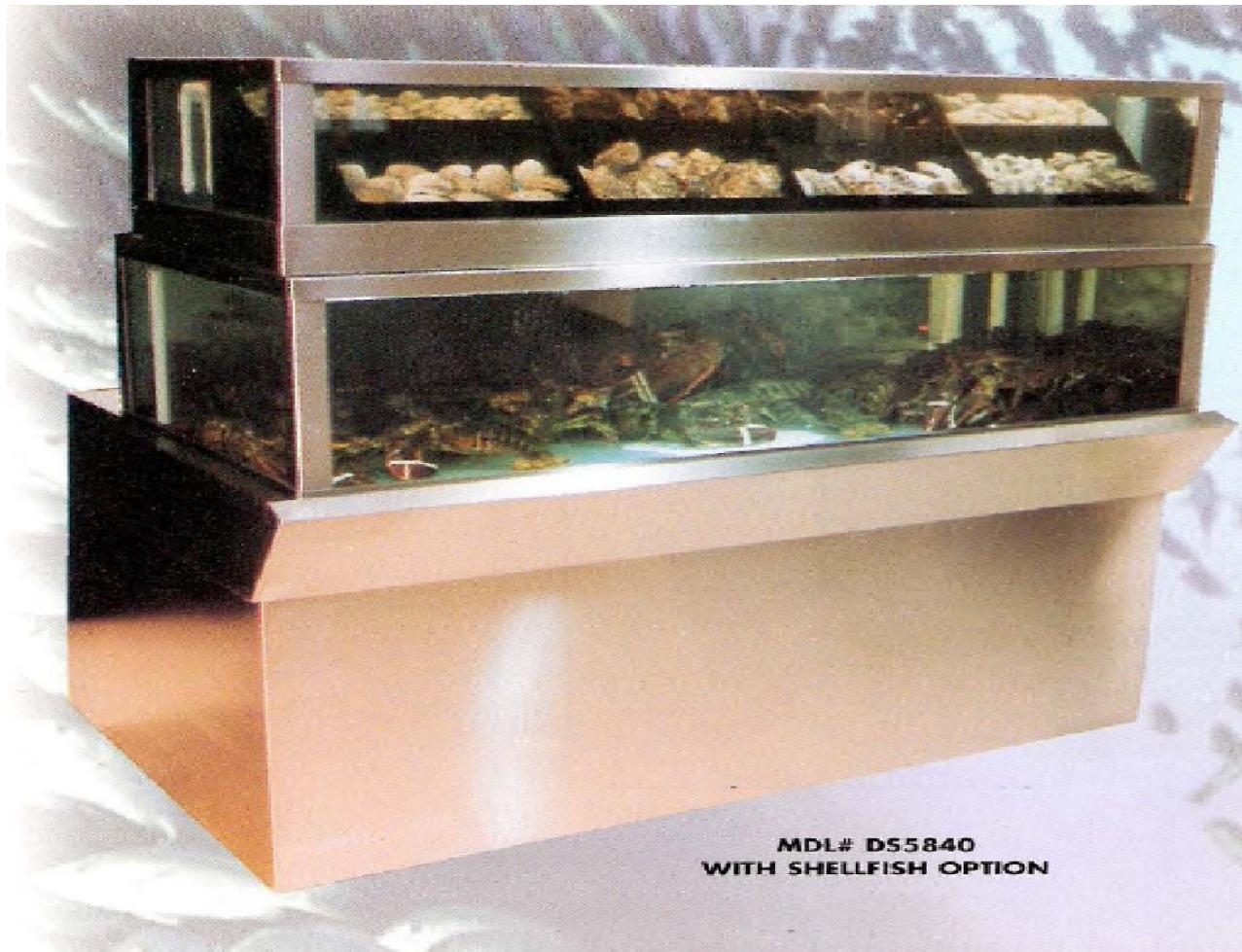


Manual for DS9640 Lobster/crab Tanks



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:

service@seawatervisions.com

800-275-3371

Contents

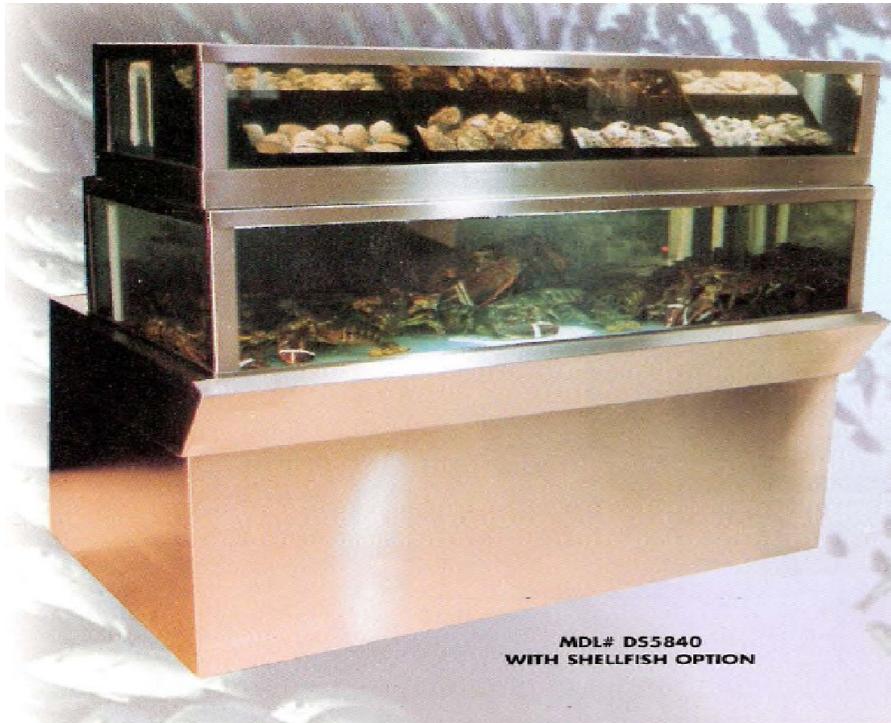
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SPECIFICATIONS

Crab and Lobster tank



Size

Overall (both viewing)	96" x 40" x 75" (L x W x H)
Upper Viewing only	14" in / 35.5 cm high
Lower viewing	15" in / 38.1 cm high
Shipping Wt.	3,500 / 1589 lb. / kg
Sump (ID)	25" x 28 " in 63 x 71 cm (each)
Sump water level	16" / 40.64 in / cm
Crate size	102" x 38" x 84" in (LxWxH) 259 x 96 x 213" cm (LxWxH)

