Introduction

Congratulations! You have just purchased the finest Live seafood support System available. *Sea Water Visions*, Inc. has combined years of custom manufacturing and service experience in conjunction with biological and aquatic studies in the design of this equipment. With proper use and periodic maintenance of your new Tank, you should receive years of profitability from the sale of live seafood.

For technical support:

Sea Water Visions, Inc.
1175 Industrial Ave.
Escondido, CA. 92029

800-275-3371

Contents

Contents (cont.)

General Information

Filter System

Your *Sea Water Visions* Life support System contains 3 different Filtration components:

- Carbon REMOVES dissolved contaminants such as organic toxins. It also prevents water discoloration, and removes toxic gasses and unpleasant odors.
- Filter Pads are necessary to remove larger solid waste PARTICULATE.
- (Optional) The Micron Filter "polishes" the water by removing particles as small as 25 microns.
- (Optional) The ULTRAVIOLET STERILIZER will kill pathogenic bacteria, protozoa, mold spores, virus, and algae.
- The Biological Filter is live BENEFICIAL BACTERIA. It lives on the small grain calcium carbonate located in the sump of the tank.

The Biological Filter

The Biological Filter is the most important of the entire FILTRATION SYSTEM. This Filter removes the greatest Killer of aquatic animals - AMMONIA. Ammonia is a naturally occurring byproduct of Live Seafood Tank, CREATED from animal waste and respiration. When the BIO-FILTER is properly maintained, your animals will stay ALIVE and HEALTHY, and your water will be clear. When this Unit is improperly cared for and overloaded, your Tank will have difficulty maintaining a biologically HEALTHY BALANCE.

In order to PROPERLY CARE for your BIO-FILTER, you need to understand that it is a LIVING FILTER, consisting of BENEFICIAL aerobic (oxygen consuming) bacteria. These bacteria are always present in nature, and consume the waste products your aquatic animals produce-most importantly, ammonia. Like any living thing, your Filter has certain requirements and limitations. It MUST NOT be overloaded-particularly in the beginning before the bacteria have had a chance to become established.

NOTE: It will take at least 6 weeks to colonize the bacteria in your Tank, so DO NOT overload your Tank during the break-in period.(See page 6, "Preparing the Biological Filter.")

Part 1: Receiving Your New Tank

See special instructions for crate rebate $$$

REMOVE the Tank from the Crate.

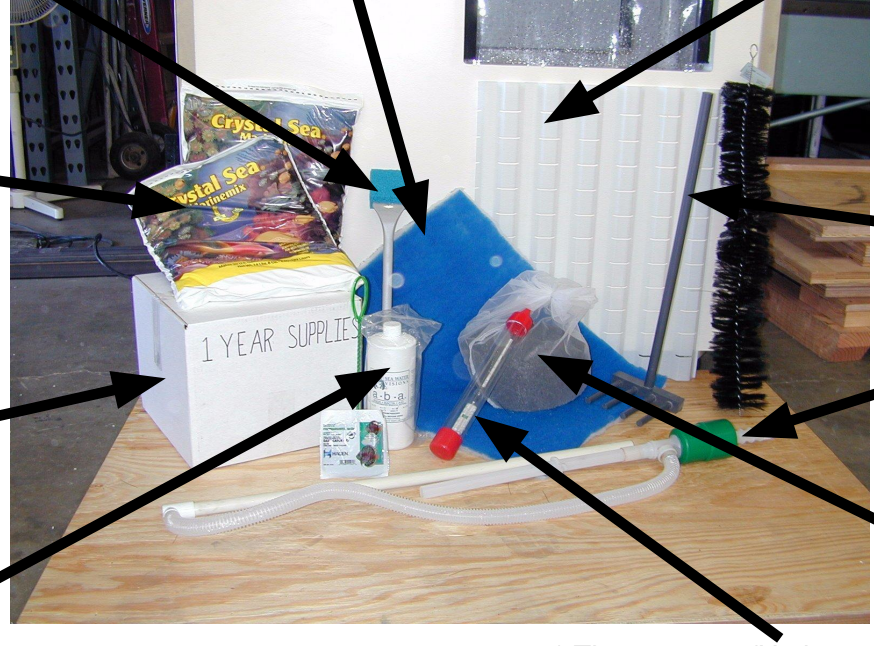
IMPORTANT! If you notice any damage to the Crate or its Contents, contact the carrier immediately to file a damage report. Notify Sea Water Visions.

Note: a Phillips screwdriver is all you will need to remove screws that hold the crate together.

Using the end of the crate as a RAMP, one person can easily remove the tank.

CALL US: *toll-free If you find that you are missing any of these items,* ***1-800-275-3371***

Receiving Your New Tank (cont.) Crate Contents



1 Filter pad (in sump)

1 Upper False Bottom (in sump)

1 algae scrubber
(08GSC0027)

2 Boxes of Sea Salt
(premixed in sump)
(08SAL0050B)

1 Lobster Rake (store in cabinet)
(08LRA2406)

3 Carbon in bags
3 lower filter pads (stored in cabinet)

1 Aqua vac Cleaner (stored in sump)
(08AQS0018)

1 Bag of Carbon (pre washed and in sump)
(08CAR0004)

1 bottle of a*b*a Liquid Bacteria (stored in sump)

1 Thermometer/Hydrometer (stored in sump) (08HYT0013)

2 cubic ft Bio-Media (washed & in sump *not shown*)

2 Stainless steel Polishing Pads (stored in cabinet *not shown*)
(08HAP0604)

Installation and Setup (cont.)

Location of the Tank

Locate the Unit near a 110 VOLT, GROUNDED OUTLET. Power should be supplied to the Unit by a SINGLE Grounded Outlet, on a DEDICATED FULL-TIME SERVICE. Check to see that you have power!

The Tank should be located where there is enough room to open the Equipment Compartment Door (Two vented doors) and at least ONE of the Sump Access Doors (smaller doors located on the sides of the Unit).

For ease of maintenance, it is helpful to locate the tank near a source of FRESH, POTABLE WATER, and close to a DRAIN.

Setting Up the Tank

Step 1

Locate the Cord from the Electrical Receptacle Box from the BOTTOM of the Equipment Compartment. Do NOT plug it in until you have read the following SAFETY INSTRUCTIONS, USER REQUIREMENTS and completed the setup procedure. ONLY the Cords from the PUMP and the compressor should be plugged in at this time into the outlet within the compartment.

