

OPERATING MANUAL

BIO-WHEEL® LIVE SEAFOOD DISPLAY AND HOLDING SYSTEMS

ML-400BW, 406BW, 410BW



IMPORTANT SAFEGUARDS

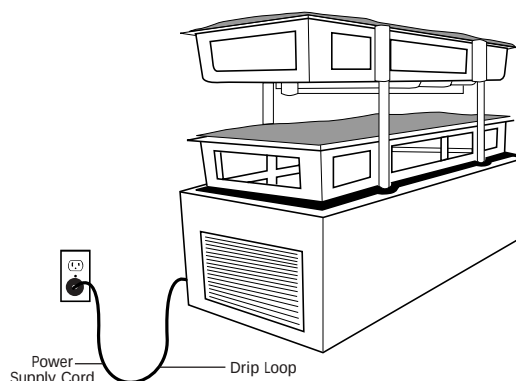
WARNING – To guard against injury, basic safety precautions should be observed, including the following:

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

DANGER – To avoid possible electric shock, special care should be taken in the use of aquarium equipment. For each of the following situations, do not attempt repairs yourself; contact an authorized service facility for service.

1. A. If an appliance falls into the water, DON'T reach for it! First unplug it and then retrieve it. If electrical components of the unit get wet, unplug this equipment immediately.
- B. If the equipment shows any sign of abnormal water leakage, immediately turn off power at main disconnect.
- C. Carefully examine the equipment after installation. It should not be plugged in if there is water on parts not intended to be wet.
- D. Do not operate any equipment if it has a damaged cord or plug, or if it is malfunctioning or if it is damaged in any manner.

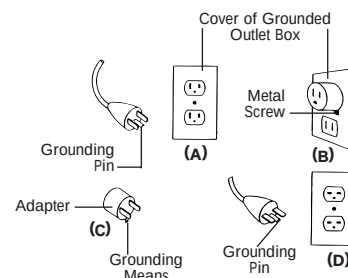
E. To avoid the possibility of the plug or receptacle getting wet, position tank to one side of a wall mounted receptacle to prevent water from dripping onto the receptacle or plug. A "drip loop", shown in the Illustration at right should be arranged by the user for each cord connecting equipment to a receptacle. The "drip loop" is that part of the cord below the level of the receptacle or the connector, if an extension cord is used, to prevent water traveling along the cord and coming in contact with the receptacle. If the plug or receptacle does get wet, DON'T unplug the cord. Disconnect the fuse or circuit breaker that supplies power to the appliance. Then unplug and examine for presence of water in the receptacle.



2. Close supervision is necessary when any equipment is used by or near children.
3. To avoid injury, do not contact moving parts or hot parts such as heaters, reflectors, lamp bulbs, etc.
4. Always unplug this equipment 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.
5. Do not use an this equipment for other than intended use. The use of attachments not recommended or sold by the appliance manufacturer may cause an unsafe condition.
6. Do not install or store the equipment where it will be exposed to the weather or to temperatures below freezing.
7. Make sure any appliance mounted on a tank is securely installed before operating it.
8. Read and observe all the important notices on the equipment.
9. If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less ampere or watts than the equipment rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

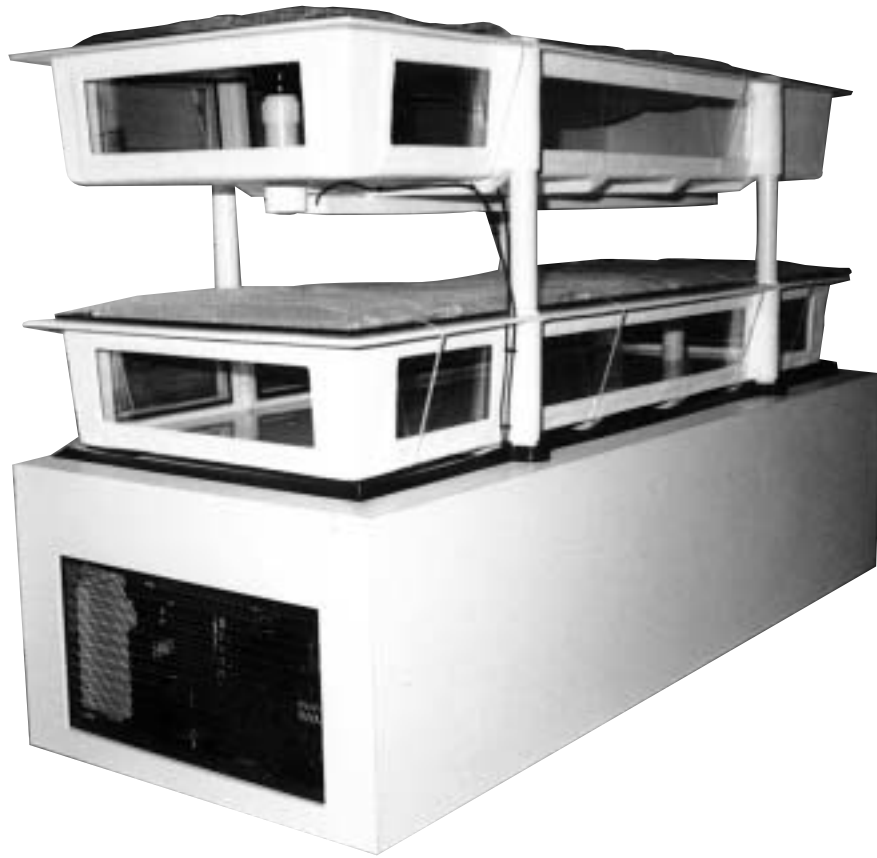
10. This equipment should be grounded to minimize the possibility of electric shock. This unit is equipped with an electric cord that has an equipment grounding conductor and a grounding type plug. The plug must be plugged into an outlet that is installed and grounded in accordance with all appropriate codes and ordinances.