UPPER SYSTEM

Recommended Load

Lobster or crabs Maximum 160 lbs / 73 kg

Water capacity

Sump	100 / 379 gallons / Liters max operating level
Viewing	60 / 227 gallons / Liters
Total	160 / 606 gallons / Liters

Electrical 115 volts
Amps 2x 11.2V

LOWER LOBSTER/CRAB

Recommended Load

Lobster or crabs Maximum 230 lbs / 104 kg

Water capacity

Sump	100 / 379 gallons / Liters max
Viewing	130 / 492 gallons / Liters
Total	230 / 871 gallons / Liters

Electrical 115 volts
Amps 2x 11.2V

General Information

Filter System

Your *Sea Water Visions* Life support System contains **5** 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.
- The Micron Filter "polishes" the water by removing particles as small as 25 microns.
- **The ULTRAVIOLET STERILIZER will kill pathogenic bacteria, protozoa, mold spores, virus, and algae.**
- The Biological Filter is a fine grain calcium carbonate filter providing a large surface area on which BENEFICIAL bacteria thrive, and performs a pH buffering function.

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 by-product 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

Step 1

REMOVE the Tank from the Crate.

NOTE: This will be much easier if you have an electric or battery operated screwdriver to remove the screws.

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.

Step 2

Once you have removed the TOP and SIDES of the Crate, UNSCREW the End Cleats of one END.

Step 3

Unwrap the Tank, Open the Equipment Compartment Door, and OPEN one or both of the Sump Access Door.

Step 4

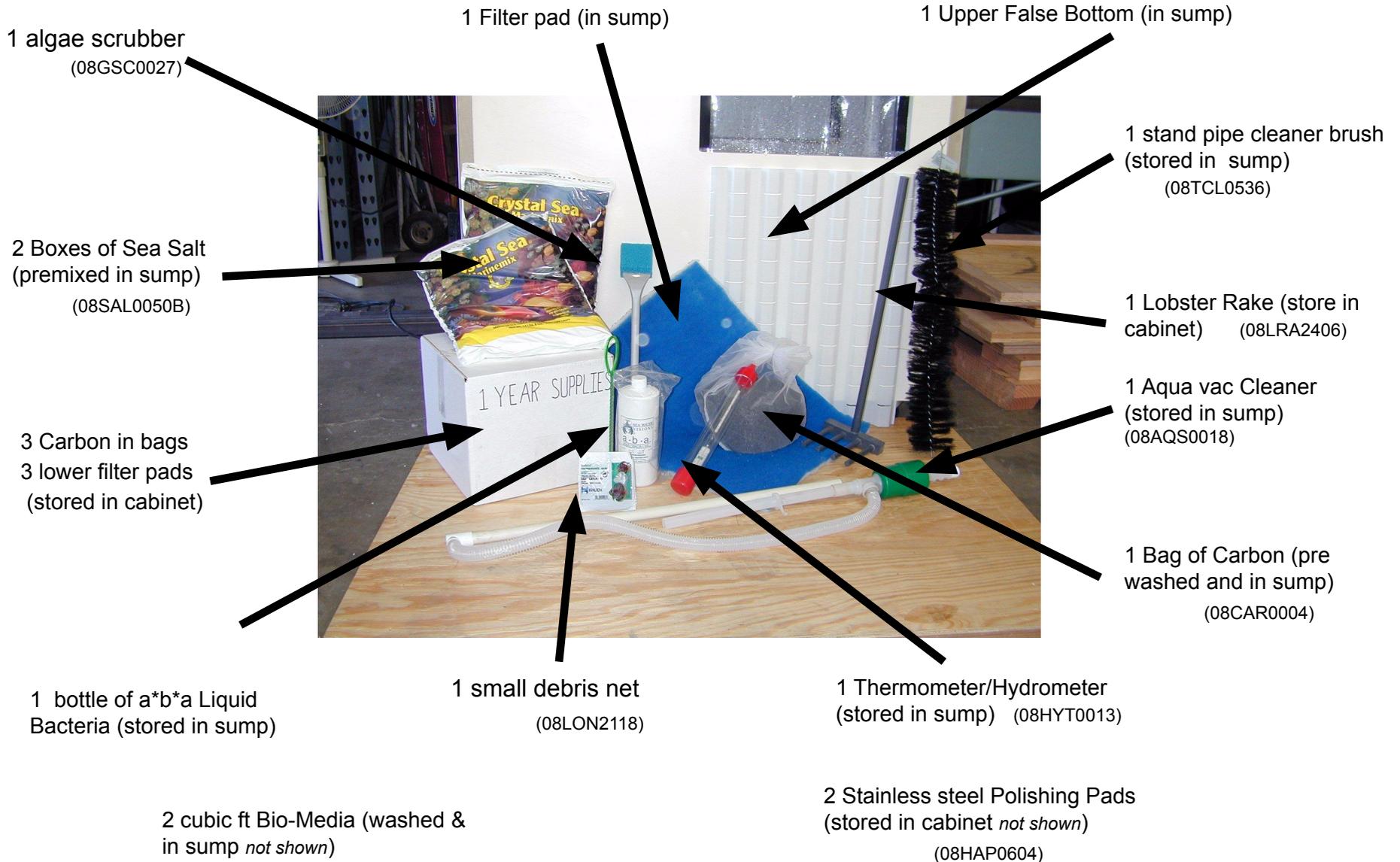
Unpack ALL Accessories stored in the Sump and Viewing areas.



Using screws, attach the top or side panel labeled "Ramp" to the skid

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



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.)

Location of the Tank

Locate the Unit near a 220 VOLT, GROUNDED OUTLET. Power should be supplied to the Unit by a SINGLE Grounded Outlet, on **two separate 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 and remove the step which covers the micron filter. You should be able to remove the covers of the sump also.