IMPORTANT SAFETY INSTRUCTIONS

WARNING - To guard against injury, basic safety precautions should be observed, including the following:

a) READ AND FOLLOW ALL SAFETY INSTRUCTIONS

b) DANGER - To avoid possible electric shock, special care should be taken since water is employed in the use of aquarium equipment. For each of the following situations, do not attempt repairs by yourself; return the appliance to an authorized service facility for service or discard the appliance:

1. Carefully examine the appliance after installation. It should not be plugged in if there is water on parts not intended to be wet.

2. Do not operate any appliance if it has a damaged cord or plug, or if it is malfunctioning or has been dropped or damaged in any manner. Close supervision is necessary when any appliance is used by or near children

c. To avoid injuries always unplug an appliance from an outlet when not in use, before putting on or taking off parts, and before cleaning. Never yank cord to pull plug from outlet. Grasp the plug and pull to disconnect.

d. Do not use an appliance for other than intended use. The use of attachments not recommended or sold by the appliance manufacturer may cause an unsafe condition.

e. Do not install or store the appliance where it will be exposed to the weather or to temperatures below freezing.

f. Close supervision is necessary when any appliance is used by or near children

g. To avoid injury, do not contact moving parts

h. Read and observe all important notices on the appliance.

i. If an extension cord is necessary, a cord with s proper rating should be used. A cord rated for less amperes or watts than the appliance rating may overheat. Care should be taken to arrange the cord so that it will not be exposed to water, tripped over or pulled.

j. This appliance has a polarized plug (one blade is wider than the other). As a safety feature, this plug will fit in a polarized outlet only one way. If the plug does not fit in fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Never use with an extension cord unless plug can be fully inserted. Do not attempt to defeat this safety feature.

k. SAVE THESE INSTRUCTIONS

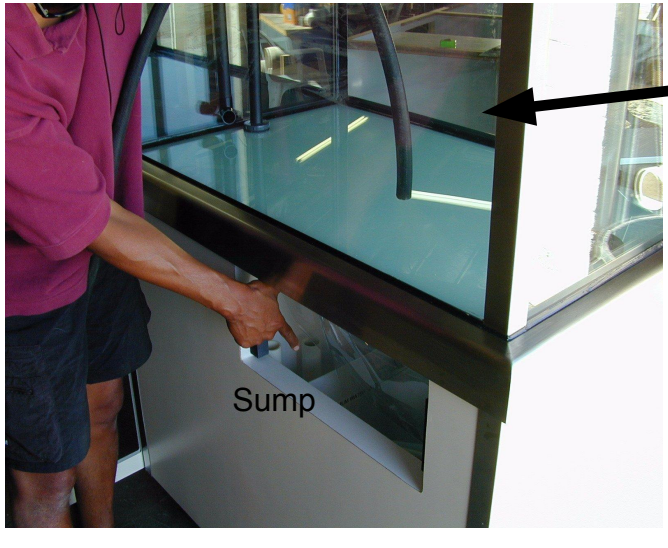
It is your responsibility to assure that the tank is either equipped with, or plugged into, a Ground Fault Circuit Interrupter or equivalent.

Installation and Setup (cont.)

Just add water & bacteria then plug in. *All other supplies are pre-assembled*

Step 2

CHECK to see that the Ball Valve coming FROM the Sump to the Pump is in the OPEN position.



This handle is in the open position when it is inline with the pipe

Step 3

Connect your hose to the nearest COLD Water Source and start filling the Viewing Tank with COLD water. AS the water nears the TOP of the Tank, it will begin to flow down the Stand Pipe into the Sump area. This is a normal occurrence. Let the water flow into the Sump UNTIL it reaches the MAXIMUM WATER LEVEL.

The Sea Salt will automatically start to dissolve when water enters the sump.

Installation and Setup (cont.)

Step 4

Plug in the MAIN Power Cord. After about 30 SECONDS, water should start flowing from the black return pipe (VENTURI). If it does not, air is probably in the plumbing lines. Remove the Main Power Cord for about 60 SECONDS and TRY AGAIN.

Push on the top of the sump door and the bottom will pivot out, then remove

Check to see that:

- Water is splashing VIGOROUSLY into the Sump.
- The Chiller Fan is RUNNING if the water temperature is ABOVE 55F
- The Thermostat set to 55F.
- The Thermostat is set at 55F for 6 WEEKS, then LOWER TO 45F thereafter.

Step 5

Check the Tank for any LEAKS. Check ALL hose connections and tighten ANY that are loose.

Step 6

REPLACE the Sump Access Doors and Equipment Compartment Door.

You are now finished setting up the Tank!!

Part 3: Preparation for Loading

Measuring Salinity

After the System has been running for at least FOUR HOURS, and ALL the Sea salt has dissolved, it is time to measure the SALINITY LEVEL.

Step 1

Remove the hydrometer from the Plastic Tube.

NOTE: We recommend an INITIAL READING of 1.024.

