



## **Operations Manual for Single Level Lobster Systems**

### **LRO Series Lobster Tanks**

**Oceanariums, LLC  
223 Kingston Avenue  
Daytona Beach, Florida 32114 USA  
H2O@Oceanariums.com  
Tel: 386-253-9314 Fax: 386-506-8284  
[www.oceanariums.com](http://www.oceanariums.com)**



# OPERATIONS MANUAL

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## **I. SYSTEM SUPPLIES AND PARTS**

Your Oceanariums system contains everything you need to set up and operate for up to three months. The following parts are available from Oceanariums. Please contact us if you need a part not listed.

### **DESCRIPTION**

#### **TANK SUPPLIES**

LIQUID BACTERIA – 12 OZ.  
CARBON – 5 LB.  
CHLORINE/CHLORAMINE REMOVER – 8 OZ.  
HYDROMETER  
INSTRUCTIONAL DVD  
THERMOMETER – FLOATING

#### **PARTS**

1/3 HP CHILLER - COMPLETE  
ELECTRICAL DISTRIBUTION BOX  
LIDS – SET OF 2  
LOBSTER RAKE  
OZONIZER  
PRE-FILTER MODULE  
PRE-FILTER MODULE PAD  
SUMP - INSULATED  
THERMOSTAT – DIGITAL  
VENT/DOORS  
WATER PUMP – 4MDQX-SC

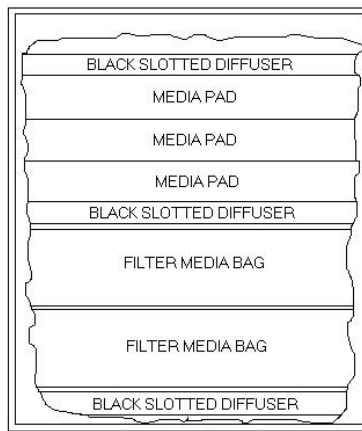
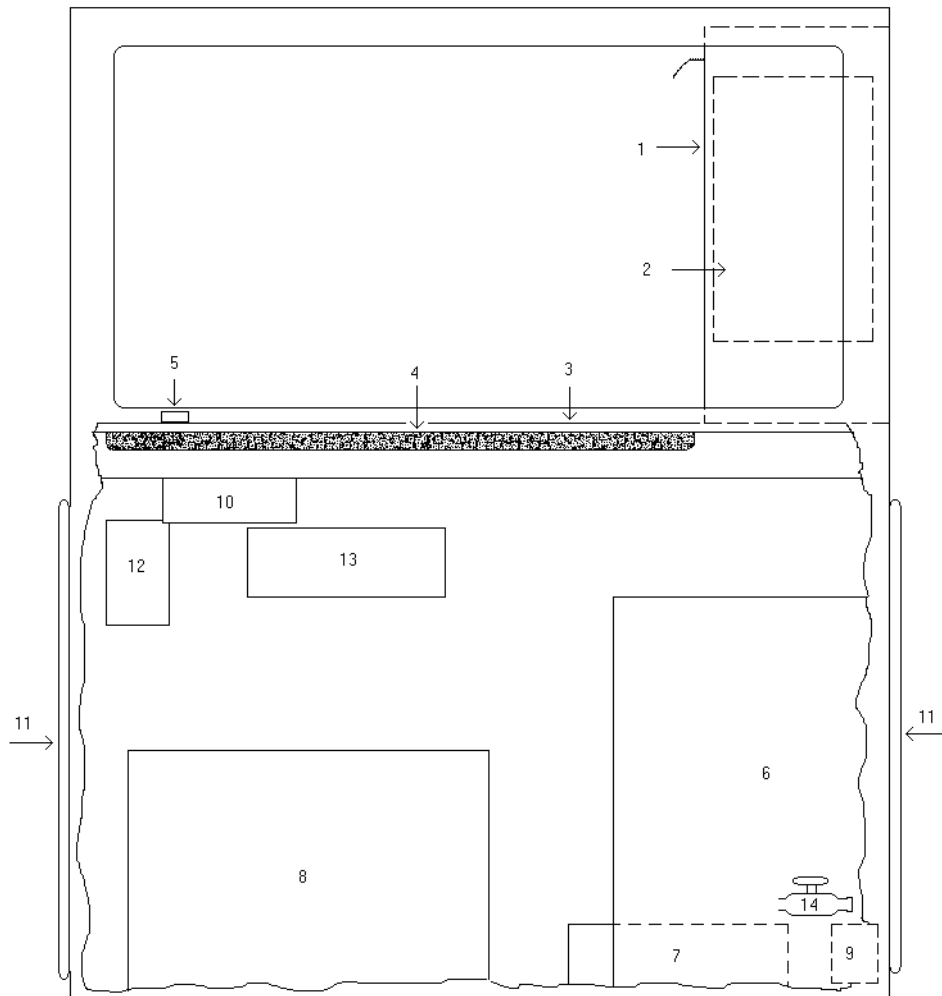
#### **MAIN FILTER MODULE PARTS**

