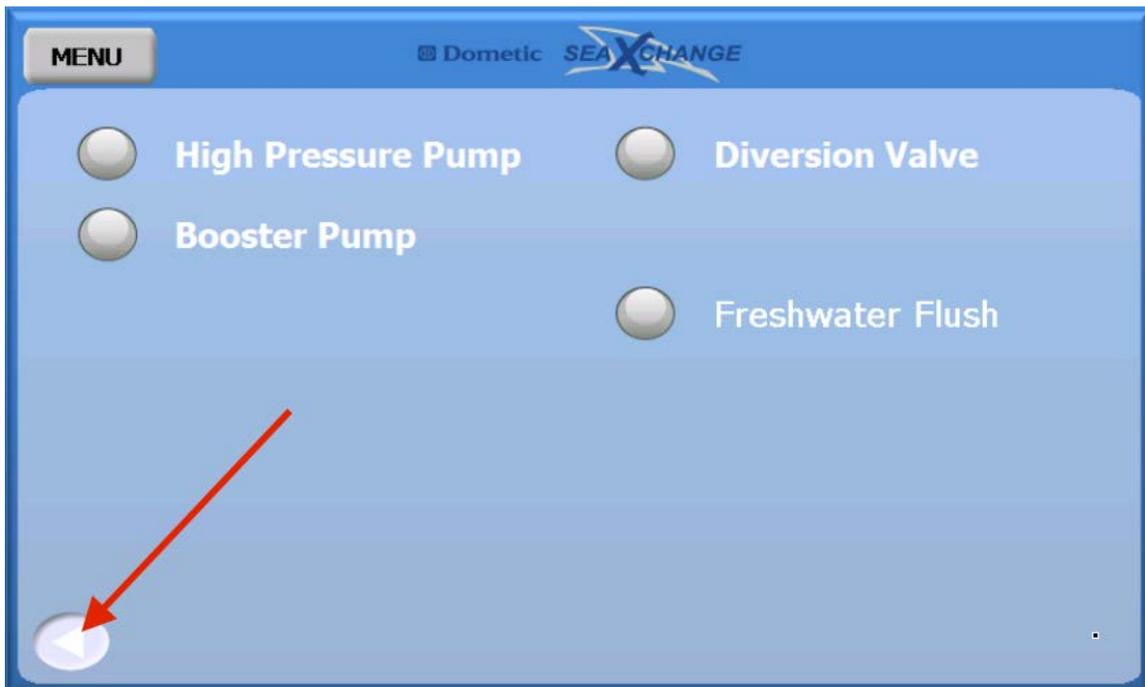


SUMMARY

Pressing the summary button will show the systems current values. Pressing the arrow at the lower right hand corner will scroll to the next screen to show the components of the system.

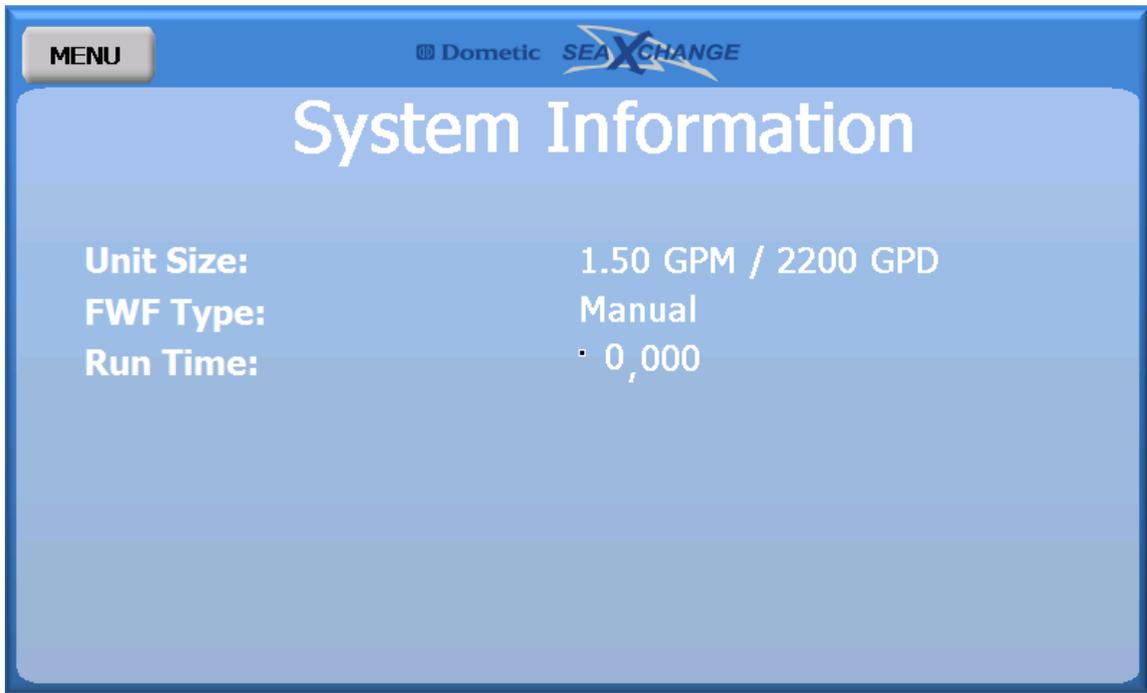


Press the arrow in the lower left corner will scroll back.



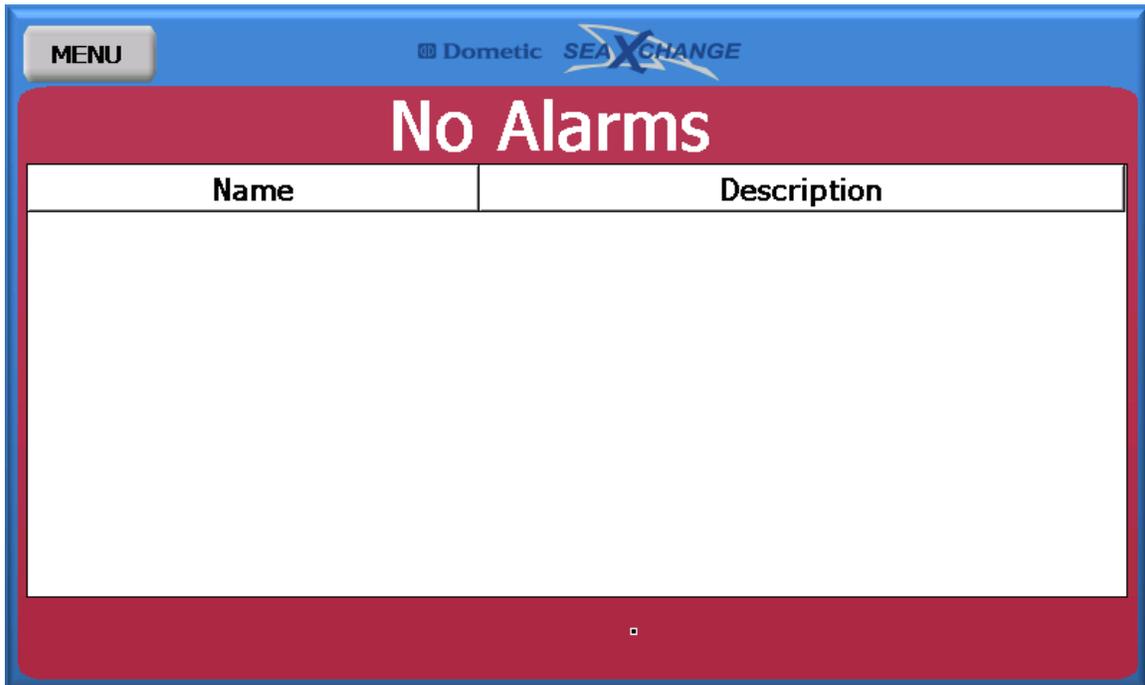
SYSTEM INFORMATION

Pressing the system information button will bring up some of the system specifics.

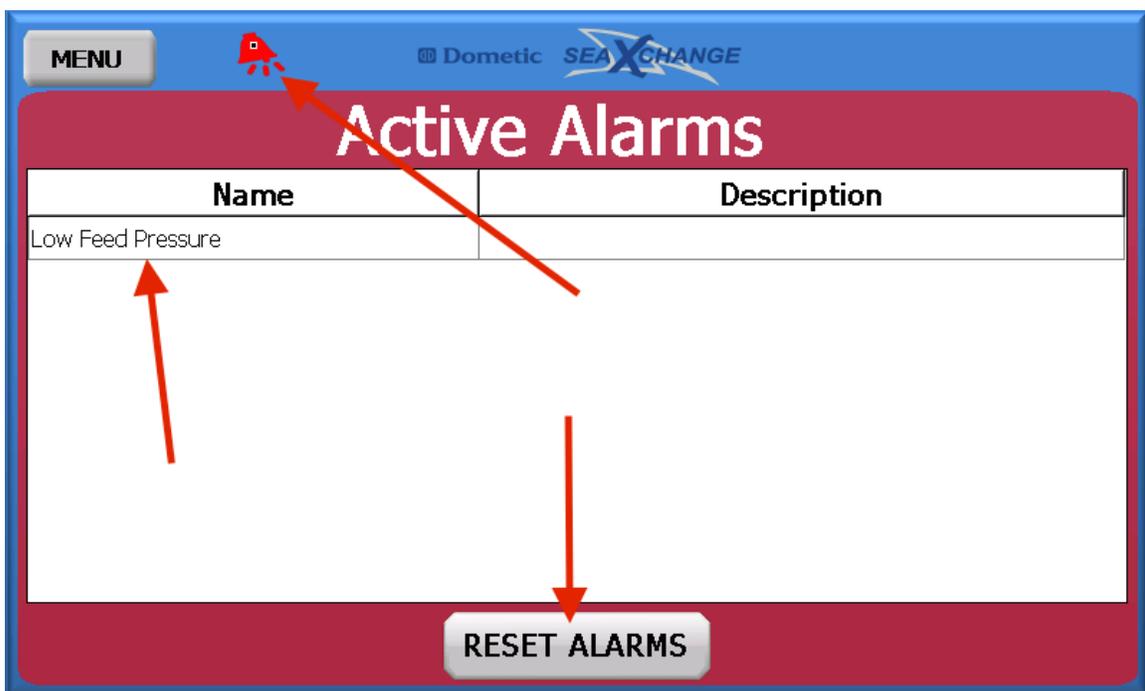


ALARMS

Pressing the Alarms button will show you active alarms or the no alarms screen.

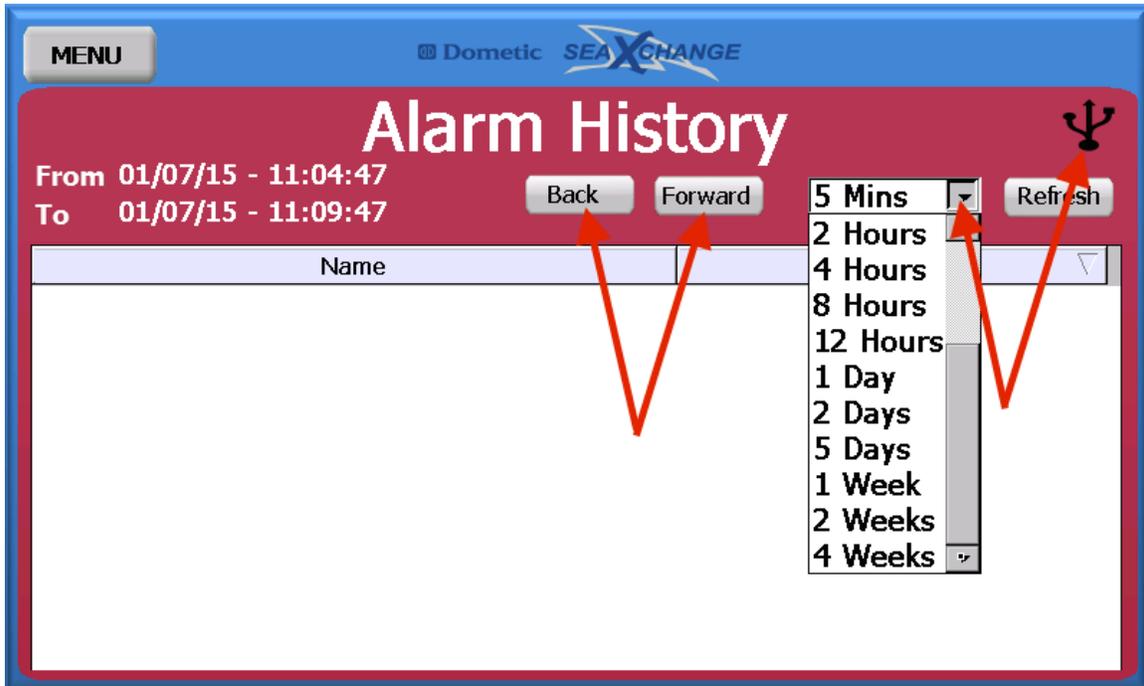


If the system is in alarm, a red alarm symbol will appear at the top of the screen. The alarm symbol at the top of the home screen can also be pressed to show this screen. Pressing the reset alarms button will reset any active alarms. Any active alarm will be shown on this screen.



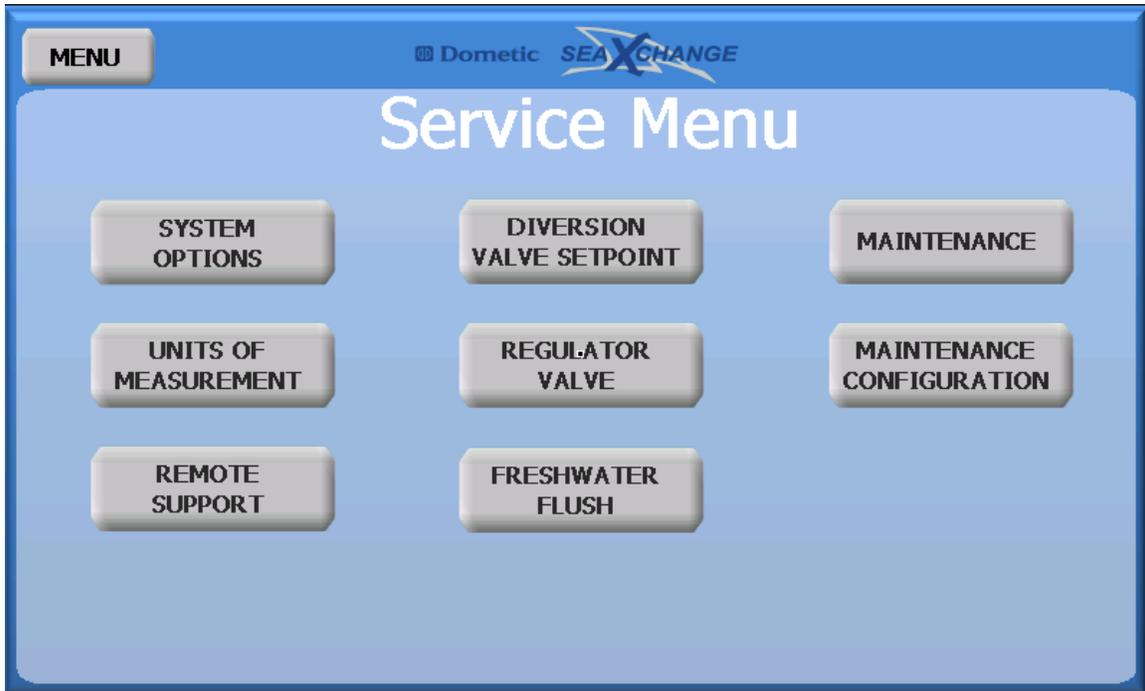
ALARM HISTORY

To check the systems alarm history press the alarm history button. Pressing back and forward will scroll through the systems alarm history, or the arrow can be pushed to move in greater increments. The USB icon can be pressed to transfer history to a USB.