Step 2

RINSE OUT the Tube and FILL it with water from the Tank

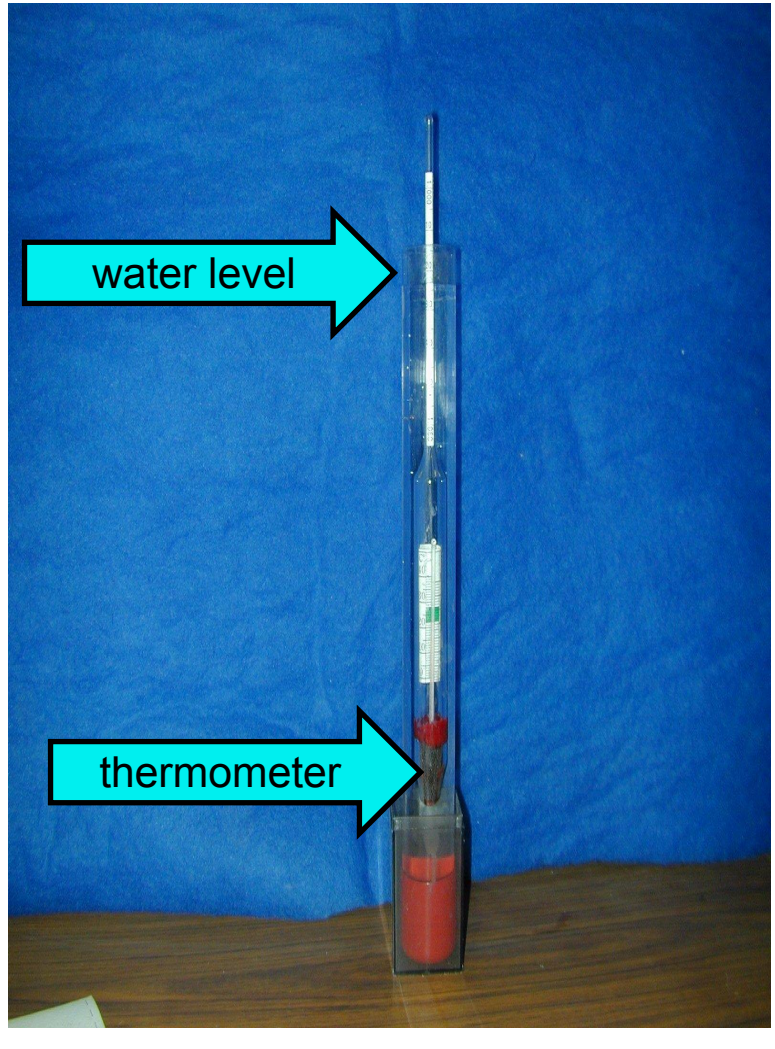
Step 3

Place the Hydrometer INTO the Tube and TAP the Tube LIGHTLY so that the Hydrometer floats freely.

Step 4

Read the Scale on the hydrometer at the point where the WATER LEVEL meets the Hydrometer. The GREATER the Salt content of the water, the HIGHER the Hydrometer will float. The Hydrometer should read BETWEEN 1.020 and 1.025. The SALTIER the water, the HIGHER the reading.

- IF the reading is BELOW 1.020, ADD more SALT.
- IF the reading is ABOVE 1.025, DRAIN some water from the Tank and ADD fresh water.



Preparation for Loading (cont.)

Preparing the Biological Filter

It may take SEVERAL WEEKS for the Biological Filter in a new Tank to become FULLY established. The BIO-FILTER performs several IMPORTANT FUNCTIONS. It removes organic waste, lowers ammonia and nitrite levels, reduces the nutrients necessary for algae growth, stabilizes oxygen swings, and reduces animal mortality. Adding bacteria will dramatically reduce the time needed to establish a HEALTHY BACTERIA population.

- Just prior to adding the first batch of lobsters, open the bottle of a*b*a Liquid Bacteria and pour 8 OUNCES (1/4 bottle) into the water in the Sump.
- Add an additional 2 CAPFULS OF a*b*a Liquid Bacteria EVERY DAY during the break-in period UNTIL the bottle is EMPTY.

The Bacteria REQUIRE a food source in order to grow. Lobster waste is an excellent food source.

NOTE: The break-in period WILL NOT begin until lobsters are placed into the System.

Adding Animals

ONCE you have stabilized the salinity level, added Bacteria, and the water temperature is down to 55F, you may INTRODUCE the lobsters to their new Tank

NOTE: Your "living" BIO-FILTER is brand new, and is not yet capable of handling large loads. It needs a "break-in" period of 6 WEEKS at 55f to allow SUFFICIENT numbers of Bacteria TO COVER the available surface area of the Filter Bed.

CAUTION! This process CANNOT be rushed! For this reason, we recommend very light loads for the first few weeks.

	CL-48	4630SWV18	3030SWV18
1 st week	16 lb.	12 lb.	10 lb.
2 nd week	20 lb.	20 lb.	12 lb.
3 rd week	24 lb.	24 lb.	14 lb.
4 th week	30 lb.	30 lb.	18 lb.
5 th week	36 lb.	36 lb.	26 lb.
6 th week	*45 lb.	*45 lb.	*35 lb.

Preparation for Loading (cont.)

Purging Lobsters

All new lobsters should be SUBMERGED and AGITATED in a bucket of SALT WATER BEFORE putting them into the Tank. NEVER USE FRESH WATER FOR THIS PROCEDURE! Dipping is a process that removes shipping debris, and allows the lobsters to "FLUSH" impurities out into the bucket rather than foul the Tank. For best results, the water for the rinse should be taken FROM THE TANK, then DISCARDED after use. Of course, you or your service company will need to REPLENISH the saltwater in the Tank when you are finished. NEVER LET YOUR PUMP RUN DRY!

If you load the Tank beyond its initial recommended capacity, you will likely run a serious risk of high ammonia levels within 7 to 14 days. You must be prepared to make a 100% WATER CHANGE should this occur. (The procedure to perform this change is in the *"Operation and Maintenance"* section of this manual."

Key Setup Points:

- Run the System at LIGHT loads for the FIRST SIX WEEKS at 55F. LOWER the temperature setting to 40F THEREAFTER.
- AFTER the six weeks break-in period, you may increase the product in your Tank to the MAXIMUM recommended load.
- DO NOT turn the System off if you are out of animals-evan for a short period of time-as this will adversely affect the BIO-FILTER.
- PURGE (clean) the lobsters BEFORE placing them into the System.
- DO NOT OVERLOAD! DO NOT OVERLOAD!

Preparation for Loading (cont.)

Helpful Hints

Check Your Tank Daily

One bad apple can spoil the whole bunch. Check your Tank DAILY for sick or dead lobsters. One dead lobster can emit as much ammonia as 60 healthy lobsters. This can result in an ammonia overload. LOOK for the following INDICATIONS:

- FOAM on the surface of the water in the sump is a sign of DECAYING PROTEIN. This could be from broken lobster parts, bleeding or dead lobsters.

- CHECK for any lobsters that have WHITE FLESH EXPOSED between their body and tail. This is a sign of weak or dead lobsters. REMOVE them. Check the salinity level to insure it is within the acceptable range.

- A HEALTHY lobster, in temperatures between 40F to 50F, should have its tail tucked tightly UNDER itself, and its CLAWS bent in FRONT of its head.

Rotate your Stock

Like every product in a grocery store, it is important to ROTATE YOUR STOCK so you can offer your customers the highest quality possible. The same rule applies with live products like lobsters.

There are TWO very easy ways to insure your customers receive the HEALTHIEST lobsters from your Tank:

- Sell those lobsters that are in the MIDDLE of the tank First. Instinctively Lobsters will huddle in locations where they are most protected. The strongest lobsters will move to the corners of the Tank and push the weaker ones to the Tank's center.

- Use a Divider in your Tank to SEPARATE your shipments by DATE RECEIVED. NOTE the date on each side of the Divider so you know which lobsters to sell first.

Part 4: Daily Operations

lobster and crab tanks Store Level Service

Operating Procedures

Daily OPERATING PROCEDURES needs to be performed regularly-similar to dusting store shelves, or rotating stock. The procedures listed below are very simple to perform and average 15 minuets daily.