BLACK SLOTTED DIFFUSER  
FILTER MEDIA BAG  
MEDIA PAD  
WEIR/FILTER LID TOP  
WEIR FILTER MODULE BOX  
WEIR LIP

## **II. ABOUT YOUR SYSTEM**

### **ITEM DESCRIPTIONS**

1. FOAM FRACTIONATOR/WEIR
2. MAIN FILTER MODULE
3. PRE-FILTER TOP PLATE
4. PRE-FILTER
5. RETAINER DEVICE
6. SUMP
7. WATER PUMP, 4MDQX-SC
8. REFRIGERATION UNIT
9. FOAM FRACTIONATOR WASTE RECEPTACLE
10. OZONIZER
11. VENT/DOOR
12. THERMOSTAT
13. ELECTRICAL DISTRIBUTION BOX
14. DRAIN SYSTEM



MAIN FILTER MODULE

### **III. SYSTEM SET UP**

DVD AVAILABLE. One supplied with system.

PLEASE READ THIS MANUAL BEFORE SETTING UP THIS UNIT.

**WARNING** INDICATES THREAT OF ELECTRICAL SHOCK – INJURY OR POSSIBLE LOSS OF LIFE.

**CAUTION** MEANS LOSS OF LIVESTOCK OR DAMAGE TO EQUIPMENT MAY OCCUR.

#### **A. THINGS YOU SHOULD KNOW**

##### **IMPORTANT INFORMATION ABOUT YOUR “OCEANARIUMS” SYSTEM.**

The “Oceanariums” system uses wet/dry filtration. Wet/dry trickle filtration is not a gimmick. It is “the state of the art” in aquarium filtration. Ours is applied in the form of a gravity fed multi-level filter module with bio-balls in the bottom closed sump.

Ozone is used to break down ammonia waste and dissolved organic compounds. Ozonated water is coming directly from the protein skimmer (foam fractionator) and is run through the foam pad and directly through the 5 pounds of carbon in two bags before it returns to the closed sump and is returned back to the tank via the chiller system. The carbon will remove the ozone from the fractionated water and the ozone will help improve the adsorptive qualities of the carbon by oxidizing some of the organics on the surface of the carbon. This will extend the life of the carbon to a varying degree depending on the animal bio-mass (pounds of lobster in the tank). When ozone can be detected by odor in the main tank at the end of the unit opposite the overflow, it is time to change the carbon. This could be 30 days to 60 days. A daily sniff will indicate when a carbon change is due. A small amount of ozone in the tank is OK, but carbon changing should be timely. (Must be kept in stock.) Changing 1 of the 2 bags every 30 days would eliminate the need for the sniff test. Rotate the bag position and change the bag closest to the top.

There are other aspects of water filtration that we will not get into for the sake of simplicity. None are as important as bio-filtration, and most secondary filtration serves to increase the bio-filter’s efficiency. From a technical standpoint, the “Oceanariums” systems must out perform any conventionally designed aquarium! It has all the right equipment in all the right places. By design the “Oceanariums” system will handle a larger load, gallon for gallon and should require less maintenance. This system makes the need for below the tank service almost unnecessary.