SERVICE MENU

There are several options in the service menu. Some of these can also be accessed from the home screen by pressing the images.



SYSTEM OPTIONS

In this menu options can be added to the system or removed if not being used.

SERVICE 

System Options

Ultraviolet Light	NO	▼		
Feed Pump	NO	▼		
Freshwater Flush	YES	▼		
Silver Sterilizer Fault	YES	▼	N.C.	▼

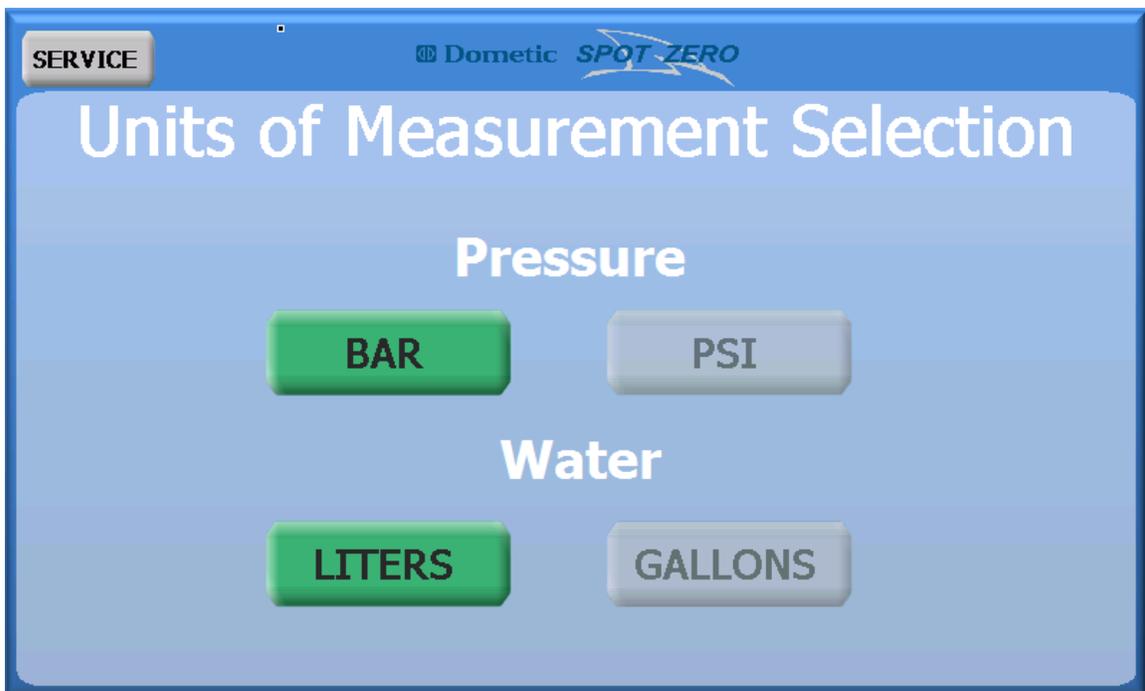
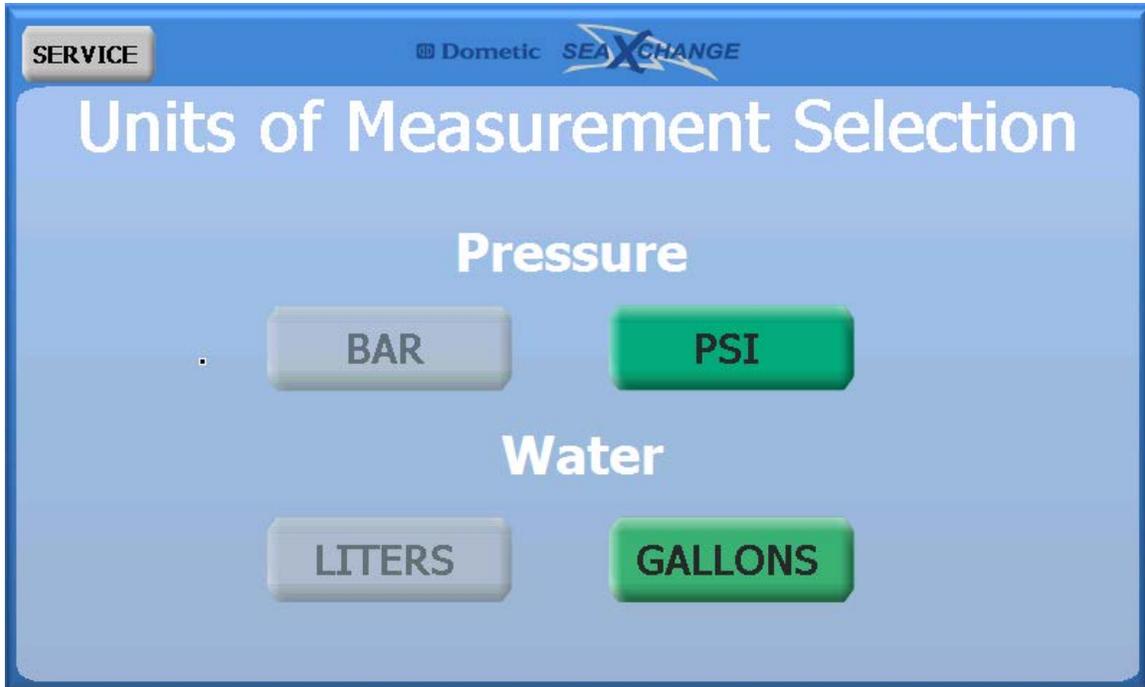
SERVICE 

System Options

Ultraviolet Light	NO	▼
Feed Pump	NO	▼
Freshwater Flush	YES	▼
Silver Sterilizer Fault	NO	▼

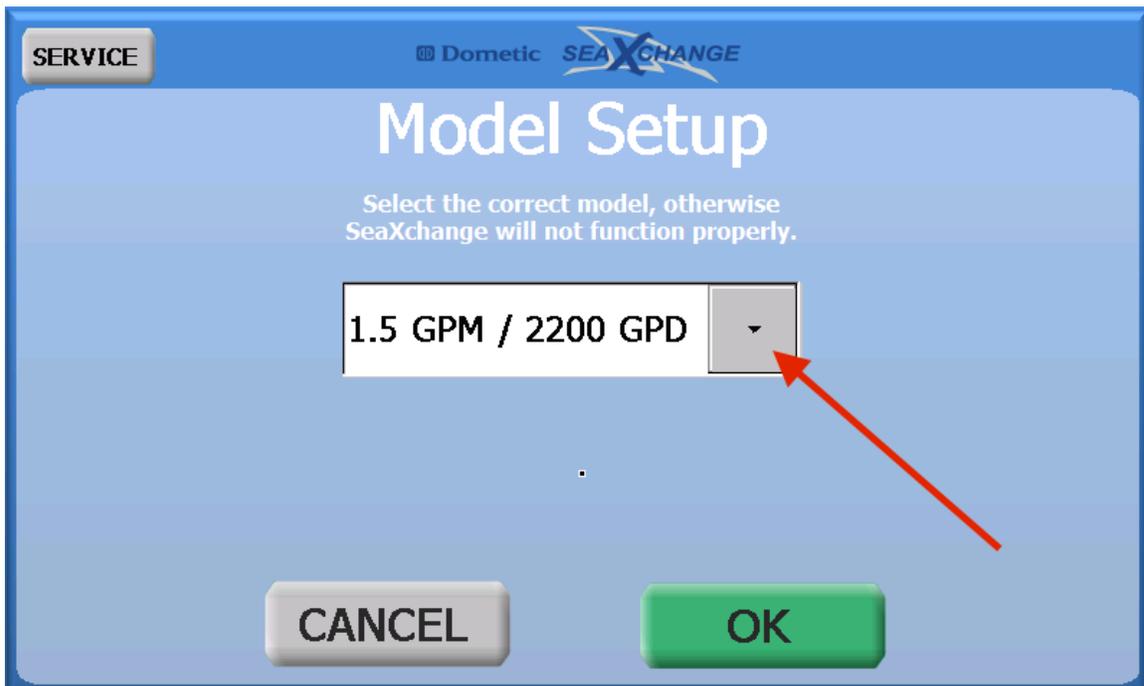
UNITS OF MEASUREMENT

The unit of measurement can be changed from standard to metric by pressing the desired unit of measurement.

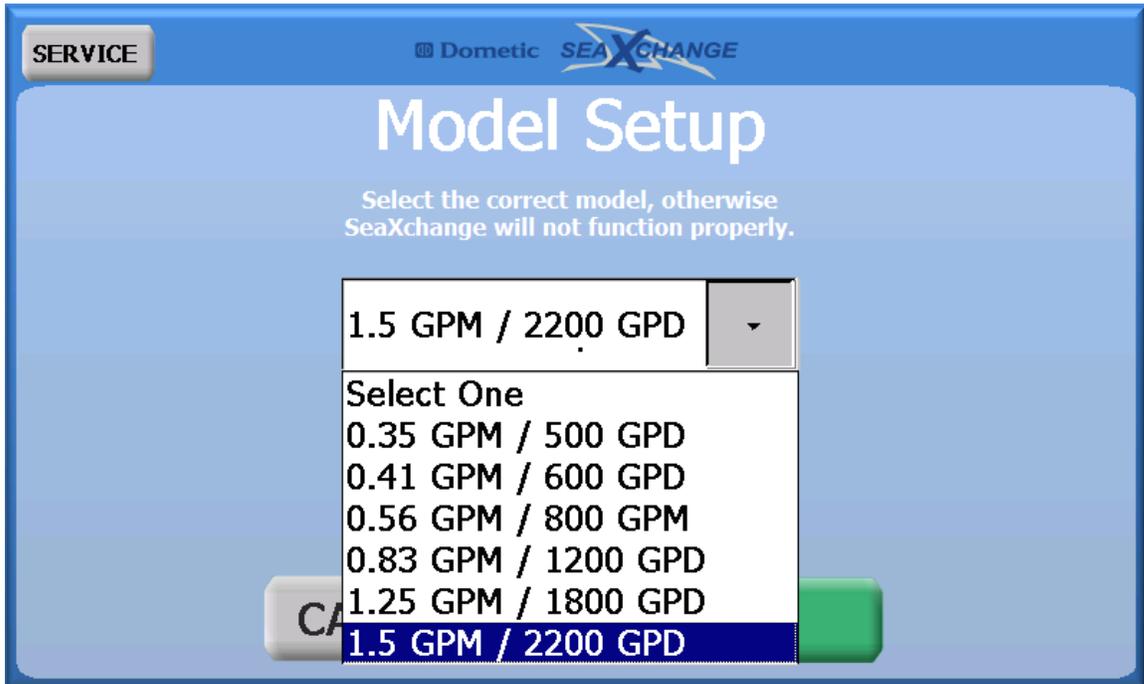


MODEL SETUP

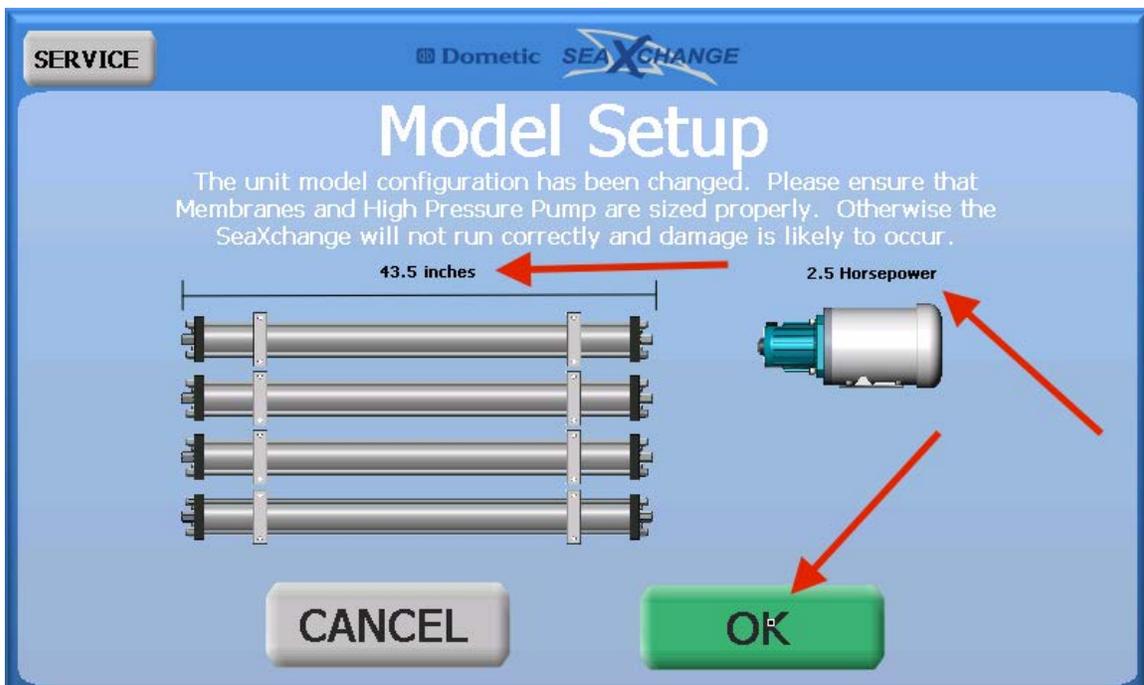
This is set at the factory and is password protected. To get the password contact the factory by visiting spotzerowater.com. If the system is upgraded with another membrane, or a membrane is removed, then the model would have to be changed so the system will work properly. *NOTE: Changing the system without changing the model can result in damage to the equipment.



Press the arrow to show the different model options.

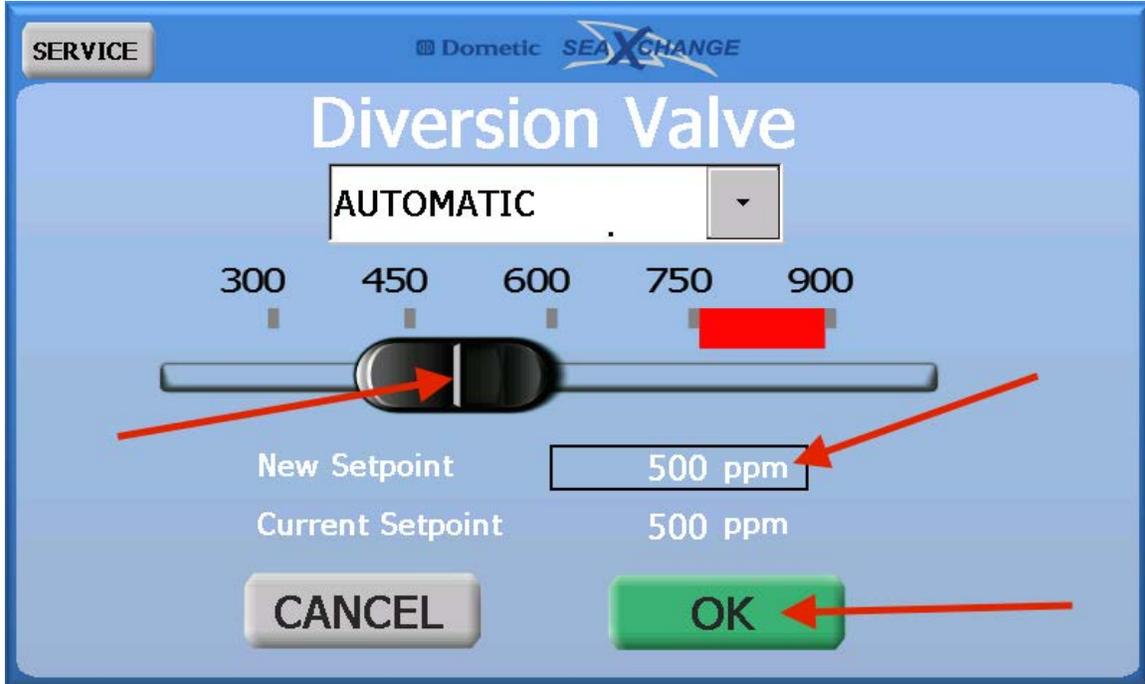


After selecting the correct model verify the membrane size and pump size if they are correct then press ok. If it is not correct the press cancel.