NOTE: If these procedures are followed, you will be able to prevent major maintenance and 100% water changes WILL NOT be required.

Page	Operating Procedure	Frequency
10-11	Check Temperature	Daily
14	Remove weak or dead Animals	Daily
18	Cleaning Stainless Steel	Daily
11	Check Salinity	Weekly
9 & 16	Check water level / add water	Weekly
17	Cleaning off theAlgae	Weekly
16	Foam Removal	As needed
17	Aqua Vac Viewing Tank	As needed

NOTE: When cleaning the tank DO NOT allow cleansing agents such as window cleaner or polishing oil to enter the water.

Daily Operations (cont.)

Replacing Water

If saltwater is removed to purge lobsters, or clean the Tank, etc., NEW saltwater will need to be added. You will add Sea Salt to the water as explained below.

Adding Sea salt

You will need 1 pound of Sea salt for every 4 GALLONS of FRESH water. ALLOW the sea salt to DISSOLVE in the water BEFORE adding it to he Tank. Crystal Sea Marinemix will automatically neutralize the chlorine.

DANGER! *NEVER pour Sea Salt DIRECTLY into Tank if lobsters are present, as this may adversely effect their health.*

Instructions are on the back of the salt bucket. A line marks the 4 gallon level.

measuring cup

Foam Removal

Foam forms on the surface of the water when there is a dead or wounded animal in the Tank, or when ORGANIC contaminates are present. These contaminates may arrive with a new shipment of lobsters and contaminate your System if the lobsters are not properly purged. Contaminates may also come from the feeding of lobsters. Lobsters should NEVER be fed-the food will foul the Tank. Lobsters kept at 40F can live without eating for up to 3 weeks with no ill effects during winter and 1.5 weeks during summer.

Daily Operations (cont.)

Foam Removal (cont.)

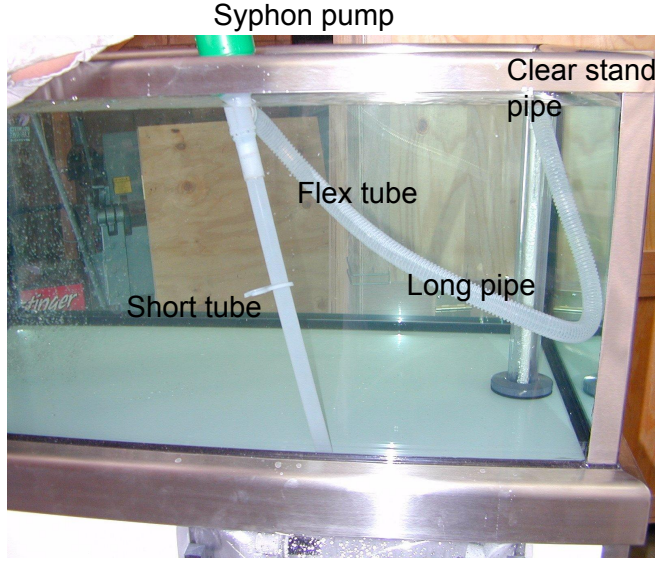
Foam is created by decaying protein, i.e., dead lobsters or lobsters with missing claws or legs. The System's dual Tank design (viewing & sump) will cause any foam to build up in the Sump Filter (out of the customer's view) whenever there is a buildup of these proteins. YOU SHOULD CHECK FOR AND REMOVE THE FOAM IN THE SUMP FILTER EACH MORNING. If foam is present, you should FIND its SOURCE and REMOVE it. Lobsters with broken or missing pods are a constant source of foam since they have bleeding wounds. REMOVE these animals to avoid contaminating the System.

CAUTION! *NEVER attempt to eliminate foam with a DEFOAMING AGENT, since this allows contaminates to remain in the water. If your Tank is located over a floor sink, you might consider using Sea Water Visions PROTEIN SKIMMER. This will automatically remove and discard the foam for you.*

AquaVac the Viewing Tank

Solid debris and foreign objects may collect on the bottom floor of the viewing area. Using the AquaVac you can easily remove this debris. Place the long rigid pipe down the overflow stand pipe. Place the shorter tube in the water. With 5 or 6 pumps on the top of the syphon, water should start to flow up the shorter tube, flexible hose and down the longer pipe pulling the solid debris with it.

NOTE: FOR HEAVIER SOLID DEBRIS USE A SMALL FINE FISH NET.



Cleaning off the algae

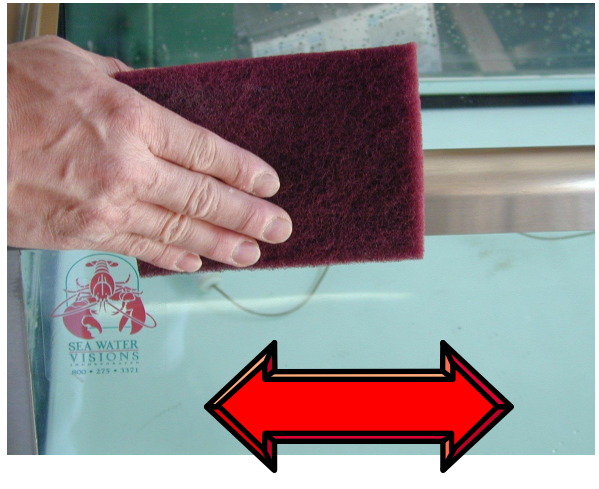
Using the algae scrubber wipe away any alage as soon as it is noticable.

Daily Operations (cont.)

Cleaning the Stainless Steel

Step 1

Using the dark maroon pad, rub the stainless steel with medium to hard pressure in a horizontal, back and forth motion. To save time and energy you can use the wheel on a cordless drill instead.



Step 2

Spray Loctitie Silicone Lubricant on a clean rag and apply to the polish stainless steel. This lubricant is FDA approved and helps repel the water.

08HAP0604	Polishing pad
08POW3175	Polishing wheel
08LUS0004	Silicone Lubricant (FDA approved)

DO NOT USE PAD ON GLASS or STAINLESS STEEL with MIRROR FINISH

Part 5: Maintenance

lobster & crab tank Professional Service

Preventive Maintenance

Preventive maintenance needs to be performed regularly. The procedures listed below are very simple, and averages less than 1 hour per month to perform. We recommend your service company setting up a MAINTENANCE LOG, and TRACKING these steps on a REGULAR basis.