All the best equipment in place, however, does not prevent “New Tank Syndrome,” which is simply defined as too much, too quick. The nitrogen cycle cannot be rushed. There is no magic chemical or equipment that can take the place of the bacteria

responsible for bio-filtration. As with most systems in nature, it requires time and patience. **It is extremely important to follow the recommended “Loading Schedule” for your “OCEANARIUMS” system in order to firmly establish the bacteria bed and stabilize the system.** Water conditions can deteriorate quickly without the proper bacteria population. The more stable the system is kept during the “break-in” period, the better the system will perform. The Normal “break-in” period for your “OCEANARIUMS” system is 6 weeks **if you adhere to the loading schedule.**

In regards to temperature, it is true that livestock produce less waste when kept at a low temperature. It is also true that bacterial action slows at cooler temperature. The operating temperature of the system is a compromise between cold enough to keep waste production to a minimum and oxygen saturation to a maximum, but warm enough to allow rapid bacterial growth. In a conventional system, water is kept on the cold side to compensate for the inefficiency of the bio-filter. In a wet/dry system, the water can and should be kept warmer, allowing the bio-filter to operate more effectively. In the Seafood industry, the rule is “the cooler the better”. This does NOT hold true for the wet/dry system. For this reason, we recommend your system be set at 55 degrees for the 6 week “break-in” period. The temperature can then be lowered to 45 degrees if you desire, but it can be operated at 55 degrees without harming livestock.

Your “OCEANARIUMS” system has been set up and thoroughly tested at the factory. Basically, all you need to do is roll it into position, add water and salt, and plug it in. There are some basic facts that you should know about your unit’s system and how to proceed before plugging it in.

## 1. THE FILTER SYSTEM

Your “Oceanariums” system contains the most advanced filtration ever offered in a lobster tank, and it is designed to make maintenance quick and easy.

- a. A mechanical pre-filter attached to the tank floor. This large pad traps most solid debris and is easily removed for the cleaning **without** having to drain the tank. This pad also is a major bacterial deposit site. We do **recommend removing the animals.**
- b. A multi-stage chemical filter including a filter pad and activated carbon. This combination of filter media comes already installed in your system. The carbon is packed in nylon mesh bags for easy replacement.
- c. A biological filter in the sump containing a high surface area utilizing .5 cu. Ft. of bio-balls.
- d. An ozonizer to oxidize toxic waste materials including ammonia and organic waste.
- e. A protein skimmer/foam fractionator, which removes dissolved organic waste and protein whenever the water pump is in operation and these waste products are present.
- f. Your system contains an efficient, state-of-the art biological filter. It is the heart of your system. Without it, your animals would die and you would have

to do more maintenance. A biological filter utilizes living bacteria to eliminate ammonia and other toxins. This is a natural process which cannot be rushed in the beginning. What this means is that your filter requires a **BREAK-IN PERIOD** before it can handle large loads. For this reason, we will ask you to adhere to the recommended **LOADING SCHEDULE** when you first start using your system.

**NOTE:** We will also ask you to be aware that because your filter is a living organism, it can be destroyed by soaps, cleansers, chlorinated water or if you turn your system off. Damage and time will depend on animal load. By following these instructions, you will ensure that your filter works efficiently and that you will enjoy years of trouble-free performance from the entire system.

## **B. TANK LOCATION**

**WARNING:** (Electrical Shock Hazard)

1. Locate the tank near a 115 volt, 60 HZ outlet. The unit is energized by an 8 foot grounded line cord. Feed the cord through the hole in the bottom of the tank and away from traffic. **DO NOT USE AN EXTENSION CORD.**

**WARNING:** A GFI outlet is recommended.

**DO NOT PLUG IT IN** until the tank is in proper position and filled with water. The system can draw up to 13 amps, so a dedicated 15 amp circuit is required.

**WARNING:** Do not plug in tank with wet hands.

2. Orient the tank so that the tank's vent/doors are easily accessible by employees and are clear from obstructions to air flow.

**CAUTION:** 12" clearance for vent/doors is recommended for efficient cooling.

3. Be sure not to block the vent/doors on the system's lower panels. These vent/doors supply air to the cooling system. They also need to be accessible so that the system's filters and components can be serviced.
4. Make sure the floor surface is flat and level.

## **C. BEFORE FILLING TANK**

1. Unload salt and accessories.
2. Wipe off any visible dirt/contaminants that may have accumulated during shipping/storage.

3. Check that the water valves to and from tank are in the “closed” position (i.e. crossline with pipe). For location of valves see Section II, “About Your System”.
4. Your tank comes supplied with sufficient salt mix to start your tank. Not for fresh water species. When re-stocking, use only salt mixes suitable for lobster tanks or marine aquariums.