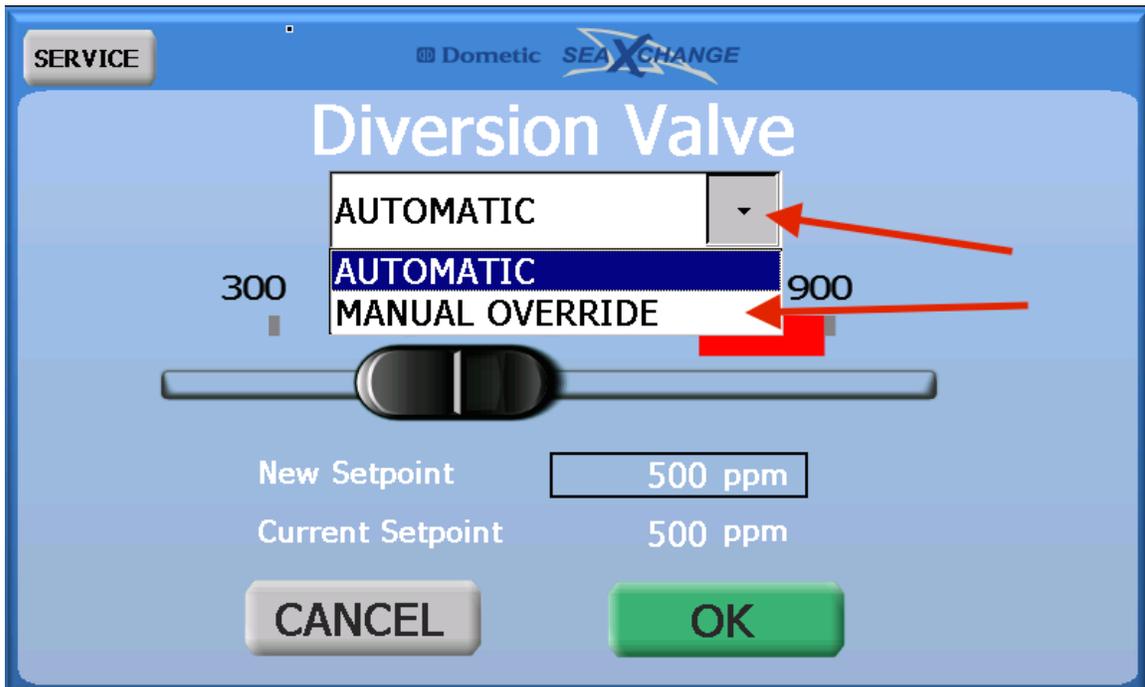


DIVERSION VALVE SETPOINT

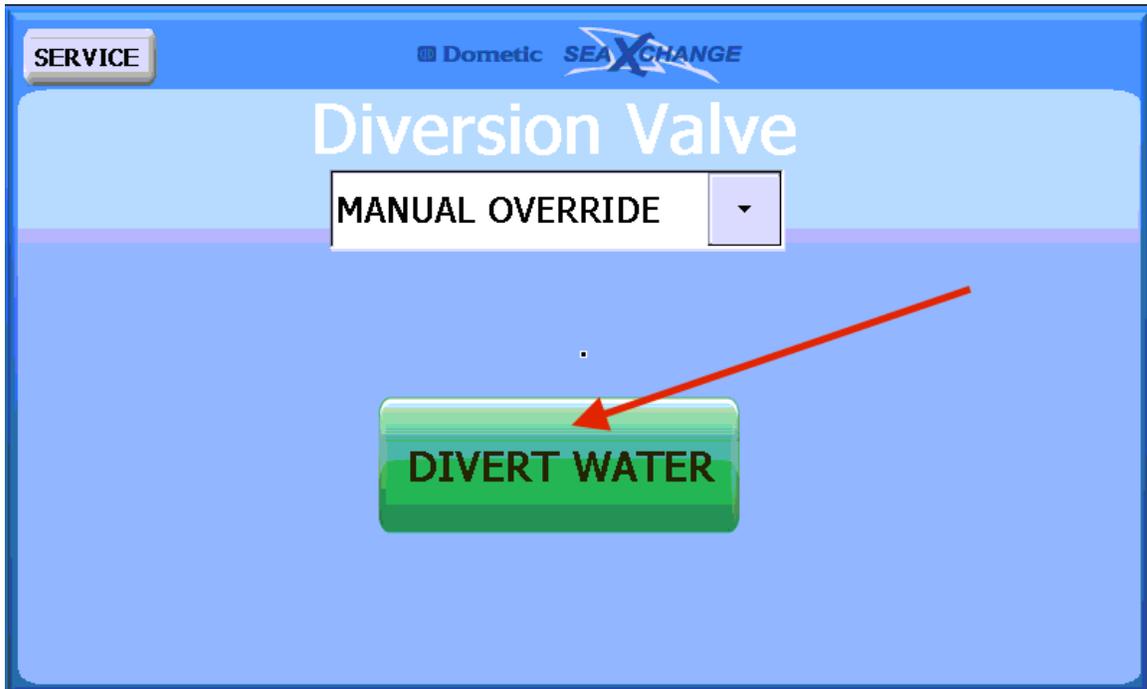
This can also be accessed from the home screen by pressing the diversion valve image. The set point is factory set at 500 ppm. To change the set point there is a sliding scale, or press the box and type in the set point desired. Then press ok to change it, or cancel.



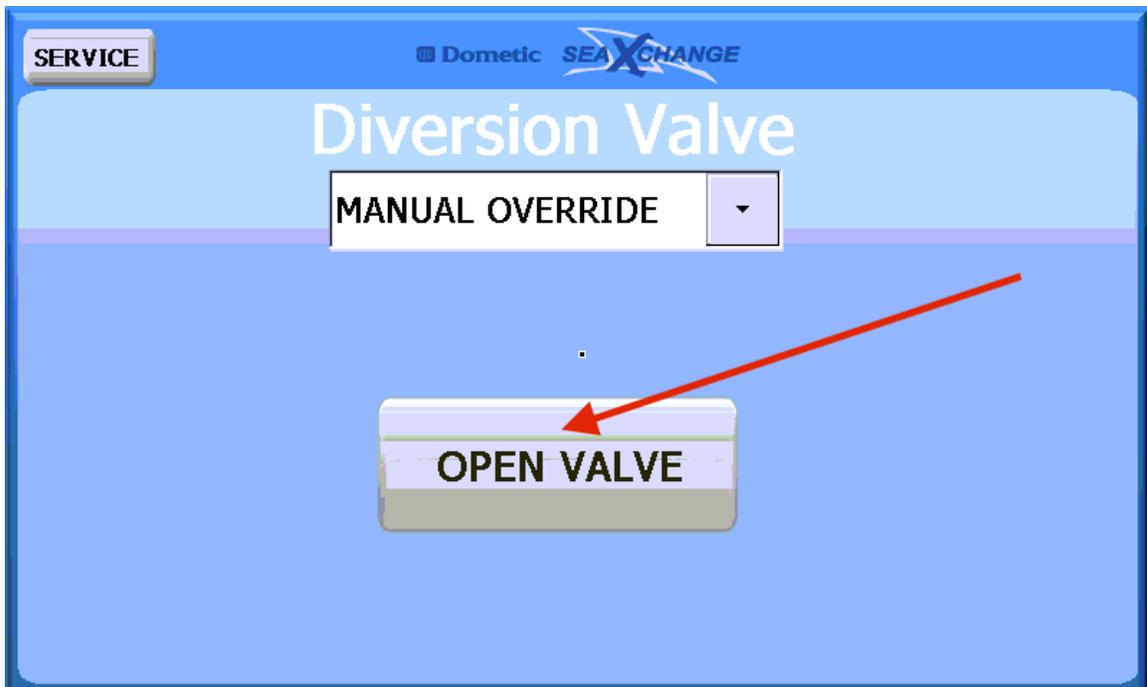
The diversion valve can be manually operated, by selecting the option then pressing divert water button.



Press divert water to send water to vessels tank.

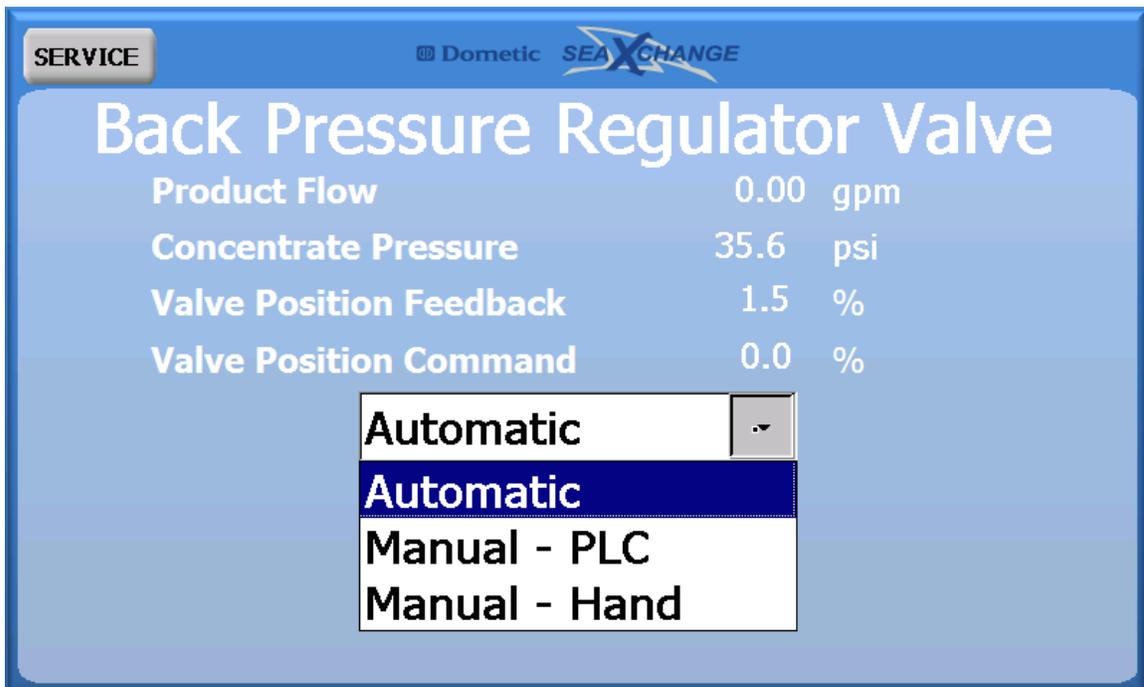


Press open valve to send water back overboard.



REGULATOR VALVE

This menu can also be accessed from the home screen by pressing the image of the regulator valve. The regulator valve is normally in the automatic selection. There are also two manual selections used for manual operation, and troubleshooting. The manual PLC selection allows the regulator valve to be open and closed by entering a percentage. The manual hand selection cuts the electronic functions of the regulator valve off so it may be turned by hand. *NOTE: After manual hand has been selected, the system will go into alarm when it is switched back to automatic. The alarm will have to be cleared to go back to normal operation.



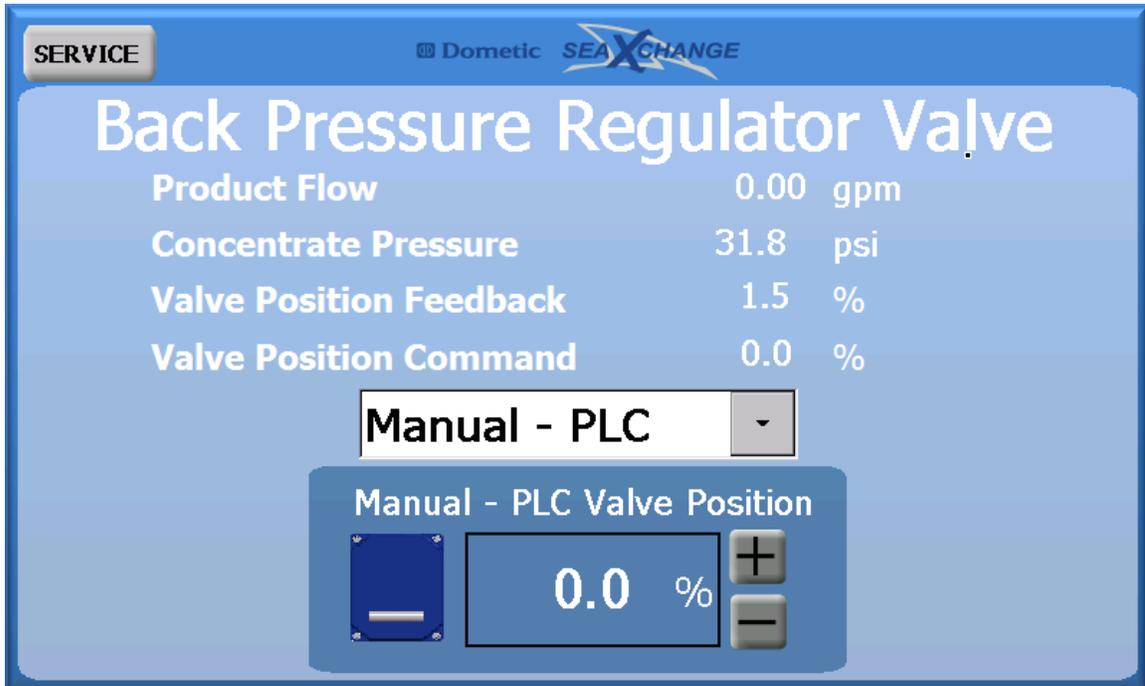
SERVICE Dometic SEA XCHANGE

Back Pressure Regulator Valve

Product Flow	0.00	gpm
Concentrate Pressure	35.6	psi
Valve Position Feedback	1.5	%
Valve Position Command	0.0	%

Automatic
Automatic
Manual - PLC
Manual - Hand

Manual - PLC will allow the user to move the valve by entering a percentage. Press the box to enter the numbers, then press enter. The valve will open or close according to the percentage entered. This will be displayed by the valve position command. The valve position feedback is the actual current position of the valve. The plus and minus buttons can be used to move the valve in smaller increments.



