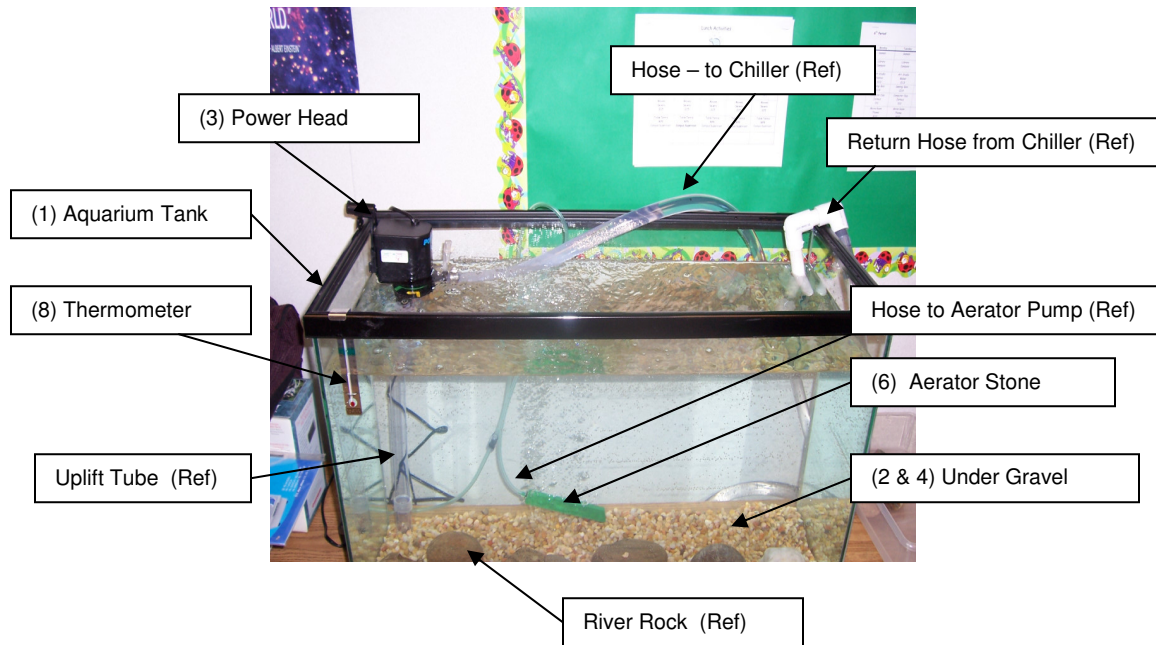


TIC Aquarium Assembly Procedure

30 Gallon Tank With External Chilling Unit



Major Parts List:

#	DESCRIPTION	MFR/PART NUMBER	COMMENTS
1	Aquarium Tank, 30 gal		12.5" x 30.3" x 19.3" high
2	Under Gravel Filter		28.4" x 11"
3	Power Head Pump for under gravel filter	Aqua Clear #802	Plug air intake
4	Natural colored rocks (Pea Gravel)		Approx 25 lbs.
5	Chilling Unit 115VAC, 1/4HP	Hailea Aqua Medic Series Model HI 260CA	3/4" Vinyl Tubing (as required)
6	Aerator (with 6" stone) and "check valve"	Million Air #MA 100	1/4" (approx.) Vinyl Tubing (as required)
7	Bio Wheel Power Filter	Penguin #170	(Install after we start feeding the fish)
8	Thermometer (submersible)		(Operates in 50°F range)
9	Dark Cloth Cover	N/a	Keep tank dark for the egg & alevin stages of life cycle

1.0 **Assembly Procedure**

NOTE: Prior to assembly make sure aquarium, gravel and all equipment and supplies have been disinfected with bleach water (or equivalent), rinsed thoroughly and dried (in accordance with Cleaning Procedure, Step 2.0 below) prior to aquarium assembly.