**UNDER NO CIRCUMSTANCES USE IODIZED OR KOSHER SALT FROM THE SUPERMARKET SHELVES.**

**CAUTION:** Any time salt is put directly into the tank without being properly dissolved, risk of killing the beneficial bacteria and shocking the animals will occur. We recommend pre-mixing salt in two clean five gallon buckets, mixing a small amount at a time for faster dissolving. Water can be poured back and forth between buckets and then into the tank.

**CAUTION:** Do not pour hot water into the lobster tank.

## **D. FILLING TANK**

MAKE SURE THE VALVES UNDER THE TANK ARE TURNED OFF (CROSS LINE) BEFORE FILLING. This will make the sump level accurate after the tank is filled and the water is allowed to overflow the weir into the sump.

1. Fill the tank until the water flows over the weir and the sump is 1/2 full of water. This will include the salt already mixed by bucket transfer. If your tap water is warm, ice may be added to “quick-chill” the water. This will allow you to use the tank more quickly. Add ice in a separate container with water. Adding ice directly to tank may be hazardous to tank walls. **TURN THE VALVES ON AT THIS TIME** (inline with pipe).
2. We recommend adding a chlorine/chloramine removing agent to the water upon initial set-up, and any time water is added to the system. An initial supply is included in the start-up kit supplied with your new system.
3. Plug system in as instructed in Section B. Turn power switch on. Verify that water is flowing into the tank and that refrigeration unit is running. Any cloudiness in the water will soon disappear as the salt dissolves and the carbon dust is filtered out. A small amount of black residue may appear on the filter grid. This is harmless and will be dispersed by the filter system.
4. Locate thermostat: Small gray box connected to electrical outlets.
5. Check that the thermostat is set at 55 degrees. (NOTE: Pressing the **SET** key twice will show the setting.) We recommend 55 degrees during the initial 6 week break-in period to enhance the growth of the bacteria and establish a strong, healthy bacteria bed. After the break-in period, you may lower the thermostat to 45 degrees. To do this, do the following steps:
  - a. On the gray thermostat, press the **SET** key, it should display **F** for Fahrenheit.

- b. Press the **SET** key again, the current setting will show. Press the ↓ key to lower the temperature or the ↑ key to increase the temperature.
  - c. Don't press any other keys and the unit will automatically reset to the temperature you indicated after 30 seconds. If further information on thermostat programming is required, please see complete programming steps at the back of this manual.
6. Do not plug in O<sub>3</sub> (ozone) transformer at this time. We recommend waiting to plug the transformer in after the lobsters have been in the tank for at least 24 hours.

NOTE: Initial set up or re-set up only.

Plug in the O<sub>3</sub> transformer into the outlet marked ozone. The red light on the ozone generator should come on at this time. Turn the master power switch back on.

7. Stir up to dissolve salt more quickly. After one hour, measure salinity with your hydrometer by filling hydrometer with tank water and noting where the arrow points. Make sure there are no bubbles attached to the arrow. (They will cause a false reading.) Hydrometer reading should be between 1.020 and 1.025. 1.020 is recommended. Follow instructions on hydrometer for use.
8. Add bacteria to tank after proper salinity is reached. Use 1 level teaspoon to start and one level teaspoon when adding lobsters until supply is exhausted. Note: Do not add bacteria more than 24 hours prior to introducing animals. There is nothing for the bacteria to eat and they will die. Bacteria will die when the amount of lobsters in the system is reduced. Leaving the system without any animals for several days can result in an insufficient supply of bacteria. If this occurs, you should follow the loading schedule on the back of your system as if it were just being started. Of course, bacteria must be added with the lobsters.

We recommend adding bacteria:

- a. when adding lobsters to the system.
- b. after changing carbon and/or after a major clean-out of filters.
- c. after a major water change.

Some slight cloudiness or “milky” appearance may occur after adding bacteria and/or after a sudden increase/decrease in amount of lobsters. This is the bacteria doing its job and adjusting to the load. Just allow the system to stabilize itself. This may take 1-5 days and will not harm the animals. The colder the system, the longer this condition may exist.

## IV. OPERATIONS AND MAINTENANCE

### A. ADDING ANIMALS

1. **Loading schedule** – Since your biological filter is brand new, it cannot handle large loads until it is **PROPERTY BROKEN IN**. This process takes 4 to 6 weeks and **CANNOT BE RUSHED**. A recommended loading schedule is shown below. A similar schedule is printed on a label attached to the side of the tank. (Different models have different schedules.)