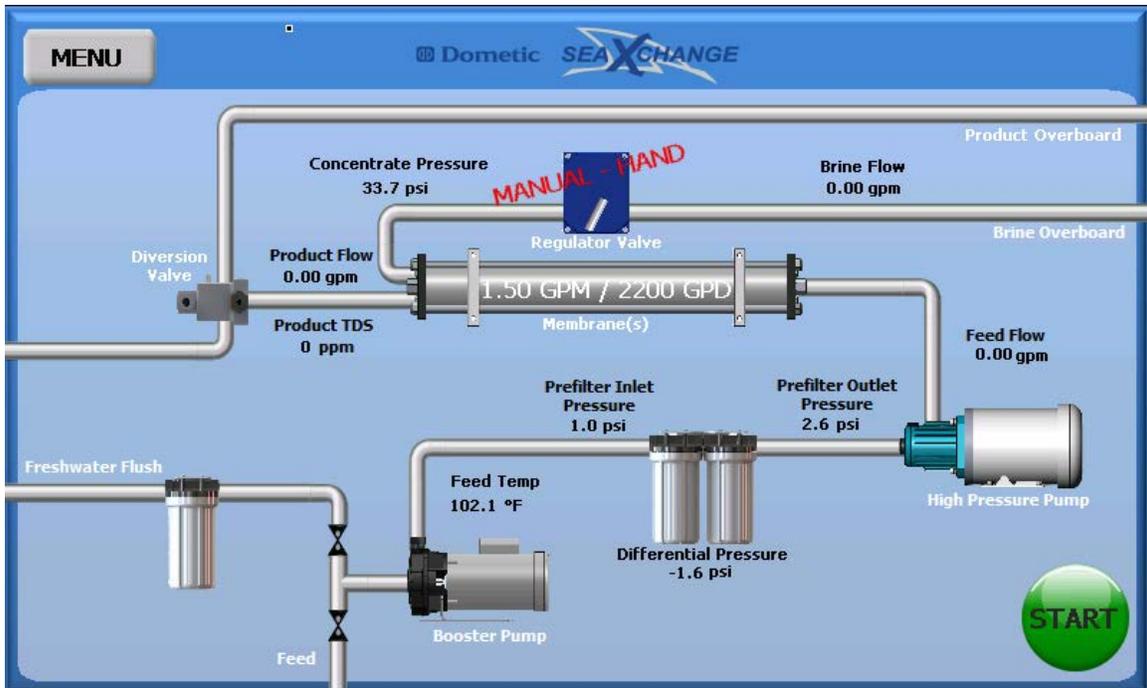
Manual – Hand will be displayed over the valve on the home screen, *NOTE: After manual hand has been selected, the system will go into alarm when it is switched back to automatic. The alarm will have to be cleared to go back to normal operation.

SERVICE Dometic **SEA XCHANGE**

Back Pressure Regulator Valve

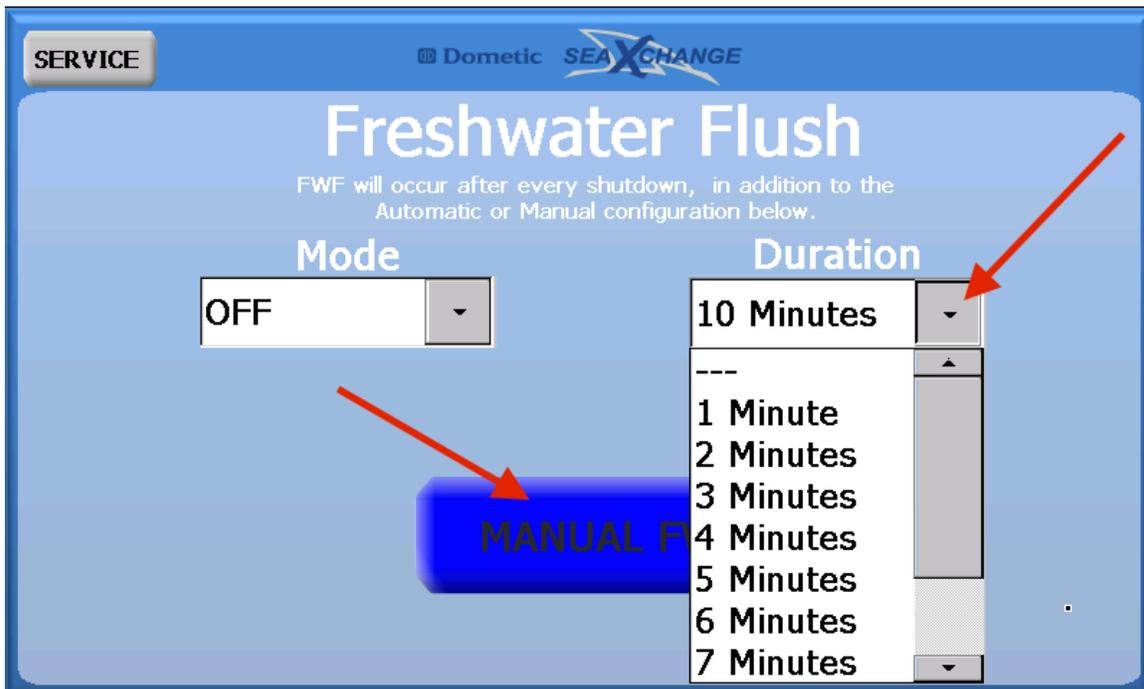
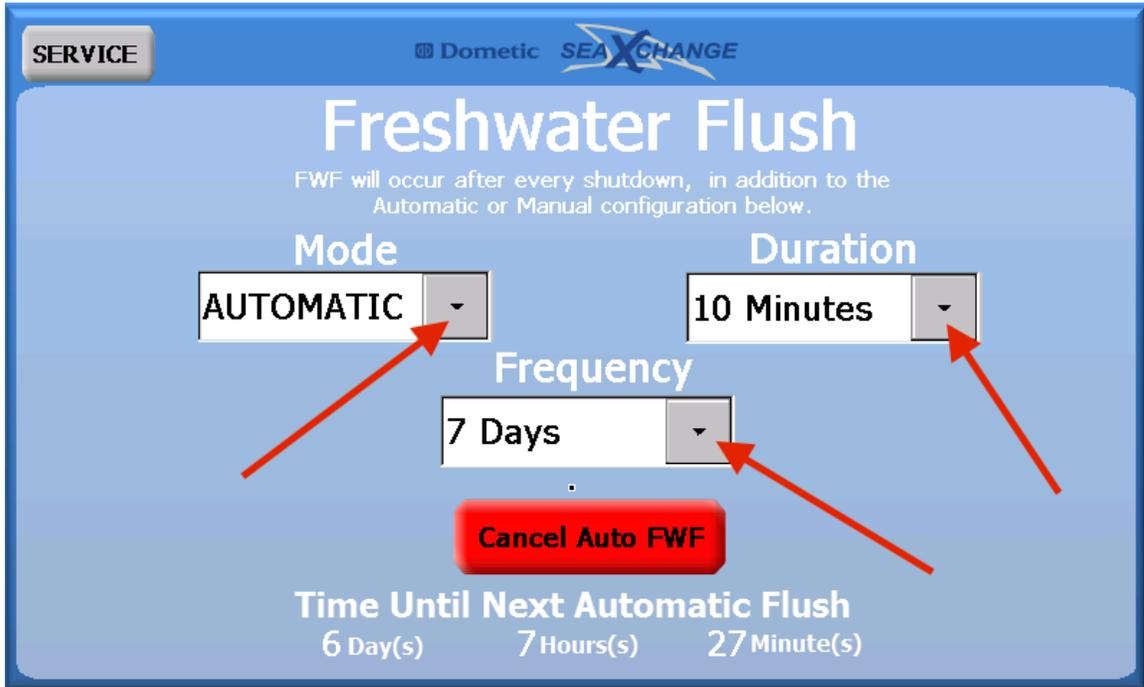
Product Flow	0.00	gpm
Concentrate Pressure	33.7	psi
Valve Position Feedback	-16.2	%
Valve Position Command	0.0	%

Manual - Hand
▼



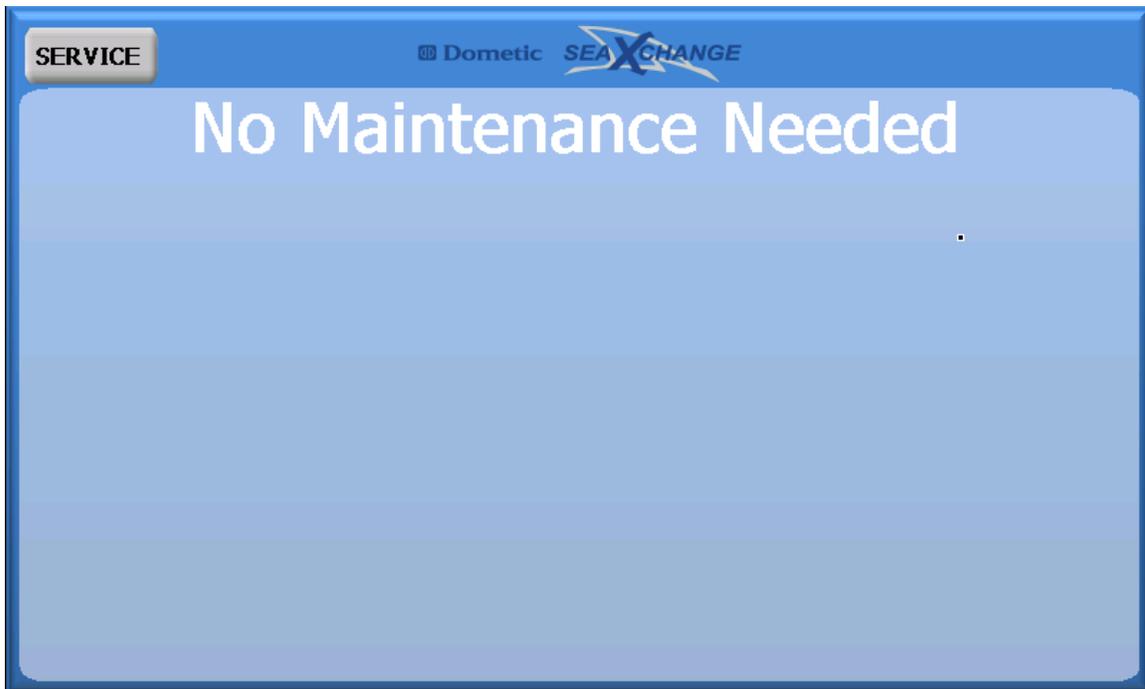
FRESH WATER FLUSH

This screen is also accessible from the home screen by pressing the fresh water flush image. The mode, duration and frequency can be changed here. The fresh water flush can also be canceled. The time until the next flush is displayed and counted down at the bottom of this screen. A Manual flush can be done by selecting the mode and the duration preferred.



MAINTENANCE

This will show any maintenance that is necessary to perform at the time. If no maintenance is needed at this time this will be displayed.



When maintenance is required a wrench and screwdriver symbol will appear at the top of the display. On the home screen this symbol can be pressed to bring up this screen. Perform the required maintenance then press reset.



MAINTENANCE CONFIGURATION

The filters on the system should be changed every 4 months. If the pre-filters have a pressure differential of 20 psi for a period of 5 seconds then they will need to be changed for they are clogged. This will vary on the amount of time with the amount of water that is made. The high pressure pump oil must be changed every 500 run hours. *NOTE: The high pressure pump oil must be changed after the first 50 hours of operation and every 500 hours there after.

SERVICE

Maintenance Configuration

High Prefilter Diff Pressure: psi for s

Change Oil in High Pressure Pump every 500 run hours

Below items every 4 months, if selected YES

Change pH Neutralizer	<input type="text" value="YES"/>
Change Product Carbon	<input type="text" value="YES"/>
Change FWF Filter	<input type="text" value="YES"/>

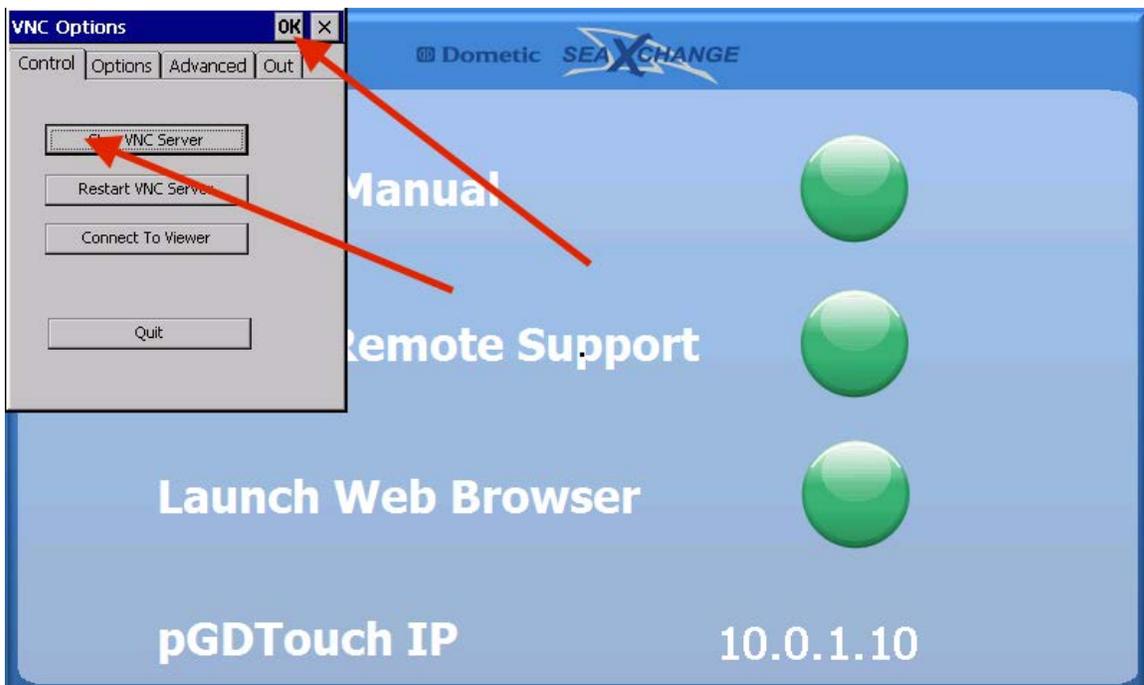
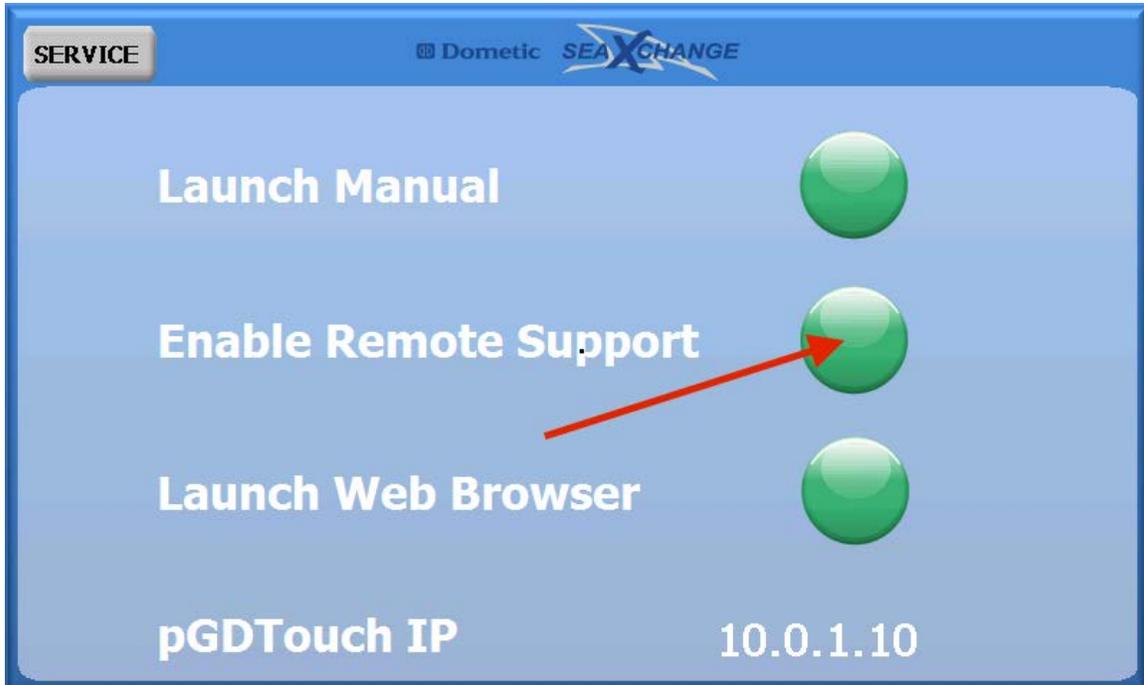
REMOTE SUPPORT

In this menu the pGD Touch IP address will be shown at the bottom of the screen if the system is wired to a router. This will be needed to connect to the VNC viewer app. This manual will be brought up if the launch manual button is pressed. The VNC viewer menu will pop up if the enable remote support is pressed. The web browser will pop up if the launch web browser is pressed. To enable remote support, see the VNC viewer procedure section of the manual.