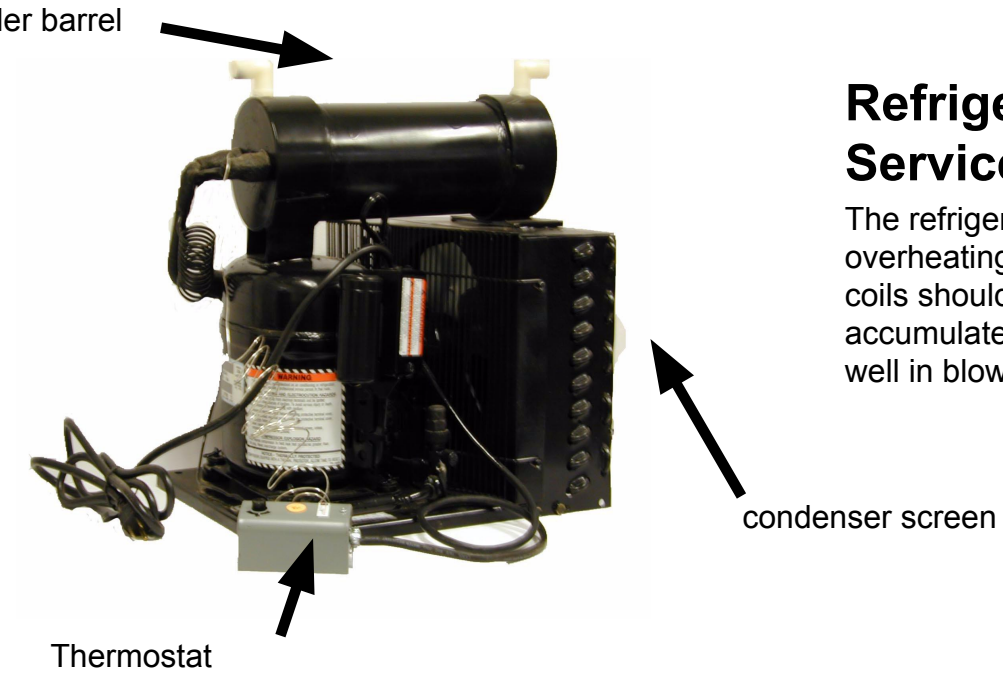
NOTE: If maintenance is performed REGULARLY, a 100% water change WILL NOT be required.

DANGER! FAILURE TO COMPLETE these simple steps will eventually lead to SYSTEM FAILURE and LOSS OF ANIMALS.

Page	Recommended month	February	May	August	November
26	Change Carbon				
24/25	Change Filter Pad				
22-25	Hydro Flush Filter Cleaning				
20	Clean Condenser				
20	Oil pump				

NOTE: After a Hydro Flush, it is recommended that you decrease your loading capacity by 50% of your average loading. You just washed some of the BENEFICIAL BACTERIA away and the filter needs several weeks to stabilize back to your average loading. For this REASON the months we recommended are typically either slower months for this industry or scheduling can be done after a busy holidays.

Maintenance (cont.)

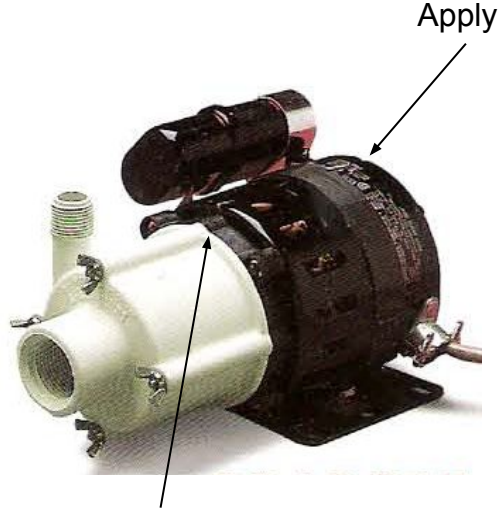


Refrigeration Condenser Service

The refrigeration unit needs to be kept clean to prevent overheating and failure. Every 3 months the condenser coils should be brushed or vacuumed to eliminate accumulated dirt. (Compressed air, if available, works well in blowing out the condenser coils.)

Pump Service

Pumps need to be oiled to keep the bearings well lubricated. This will prolong the life of the pump. Use only recommended oil for this application.



Maintenance (cont.)

Hydro Flush Filter Cleaning

1) Garden hoses

Equipment and supplies need to clean the Bio filter.

Marinemix Sea Salt
(08SAL0050)

Filter pad
(03PAD3034)

a*b*a Beneficial
Bacteria (08BAC0032)

Maintenance (cont.)

Hydro Flush Filter Cleaning *(cont.)*

6 MONTH INTERVALS *

ALLOCATE 1/2 HOUR

STEP 1

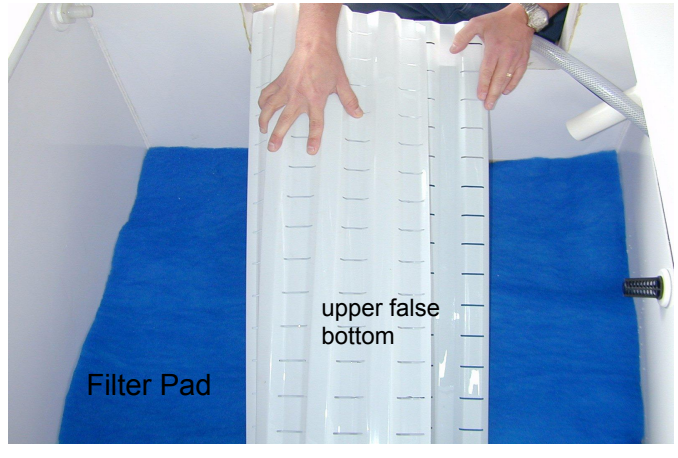
Unplug both electrical CORDS before starting your FILTER cleaning.

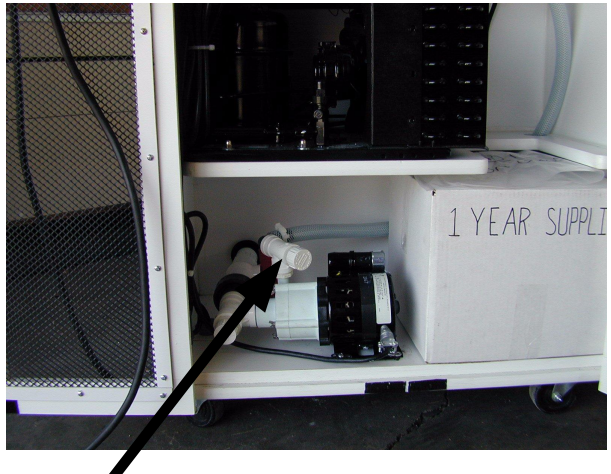
STEP 2

Open the SUMP access door.