11. This equipment is for use on a nominal 120 volts circuit, and has a grounding plug that looks like the plug illustrated in (A). A temporary adapter which looks like the adapter illustrated in (B) and (C) may be used to connect this plug to a two pin receptacle as shown in (B) if a grounded outlet is not available. The temporary adapter should be used only until a grounded outlet can be installed by a qualified electrician. The green colored rigid ear (lug and the like) extending from the adapter must be fastened to a permanent ground such as a grounded outlet box.



SAVE THESE INSTRUCTIONS

THE MARINELAND 400 SERIES



This manual will provide you with the information you need to successfully operate and maintain your BIO-Wheel System. Please read it carefully and keep it for future reference.

The Marineland BIO-Wheel Series is a line of easy-to-maintain refrigerated systems for displaying and holding large loads of live seafood. Their dual mechanical/chemical filtration and powerful commercial BIO-Wheel wet/dry biological filter ensure optimum water quality at all times. And the compact plumbing design allows for convenient self-contained installation.

Special Features...

- Unless otherwise requested, all BIO-Wheel Systems feature a thermostatically controlled **refrigeration unit**. It is capable of maintaining tank temperatures of 45°–70°F and can be preset to the exact temperature required by the system.
- The **UV Sterilizer** helps stop the spread of free-swimming bacteria, algae spores and disease throughout the system. Water enters the UV Housing, surrounding the lamp where it is exposed to UV light. This exposure destroys the DNA of the organisms, preventing them from reproducing. After exposure, water exits and is returned to the system.
- The **Foam Fractionator** employs heavy aeration to remove organic matter from the tank in the form of foam. The foam is flushed from the system and deposited into a floor drain or waste receptacle.

Inside the ML-400, 406 and 410BW System...

In this closed system, water is automatically introduced to the system from beneath the filter bed. Chilled to proper temperature by the refrigeration coils, prefiltered water is pumped from the reservoir and filtration bed beneath the BIO-Wheel Filtration Module through the UltraViolet(UV) Sterilizer and upward through the Foam Fractionator and into the upper Holding Tub. From here it is routed down (through a second Tub in the 406BW and 410BW models) to the BIO-Wheel Filtration Modules.

Water is mechanically prefiltered through the Master Prefilter Pad and passes to the BIO-Wheel Filtration Modules, where it is filtered mechanically and chemically by the Carbon Filter Packs in each module. Containing one pound of Magnum Premium Activated Carbon, each Pack adsorbs dissolved organic compounds that cause odor and discoloration.

Passing through the Filter Media Trays, water spills onto the BIO-Wheel Wet/Dry Biological Filter mounted below. Because system flow causes it to rotate, the BIO-Wheel is constantly exposed to both water and air, thus developing a thriving culture of aerobic nitrifying bacteria. This bioculture efficiently oxidizes all ammonia and nitrite on contact.

From the BIO-Wheel(s), prefiltered water re-enters the reservoir for recirculation through the filter bed and back through the system.

THE SYSTEM

ML-400BW SPECIFICATIONS

Dimensions:

120" L x 48" W x 36" H

Holding Tubs:

Refrigeration/Filtration (1)
Product Holding (1)

Recommended Load:

Lobster: 500 Lbs.

Filtration:**Mechanical Filtration:**

One 17½" x 38" Polyfiber Pad

Chemical Filtration:

Four Filter Packs containing
1 lb. Magnum Activated
Carbon each

**Wet/Dry Biological
Filter:**

Four CBW-1 Commercial
BIO-Wheels

UV Treatment:

Aqua-Fine DW-8 Ultraviolet
Sterilizer

***Installation
Connections:*****Electric Supply #1:**

115 VAC., 60 Hz, 15 AMP

Electric Supply #2:

220 VAC., 60 Hz, 15 AMP

Recommendation:

20 AMP Dedicated Circuit

Sump Drain:

1/2" PVC Pipe

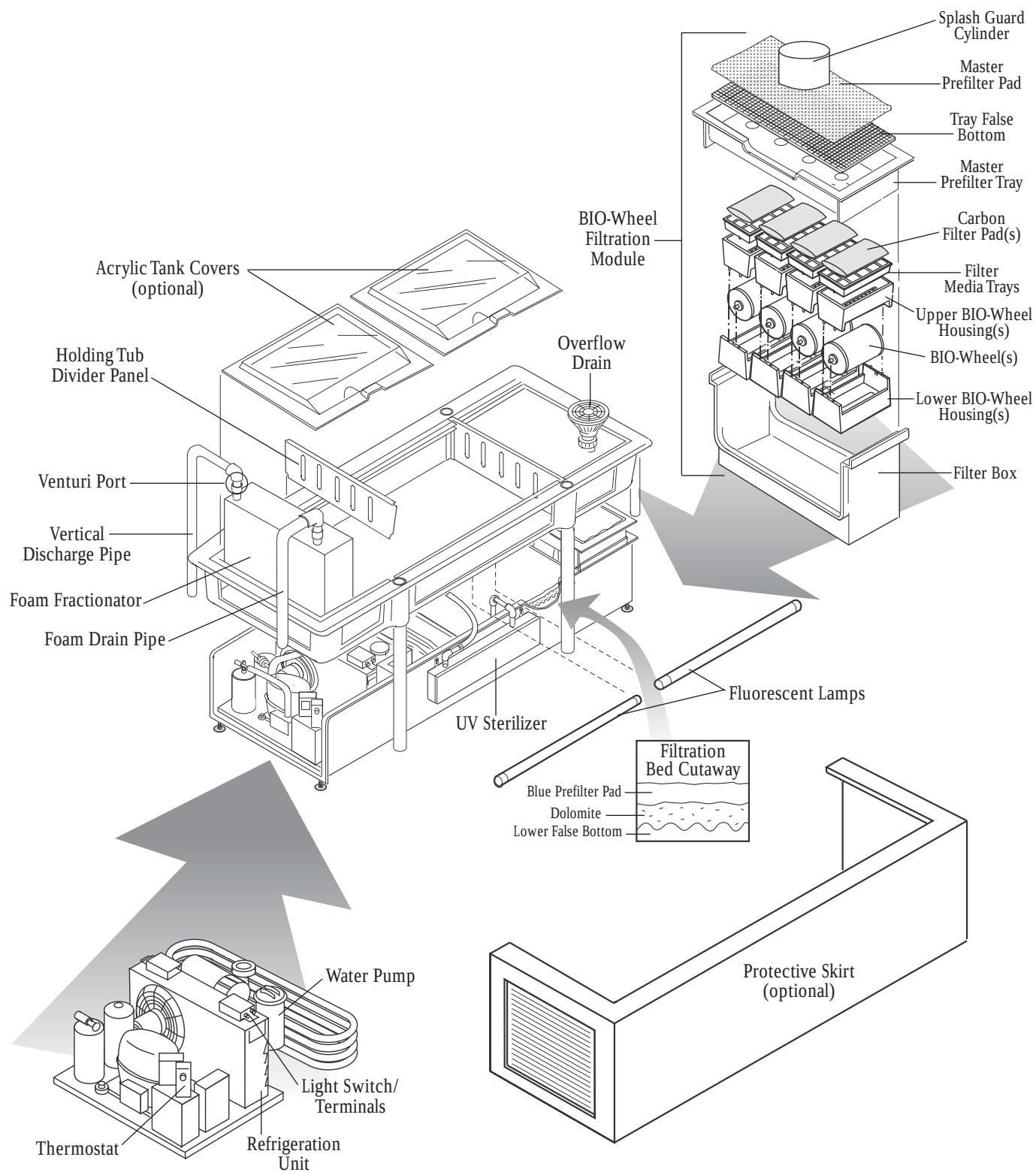
**Foam Fractionator
Discharge:**

Dedicated or Container

Refrigeration:

1/2 HP Compressor with
Helical Heat Exchanger

ML-400BW EXPLODED VIEW



THE SYSTEM

ML-406BW SPECIFICATIONS

Dimensions:

72" L x 48" W x 60" H

Holding Tubs:

Refrigeration/Filtration (1)

Product Holding (1)

Recommended Load:

Lobster: 250-300 Lbs.

Filtration:**Mechanical Filtration:**

One 17½" x 38" Polyfiber Pad

Chemical Filtration:

Four Filter Packs containing

1 lb. Magnum Activated

Carbon each

**Wet/Dry Biological
Filter:**

Four CBW-1 Commercial

BIO-Wheels

UV Treatment:

Aqua-Fine DW-8 Ultraviolet

Sterilizer

***Installation
Connections:*****Electric Supply:**

115 VAC., 60 Hz, 15 AMP

Recommendation:

20 AMP Dedicated Circuit

Sump Drain:

1/2" PVC Pipe

**Foam Fractionator
Discharge:**

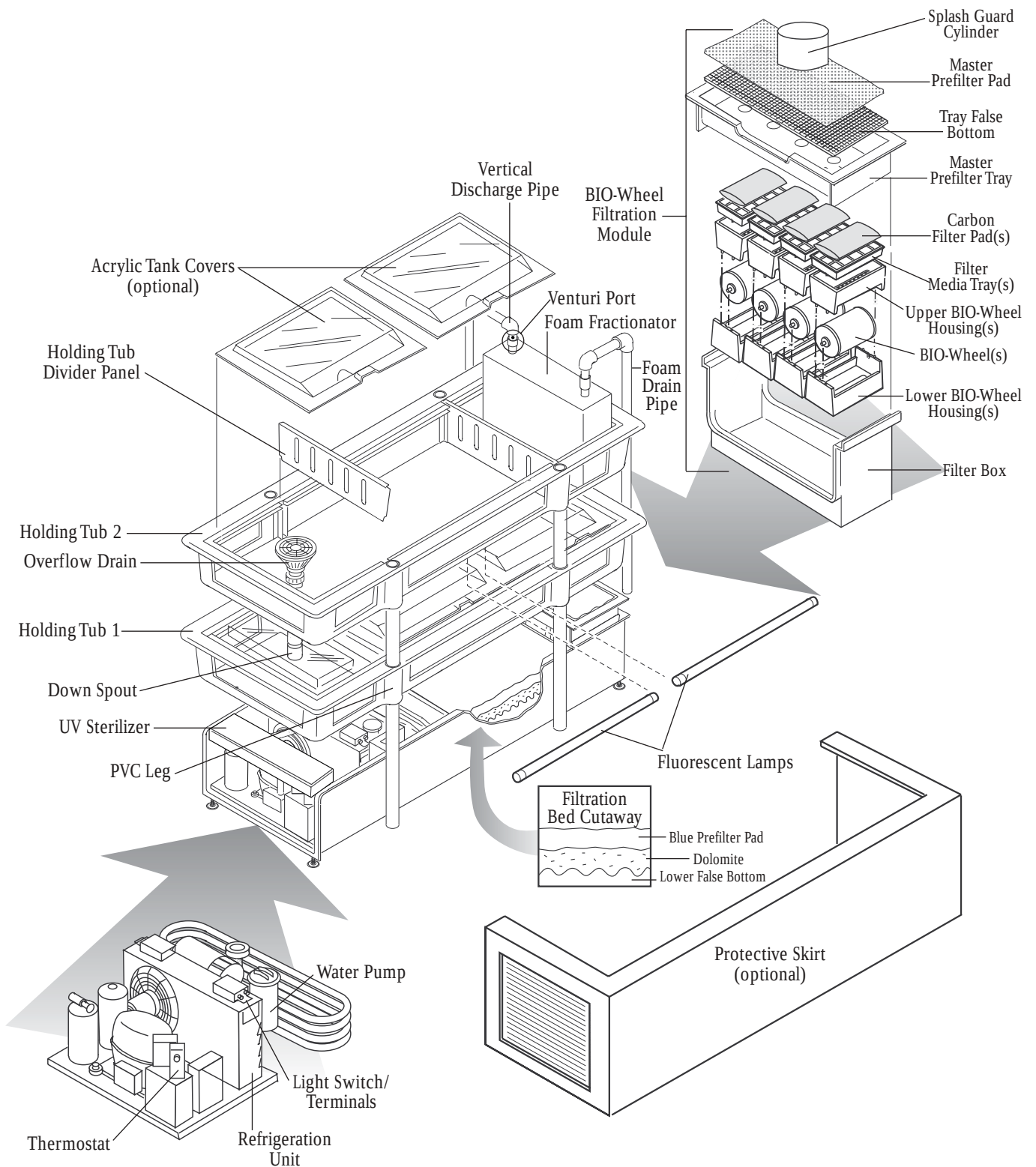
Dedicated or Container

Refrigeration:

3/4 HP Compressor with

Helical Heat Exchanger

ML-406BW EXPLODED VIEW



THE SYSTEM

ML-410BW SPECIFICATIONS

Dimensions:

120" L x 48" w x 60" H

Holding Tubs:

Refrigeration/Filtration (1)
Product Holding (2)

Recommended Load:

Lobster: 1,000 Lbs.

Filtration:**Mechanical Filtration:**

One 7½" x 38" Polyfiber Pad

Chemical Filtration:

Four Filter Packs containing
1 lb. Magnum Activated
Carbon each

**Wet/Dry Biological
Filter:**

Four CBW-1 Commercial
BIO-Wheels

UV Treatment:

Aqua-Fine DW-8 Ultraviolet
Sterilizer

***Installation
Connections:*****Electric Supply #1:**

115 VAC., 60 Hz, 15 AMP

Electric Supply #2:

220 VAC., 60 Hz, 15 AMP

Recommendation:

20 AMP Dedicated Circuit

Sump Drain:

1/2" PVC Pipe

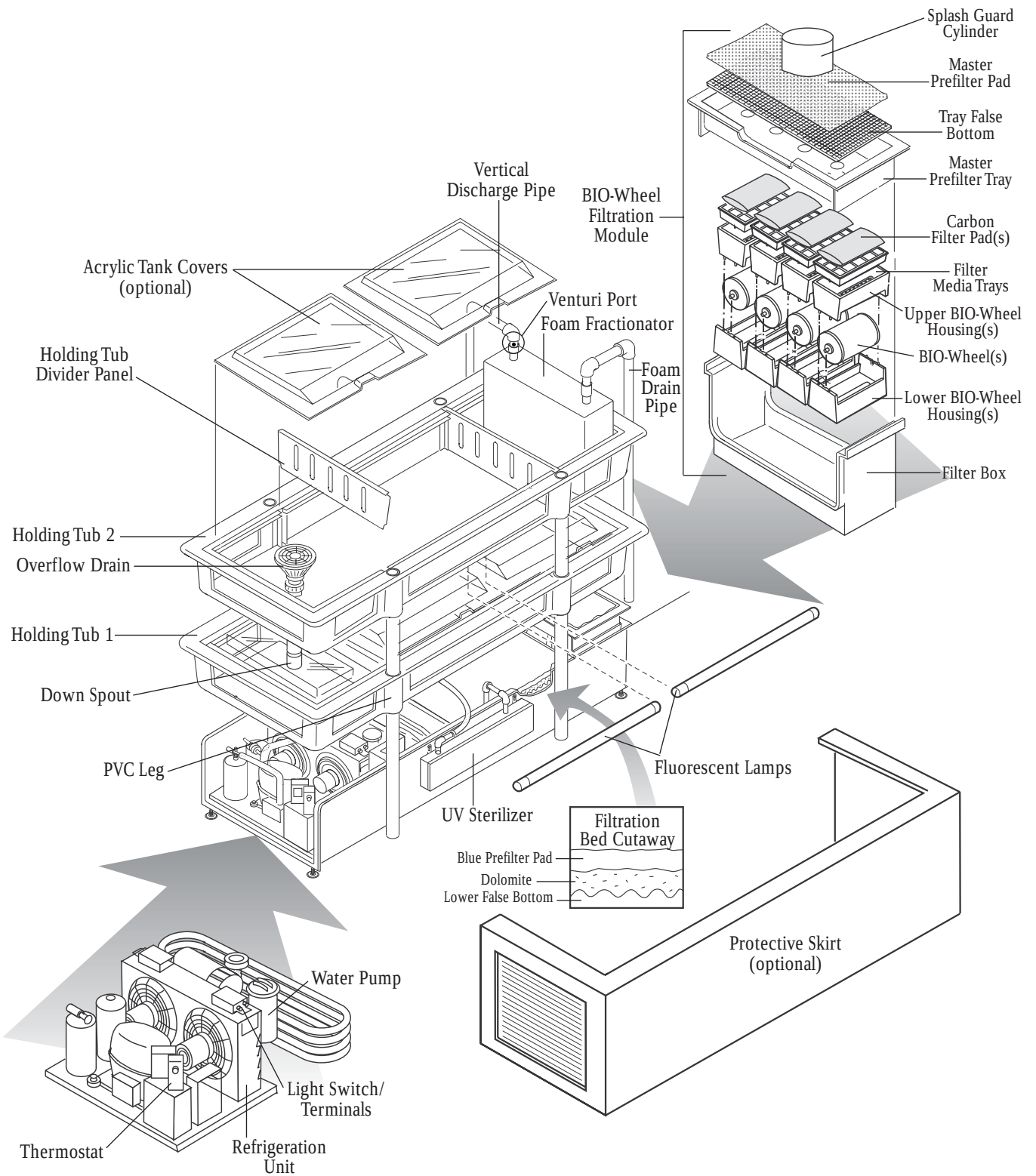
**Foam Fractionator
Discharge:**

Dedicated or Container

Refrigeration:

2 HP Compressor with
Helical Heat Exchanger

ML-410BW EXPLODED VIEW



INSTALLATION

The following simple steps are required to get your system up and operational. Consult exploded views for any necessary clarification.

Holding Tub Preparation

1. Locate unit near a 110–120 volt and 220 volt grounded outlet (both with a 20 amp dedicated circuit). For ease of filling, Holding Tub should rest near a water faucet with garden hose threads. For convenient draining of Tub and Foam Fractionator overflow, locate end of the Tub (where Foam Drain Pipe exits) near a recessed floor drain.