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

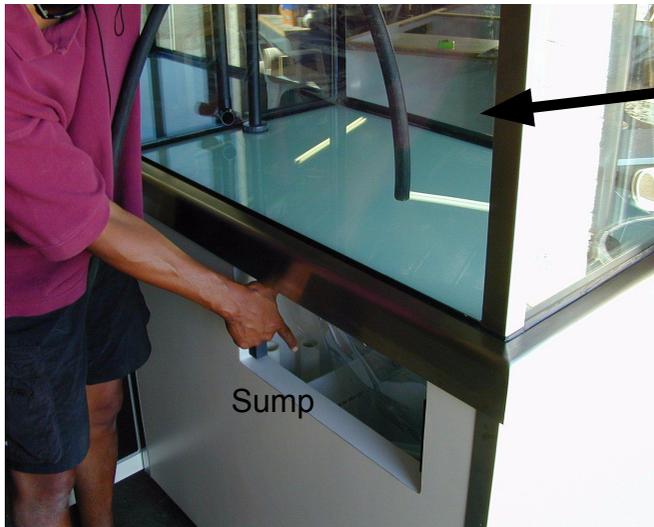
DO NOT plug the main cord that is located from under the equipment compartment until you have completed the setup procedure. ONLY the Cords from the PUMP and the compressor should be plugged in the junction box located in the equipment compartment, at this time. The Ultraviolet Sterilizer SHOULD NOT be plugged in until the Tank's Biological Filter is well established-approximately 6 WEEKS.

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.



Hose from potable water source



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.

Bleeder valve

Pressure gauge



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 / 12.7c.
- The Thermostat is set at 55F / 12.7c for 6 WEEKS, then LOWER TO 45F/ 7.2c thereafter.

Step 5

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

Step 6

Bleed the Ocean Clear Filter Canister by turning the BLEEDER VALVE, which is located on the Lid, COUNTER CLOCKWISE. DO NOT remove the Cap, simply loosen it UNTIL AIR begins to escape. As soon as WATER BEGINS to flow out, CLOSE the Bleeder Cap and tighten.

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

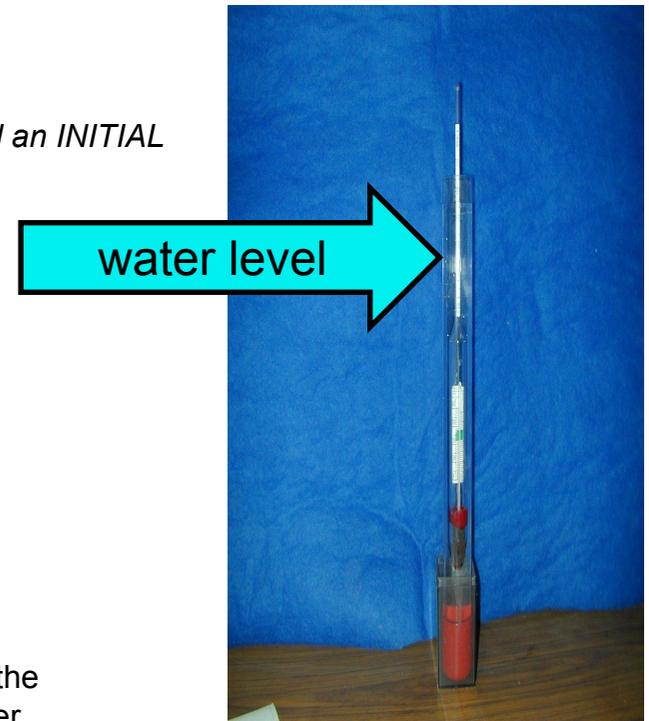
Step 3

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 of of water 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.

1 st week	25% of capacity
2 nd week	25 % of capacity
3 rd week	30% of capacity
4 th week	50% of capacity
5 th week	75% of capacity
6 th week	100% of capacity

Recommended loading

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./ 12.7 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-even 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.)

Helpfull 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, or 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
	Check temperature	Daily
16	Remove weak or dead animals	Daily
20	Cleaning Stainless Steel	Daily
13	Check salinity	Weekly
15	Check water level / add water	Weekly
16	Cleaning off the algae	Weekly
19	Foam removal	As needed
19	Siphon 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 / 15 gallons / Liters of FRESH water. ALLOW the sea salt to DISSOLVE in the water BEFORE adding it to the 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 affect their health.



Instructions are on the back of the salt bucket. A line marks the 4 gallon / 15 Liters 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 contaminants are present. These contaminants may arrive with a new shipment of lobsters and contaminate your System if the lobsters are not properly purged. Contaminants 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.)

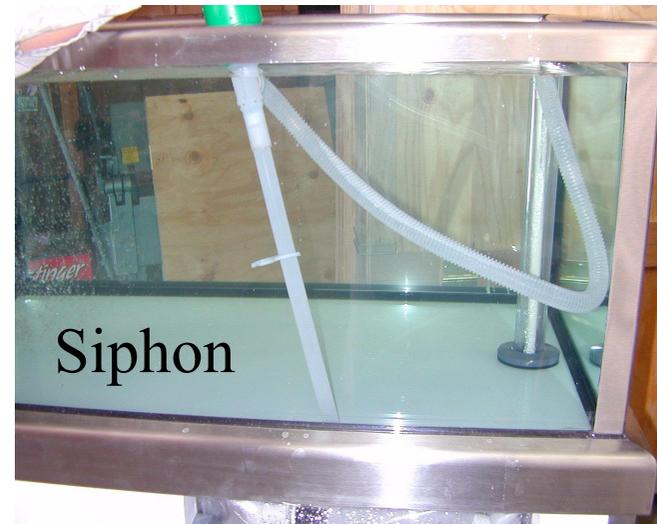
Foam is created by decaying protein, i.e., dead lobsters or lobsters with missing claws or legs. The System's dual Tank design (viewing & sump) will cause any foam to build up in the Sump Filter (out of the customer's view) whenever there is a buildup of these proteins. **YOU SHOULD CHECK FOR AND REMOVE 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 contamination the System.

CAUTION! NEVER attempt to eliminate foam with a **DEFOAMING AGENT**, since this allows contaminants 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.

Siphon Viewing Tank

Solid debris and foreign objects may collect on the bottom floor of the viewing area. Using the hand pump syphon you can easily remove this debris without getting your hands wet. Place the rigid syphon tube in the water and the hose in a bucket or into the sump-filter. With one or two pumps on the top of the syphon, water should start to flow up the rigid tube and down the flexible hose pulling the solid debris with it.

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



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 Loctite 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

08LUS0004 Silicone Lubricant (FDA approved)

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.