- 1.1 Position aquarium and chiller unit where they will be used for the program.
 - 1.1.1 Locate a suitable area near the tank for the chiller. (Chiller may be located on the table beside the aquarium or on the floor under the table etc.) Location must provide conditions that meet “Chiller installation requirements” outlined below. The control panel on the chiller should be accessible for adjustment and monitoring, however, not too tempting to students that might tamper with the controls.
 - 1.1.2 Location considerations for the aquarium:
 - 1.1.2.1 Power outlets – a minimum of 4 outlets (115VAC, 60Hz) are required. They should be GFI protected and capable of supplying adequate power for the equipment. The circuit(s) must not be on a power line that gets turned off at night, on weekends, vacations etc.
 - 1.1.3 Furniture: The aquarium should be placed on a table, counter top, etc. that will not be damaged by small water spills, splashes, leaks, condensation drips, or etc.
 - 1.1.4 Plumbing: It is advisable to locate the aquarium near a water faucet and sink.
- 1.2 Chiller Installation Requirements
 - 1.2.1 Place chiller in an area that is as cool as possible. Avoid direct sunlight and away from other heat sources. Location should be free of dust or moisture and away from flammable material.
 - 1.2.2 Chiller must be installed in an upright position, on a flat, level surface that is solid and stable.
 - 1.2.3 The manufacturer recommends that the chiller be positioned below the tank water level; however, it will work satisfactorily at the same level (the power head pump may need priming at start up – see turn on procedure below).
 - 1.2.4 Chiller must be positioned so that it has at least six inches of clearance around it for air circulation. If the chiller is installed into enclosed cabinet ventilation openings must be provided.
 - 1.2.5 Allow ample room behind the chiller unit for hose connections.
 - 1.2.6 115VAC, 2amp (¼ HP) “grounded” power outlet with “GFI” protection is required.
- 1.3 Assemble Under Gravel Filter, Power Head, and Chiller
 - 1.3.1 Filter Plate
 - 1.3.1.1 Assemble uplift tube to filter plate (use knock out hole – left rear corner of tank). Note that the uplift tube should consist of one tube that slides into the other (tube that snaps into the hole in the filter plate) so that it can be extended or retracted to adjust its overall length.
 - 1.3.1.2 Position filter plate in tank (Note: uplift tube goes in left rear corner of tank – see Aquarium Assembly Detail). Plate rests on bottom of the tank and centered (approximately) so that the pea gravel can fill the gap between the plate and the tank sides on all four edges of the plate.

1.3.2 Attach Power Head

- 1.3.2.1 Assemble clamp-on mounting bracket to motor and assemble to left rear of tank (see Aquarium Assembly Detail).
- 1.3.2.2 Adjust height of uplift tube and position of power head so that they fit together well then secure power head clamp to end of tank (above knock out hole in filter plate). (Note that bottom of power head rotates to help align it horizontally with uplift tube and power head can be moved up and down on mounting bracket for vertical adjustment. Also uplift tube pieces slip to help with vertical adjustment.)
- 1.3.2.3 Position water output tube (Impeller Housing) so it points toward the center of the rear side of the tank (approximately).
- 1.3.2.4 Position Flow Diverter Control (Water Movement Switch) so that the green color is displayed (for normal pumping direction). Note: Red color is displayed when set for reversed flow; however, this option is not used in our application. Normal flow is towards the "IN" fitting on the chiller
- 1.3.2.5 Assemble ¾" vinyl tubing from the water output tube (of the power head) to the "In" fitting on the rear of the chiller unit. Clamp with stainless steel hose clamps. **Please Note** that the ¾" tubing is relatively stiff so care must be taken to position and align it with the power head so that it does not twist the power head and cause a misalignment between it and the uplift tube from the under gravel filter. Proper alignment between the power head and the uplift tube is critical to the proper operation of the under gravel filter system
- 1.3.2.6 Plug Aerator input tube on the power head. (Air hose is not used in this application.) A piece of "plugged" air hose makes a satisfactory plug.
- 1.3.2.7 Route Power cord to 115VAC power source (do not plug-in until tank is full of water). Note: Power Head must **NOT** run dry.
- 1.3.2.8 Check Assembly for proper alignment and fit of all component parts (especially between the power head and uplift tube).
- 1.3.2.9 Complete chiller plumbing by connecting a piece of ¾" vinyl tubing from the "OUT" fitting of the chiller to the "chiller return hose end fitting" that hooks on the side of the tank (see detail below). Use stainless steel hose clamps as required.
- 1.3.2.10 Power cord should be routed to approved power outlet, however, do not turn chiller on until water is being circulated through it.