WARNING: Do not attempt to operate unit on extension cord or non-grounded circuit.

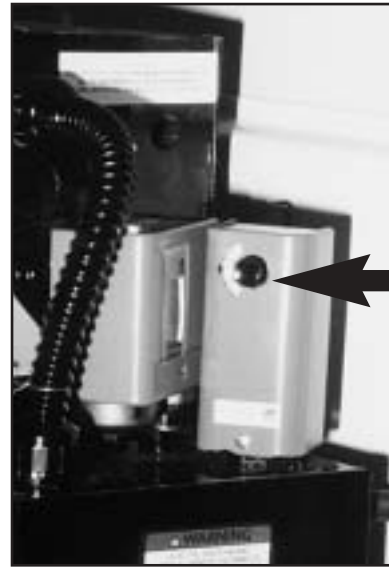
Do not handle or connect plug with wet hands.

2. Make sure access to bottom Holding Tub is not obstructed. It houses filters, thermostat, on/off switch, drains and other components.
3. Unpack Foam Fractionator, accessories, supplies and upper false bottom from Base Filtration Tub. Tub arrives semi-assembled. Gravel, salt and supplies are shipped separately.
4. Make sure electrical connection to U.V. Disinfection Unit is secure and that light boxes (if included) can be plugged into outside source.

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5. Set thermostat (see exploded for location) for 50° F.



FILTRATION PREPARATION

IMPORTANT: Your system contains five types of filters

1. *Mechanical* – Filter pads to screen out solid waste particles.
2. *Chemical* – Premium Activated Carbon to adsorb dissolved contaminants, discoloration, odors, toxic gases.
3. *Biological* – BIO-Wheels and Dolomite filter bed to remove toxic ammonia and nitrites and help maintain pH balance.
4. *Foam Fractionator* to drive organic matter from water.
5. *U.V. Disinfection Unit* to eliminate waterborne bacteria and viruses.

NOTE: Ammonia (produced from animal waste and respiration) is the biggest killer of aquatic animals. For this reason, biological filtration is critical.

A biological filter is a *living* filter...aerobic beneficial bacteria that consume animal waste products and convert toxic ammonia to non-toxic nitrate. When properly maintained, it keeps your product alive and healthy, your water clear. When a biological filter is overtaxed or abused, water clarity and product longevity will be affected.

Use of *precultured* BIO-Wheels (optional) means no need for a lengthy (6-8 week) break in period. Your bacteria culture is in place, ready to go to work. Product can be immediately loaded and displayed.

We recommend that you make an effort to keep your lobster population relatively constant. Beneficial bacteria breathe oxygen, but consume ammonia. No animals, no ammonia. No ammonia, no bacteria.

NEVER use soap or cleansers in or around tank.

NEVER leave tank turned off for long periods of time.

NEVER let a BIO-Wheel or gravel bed dry out.

Prior to system startup, follow the few easy steps outlined below to get your system ready for operation. Refer to the exploded views for additional clarification.

Please Note: BIO-Wheel Filtration Modules for all models are located underneath the Holding Tub(s) in the Filtration/Refrigeration Tub (see explodes).

1. Remove Splash Guard Cylinder. Set aside.



2. Remove Master Prefilter Tray. Set aside.

3. Remove packaged Carbon Filter Packs from each BIO-Wheel Module.



4. Unwrap Carbon Filter Packs and place inside Filter Media Trays.

NOTE: *Before installing, gently shake cartridge to distribute carbon. Be sure to rinse Carbon Filter Pack thoroughly in cold, clean water until water runs clear.*



5. Reinstall Master Prefilter Tray. Place polyfiber Master Prefilter Pad inside.



6. Replace Splash Guard Cylinder.

Filtration Bed

1. Pour one inch of Biological Filter Material II (Dolomite) onto Lower False Bottom and spread evenly over entire surface.



2. Open Drain Valve and run water through the Dolomite (with drain open) to flush out all dust.

NOTE: *Close drain valve when finished.*

To drain bottom Holding Tub: Connect a separate drain hose over end of horizontal discharge pipe (see exploded) and secure with hose clamps. Plug water pump in and discharge dirty water from bottom Tub to a drain or waiting bucket. Unplug pump.

3. Lay one blue Prefilter Pad (blue side up) on top of Dolomite.

NOTE: *If Prefilter Pad begins to float once system is filled with water, roll pad up and under water and wring out air bubble – or place a handful of Dolomite on each corner of pad to anchor it.*



SYSTEM ASSEMBLY

1. Insert four long legs into underside of Holding Tub 1. Fit Tub 1 Assembly into place atop bottom Holding Tub. Overflow drain should be located directly above BIO-Wheel Section in bottom Tub. Be sure legs and Tubs fit together securely and that Tubs are level.



ML-406 and ML-410 Only: Secure short PVC legs into underside of Holding Tub 2. Fit Tub 2 Assembly in place atop Tub 1. Tub 2 Overflow Drain should be in position at end opposite of Tub 1 Overflow Drain. Be sure legs and Tubs fit together securely and Tubs are level.

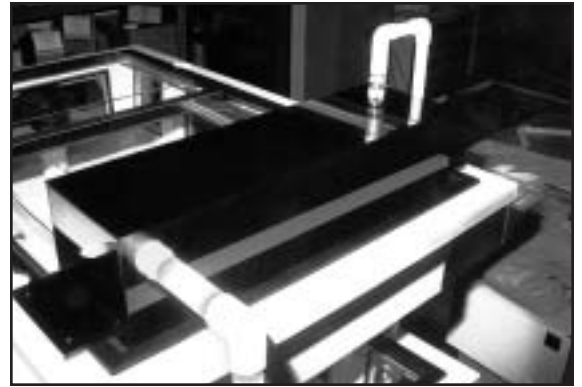
2. Fit Down Spout(s) into position on underside of Holding Tub(s). Push firmly into position.