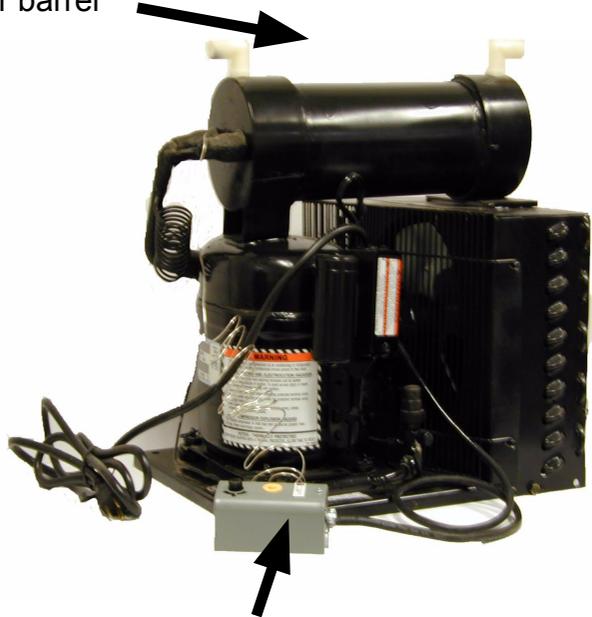
DANGER! FAILURE TO COMPLETE these simple steps will eventually lead to SYSTEM FAILURE and LOSS OF ANIMALS.

Page	Recommended month	January	April	July	October
		3 Month	6 Month	9 month	12 month
24	Change Carbon & Micron Filter				
24	Change Filter Pad				
24	Filter Cleaning				
22	Clean Condenser				
22	Oil pump				
27	UV service				

NOTE: After a BIO-WASH 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 the industry or scheduling can be done after a busy holiday.

Maintenance (cont.)

Chiller barrel



Thermostat

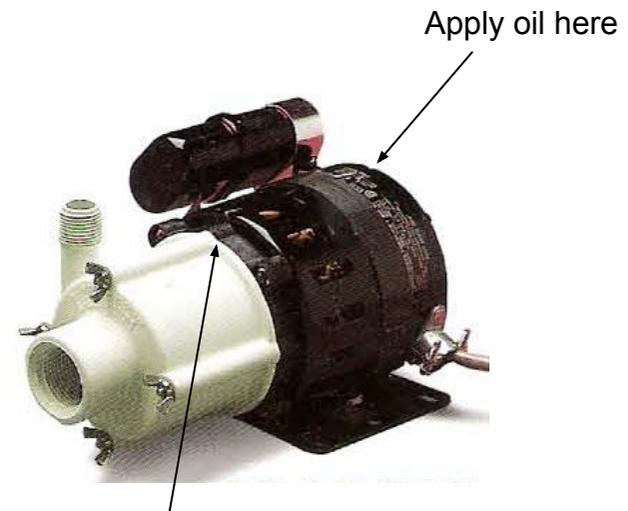
Pump Service

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.

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.)

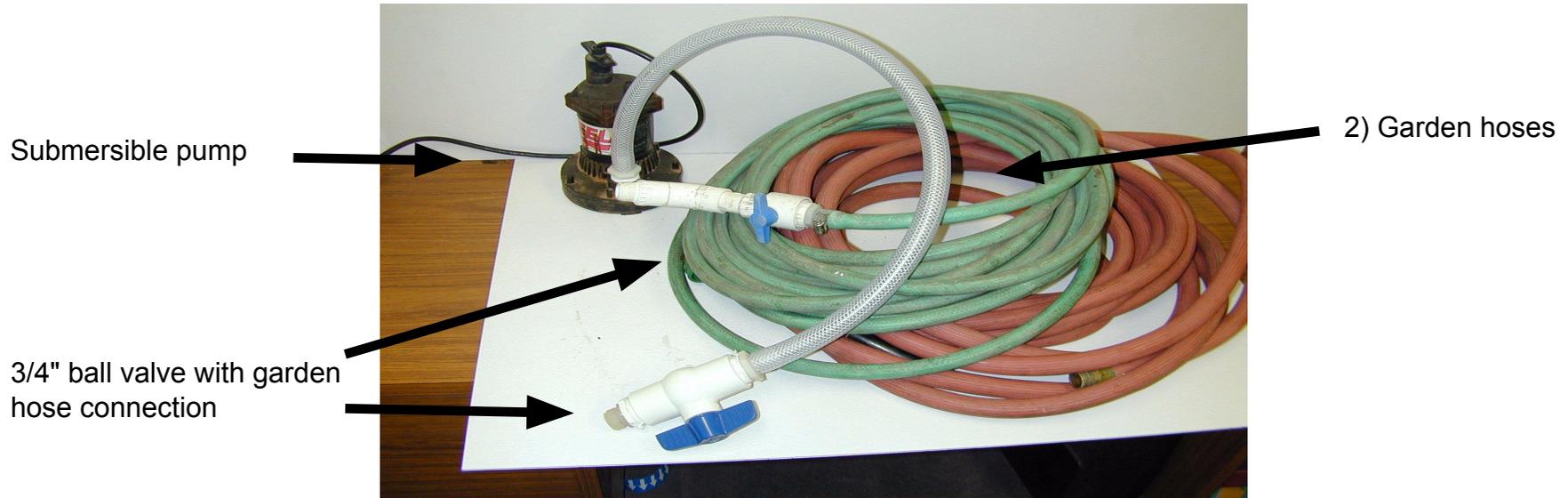
condenser screen



Apply oil here

Maintenance (cont.)

Filter Cleaning



Equipment and supplies need to clean the Bio filter.



Maintenance (cont.)

Filter Cleaning *(cont.)*

3 MONTH INTERVALS * ALLOCATE 1-1/2 HOURS

STEP 1

Unplug both electrical CORDS before starting your FILTER cleaning.