STEP 3

Remove the carbon bag then the upper false bottom by rolling it in HALF and SLIDING it out the sump access.





Attach hose here to pump drain

STEP 4

Remove the filter pad to expose the Bio media.

STEP 5

Remove the hose cap above the pump. Aattach a GARDEN hose here and place other end of hose to floor sink.

STEP 6

Attach your other hose to COLD potable water.

Maintenance (cont.)

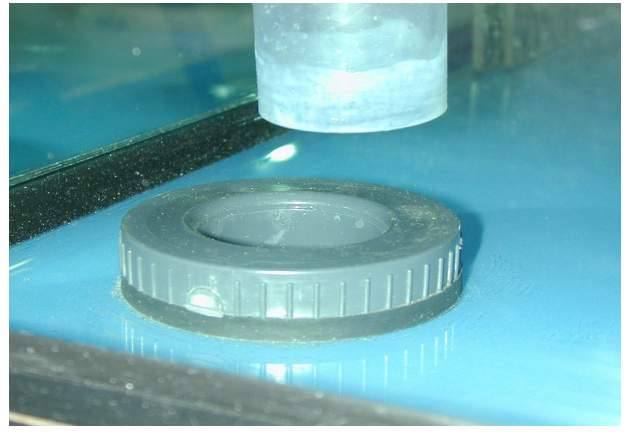
Changing water in the viewing

ALLOCATE 10 min.

Combine this proceadure with* Hydro Flush Filter Cleaning *only if a 100% water change is needed. If the viewing tanks water does not need to be replaced then procead to step 9

STEP 7

Remove the clear stand pipe by moving it back and forth and in an upward motion.



Step 8

Let the water from the viewing tank drop into the sump. Make sure the water does not reach the top of the overflow stand pipe inless the tank is located over a floor drain.

Maintenance (cont.)

Filter Cleaning *(cont.)*

NOTE - Your "wash area" will move across the entire filter area as you clean the filter.

STEP 9

Plug the PUMP back in.

STEP 10 When the water recedes below the Bio filter, turn on your COLD potable water

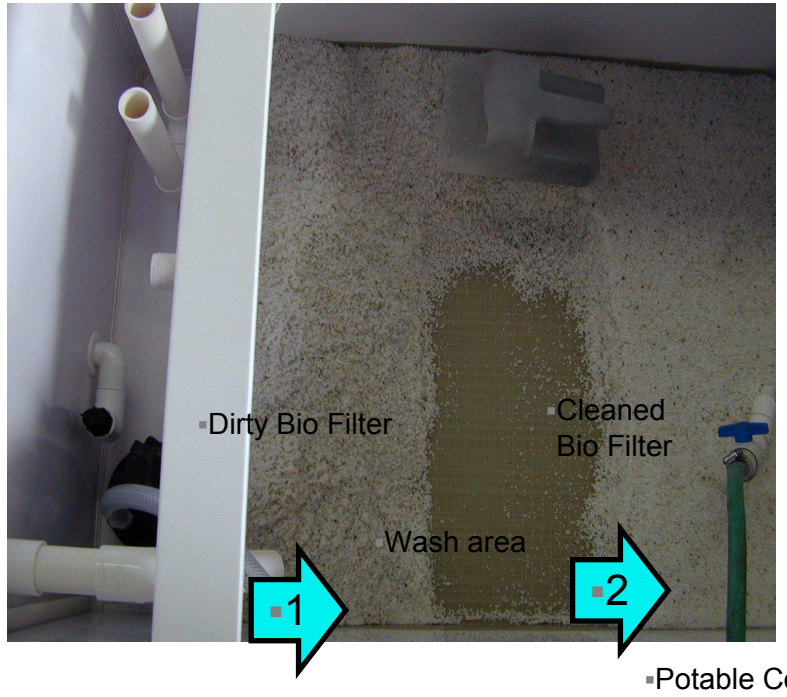
STEP 11

Move the Bio filter to one SIDE leaving some of the lower false bottom screen exposed. This is your WASH AREA.

NOTE - Adjust the incoming water to flow in as fast as the pump <u>removing</u> water. NEVER let the pump run dry.

STEP 12

Wash a small section of THE Bio media in the "wash area" for about 15 seconds. Move the clean BIO MEDIA to the opposite side and start the process over.



- *Keep the water level as low as possible so the bio media is not submersed under potable water.*

STEP 13

When all the filter has been washed, LEVEL the Bio media flat. This will prevent the water from channeling.

Maintenance (cont.)

Hydro Flush Filter Cleaning *(cont.)*

STEP 14

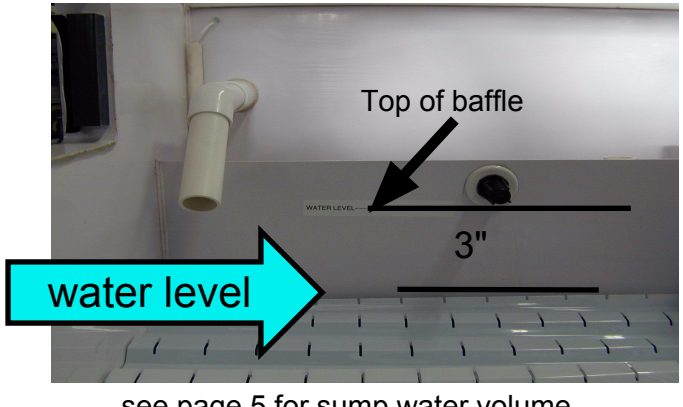
Instal a new FILTER PAD.

STEP 15

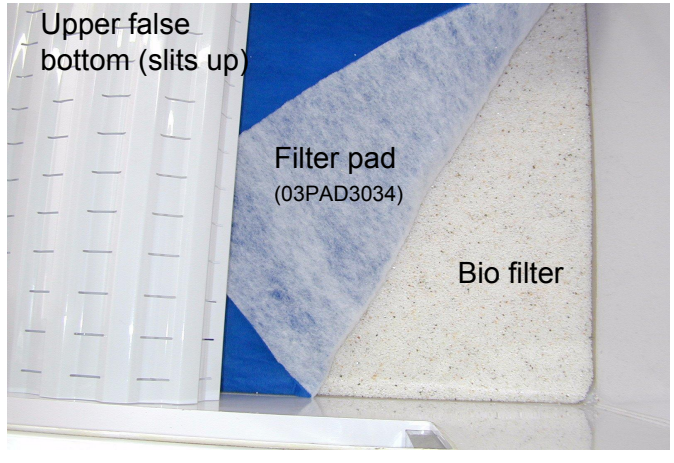
Put the upper false bottom back in. Make sure the slits are facing up.