1.3.3 Add Gravel

- 1.3.3.1 Center Plate Assembly in bottom of aquarium tank.
- 1.3.3.2 Add approximately 25 pounds of cleaned, disinfected, and dried "pea gravel". Distribute evenly over plate, making sure any gaps around the edges of the plate are filled with gravel. (This eliminates the possibility of an egg or small fish getting under the plate and sucked into the power head.

1.3.4 Add Water

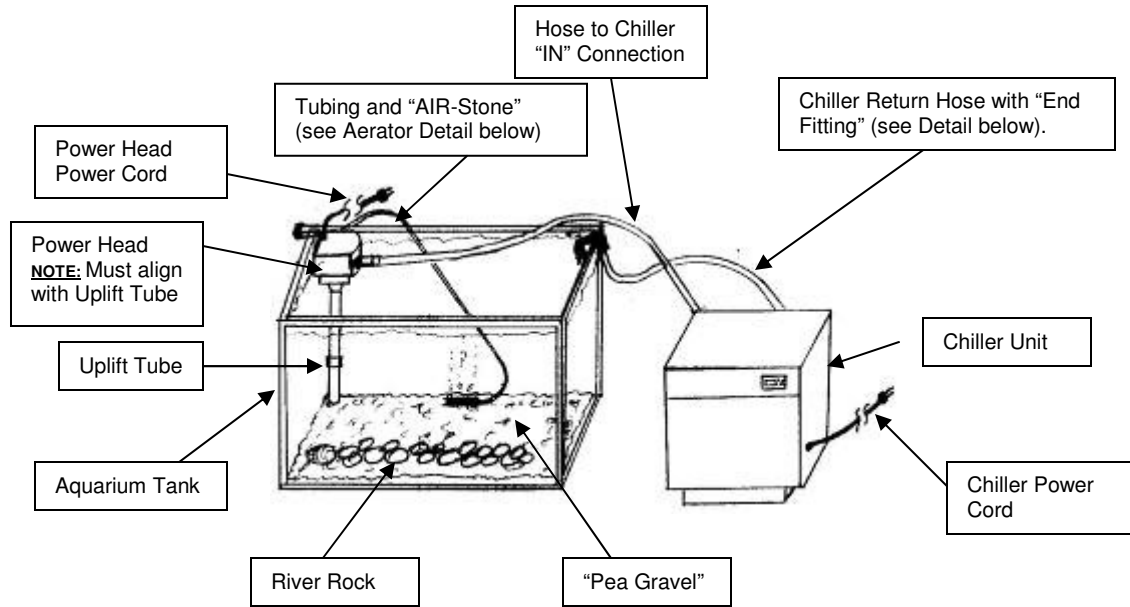
- 1.3.4.1 Fill aquarium tank with bottled spring water (or approved alternate). **DO NOT USE WATER DIRECTLY FROM THE TAP.**
- 1.3.4.2 Check aquarium tank, chiller hoses etc. for water leaks. Any leaks should be repaired before the pump and/or the chiller is turned on.

- 1.3.5 Turn On Power Head
 - 1.3.5.1 If there are no leaks, plug in the power head and check for water circulation through the chiller. (Note: several seconds of vigorous “bubbling and gurgling” will precede a steady water flow at the “chiller return hose”.) If there is no circulation prime the pump as outlined below.
 - 1.3.5.2 Prime the power head pump if required – remove plug from air hose connection to the power head unit to allow air bubble to escape from the power head impeller. If necessary turn power head on and off (with air hose plug removed) until water circulation starts. Reinstall the air hose plug.
 - 1.3.5.3 Insure that water is circulating through the chiller unit and returning to the tank.
 - 1.3.5.4 Insure that there are no leaks at the vinyl hose connections or in the aquarium tank seams.