STEP 2

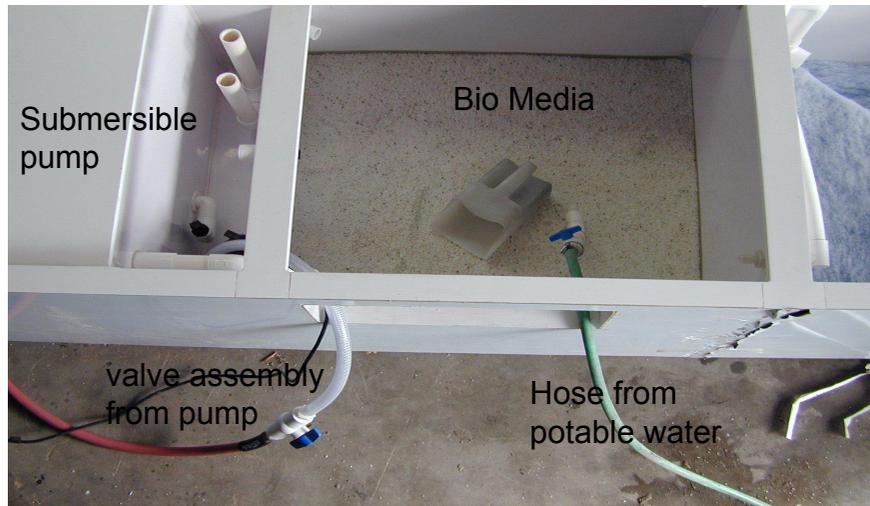
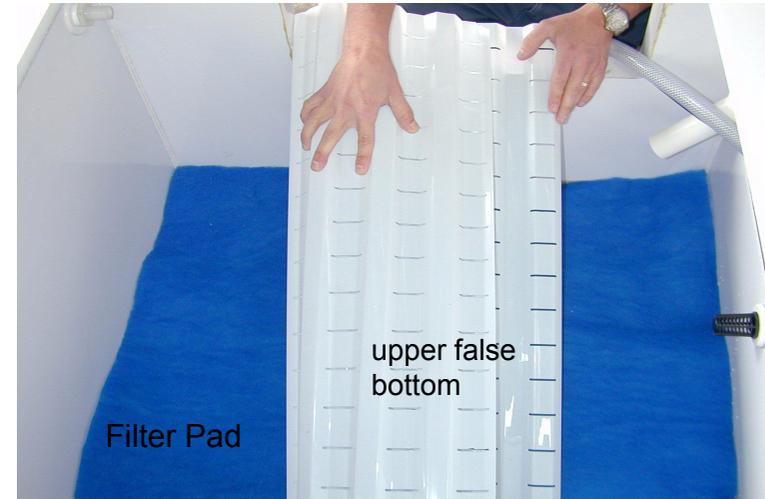
Open the SUMP access door.

STEP 3

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

STEP 4

Remove the filter pad to expose the Bio media.



STEP 5

Place your submersible PUMP into the suction side of the BAFFLE attached is the ball valve and hose assembly.

STEP 6

Attach a hose FROM the ball valve to the nearest floor sink.

STEP 7

Attach your other hose to COLD potable water.

Maintenance (cont.)

Filter Cleaning *(cont.)*

STEP 8

Plug in the submersible PUMP to drain the water.

STEP 9

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

STEP 10

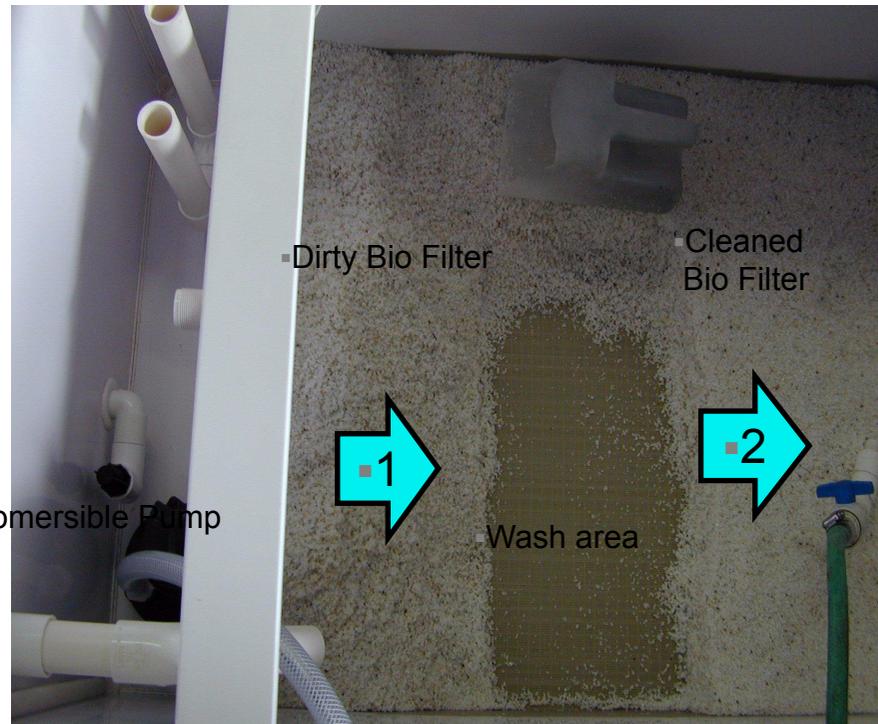
Move the Bio filter to one SIDE leaving some of the lower false bottom screen exposed. This is your WASH AREA.

NOTE - Using one or both BALL VALVES adjust the incoming water to flow in as fast as the pump removing water. NEVER let the pump run dry.

STEP 11

Wash a small section of THE Bio media in the "wash area" for about 30 seconds. Move the clean BIO MEDIA to the opposite side and start the process over.

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



▪Potable Cold Water

STEP 12

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

Maintenance (cont.)

Filter Cleaning *(cont.)*

STEP 13

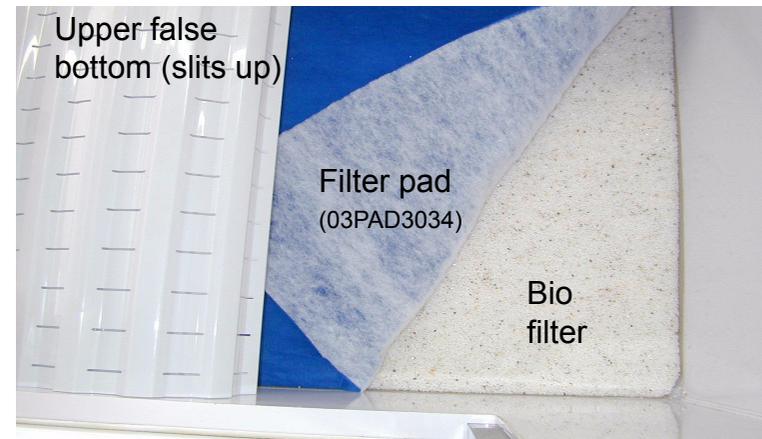
Replace the FILTER PAD.