STEP 16

Un plug the pump . Disconnect your drain hose but continue filling the sump with potable water to the Maximum Water Level



see page 5 for sump water volume



STEP 17

Add the appropriate amount of SEA SALT.

STEP 18

Turn off potable water when level is at maximum height.

STEP 19

Add new carbon in a new carbon bag after rinsing with potable water.

STEP 20

After the salt has dissolved, Aprox. 1/2 hr.,
check the salinity.

Maintenance (cont.)

Changing Carbon

STEP 1
Remove the carbon and carbon bag

STEP 2
Discard all used carbon

STEP 3
Rinse the carbon bag then refill it with fresh new carbon

STEP 4
Rinse the fresh carbonwith potable water

STEP 5
Install the carbon bag around the over flow pipe and tie firmly

Maintenance (cont.)

Changing the Micron Filter (Optional Equipment)

Step 1

REMOVE the Equipment Compartment Door and UNPLUG the pump and chiller from the Electrical Box.

Step 2

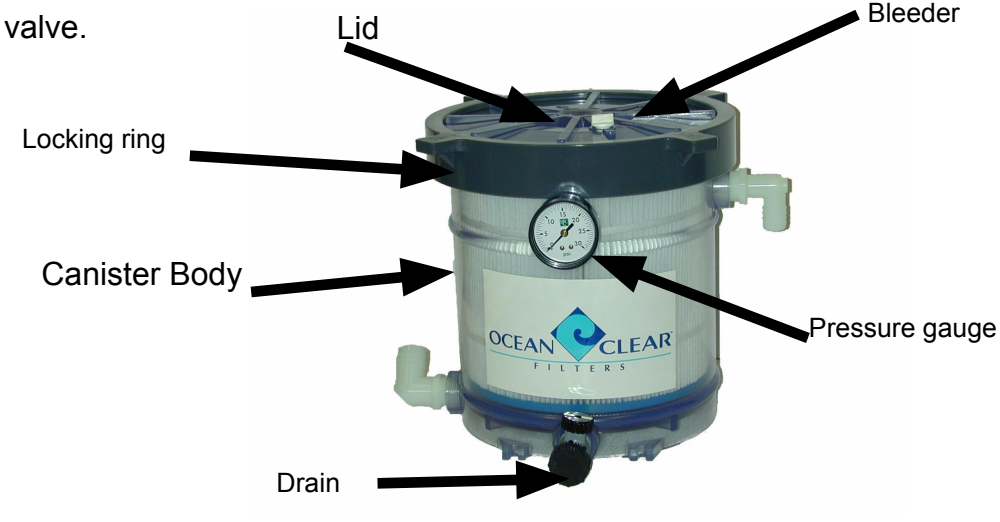
CLOSE the two Ball Valves. One is located BEFORE the Pump, the other AFTER the UV near the TOP/REAR of the cabinet. Slide the Micron Filter Canister to the EDGE of the Cabinet so that the Drain is hanging OVER the side. You will need to PLACE a pan or bowl UNDER the Drain to catch approximately 1 quart of water.

Step 3

Remove the Drain Cap, OPEN the Mini-valve on the Drain, then unscrew the Bleeder Valve (counter clockwise) located on TOP of the Filter Canister. Wait until the water level in the Canister has drained SEVERAL INCHES. Then close the mini valve.

Step 4

Unscrew the Locking Ring off the Filter Canister and REMOVE the Lid.



Step 5

REMOVE the USED Micron Filter.
Install a NEW OR clean MICRON FILTER.

Step 6

Once the micron filter has been REMOVED it can then be washed and REUSED. Soak the filter in bucket with a 10% bleach solution for 24 hrs. Rinse and let AIR DRY before using again.

Maintenance (cont.)

Ultraviolet Sterilizer Service (Optional Equipment) Annual Maintenance Schedule (03UVK0025) parts Kit

NOTE: All of the following maintenance procedures should be performed simultaneously each year. For more information please refer to the ultraviolet Sterilizer Instruction Sheet" at the back of this manual.

UV Bulb (03UVB0026)

The UV bulb must be replaced once a year. The characteristic visible blue glow emitted by the bulb is NOT an indication of the amount of ultraviolet radiation being produced.

Splash Boot

The narrow neck of the splash boot must be lubricated with Lifeguard silicone lubricant each time bulb is serviced.

Protective Sleeve and 3/4" Overflow Pipe (03OVE0025)

The protective sleeve and overflow pipe must be replaced. This replacement will substantially prolong the life of you sterilizer housing.

"O" Ring (03RIN0004)

The "O" Ring on the clear view port should be replaced. The "O" Ring must be cleaned of any debris and lubricated with Lifeguard silicone lubricant before inserting on the view port.