#### CAUTION!

LOADING SCHEDULE	36LRO	48LRO
1 <sup>ST</sup> Week – no more than	12 lbs.	15 lbs.
2 <sup>ND</sup> Week – no more than	15 lbs.	20 lbs.
3 <sup>RD</sup> Week – no more than	18 lbs.	30 lbs.
4 <sup>TH</sup> Week – no more than	30 lbs.	45 lbs.
5 <sup>TH</sup> Week – no more than	45 lbs.	70 lbs.
6 <sup>TH</sup> Week – no more than	60 lbs.	80 lbs.

#### CAUTION!

If the tank must be loaded at a faster rate than this recommended schedule, you run the risk of a toxic ammonia build up. This may require a complete water change, (see page 9, “Filling Tank”) or a major partial water change (see page 14, “Partial Water Changes”).

2. **Purging animals** – Lobsters which have been kept in shipping containers for more than three hours should be purged (cleaned) to avoid contamination in the tank. Locally supplied animals which have recently (hour or two) come from your vendors’ holding systems don’t need this procedure but still require close inspection. The easiest way to clean your lobsters is to take salt water from the system and put it in a clean shallow pan or lug. Fill enough of the pan to cover the animals which are to be cleaned. Submerge the animal and gently move it back and forth underwater to dislodge accumulated debris and allow the animal to purge itself. Leave the animal in the purge water for 1 to 2 minutes.  
**CAUTION:** ANIMALS WITH CRACKED SHELLS, MISSING CLAWS OR OTHER OBVIOUS WOUNDS SHOULD **NOT** BE PLACED IN THE TANK. THEY WILL FOUL THE SYSTEM. **CAUTION:** Never use fresh water to wash crabs or lobsters. This will kill them. Once all animals have been placed in the tank, **discard the water** used to clean the animals. Make up a new quantity of salt water (1 1/2 pounds salt per five gallons water) in the pan and pour it into the tank once the salt is dissolved (see page 14, “Partial Water Changes”).

## **B. REPLACING YOUR CARBON – EVERY 30 DAYS**

### **NOTE: RINSING OLD CARBON DOES NOT WORK**

Replace your carbon every 30 days and record the change so that other personnel can be aware of the change time. We recommend only one bag at a time be changed as this also contains a large quantity of beneficial bacteria.

For your convenience, the filter module box is removable so that you can change it at the sink or other remote location. When rinsing pads, remember, do **not** use tap water. Use some saltwater from the tank in a bus pan or lug. Do not over wash the pads as this will remove all of the bacteria. Discoloration of pads is normal.

#### ○ TOP LOADING FILTER MODULE

The FILTER MEDIA MODULE contains 3 filter pads and 2 mesh bags of activated carbon.

- a. Slide the tank lid next to the weir (black part) over the open end lid.
- b. Remove the weir lid and lip from the overflow to the sump. The overflow lip lifts up. Place it on top of the lid. **DON'T LOSE IT!**

NOTE: The entire filter media module is removable for your convenience for service in a remote area (like a sink). However, individual components may be serviced at the lobster tank with the module remaining in place.

- c. Remove the black slotted diffuser and place it on the lid.
- d. The three filter pads are a combination of pre-filters and bacterial deposit sites. Remove pads and, if necessary, rinse them in a small amount of system water from the tank.
- e. Discard salt water used to rinse and replace with fresh saltwater from your walk-in cooler, pre-mixed saltwater buckets or freshly mixed saltwater.
- f. Remove carbon bags and refill with new carbon of the same grain size. (Bulk carbon is available in 5 pound containers from Oceanariums) Do not use coffee ground or diatom filter sized carbon as this will pass through the bag and ruin your system. Note: pre-pack bags may be supplied by a warehouse and are designed to work in this system. In any case, rinse the carbon thoroughly before re-inserting the new carbon in the module.
- g. Look at the filter module diagram (insert page number) to see the proper stacking method for the filter media. Reinstall the components in the module in order and keep the carbon bag or bags level by smoothing during installation.
- h. Now check the sump level to see if you need to add saltwater to replace any you have lost during the cleaning procedure.

DO NOT OVER PACK FILTER! LEAVE SPACE ABOVE FILTER PAD FOR DIFFUSER AND WEIR LIP. REMEMBER TO INSTALL WEIR LIP AIMING INTO THE FILTER MODULE.