STEP 14

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

STEP 15

Move the ball valve and hose connection from the submersible pump into the sump and disconnect the hose from the ball valve. The fresh water will now recirculate in the sump as you fill it with potable water.



STEP 16

Add the appropriate amount of SEA SALT.

STEP 17

Turn off potable water when level is at maximum height.

STEP 18

After salt has dissolved check salinity. (Aprox. 1/2 hr.)

STEP 19

Remove submersible pump then plug in the tank.

STEP 20

Wash the submersible pump with fresh water.



Sump water capacity =50 gallons

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 carbon with hot 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

Annual Maintenance Schedule (03UVK0025) parts Kit

NOTE: 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 every 6 Months. 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.

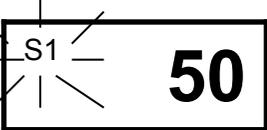
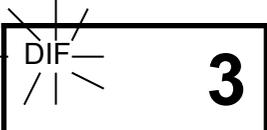
Quartz Sleeve (03QUA0025)

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

Lobster Tank Troubleshooting Guide

PROBLEM	CAUSE	REMEDY	NOTE
Water does not circulate	<ol style="list-style-type: none"> 1) No power supply 2) Pump not plugged in 3) Pump not working 4) Sump-filter low on water 5) BIO-FILTER restricted 6) Chiller frozen 	<p>Check power supplies and cords for electricity</p> <p>Add water if needed or Change filter pad and do a filter cleaning</p> <p>unplug chiller for 1 hour, ck water flow</p>	A Bio-stir may get you by for a while.
Bubbles are erratic	<ol style="list-style-type: none"> 1) Low on water in sump-filter 2) BIO-FILTER restricted 3) Intake plumbing leak 	<p>Add water if needed or Change filter pad and do a filter cleaning.</p> <p>Shut system off and check plumbing for leaks</p>	A Bio-stir may get you by for a while.
Excessive foam in sump filter or viewing tank	<ol style="list-style-type: none"> 1) Build up of organic proteins in water. 	<p>Cull for dead product or broken body parts.</p> <p>Check the water tempreture.</p>	
Animals very active	<ol style="list-style-type: none"> 1) temperature too warm. 2) Ammonia & nitrite levels too high. 	<p>(See High water temperature below)</p> <p>Cut back on loading, add bacteria, add Amquel, lower pH if above 7.6</p>	
Discolored water	<ol style="list-style-type: none"> 1) Carbon filter clogged or exhausted. 2) Ammonia & nitrite levels are high. 	<p>Change carbon</p> <p>Cut back on loading, add bacteria, add Amquel, lower pH if above 7.6</p>	Partial or total water change.
High mortality rate	<ol style="list-style-type: none"> 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. 	<p>Make sure tank capacity is not exceeded.</p> <p>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</p>	
High water temperature	<ol style="list-style-type: none"> 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. 	<p>Be sure the refrigeration unit is plugged into the proper live outlet .</p> <p>Lower thermostat setting.</p> <p>Clean condenser screen.</p> <p>Have refrigeration unit checked by mechanic</p>	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	
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	
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	
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	

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.

SPECIFICATIONS

Bivalve mullucan shellfish tank

8 non co-mingling sterilized viewing compartments

Product capacity

Molluscan shellfish	2.5 bushels	without trays
Molluscan shellfish	1 bushels	with trays

Water capacity

Sump	20 gallons	operating level
Viewing	5 gallons	spray system
Total	25 gallons	

Size

Overall viewing	55" x 20" x 10"	(L x W x H)
Sump (ID)	33" x 10" x 24"	
Sump water level	14"	
Carbon area	33" x 10.25" x 3"	

Electrical

	115 volts
Chiller	8.8 amps
recommend	20 amp breaker

Sterilization

Ultraviolet Sterilizers	25 watt
Microwatt seconds	45,000 microwatt sec @ 7 PSI



SEA WATER VISIONS GUIDELINES IN ACCORDANCE WITH THE NATIONAL SHELLFISH SANITATION PROGRAM (NSSP)

-U. S. Department of Health and Human Services-
-Public Health Services - Food and Drug Administration-

Public health controls of shellfish became a national concern in the U.S.. during the late 19th and early 20 century when public health authorities noted an increase of illnesses associated with consuming *raw* oysters, clams and mussels. Consuming these products in the RAW form became more popular not only in the U.S. but notably in European countries also.

It is our intent here at Sea Water Visions not only to meet authority guidelines but exceed them to bring a higher quality and safer product to the consumer. Listed below are definitions used in answering most frequently asked questions that follow.

Definitions:

- f* Molluscan Shellfish - All edible species of oysters, clams, mussels and scallops.
- f* Crustacean shellfish- crabs, lobsters
- f* Shellstock - Shellfish in the shell.
- f* LOT of Shellstock - A collection of bulk Shellstock or containers of Shellstock of no more than one day's harvest from a single defined growing area harvested by one or more harvesters.
- f* Depuration - The process of using a controlled, aquatic environment to reduce the level of bacteria and viruses in live shellfish.
- f* Dry Storage - The storage of Shellstock out of water.
- f* Wet Storage - The temporary storage of shellfish in containers or floats in natural bodies of water in tanks containing natural or synthetic sea water intended for marketing.

National Shellfish Sanitation Program (NSSP)

Who regulates and enforces the standards set by the NSSP?

Part II section A - This legal authority shall enable one or more departments or agencies of the STATE to regulate and supervise the source, shipment, labeling, and storage of shellfish.

Who must abide under the NSSP?

Part II section A - These controls apply to every person who handles shellfish from the point of harvest through each certified shipper and up to the retail point of sale.

What should one look for when receiving shellstock?

Part II section B - Shellfish shall be considered acceptable if shipments are properly identified (**by tag, bill of lading or label**) and cooled, shellstock to 10C (50F) or less. Shellfish shipping conditions shall be considered satisfactory of the entire cargo which include other seafood in boxes to the same or subsequent destination is acceptable only if the compatible molluscan shellfish products (oyster and hard clams or soft clams and mussels) are protected from contamination by the other cargo through partitioning, horizontal separation or other isolation methods. No other cargo may be placed on or above the shellfish unless all cargo is packed in sealed, crush resistant, waterproof containers.