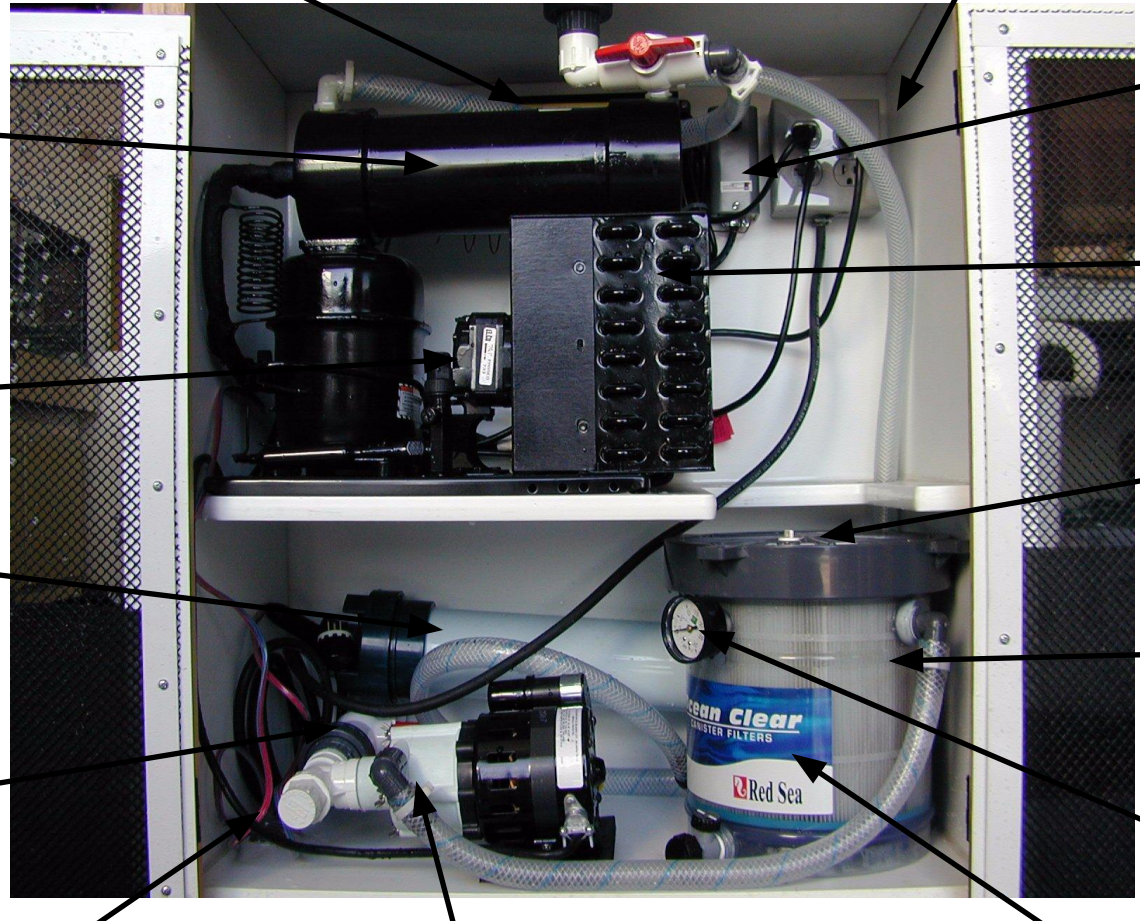
Gasket (03RGC0001)

The Gasket must be replaced. Failure to replace the gasket may result in a water leak.

Quartz Sleeve (03QUA0025)

The quartz sleeve must be cleaned with rubbing alcohol to remove any build up of dirt or slime.

Equipment Compartment
Smart Series



UV Ballast
Electrical Fourplex
Thermostat
Chiller Barrel
Condenser
Fan Unit
Bleeder Valve
UV Sterilizer (optional)
Pleated Micron Filter
Intake Ballvalve
Pressure Gauge
Drain
Pump
Micron Filter Canister (optional)

Lobster Tank Troubleshooting Guide

PROBLEM	CAUSE	REMEDY	NOTE
Water does not circulate	1) No power supply 2) Pump not plugged in 3) Pump not working) Sump-filter low on water 5) BIO-FILTER restricted 6) Chiller frozen	Check power supplies and cords for electricity Add water if needed or Change filter pad and do a filter cleaning unplug chiller for 1 hour, ck water flow	A Bio-stir may get you by for a while.
Bubbles are erratic	1) Low on water in sump-filter 2) BIO-FILTER restricted 3) Intake plumbing leak	Add water if needed or Change filter pad and do a filter cleaning. Shut system off and check plumbing for leaks	A Bio-stir may get you by for a while.
Excessive foam in sump filter or viewing tank	1) Build up of organic proteins in water.	Cull for dead product or broken body parts. Check the water temperature.	
Animals very active	1) temperature too warm. 2) Ammonia & nitrite levels too high.	(See High water temperature below) Cut back on loading, add bacteria, add Amquel, lower pH if above 7.6	
Discolored water	1) Carbon filter clogged or exhausted. 2) Ammonia & nitrite levels are high.	Change carbon Cut back on loading, add bacteria, add Amquel, lower pH if above 7.6	Partial or total water change.
High mortality rate	1) System overloading by exceeding tank capacity. 2) Toxic substance may have been introduced. 3) Product may be frozen prior to getting to tank or damaged in shipping.	Make sure tank capacity is not exceeded. Remove any metal or foreign objects that may have been introduced. Change water if necessary. Check with supplier and tracking steps to make sure product has not been exposed to temperatures too cold or too warm during shipping.	
High water temperature	1) Refrigeration unit not plugged in or thermostat is set too high. 2) Breaker has tripped 3) Dirty condenser on refrigeration unit. 4) Refrigeration problem.	Be sure the refrigeration unit is plugged into the proper live outlet . Lower thermostat setting. Clean condenser screen. Have refrigeration unit checked by mechanic	Call manufacture to see if local dealer has a loaner to use while original chiller unit is repaired.

Programming procedure for single stage RANCO ETC series controllers

Steps	Procedure	Annunciator	Description	Display
Step 1	To start programming, press the SET key once to access the Fahrenheit/Celsius mode. The display will show the current status, either F for degrees Fahrenheit or C for degrees Celsius. Then Press either the up or down arrow key to toggle between the F or C Designation.	F or C	Fahrenheit or Celsius Scale	F
Step 2	Press SET key again to access the set point. The LCD will display the current set point and S1 annunciator will be blinking on and off to indicate that the control is in the set point mode. Then press either the up key to increase or the down key to decrease the set point to the desired setting.	S1 (blinking)	Set point Temperature	S1 50
Step 3	Press SET key again to access the differential. The LCD will display the current differential. The LCD will display the current differential and DIF1 annunciator will be blinking on and off to indicate that the controls in the differential mode. Then press either the up key to increase or the down key to decrease the differential to the desired setting.	DIF (blinking)	Differential Temperature	DIF 3
Step 4	Press SET key again to access the cooling or heating Mode. The LCD will display the current mode, either C1 for cooling H1 for heating. Then press either the up key or the down key to toggle between the C1 or H1 designation. Press the SET key once more and programming is complete.	C1 / H1	Cooling or Heating Mode	C1

Troubleshooting error messages

Display	Messages	To correct
E1	Appears when either the up or down key is pressed when not in the programming mode	If the E1 message appears even when no keys are being pressed, replaced control.
E2	Appears if the control settings are not properly stored in memory.	Check all settings and correct if necessary.
EP	Appears when the probe is open, shorted or sensing a temperature that is out of range.	Check to see if the sensed temperature is out of range. If not, check for probe damage by comparing it to a known ambient temperature between -30F and 220F. Replace the probe if necessary.
EE	Appears if the EPROM data has been corrupted.	This condition cannot be field repaired. Replace the control.
CL	Appears if calibration mode has been entered.	Remove power to the control for at least five seconds. Reapply power. If the CL message still appeared, replace the control.