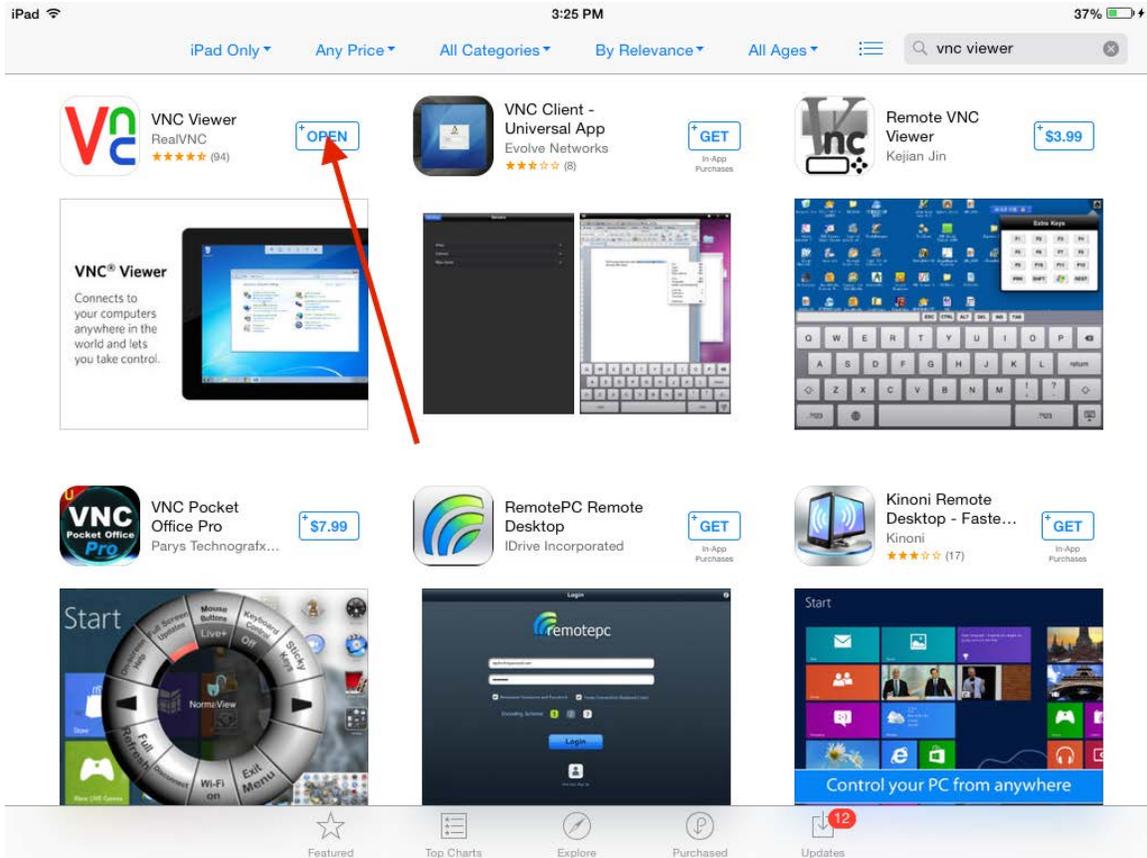


VNC VIEWER PROCEDURE

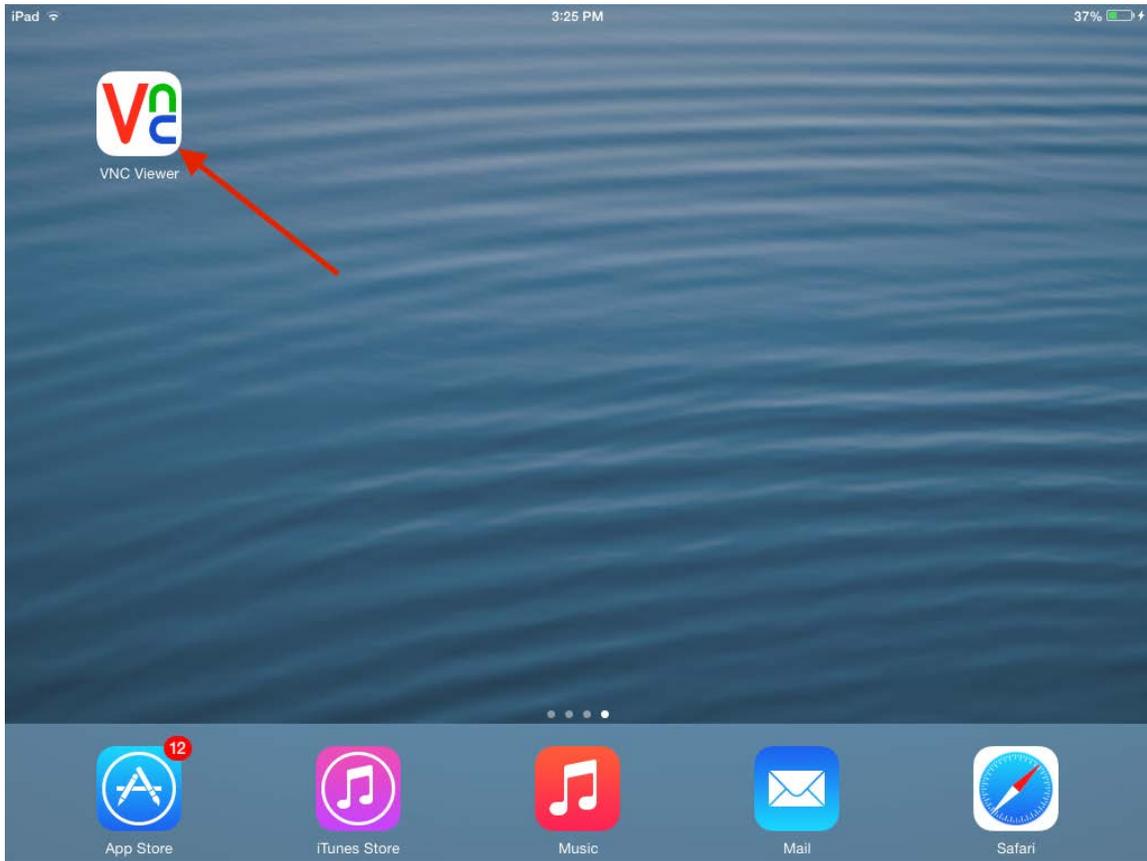
1. In the service menu, press the enable remote support button. Another menu will pop up. Press the start VNC server button, then press ok.



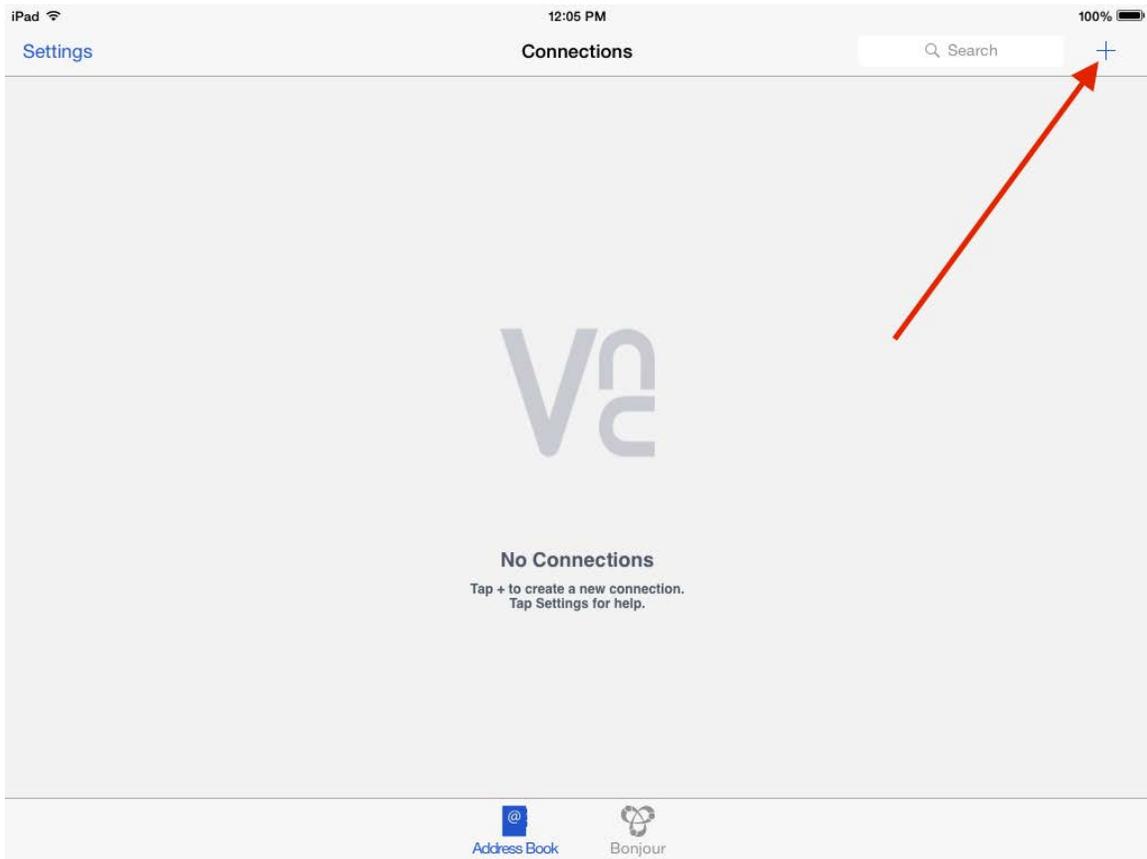
2. Download the Free VNC Viewer app from the app store.



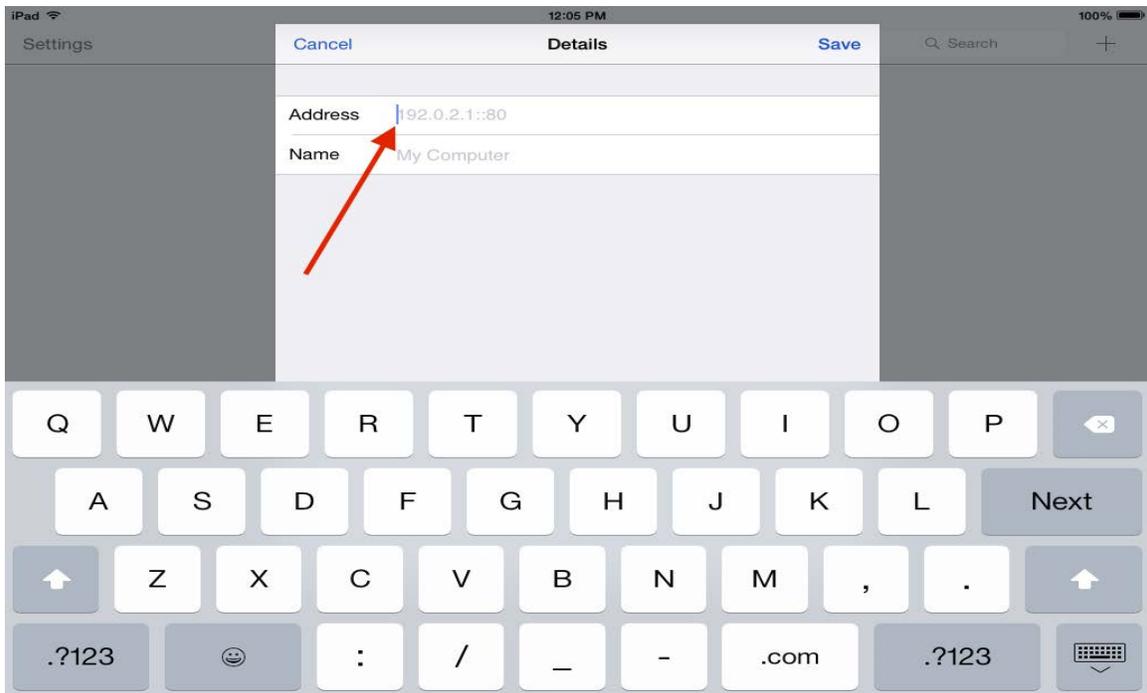
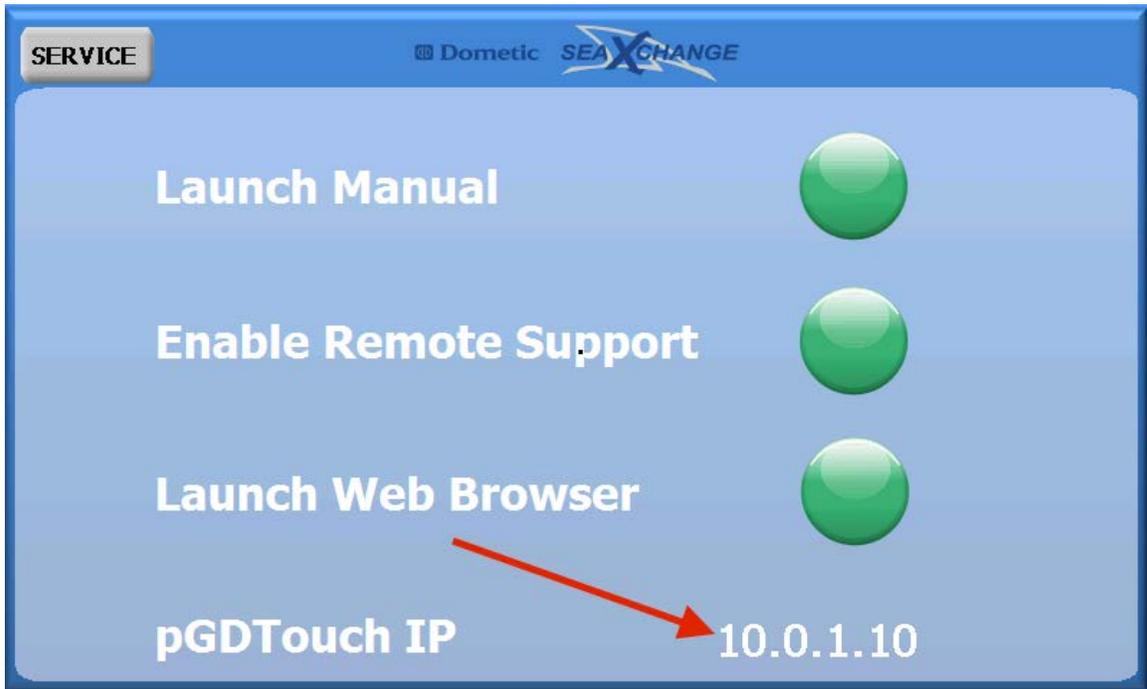
3. Select the VNC Viewer app from your device.