## C. CLEANING PRE-FILTER MODULE

The pre-filter module traps most of the solid waste products, which build up in your system. It should be cleaned every six months or as required depending on bio-load. Since your pre-filter module also contains a large quantity of beneficial bacteria, we recommend that you **not** rinse it in fresh tap water. The recommended procedure is as follows:

1. Remove lids and place in upright position. Remove livestock from tank.
2. Roll a clean pan or lug over to the tank and partially fill it with water from the system.
3. Open retainer and remove pre-filter module.

**NOTE:** If any dirt is rinsed off the pad during removal, it is automatically trapped in the filter media module on top, which is easily cleaned (see Section B, 1d).

4. Slide out filter pad retainer and remove pad. Do not discard pad. It is reusable and should last several years with proper care.
5. Rinse in the pan with system water and replace.
6. Discard dirty water and replace with fresh mixed saltwater in lobster tanks. (Conditioned freshwater in trout tanks). Pad does not have to be perfectly clean to operate properly. Just get the major waste off of the pad. Discoloration will not affect the operation of the pad.
7. Replace pad and filter pad retainer as removed. Make sure pad is evenly distributed in filter tray for best efficiency. Reinstall pre-filter module.

### **CAUTION:**

Do not force the pre-filter module during reinstallation. Make sure retainer is open.

### **CAUTION:**

Pre-filter module goes only one way. Retainer will be opposite weir.

## D. THE CLOSED SUMP SYSTEM

When you look at the end of your tank with the cutout vent/door, the white insulated box immediately under the weir is the sump. The sump allows you to maintain a constant water level in the tank even when you remove or add lobsters to the system. You may notice that when you add lobsters to the system, the sump level increases and just the opposite happens when you remove lobsters. Try to keep the water level between the high and low water

levels and the system will work fine. An indication that the sump needs saltwater added would be lots of fine bubbles in the tank accompanied by a swooshing sound coming from the pump. The system will continue to operate but not as efficiently. Check your sump level daily, it only takes a second. Remember that the sump contains a great number of bacterial deposit sites on the bio-media and is a major source of oxygenation so over filling is not recommended either. Just keep it between the fill lines.

## **E. CLEANING FOAM FRACTIONATOR**

The foam fractionator removes dissolved proteins and organics by separating them from the water stream and dripping them into the foam container. This process helps keep your system clean and your pH balanced. It works as long as the water pump is pumping and the ozone injection line is kept clean. To keep your fractionator operating properly, follow these steps:

1. **Cleaning foam waste container.** Remove foam waste from waste container in tank bottom as required. Rinse container and replace. This container may be replaced with a flex-hose to a convenient floor drain.
2. **Under the tank.** A small sponge filter is fit over the air intake of the ozonizer. Please rinse and replace this when dirty. If no bubbles are in the foam fractionator section, cleaning the sponge will restore operation. After washing the sponge, make sure it is not wet when reinstalling.

## **F. PARTIAL WATER CHANGES (Shut off System during this procedure)**

1. You will be doing partial water changes when you are purging your lobsters with water removed from the tank. You will also need to do partial water changes if you have a problem with the tank. Partial water changes help to remove toxins in the water such as ammonia and nitrites, which can kill lobsters in the case of overloading.
2. Remove access vent/door from sump side to drain.
3. You will see drain valve and cap located next to the sump. Before removing drain cap, make sure that the valve is turned off (cross line).
4. Remove brass cap and attach garden hose.
5. Open valve (handle must be in-line with pipe to be open) and water will start draining providing the garden hose end is lower than the water level of the tank. Under most circumstances, you will not change more than 25% of the water. Have a dedicated "lobster tank" bucket, which has not been used or exposed to soaps, chemicals, etc. You can use this bucket to drain the water into, purge your lobsters in and premix the salt or, if you prefer, drain the water into a sink or floor drain.
6. Since saltwater is required for purging and maintenance of your system, it is helpful to have two 5 gallon buckets with lids available at all times. These can be pre-mixed with lobster salt. The 16 oz. cup supplied will get you close for 4 gallons of saltwater. Label the buckets and keep them covered in your

walk-in cooler. That way they will be ready at a moments notice. Don't forget to refill them with new water and salt mix for next time.