3. Fit Overflow Standpipe with strainer inside Holding Tub. Push both firmly into place.



4. Position Foam Fractionator in topmost Holding Tub at end of tank opposite Overflow Drain and fasten (using supplied screws) to Tub “lip”.



5. Slide Vertical Discharge Pipe through hole(s) in lip at end of Holding Tub(s). Using supplied hose and clamps, connect upper end of Discharge Pipe to Foam Fractionator.



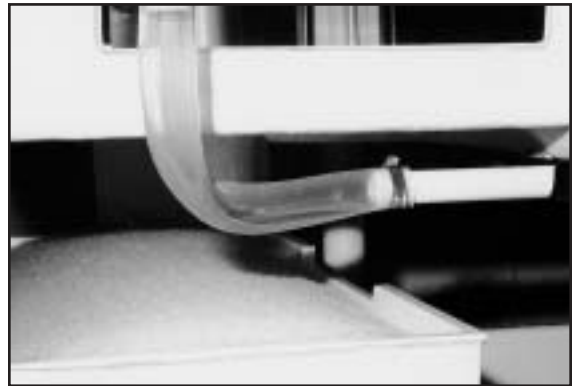
6. **Model ML-400 only:** Using flexible tubing, connect Vertical Discharge Pipe directly to Water Pump Outlet.



Models ML-406, 410 only: Slide Horizontal Discharge Pipes through straps on underside of Holding Tub 1 (middle). Using hose clamps, connect flexible tubing on Pump Outlet to Discharge Pipe.



Using flexible tubing (supplied), connect outlet end of Horizontal Discharge Pipe to Vertical Discharge Pipe. Secure with Hose Clamps.



7. Position Foam Drain Pipe (from Foam Fractionator) into floor drain or bucket.



SYSTEM STARTUP

For Saltwater Systems Only: Add recommended amount (see below) of powdered sea salt mix to Holding Tub. Save remainder to adjust salinity at a later time.

Never pour powdered sea salt directly into the Holding Tub when lobster are present.

Note: *When filling, run water through salt to dissolve it faster.*

Water Volumes and Sea Mix Amounts

<u>Model</u>	<u>Gallons</u>	<u>Salt</u>
ML-400	358	95 lbs.
ML-406	315	84 lbs.
ML-410	558	149 lbs.

Always use Hydrometer to verify salinity.

1. Pour salt into topmost Holding Tub and introduce water directly to salt.
2. Prime Water Pump. Remove Strainer Housing Cover. Fill Housing with water and secure Cover.
3. When all Holding Tubs are full, start system. **NOTE:** *For 406 System plug power cord into 110–120V dedicated outlet and turn switch on.*

NOTE: *For 400 & 410 System, use on/off switch or circuit breaker.*

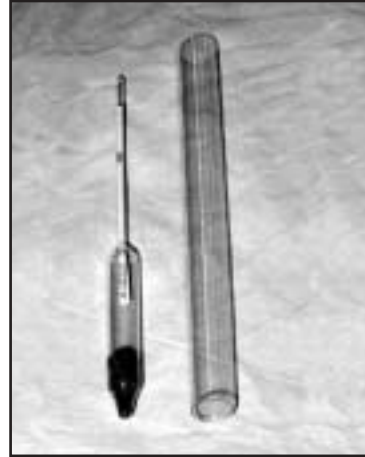
Never attempt to plug in unit unless hands and plug are absolutely dry.

NOTE: *Some carbon and Dolomite dust may cause initial cloudiness. This will clear in about two hours.*

MEASURING SALINITY

After your system has been running for about two hours and water is clear, it is time to measure the tank's salt level.

1. Remove hydrometer from plastic tube.



2. Rinse plastic tube and fill it with water from tank.
3. Place hydrometer in tube and tap tube lightly so that hydrometer floats.

NOTE: *You may also float hydrometer in tank.*

4. Read scale on tube. Reading should be between 1.020 and 1.025. If the reading is below 1.020, add salt; above 1.025, drain some water and replace with fresh water. 1.022 is ideal.

When replacing water lost due to evaporation, simply add cold, clean tap water.

If water is removed for a specific purpose, e.g. to dip lobsters or clean Holding Tub, new salt and water will be needed.

Remember...Never pour new salt into Holding Tub(s) if lobsters are present. Use a clean container to dissolve salt (approximately 1.5 lbs of salt to every 5 gallons of water).

Always wait for salt to dissolve before taking hydrometer reading.

INSTALLING BIO-WHEEL

BIO-Wheels are the newest innovation in live seafood holding system filtration. A BIO-Wheel is the ideal culture site for beneficial bacteria...bacteria that eliminate toxic ammonia on contact.

If you have ordered a precultured BIO-Wheel, it will be delivered in a separate container on a prearranged date. At this time, you should first assemble and install the BIO-Wheel Module and then add product.

Remember...the BIO-Wheel Filtration Module for the ML-400, 406 and 410 models is located in the Sump Chamber of the Filtration/Refrigeration Holding Tub.

1. Remove Splash Guard Cylinder. Set aside.
2. Remove Master Prefilter Tray. Set aside.
3. Remove Carbon Filter Packs from each BIO-Wheel Module. Set aside.
4. Lift out all four Filter Media Trays and set aside.
5. Remove all four Upper BIO-Wheel Housings. Set aside.



6. Place precultured BIO-Wheels in Lower Housings. Tray guides will ensure correct positioning.



7. Place Upper BIO-Wheel Housings over BIO-Wheels and on top of Bottom BIO-Wheel Housings.

NOTE: *Housings are not interchangeable. Holes in Upper Housing allow water flow to BIO-Wheel.*



8. Reinstall Filter Media Trays and place Carbon Filter Packs inside.

NOTE: *Before installing, gently shake cartridge to distribute carbon. Be sure to rinse Carbon Filter Pack thoroughly in cold clean water until water runs clear.*

9. Reinstall Master Prefilter Tray. Make sure polyfiber Master Prefilter Pad fits snugly inside.
10. Replace Splash Guard Cylinder.
11. Restart system.