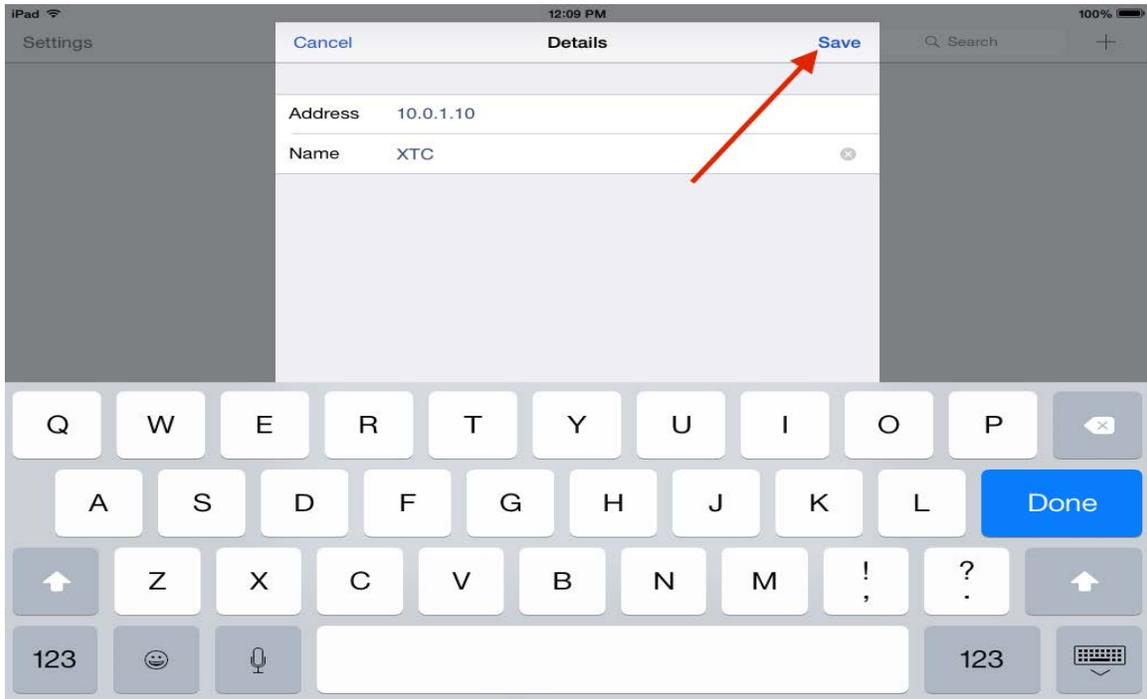
4. Press the plus sign in the upper right hand corner to set up new connection.



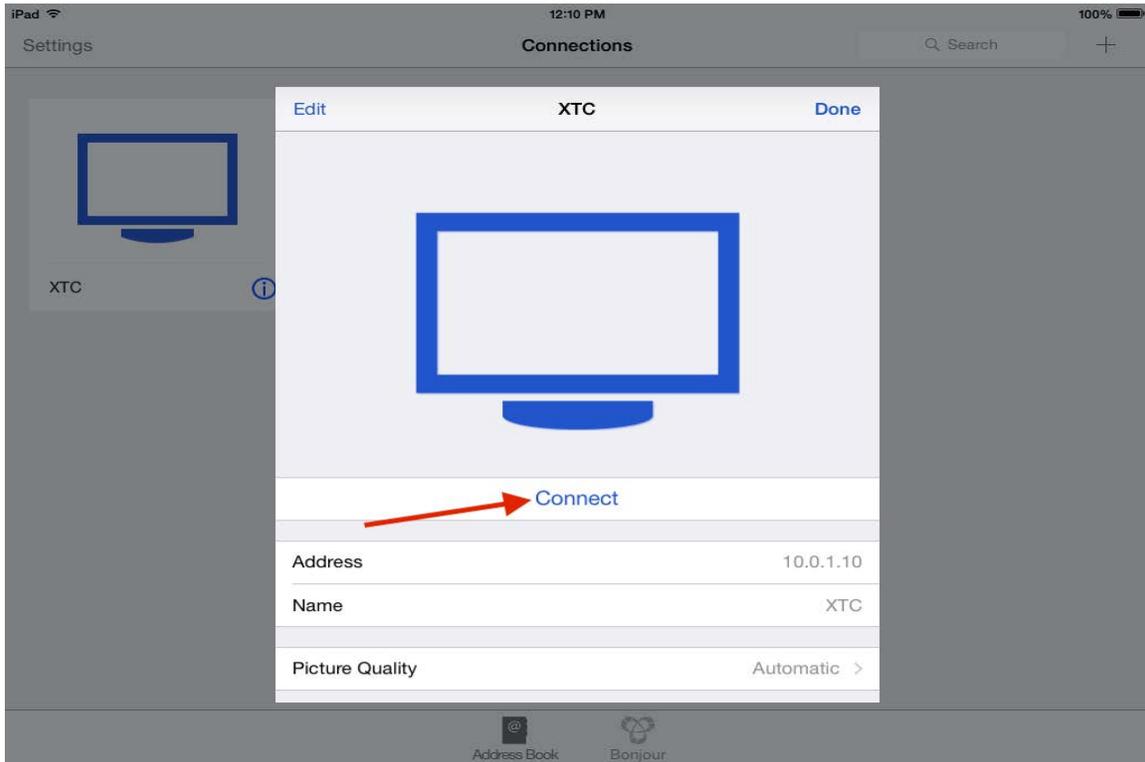
5. Type in the IP Address found in the unit's service menu, in the remote support menu at the bottom of the screen. Then give it a name.



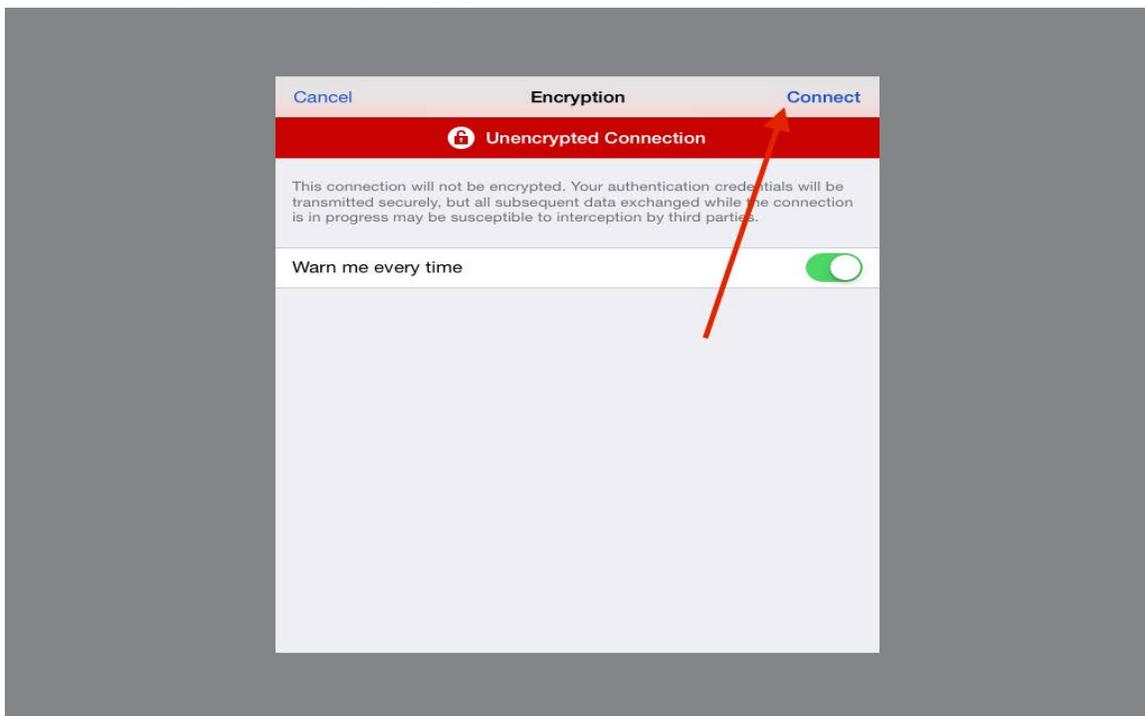
6. Example. Then press save.



7. Next press the connect button.



The following screen will pop up, press the word connect.

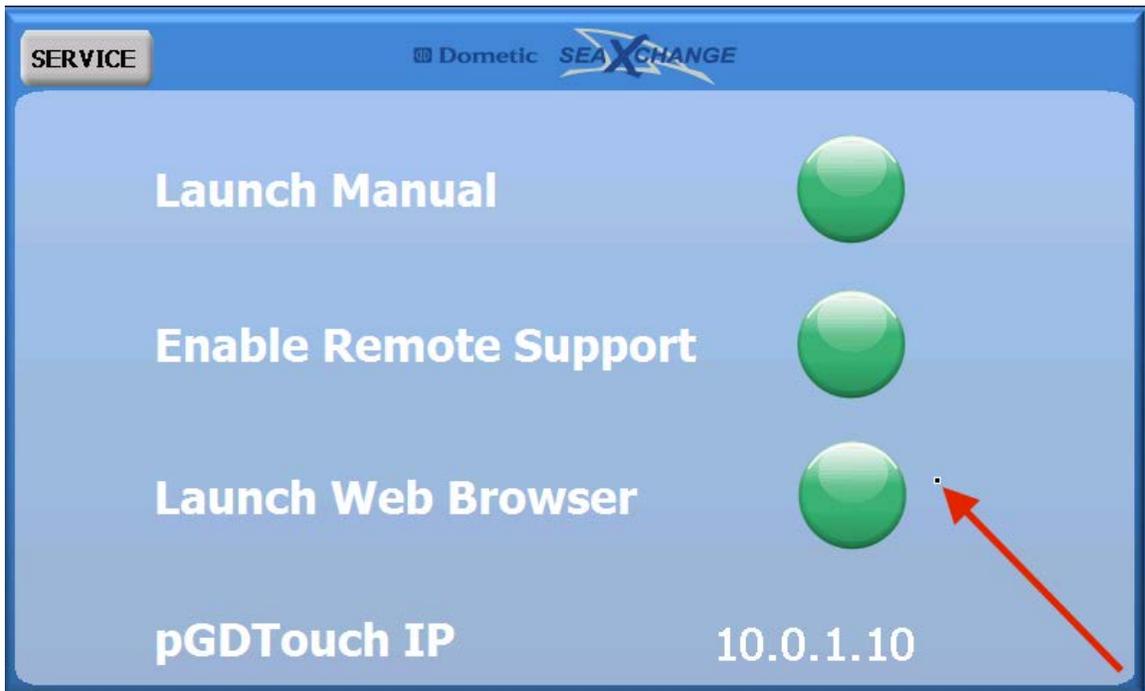


8. Finally it will show you the connecting screen, when it is done connecting you will see the same thing on your display and your device.