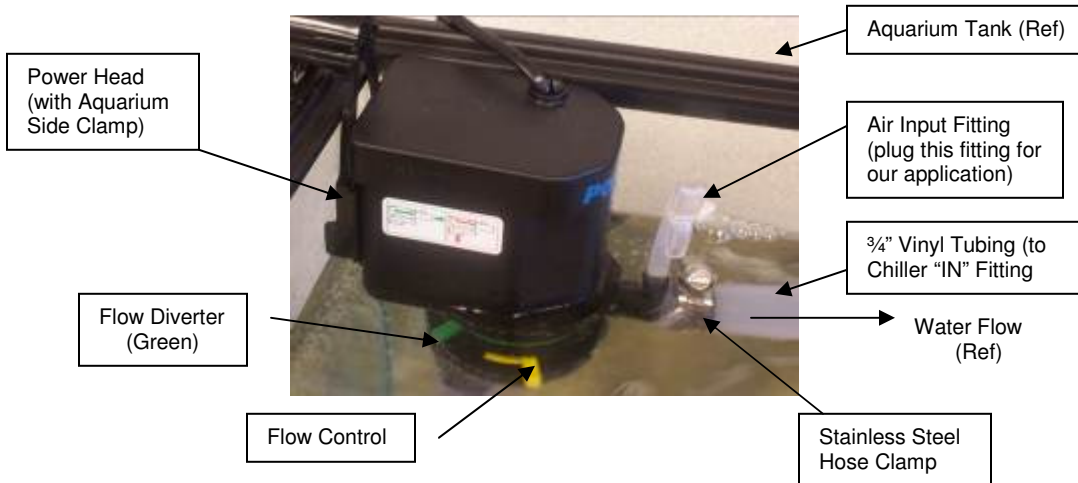
- 1.3.6 Turn on chiller and set temperature controls:
 - 1.3.6.1 Turn power on to the chiller unit (power switch is located on the side of the unit near where the power cord connects to it), and allow unit to warm up for approximately one minute.
 - 1.3.6.2 The display will display the temperature of the water circulating through it.
 - 1.3.6.3 Check previous programmed temperature setting by pressing the “Set” button once momentarily.
 - 1.3.6.4 To program for a different temperature:
 - 1.3.6.4a. Press and hold the “Set” button for more than 3 seconds. (Previous setting will be displayed.)
 - 1.3.6.4b. Adjust to desired temperature setting using the “▲” (Up) or “▼” (Down) buttons as required until the new setting is displayed.
 - 1.3.6.4c. Press the “Set” button again (or wait 8 seconds) to initiate the new temperature setting. Note: The display will return to showing the water temperature and, after a few minute delay, will start to chill (or permit the temperature to rise to) the water to the new setting. It will take a considerable amount of time for the water temperature to stabilize at the new setting.
 - 1.3.6.5 Monitor temperature on the display to verify that the chiller is regulating the water temperature at the desired setting.

- 1.3.7 Install Aerator Pump:
 - 1.3.7.1 Determine Aerator Pump location.
 - 1.3.7.2 Assemble a piece of ¼” tubing from pump “Air Output” fitting to the Air Stone (stone should be positioned on the bottom of the interior of the tank, near the rear)
 - 1.3.7.3 If not already installed, cut tubing a few inches from the Air Stone and install check valve (note air direction indication on check valve and assemble so arrow points toward the stone).
 - 1.3.7.4 Plug in pump and check for a good supply of air bubbles in tank