ADDING ANIMALS

Lobsters

Set salinity. Adjust water temperature (50°F). Before introducing new lobsters into the system, dip each lobster and rinse it thoroughly in a bucket of saltwater. Dipping removes accumulated shipping debris and prevents lobsters from fouling tank.

**Never use freshwater for lobster dips...
it will kill them.**



For best results, rinse water should be taken from the established display tank, discarded after use and replenished according to guidelines on pg. 19.

MAINTENANCE

Routine maintenance must be performed. The procedures listed below are neither difficult nor time consuming. They will keep your system clean and your stock healthy. Failure to follow these simple maintenance steps will adversely affect system performance. This could lead to premature failure of some components and loss of stock. We recommend setting up a maintenance log to track procedure completion.

Daily

Check tank for fatalities and weak or damaged stock. Remove immediately.

Check Water Pump and BIO-Wheel Operation

Observe flow of water to the BIO-Wheel Assembly. Make sure that water flow to the BIO-Wheel is not blocked or restricted in any way. The BIO-Wheel should rotate freely and remain wet at all times. Speed of rotation is not important. If a BIO-Wheel is turning - regardless of the rate - it is working.

NOTE: *A properly cultured BIO-Wheel is brown or discolored. There is no reason to clean a BIO-Wheel or replace it - unless it is damaged. If removed from the system, make sure that it is kept moist and exposed to air until you reinstall it. If a BIO-Wheel is allowed to dry out or is inadvertently exposed to a contaminant, the bioculture may be destroyed. A precultured replacement can be purchased directly from Marineland Customer Service (see back page).*

If water level is low and/or flow, interruption is evident, make sure all Inlet Valves are open and check Pump Inlet (in Sump) for obstructions. If no obstructions are found, consult Troubleshooting Guidelines section in this manual.

Never Run Pumps Dry!

This will cause them to fail and results in costly replacement.

Every Two Weeks

Clean or replace BIO-Wheel Master Prefilter Pad and replace Carbon Filter Packs.

Clogged filters do not collect waste. Uncollected waste is returned to the Holding Tub(s) and will reduce system efficiency. In addition, keeping the Master Prefilter Pad and Carbon Filter Pack clean and unrestricted is critical to the successful operation of the BIO-Wheels. They must receive clean, prefiltered water to keep their bacteria healthy and thriving.

To change Prefilter Pads and Carbon Filter Packs, follow the instructions in the preceding “Installing BIO-Wheel” section. Rinse or discard used pads. Replace Carbon Filter Packs and rinse out Filter Trays before replacing.

Wipe down all exterior casing surfaces

A vinegar/water solution (3 tablespoons vinegar to a pint of water) may be used with a clean rag or paper towel. *Never* use chemicals, soaps, detergents or harsh abrasives on any part of the system. ***Do not use cleaners inside or near the tanks at any time.***

Warning: Never spray insecticides within 20 feet of your tank system. The resulting contamination could kill your fish and destroy your biological filter. If you must use insecticides, be careful to turn off the system and cover the open sump until the odor has cleared from the area completely. And don't forget to turn the system back on.

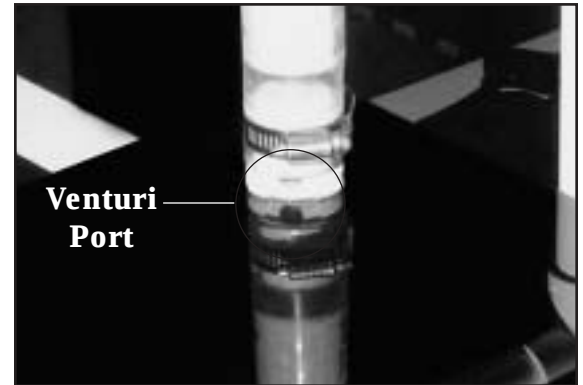
Inspect display tank and sump for algae growth.

Algae spores enter the system naturally via tank inhabitants and light allows them to grow. Although your system's UV Sterilizer works to eliminate algae spores, the more light you have, the greater the potential for algae growth. To remove algae, simply wipe inside tank surface with a cloth, algae scraper or acrylic cleaning pad. ***NEVER*** use soap or metal scouring pads. Maintain a separate cloth only for the tanks. It should be kept clean and isolated from other departments so that it does not get contaminated by multiple task use.

Every Two to Three Months

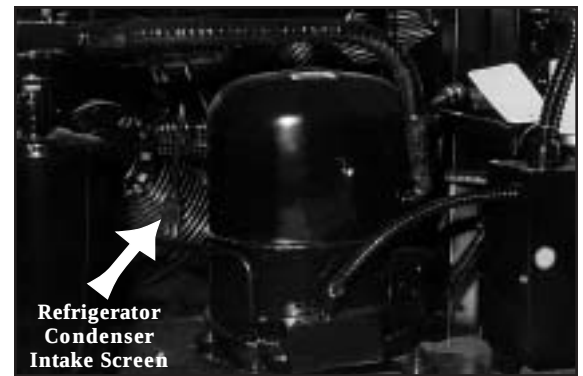
Clean Venturi Port

The Foam Fractionator draws aeration through a small air inlet called a Venturi Port (located in pipe entering top of Foam Fractionator). Clean with a pipe cleaner or small bottle brush.



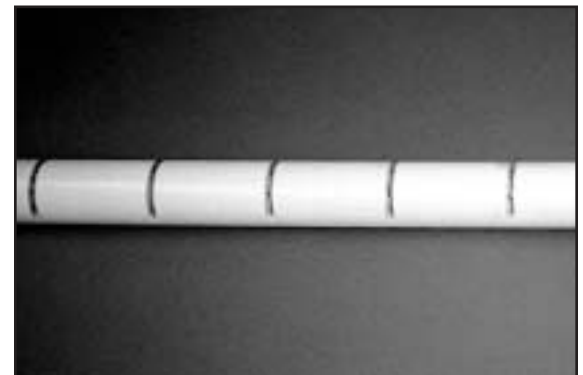
Clean Refrigeration Unit Condenser Intake Screen

To guard against overheating and system failure, Refrigeration Condenser Intake Screen should be brushed or vacuumed clean. This eliminates accumulated dust and prevents clogging.