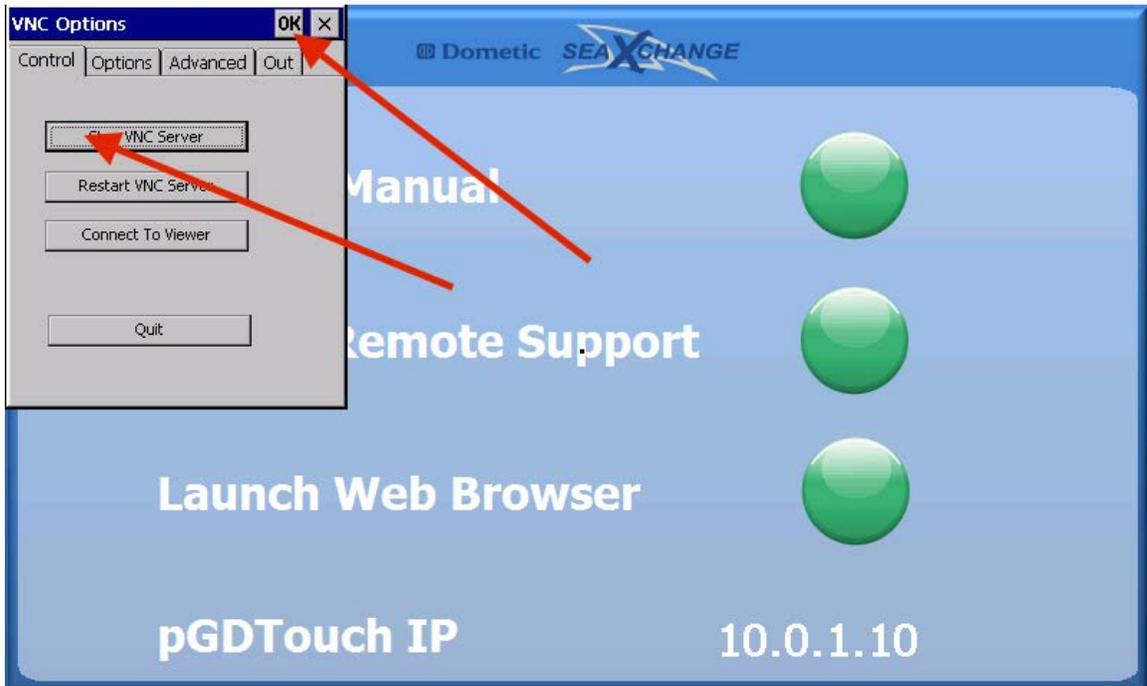


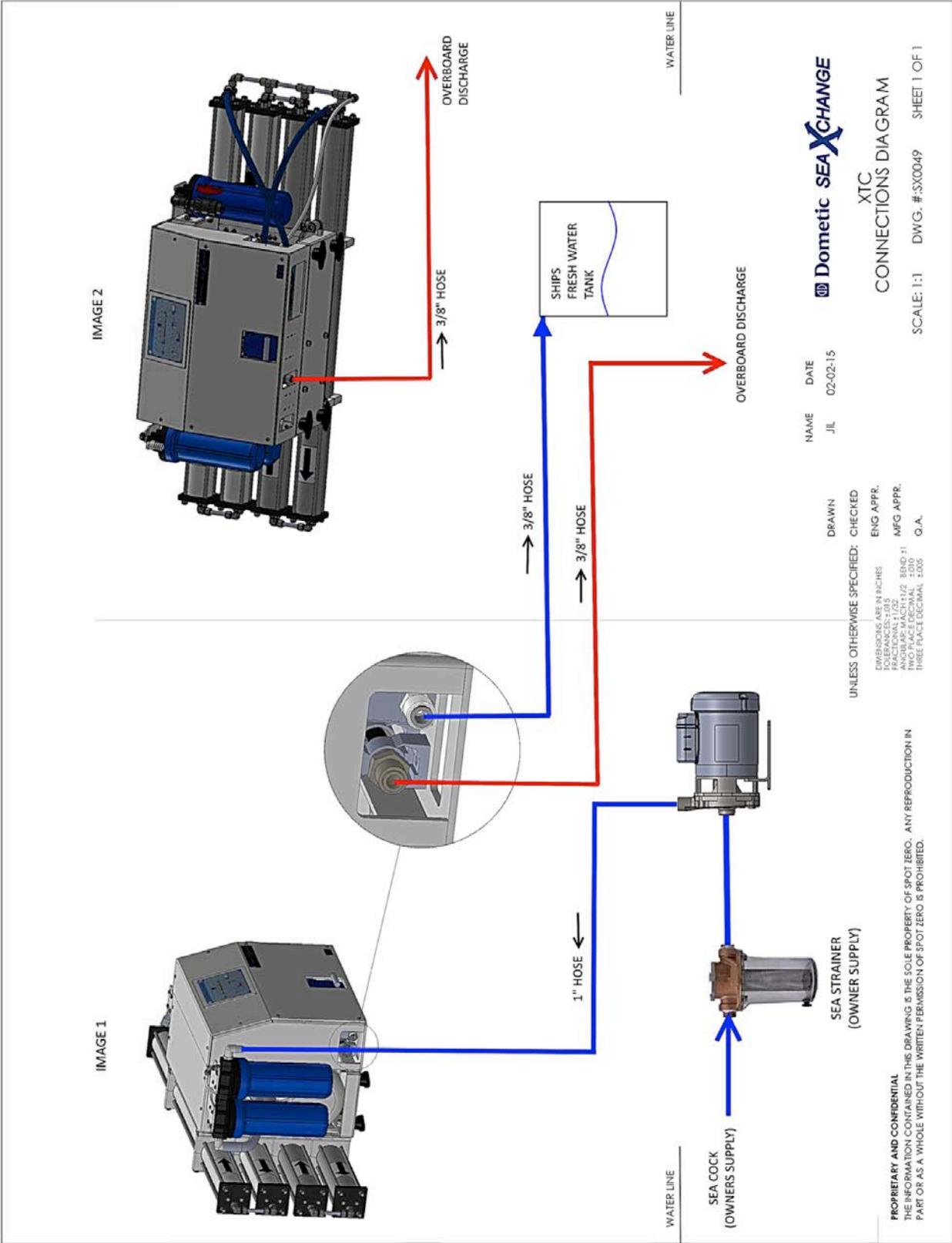
Cancel

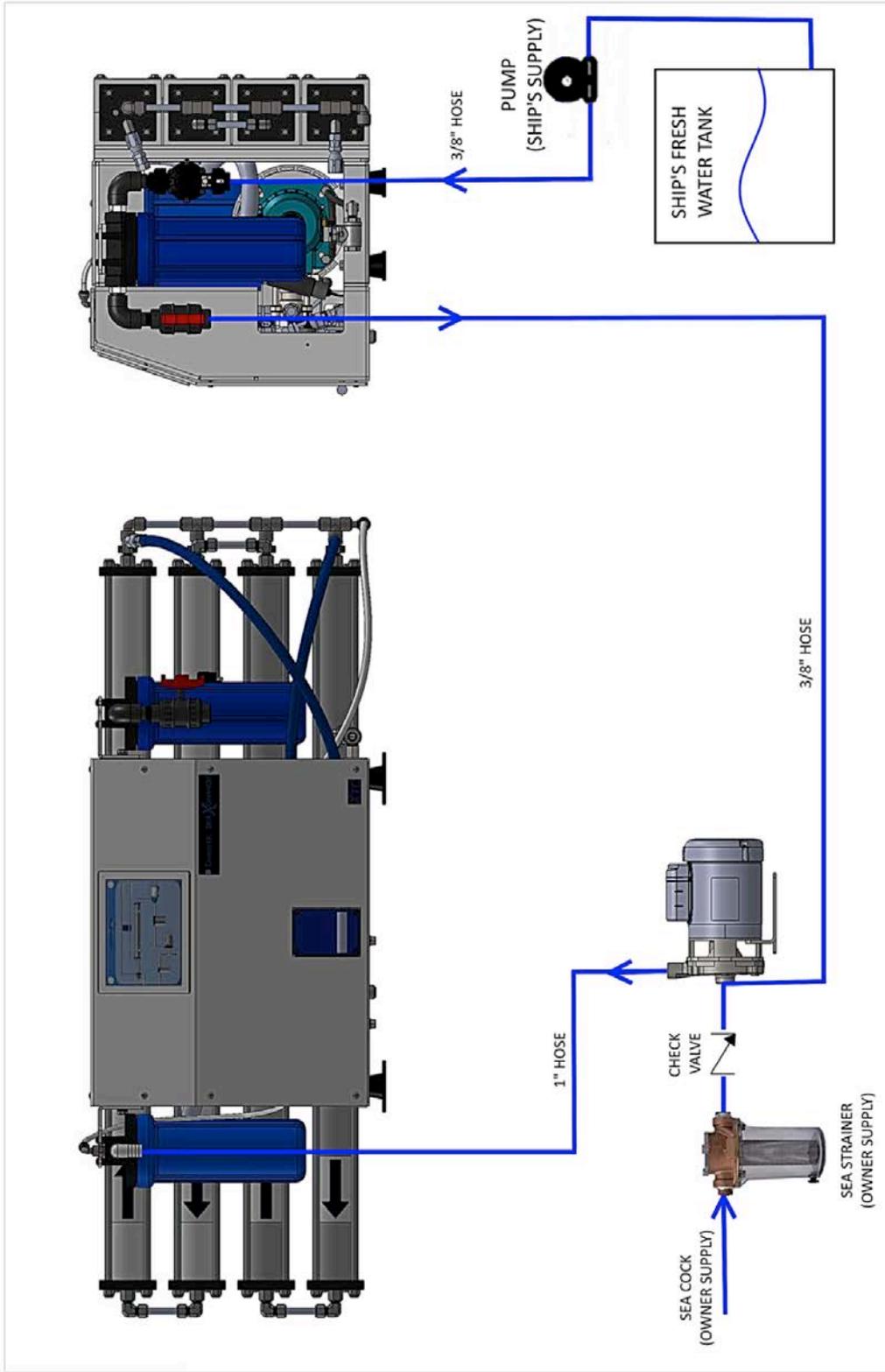
9. On the device there will be a tiny little square dot. This is the mouse that is used to select the items on your device. Move the mouse to the item then tap the screen to select.



10. If there is a problem connecting, the enable remote support button can be pressed. Another menu will pop up. Select the start VNC server button, and press ok. Try to connect again.

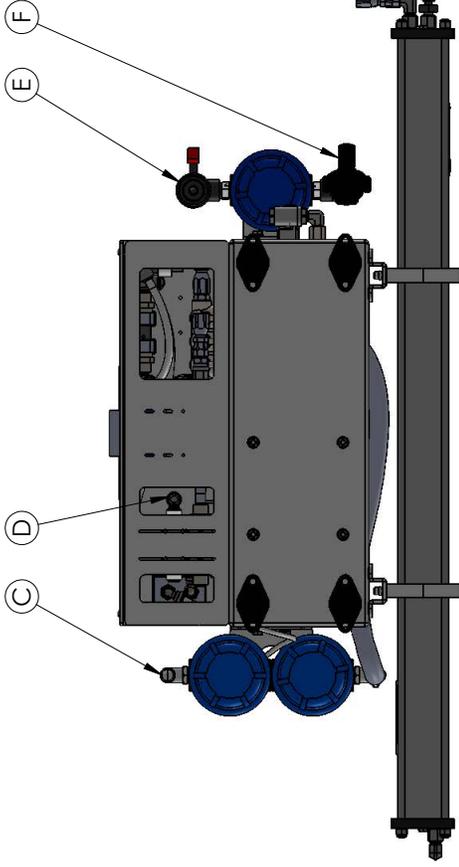
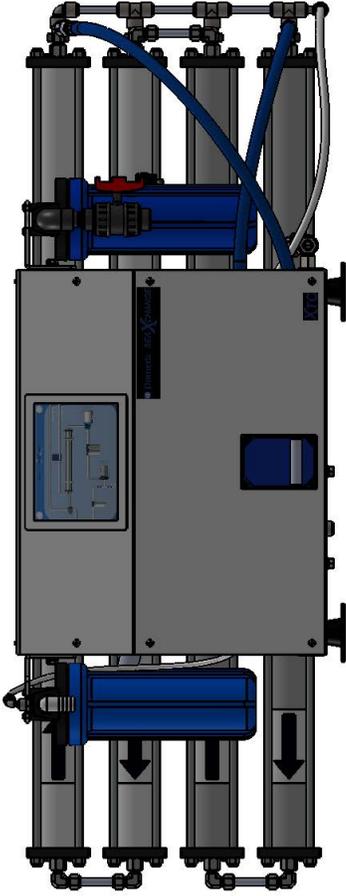
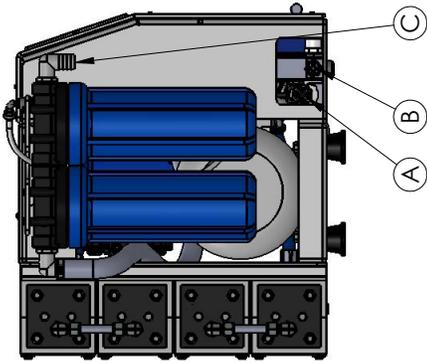






DRAWN		NAME	JIL	DATE	02-02-15
CHECKED		UNLESS OTHERWISE SPECIFIED:			
ENG APPR.		DIMENSIONS ARE IN INCHES			
MFG APPR.		TOLERANCES: FRACTIONS			
Q.A.		ANGLES: MACH 1/2 BEND #1			
		TWO PLACE DECIMAL: 2.00			
		THREE PLACE DECIMAL: 2.005			
Dometic SEA XCHANGE					
XTC					
FRESH WATER FLUSH CONNECTION					
SCALE: 1:16				DWG. #: SX0053	
				SHEET 1 OF 1	

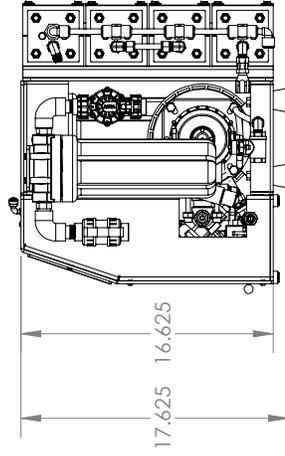
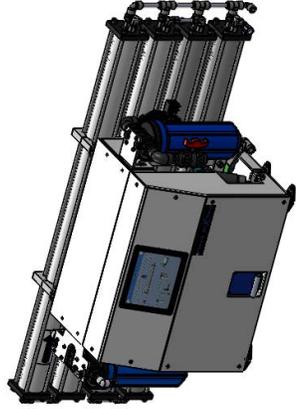
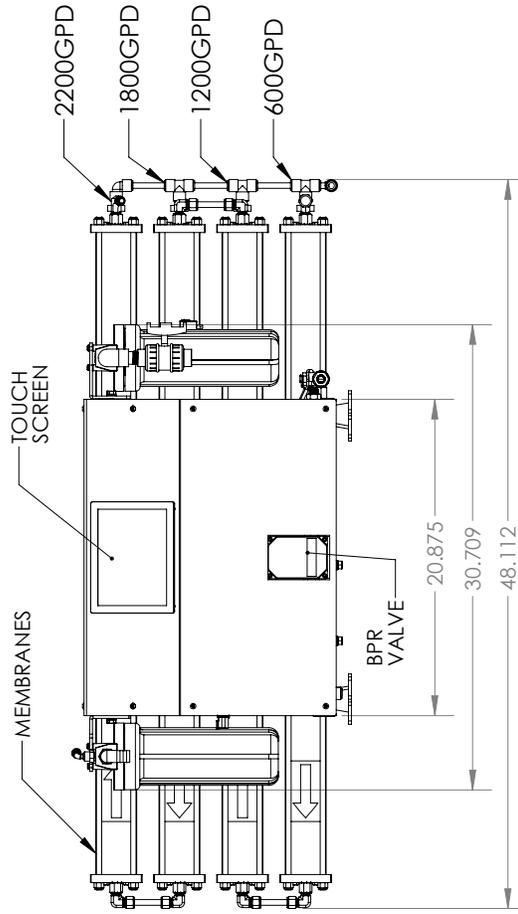
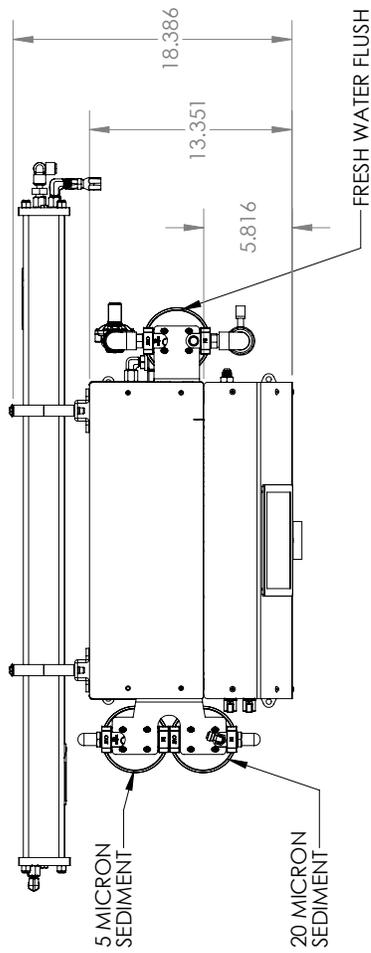
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INLETS & OUTLETS	
LOCATION	DESCRIPTION
A	CONCENTRATE OUTLET
B	PRODUCT WATER OUTLET
C	SEA WATER INLET
D	PRODUCT OVERBOARD OUTLET
E	TO BOOSTER PUMP
F	SHIPS FRESH WATER TANK INLET

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UNLESS OTHERWISE SPECIFIED:	DRAWN	NAME	DATE
DIMENSIONS ARE IN INCHES	CHECKED	JIL	01-30-15
TOLERANCES: ±.015	ENG APPR.		
ANGULAR: MACH ±1/2	MFG APPR.		
TWO PLACE DECIMAL ±.010	Q.A.		
THREE PLACE DECIMAL ±.003			
Dometic SEA XCHANGE			
XTC			
INLET & OUTLET LOCATIONS			
SCALE: N/A	DWG. #: SX0052	SHEET 1 OF 1	



MODEL	WEIGHT (LBS)
XTC 600	114
XTC 1200	158
XTC 1800	169
XTC 2200	180

NAME	DATE
JIL	01-28-15

DRAWN	CHECKED	ENG APPR.	MFG APPR.	Q.A.