Must anything be done to the shellstock before putting them into wet storage?

Part II section B.C - Excessive mud on the shell and dead shellfish may increase bacterial loads in the tanks and lead to increased microbial levels in the shellfish during storage. Hence, washing and culling the shellfish prior to storage is essential. Shellstock shall not be placed in containers of stagnant water for the purpose of washing or loosening sediment.

National Shellfish Sanitation Program (NSSP)

What does one do with the tags from each shipment?

Part II section B - This tag is required to be attached until the container is empty or retagged and kept on file for 90 days.

Are there restrictions to the way shellstock is merchandised in wet storage?

Part II section C - The design of any container used to hold shellfish shall ensure the free flow of water to all shellfish. shellstock from different areas shall not be commingled during wet storage. If more than one harvest or "LOT" of shellstock is being held in wet storage at the same time, the identity of each harvest LOT shall be maintained throughout the wet storage process.

Does the NSSP give specific criteria's to the design of a wet storage tank?

Part II section C- Careful consideration must be given to designing and operating onshore wet storage tanks to assure that shellfish are not contaminated during holding or do not die from physiological stress such as low dissolved oxygen and unsuitable temperatures or salinity. Proper hydraulic design of the tank is important to assure an adequate quantity and quality of water with minimum turbulence at suitable temperatures to achieve the intended purpose of the storage operation. Inadequate flow or "dead spots" can lead to oxygen deficiency.

Can any type of salt be used to make artificial sea water ?

No! there are main components such as Sodium Chloride, Magnesium, Calcium, Bromine, Stronrium, and other trace elements. There must be a homogeneous blend between these elements. The mix that Sea Water Visions uses comes from a computer controlled blending process for accurate consistency. This brand is the only mix recognized by the EPA.

Will the shellfish be cleaner after being in the tank?

With the proper maintenance, your system will perform similar to depuration system which will reduce the levels of pathogens in live shellfish.

Question and Answers

How does a Sea Water Visions shellfish wet storage tank work?

Potable water and specially blended salt create artificial sea water. The water spray over the shellfish. The water then flows under the trays, and down into the SUMP-FILTER.

The water circulates through several stages of filters. 1) Carbon, 2) Filter pad. 3) Dolomite 4) Filter screen. The water then enters the pump and is pushed through a 25 micron filter, clarifying the water from solid debris. (The average human eye can see 40 microns and larger.) The clarified water then recirculates through a **ULTRAVIOLET STERILIZER**, killing free floating bacteria and viruses. It does this more than 32 times every hour.

The clean, sterilized water then recirculates through the chiller which will keep the water temperature between 40F to 45F degrees. From the chiller the sterilized water returns back to the individual compartments where you have separated *LOTS* of shellstock.

NOTE: ALL THE WATER IS THOROUGHLY STERILIZED BEFORE RETURNING TO THE SEPARATED LOTS OF SHELLSTOCK NEGATING CROSS CONTAMINATION.

What is the Ultraviolet sterilizer and what does it do?

UV is an extremely effective method of disease control.. Four major factors affect the percent kill of free floating micron-organisms by UV. 1) Size of organisms. 2) Radiation level. 3) Clarity of the water and 4) Contact time the microorganisms is exposed to the UV radiation. Kill rate is measured in micro watt seconds per square centimeter.

HAZARD ANALYSIS

FDA has established action levels of concern for certain microbial pathogens in molluscan shellfish. The Agency will consider enforcement action against the shipment of molluscan shellfish if the following levels of pathogens are detected:

Pathogen identification	Critical Control Point	Killing Dose in Microwatt Seconds
<i>f</i> Salmonella	<i>f</i> Positive for the presence of the organism.	15,200
<i>f</i> Enterotoxigenic Escherichia coli (ETEC)	<i>f</i> 1,000 Per gram, Heat-Labil Toxin (LT) or Heat-Stable enterotoxin (ST) positive (may be determined by MPN method).	6,600
<i>f</i> Vibrio Cholerae	<i>f</i> presence of toxin-producing 01 or non-01 organisms	6,500
<i>f</i> Vibrio parahaemolyticus	<i>f</i> levels equal to or greater than a MPN count of 10,000 per gram and Kanagawa positive or negative.	6,600
<i>f</i> Staphylococcus aureus	<i>f</i> positive for staphylococcal enterotoxin or when the viable MPN count is 10,000 per gram.	6,600

Cooking shellfish reduces the risk of foodborne illness and that individuals with certain health conditions are at higher risk of illness if they consume the product raw.

Daily Operations – Bivalve shellfish tank

Store Level Service

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 5 minuets daily.

Page	Procedure	Frequency	Critical Limits (CL)
	Check Temperature	Daily	Between 38F - 48F
	Monitor Flow	Daily	Positive
	Remove weak or dead shellfish	Daily	
	Check UV light operation	Daily	
	Check salinity	Weekly	Between 1.018-1.30
19	Check water level / add water	Weekly	As needed
	Cleaning off algae	Weekly	As needed
10	Foam removal	As needed	
11	Siphon 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.

IMPORTANT NOTICE

When shellstock is received

- Inspect packaging and proper tagging according to NSSP
- Rinse shellstock while still in packaging under cold potable water to remove mud and other debris
- Cull for dead shellfish after washing. Many times the shells may stick together when there is insufficient moisture causing the dead to appear alive.
- Wash the removable trays where the new stock is to be placed. **(DO NOT MIX OLD STOCK WITH NEW STOCK.)**
- Siphon solid debris like sand that has settled on the bottom of the viewing tank into a bucket or sump-filter using the siphon.
- Put your merchandise into the individual compartments.
- Put shipping tags in their appropriate vinyl inserts.
- The bottom black egg crate should be sanitized before restocking.

Reminder and daily procedures:

- Cull out dead, cracked and weak shellstock daily.
- NEVER mix different lots of molluscan shellfish from different shipping tags.
- When all shellfish is sold, remove the shipping tag and write the date on the shipping tag and file.