Clean Water Pump Intake Strainer

The Intake Strainer stops large particles from entering the Water Pump. To clean, turn off pump and use filter pad material to wipe intake slots free of debris.



Clean Clear Acrylic Tank Covers (optional)

Tank Covers can become dirty with salt deposits or algae. Use a dedicated pad and rinse with clear fresh water. **Do not** use abrasive pads.

Clean Behind Protective Skirt (optional)

Slide Skirt away from bottom Holding Tub to wipe areas clean with damp, dedicated cloth.

Every Six Months

Drain and Clean Filtration Bed

1. Remove animals from Holding Tubs.
2. Turn Water Pump and Refrigeration Unit off.
3. Remove Prefilter Tray and BIO-Wheel Module Housing.
4. Drain bottom Holding Tub by disconnecting flexible tubing that connects Horizontal and Vertical Discharge Pipes. Slip your own hose over end of Horizontal Discharge Pipe. Plug in Water Pump to discharge water from bottom Tub into a drain. Do not operate pump when dry.
5. Carefully roll up Filtration Bed Pad. Remove and discard.
6. Wash gravel with cold tap water. Rake gravel to one side and rinse it back. Repeat from end to end.
7. Plug pump back in and discharge dirty water. Repeat until water appears clear. Do not operate pump when dry.
8. Once Filtration Bed is clean, place new filter pad over filter bed. Add salt and water (page 19).
9. Reinstall BIO-Wheel Module Housing and Prefilter Tray.
10. Check salinity and temperature. Allow tank to operate for three hours before reintroducing animals.

SPECIAL SERVICING–U.V. DISINFECTION UNIT

Every month to three months...

Clean UV Disinfection Unit Quartz Sleeve

The Quartz Sleeve will develop a layer of scum on its surface which can reduce UV Lamp effectiveness. Scum should be cleaned off on a regular basis. Consult the enclosed Operations Manual for instructions.

NOTE: *We strongly recommend that all servicing of the U.V. Disinfection Unit for the Marineland ML-400, 406 and 410 BW's be performed by a qualified technician or trained associate. If you or your staff are not familiar with aquatic filtration systems design and installation, call Marineland Customer Service for a service referral.*

Every nine months...

Replace UV Disinfection Unit Lamp

(Replacement Lamp provided with your new system).

The UV Lamp has a useful service life of about 9 months. After this time— whether it continues to appear functional or not – it must be replaced. Consult the enclosed Operations Manual for instructions.

NOTE: *When changing UV Lamp, always clean Quartz Sleeve.*

As Needed

Replace Fluorescent Display Lamp (optional)

1. Dry hands thoroughly.
2. Turn light switch off and disconnect light terminals adjacent to switch.



3. Reaching under Lamp Hood, grasp Lamp firmly in center, pull forward and away from Outer Housing Clamps.



4. Free Lamp Cord from Routing Clamps and slide Lamp out from Outer Housing.



5. Remove Lamp Shiel “Boot”.

6. Using an Allen Wrench, unscrew End Bolt and carefully slide fluorescent Lamp from Lamp Shield.



7. Carefully grasp Lamp at one end. Press out and lift up to remove Inner Housing Mounts. Discard used Lamp.

8. Install new Lamp by gently pressing ends into Inner Housing Mounts. Reverse process to restore Lamp to operation.



TROUBLESHOOTING GUIDELINES

CAUTION: *Some of the corrective procedures recommended below may require professional attention. For a service referral, call Marineland Customer Service 1-800-322-1266*

If entire system abruptly shuts down...

- Reset circuit breaker in main electrical panel.
- Check to make sure unit is plugged in (ML-406).
- Make sure Master Switch is turned on.

If water turns yellow or odors develop...

- Replace Carbon Filter Pack.
- Make sure U.V. Sterilizer is operating properly.
- Check Protein Skimmer for clogged Discharge Tube.

If a BIO-Wheel fails to rotate...

- Inspect Prefilter Pad and Carbon Filter Pack for clogging. Clean or change as needed.
- See if BIO-Wheel is obstructed. Check for unimpeded rotation and reinstall.
- Ensure that Filter Module Sump is not overfilled. Check Return Tube for obstruction.

If water flow to BIO-Wheels stops or flow is sluggish...

- Inspect Pump Inlet Strainer in Sump. Clean and/or remove any debris or obstruction.
- Make sure Pump is plugged into proper outlet, motor fan is turning and all valves are open (parallel to direction of flow pipe).
- Check Filter Pads and replace if impacted.
- Call Customer Service if problem persists

If water temperature is too low or too high...

- Check Thermostat setting.

NOTE: *Thermostat reading may differ from measured Holding Tank temperature... adjust thermostat as required and monitor Holding Tank temperature with thermometer, allowing 3-4 hours for temperature to stabilize before checking again.*

- Make sure that power cord to Refrigeration Unit is plugged into proper outlet.
- See that Thermostat is at desired temperature level and is not damaged.
- Inspect Intake Vents and Condensing Screen. Clean if necessary.
- Call Customer Service if Thermostat or Refrigeration Unit is malfunctioning.

If UV Lamp goes out...

- Confirm that UV power cord is plugged into appropriate outlet.
- Replace UV Lamp (according to guidelines in UV Lamp Operations Manual).
If problem persists after Lamp is replaced, call Customer Service for replacement part and/or further assistance.

If water is leaking from UV Lamp Housing...

- Reinstall Quartz Sleeve according to guidelines in UV Lamp Operations Manual.

If one or two lobster die shortly after arrival...

- *Don't panic.* This may be normal. Remove from tank.
- Check water salinity.
- Monitor temperature carefully.

If a large number of animals die and water is clear...

- Change water and replace Carbon Filter Pack immediately.

CUSTOMER SERVICE

Should you experience problems with your system or wish to order supplies, call the 24 hour Marineland hotline at 1-800-322-1266.



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