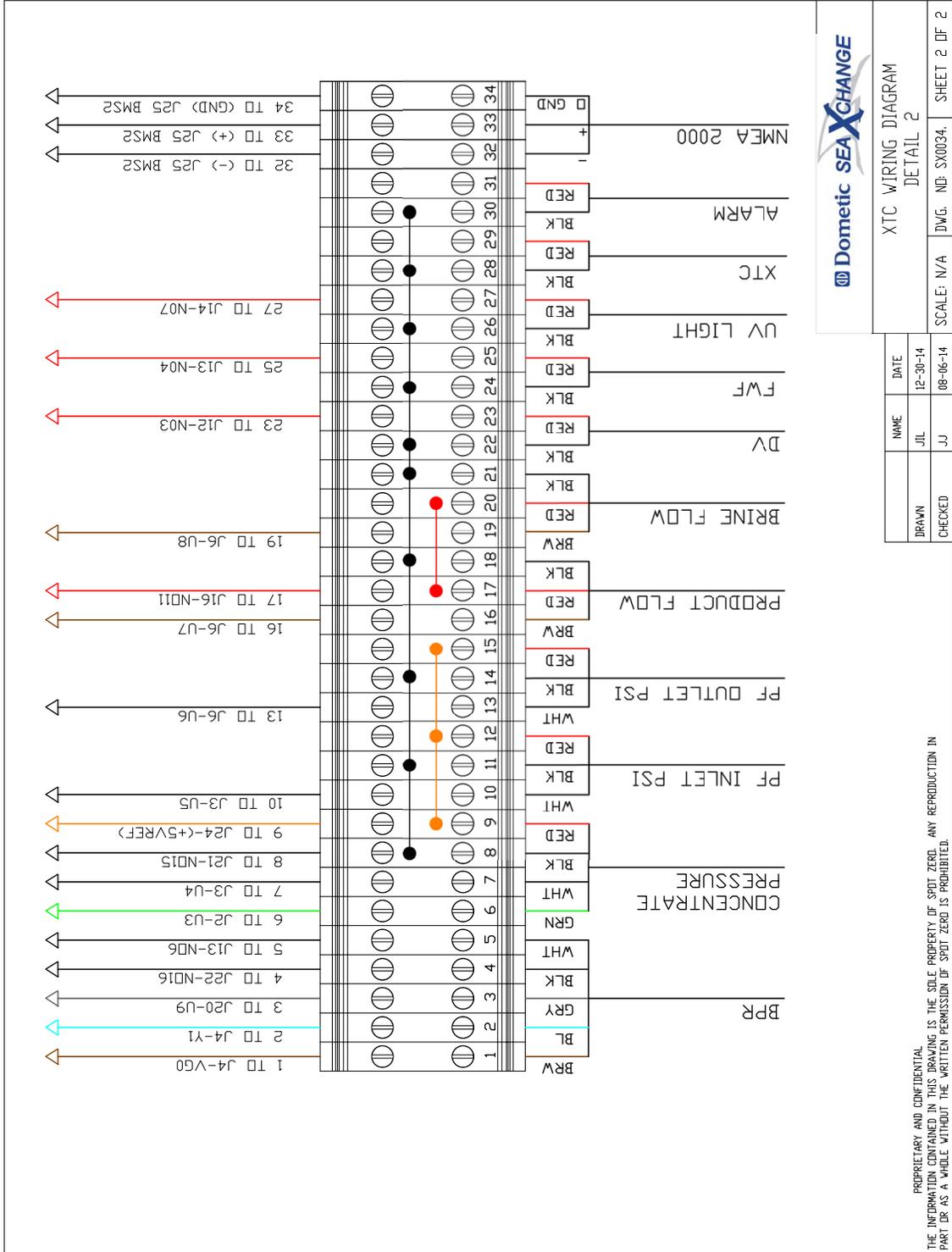
UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES: ±.015
 ANGULARS: MACH 1/2 BEND ±1
 TWO PLACE DECIMAL ±.010
 THREE PLACE DECIMAL ±.005

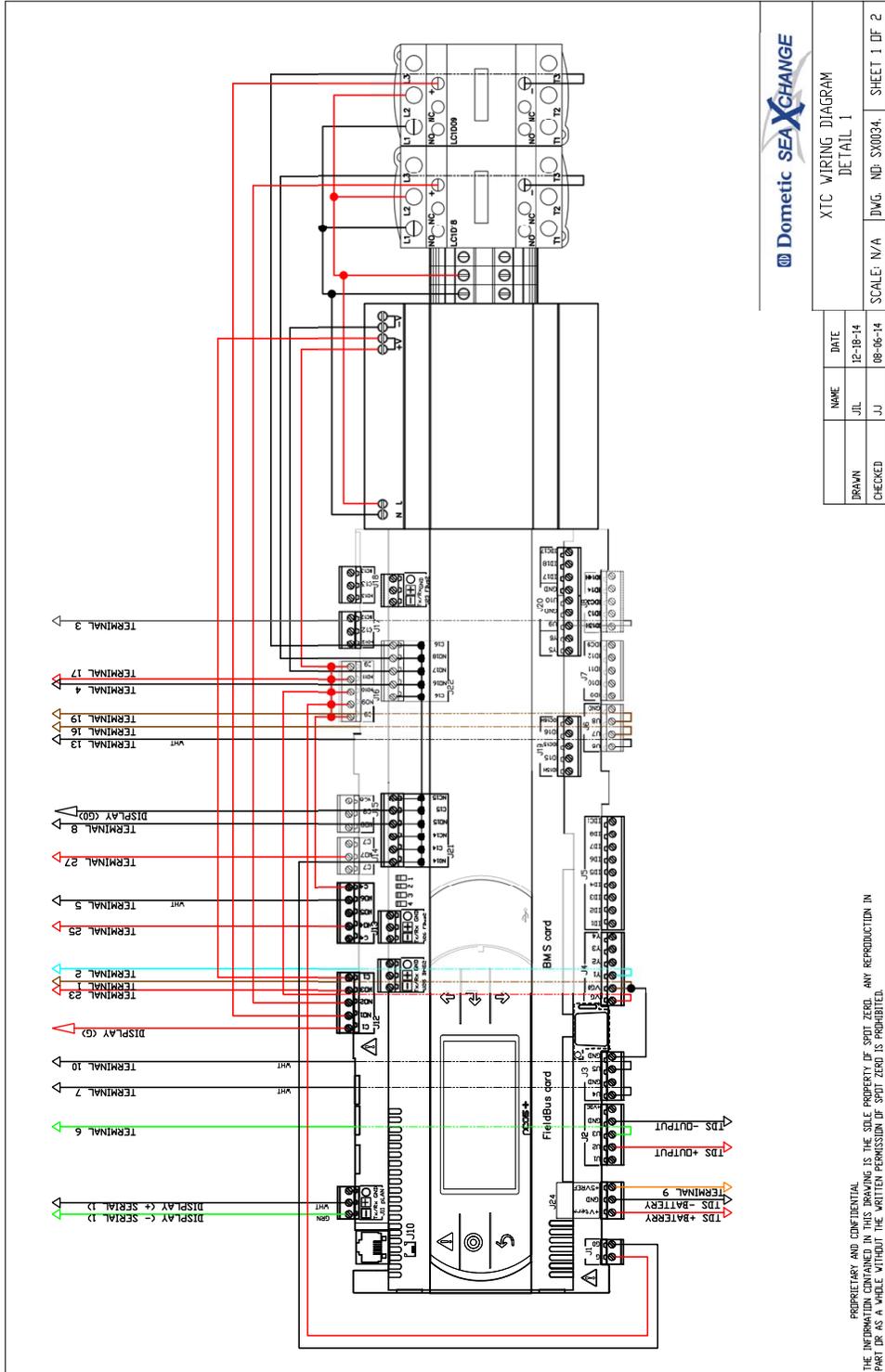
Dometic SEA XCHANGE

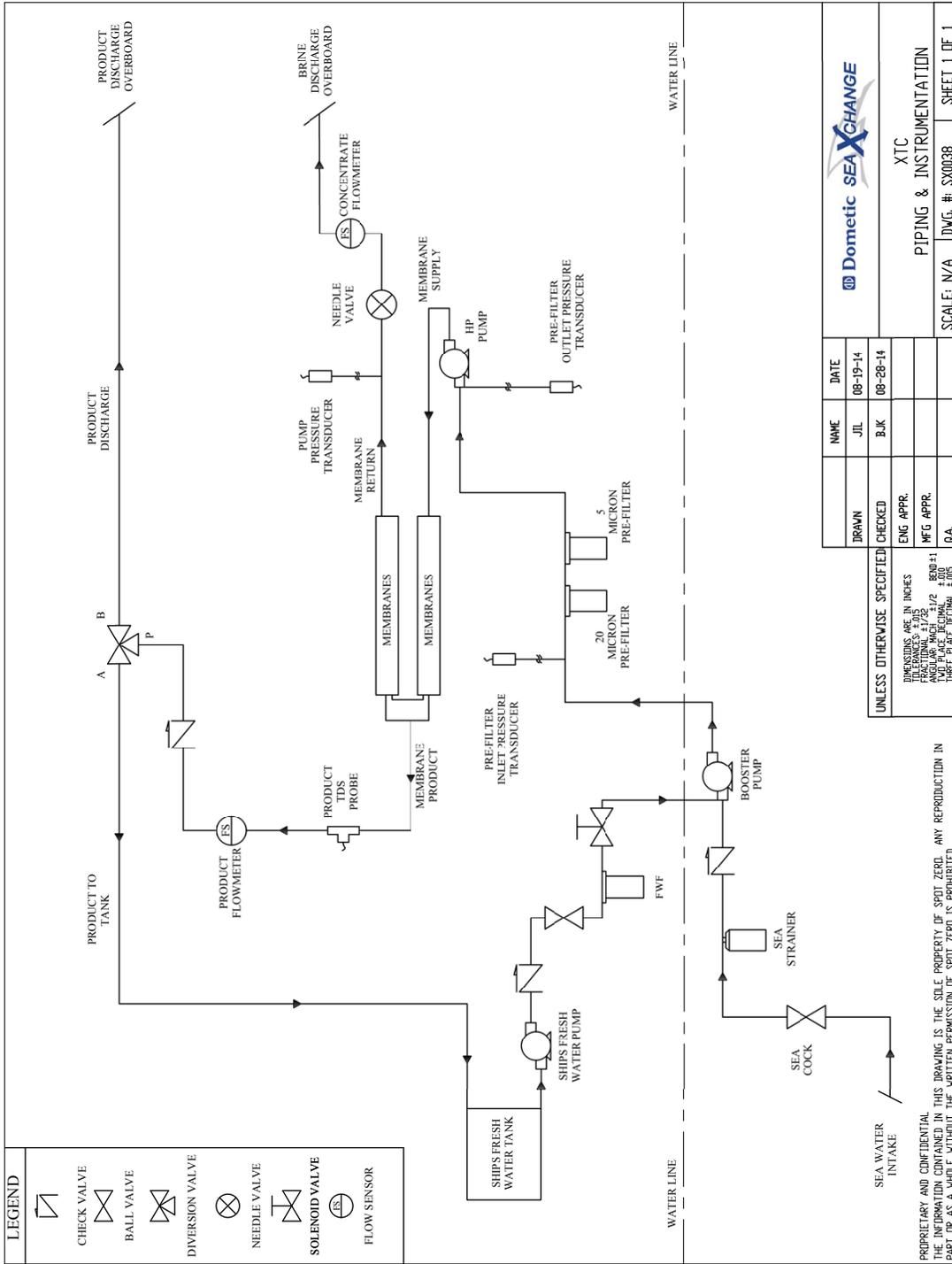
XTC
 Sea Xchange

SCALE: n/a D.W.G. #: SX0020 SHEET 1 OF 1

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LEGEND

	CHECK VALVE
	BALL VALVE
	DIVERISON VALVE
	NEEDLE VALVE
	SOLENOID VALVE
	FLOW SENSOR

Dometic SEA XCHANGE	
NAME	DATE
IRAVN	08-19-14
ENGINEER	08-28-14
ENGINEER	
MFG APPR.	
QA	

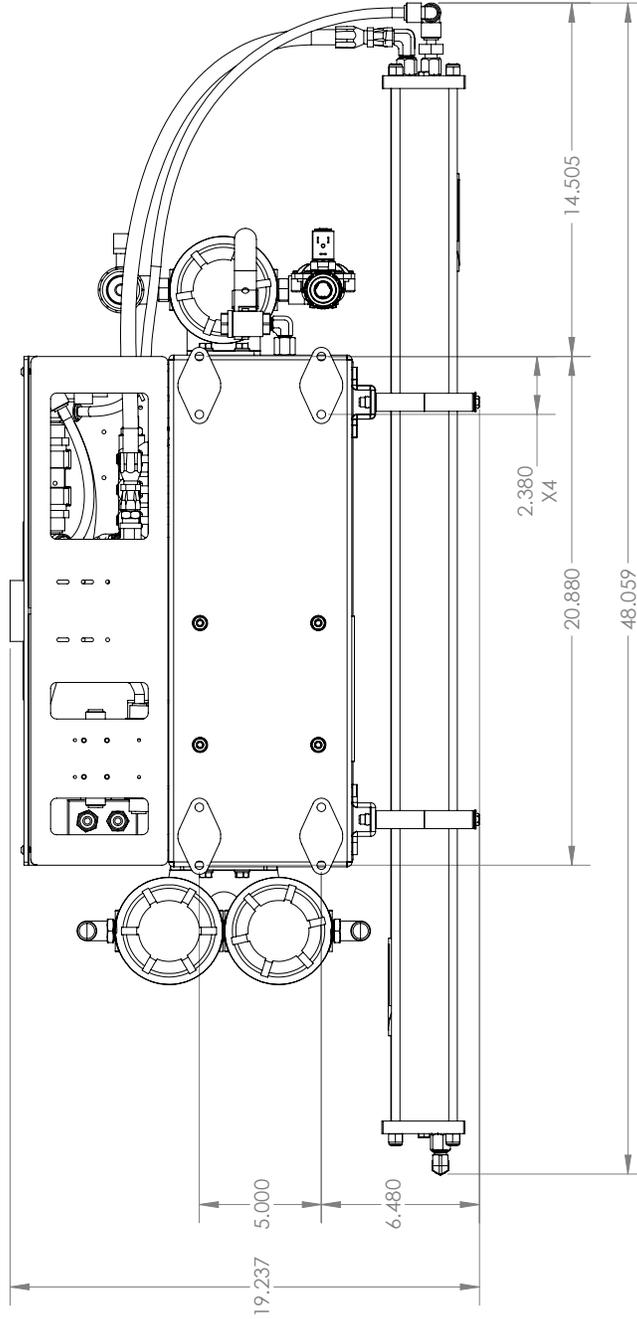
UNLESS OTHERWISE SPECIFIED CHECKED

DIMENSIONS ARE IN INCHES
 TOLERANCES ± .015
 ANGULARS EACH ± 1/2°
 SURFACE FINISH: 32 RMS

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XTC
 PIPING & INSTRUMENTATION
 SCALE: N/A DWG. #: SX0038
 SHEET 1 OF 1

BOTTOM VIEW
DRILL TEMPLATE & FOOTPRINT



DRAWN		CHECKED	NAME	DATE
ENG APPR.		ENG APPR.	JIL	01-22-15
MFG APPR.		MFG APPR.		
Q.A.		Q.A.		

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 DECIMALS: 1/100
 FRACTIONS: 1/16
 ANGULAR: MATCH 1/2 BEND ±1
 SURFACE FINISH: R 3.2
 THREE PLACE DECIMAL ±.005

Dometic SEA XCHANGE

XTC
DRILL TEMPLATE & FOOTPRINT

SCALE: N/A DWG. #: SX0048 SHEET 1 OF 1

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