MAINTENANCE SCHEDULE - shellfish tank

Professional Service Company

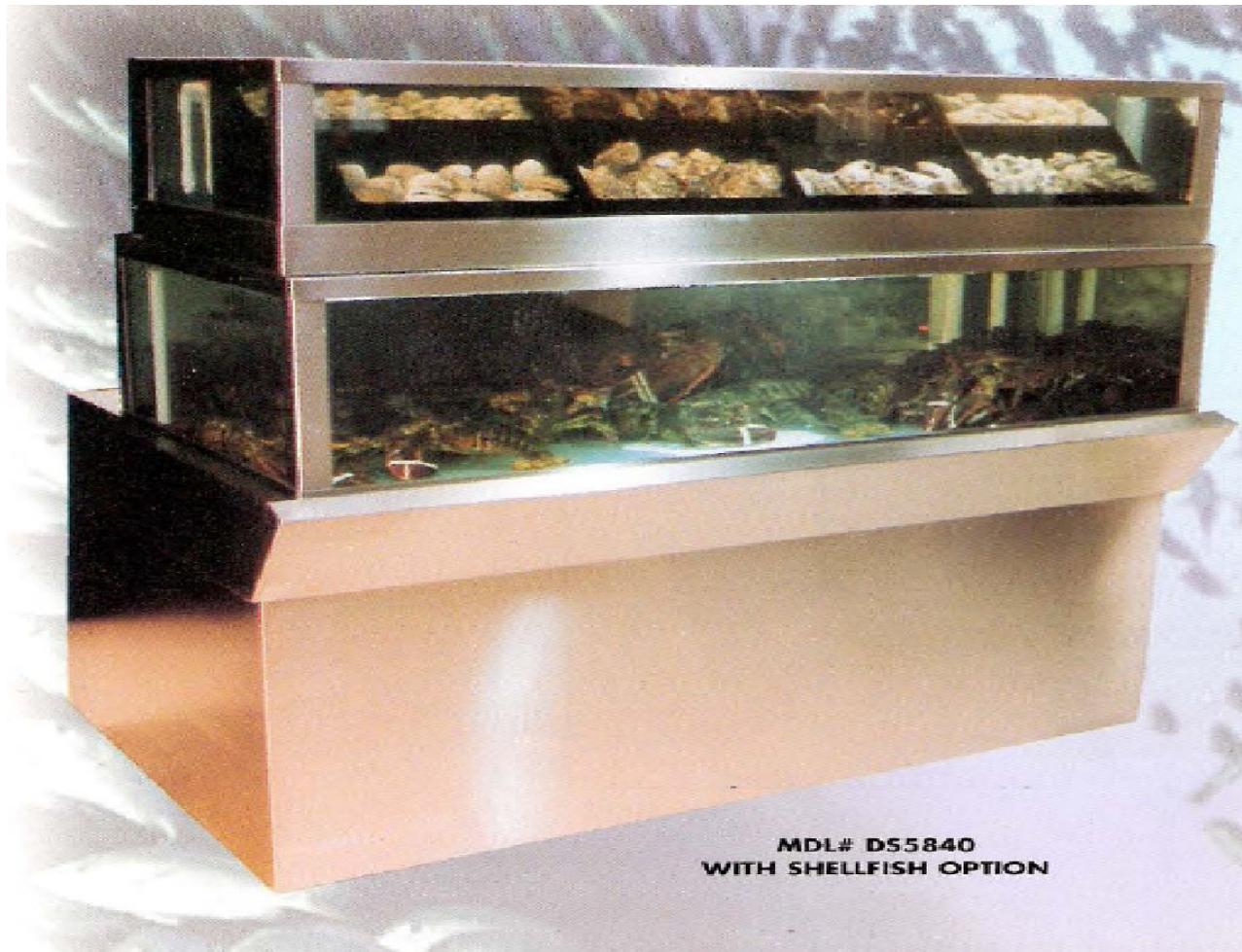
Monitoring and Maintenance MUST be done on a routine basis. The procedures are listed below and are simple to perform and are part of your HACCP plan. It is IMPORTANT that you set up a record keeping method.

Page	Proceadure	Frequency	Critical Contol Point (CCP)
	Change carbon	Monthly	
	Replace micron filter	Monthly	PSI rises above 10
	Change the filter pads	Monthly	
	Clean refrigeration condenser	Every 3 months	Temperature rises above 48F
	Oil water pump	Every 3 months	If pump becomes noisy
	Water change	Monthly	High mortality
	UV service	Every 9 Months	Light is not on
	Water commingling test	Once per year	For total submerse systems only

Shellfish Tank Troubleshooting Guide

PROBLEM	CAUSE	REMEDY	NOTES
Water does not circulate	<ol style="list-style-type: none"> 1) No power supply 2) Pump not plugged in 3) Pump not working 4) Sump-filter low on water 5) Bio-filter restricted 	<p>Check power supplies and cords for electricity</p> <p>Add water if needed or Change filter pad and do a filter cleaning</p>	Replace filter pad and wash sub-straight.
Fine bubbles spray out the return pipes	<ol style="list-style-type: none"> 1) Low on water in sump-filter 2) Bio-Filter restricted 3) Intake plumbing leak 	<p>Add water if needed or Change filter pad and do a filter cleaning</p> <p>Shut system off and check plumbing for leaks</p>	Replace filter pad and wash sub-straight.
Excessive foam in sump filter or viewing tank	<ol style="list-style-type: none"> 1) Build up of organic proteins in water. 	<p>Cull for dead product</p> <p>Check temperature</p>	
Discolored water	<ol style="list-style-type: none"> 1) Carbon filter clogged or exhausted 	Change carbon	
High mortality rate	<ol style="list-style-type: none"> 1) System may be 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. 	<p>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.</p>	
High water temperature	<ol style="list-style-type: none"> 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. 5) Chiller barrel frozen 	<p>Be sure refrigeration unit is plugged into proper working outlet .</p> <p>Lower thermostat setting.</p> <p>Clean condenser screen.</p> <p>Have refrigeration unit checked by mechanic</p> <p>Check water flow</p>	Call manufacture to see if any local dealer has a loaner to use while original chiller unit is repaired.

SHELLFISH TANK CONVERSION



MDL# D55840
WITH SHELLFISH OPTION



STEP 1

Remove the black spray bar and black pipe that is attached to the gray through tank fitting and replace it with the new venturi pipe.





STEP 2

Install the stand pipe to the through tank fitting located at the opposite side as the venturi

You will need to do a complete filter cleaning (see page 23 - 29) plus sterilization using bleach while doing the water change.