## G. REFRIGERATION UNIT

**CAUTION:** Your refrigeration unit should be inspected by your refrigeration company yearly or as needed.

## H. ALGAE REMOVAL

Algae are plants that grow fastest in lighted areas. Lobster or fish waste provides the fertilizer for algae growth. Algae growth can be controlled by:

1. Eliminating excess light
2. Eliminating fertilizer (Good carbon and ozone helps remove this.)
3. Wiping it off as it occurs.
4. A soft bristle toilet brush works nicely for getting all the nooks and crannies clean. Algae growth, brown or green in color, is a natural occurrence in healthy tanks. Simply wipe it off with a **clean** rag or non-dissolving paper towel. Keep the tank looking clean. An unsightly tank can hurt your lobster sales and reflects on your store.

## I. CLEANING EXTERIOR

Wipe down outside glass and laminate daily or as needed. We recommend cleaning with fresh water only. If you must use a cleaner, **DO NOT** spray it onto the tank. Spray it first on your cleaning rag and then wipe down the tank using caution not to drip the cleaning rag into the tank.

## J. MAINTENANCE SCHEDULE

1. Daily
  - i. Check animals for movement and damage
  - ii. Check sump water level
  - iii. Check protein skimmer cup
  - iv. Check salinity when purging lobsters (1.020)
2. Monthly
  - i. Change carbon
  - ii. Check for salt accumulation under tank
  - iii. Clean algae from glass
  - iv. Clean outside of unit
  - v. Check for ozone smell
  - vi.
3. Yearly or as needed
  - i. Have refrigeration company inspect refrigeration unit

## V. TROUBLESHOOTING

<b>PROBLEM</b>	<b>D. Solution/Suggestion</b>
The water has a bad odor	<ul style="list-style-type: none"> <li>• Look for dead animals</li> <li>• Change the carbon (rinsing doesn't work)</li> </ul>
The water is milky but doesn't have a bad odor	<ul style="list-style-type: none"> <li>• This may be a bacterial bloom, give it a couple of days without doing anything to allow the tank to stabilize.</li> </ul>
The water is green	<ul style="list-style-type: none"> <li>• Remove light source if possible</li> <li>• Change the carbon (rinsing doesn't work)</li> </ul>
The water is brown	<ul style="list-style-type: none"> <li>• Make sure you are purging your lobsters</li> <li>• Change the carbon (rinsing doesn't work)</li> </ul>
Foam on top of water	<ul style="list-style-type: none"> <li>• Look for dead or dying lobsters (Check tank morning and evening)</li> <li>• Be sure foam fractionator is working</li> </ul>
Temperature is too hot	<ul style="list-style-type: none"> <li>• Make sure you have adequate water flow</li> <li>• Make sure thermostat is in "cool" mode</li> <li>• Clean off "fur coat" from condensor. Brush with the fins with a soft bristle brush</li> </ul>
Poor water flow	<ul style="list-style-type: none"> <li>• Change carbon (rinsing doesn't work)</li> </ul>
Nothing is working	<ul style="list-style-type: none"> <li>• Be sure unit is plugged into a good working outlet (preferably a GFCI outlet)</li> <li>• Be sure electrical distribution box's switch under tank is in the "on" position</li> </ul>
Lobsters are dying – turning upside down	<ul style="list-style-type: none"> <li>• Too much ammonia in tank, add bacteria and keep a stable load of lobster in tank (a 25% partial water exchange will help)</li> </ul>
Lobsters are dying – not turning upside down	<ul style="list-style-type: none"> <li>• Check salinity of water, should be approximately 1.020</li> </ul>
No matter what, lobsters keep dying	<ul style="list-style-type: none"> <li>• Check for foreign objects in the tank, i.e. pennies, candy, etc.</li> <li>• Make sure make-up water is not coming from germicidal tap in sink</li> <li>• May have a contaminant in tank, will need to do a complete water change. Must then treat tank as if new and needs break in period as initially set up</li> </ul>
No ozone smell	<ul style="list-style-type: none"> <li>• Check to see that transformer is plugged in</li> </ul>
Strong ozone smell	<ul style="list-style-type: none"> <li>• Make sure carbon is changed (not rinsed) every 30 days (50% change ok)</li> <li>• Turn down ozonizer</li> </ul>

As with any mechanical part, sometimes an unavoidable defect will occur. Please contact Oceanariums at 1-386-253-9314 if you need additional help.