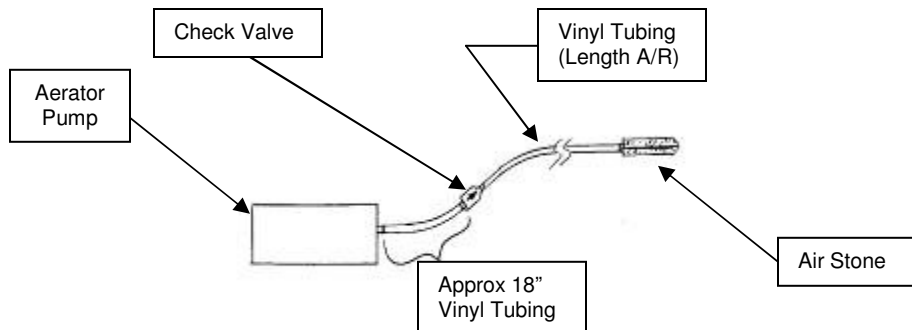
- 1.3.8 Add several “fist-size” river rocks along the front edge of the tank. These provide the fish a place to hide. This is a natural instinct and gives them an opportunity to develop the habit of responding to this instinct when they feel threatened. This is important for their survival after they are released.



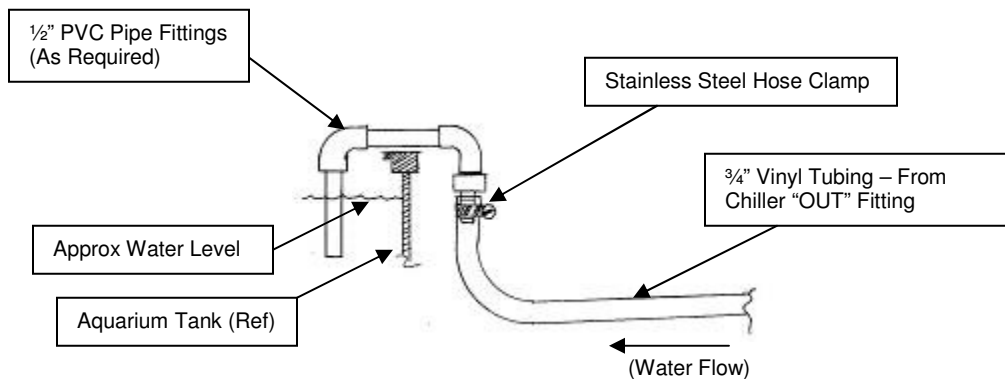
Aquarium Assembly Detail



Power Head Assembly Detail



Aerator Detail



Chiller Return End-Fitting Detail

2.0 Cleaning Procedure

NOTE: The best time to disinfect and clean the aquarium is immediately after fish release and before it is stored for the season. (Hint – attach a note (dated) to help you remember that it has been cleaned and is ready to use.)

2.1 Disinfecting Procedure

- 2.1.1 Aquarium should be assembled and operational.
- 2.1.2 Add tap water to tank (near full)
- 2.1.3 Add approximately 1 cup of household bleach to tank.
- 2.1.4 Turn on Power Head and circulate bleach water through the system (including chiller) for a few minutes.
- 2.1.5 Place all equipment that has been in contact with aquarium water into bleach water solution and allow to soak for a couple of hours minimum.

2.2 Rinse and Dry

- 2.2.1 Carefully drain and dump bleach water into sewer.
- 2.2.2 Refill with fresh tap water and run Power Head for a few minutes, circulating the rinse water through the entire system again.
- 2.2.3 Thoroughly rinse thermometer, net, pitcher, etc. with clear tap water.
- 2.2.4 Empty tank, drain chiller unit, and disassemble aquarium.
- 2.2.5 Spread all equipment, gravel, rocks, etc. in open area to dry.
- 2.2.6 Dry for several hours to let bleach, fluoride etc. dissipate.

3.0 Accessories/Miscellaneous

3.1 Aquarium Cover:

- 3.1.1 Provide a dark color cover over the entire aquarium tank assembly. This cover may be fabricated from dark color cloth, black plastic, dark vinyl cardboard box etc. It should be designed to provide near total darkness to the tank when on, however, provide easy access for service and monitoring purposes. Except for brief periods, it should be in place while the fish are in their egg and alevin stages. It may be removed completely after they have “buttoned-up” (developed to the “fry” stage).

3.2 External Bio-Wheel Power Filter:

- 3.2.1 This filter is optional and probably is not required until the fish have developed to the point where they are being fed.
- 3.2.2 If required assemble to the top of the rear panel of the tank and operate according to the manufactures instructions.