Biotube® Pump Vault

Orenco Systems® Incorporated
1-800-348-9843

Installation and Maintenance Instructions for Model PVU____

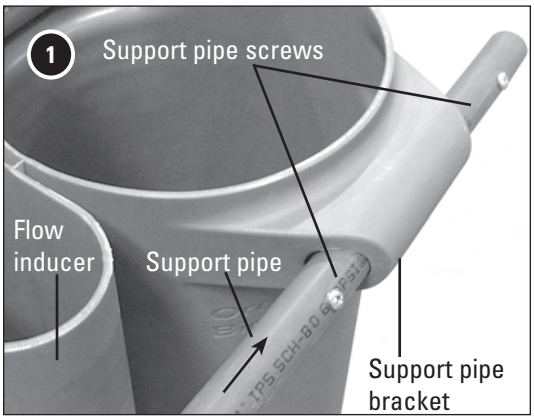
Installation Instructions:

The Biotube Pump Vault* is suspended in the septic tank by schedule 80 support pipes. The vault comes with a Biotube filter cartridge, float stem bracket, and support pipes. Each pump vault houses either one (Simplex) or two (Duplex) High Head Effluent Pumps, discharge assembly(ies), Biotube filter cartridge, float switch assembly, and float stem bracket.

Step 1:

The Biotube Pump Vault's support pipes are typically pre-installed. If you need longer pipes, you can cut them in the field. Remove one support pipe screw, pull the standard support pipe out, and re-install your longer ones.

If you're installing Orenco's longer, 30" support pipes (instead of cutting your own), position the support pipes with the long end oriented towards the flow inducer, so that the pre-drilled holes are outside the bracket. Screw down the stainless steel screws until 1/4" of thread is showing, to lock the support pipes into place.



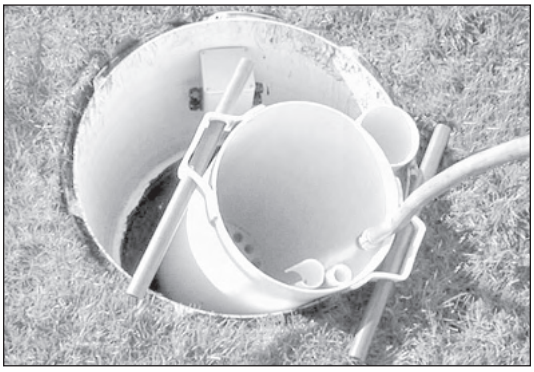
Step 1: Preparing the support pipes

Step 2:

Gently lower the vault into position in the access riser. The support pipes should rest on the top of the tank (unless the vault was designed specifically to rest on the bottom of the tank).

Step 2: Lowering vault into riser

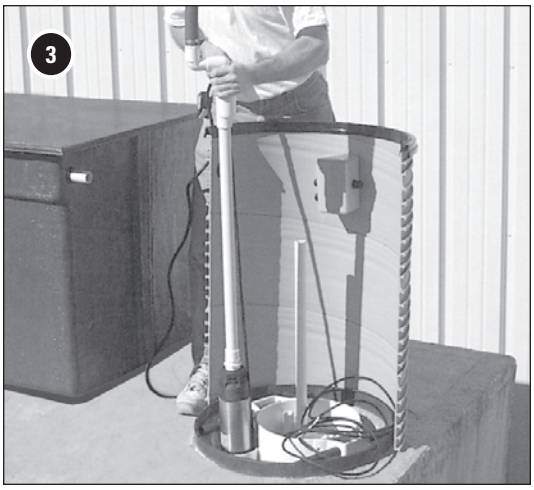
Important: If the tank is full of sewage, rest the vault on top of the liquid surface and lower it by filling the vault with water (from a hose) to prevent any floating materials from entering the vault through the inlet holes, as well as to counteract the buoyancy of the empty vault.



Important: Sinking the vault

* U.S. Patent Nos. 4,439,323 and 5,492,635

Installation Instructions (continued)



Step 3: Lowering pump and discharge assembly

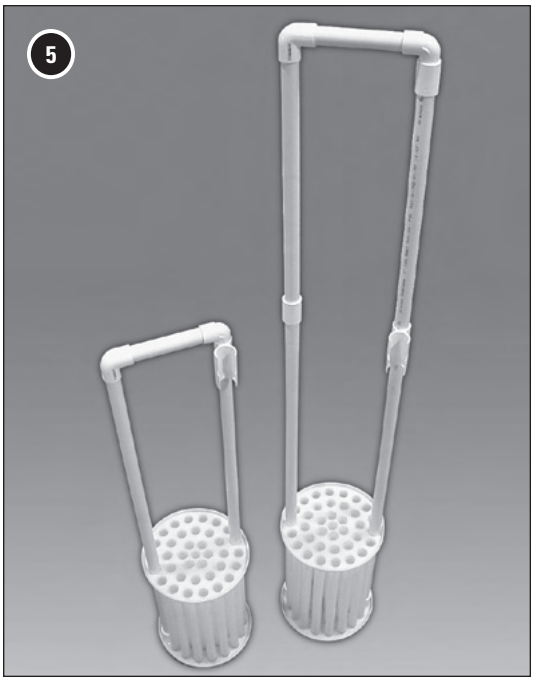
Step 3:

Lower the pump and discharge assembly into the flow inducer. Be careful not to cut the pump cable on the top edge of the flow inducer.

Step 4: Maintaining adequate clearance

Step 4:

Position vault in the riser so that the support pipes do not interfere with plumbing or wiring. When placed correctly, the vault should clear the splice box and the discharge valve assembly.



Step 5: Extending handle assembly

Step 5:

If you have deep access risers and need longer cartridge handles or float stem assemblies to facilitate maintenance, install 1" diameter PVC pipe extensions. For handle assembly, remove set screws from cross bar, install additional PVC pipe, then reinstall cross bar.

Step 6:

Connect pump and floats as described in the appropriate instruction sets (see “Discharge Plumbing Assemblies,” NIN-HV-HV-2, and “Float Switch Assemblies” NIN-MF-MF-1).

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Maintenance Instructions for Model PVU____

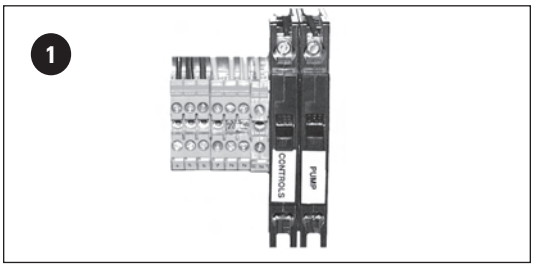
Inspecting the Filter Cartridge

Determine whether the Biotube effluent filter needs cleaning by testing the change in the tank's liquid level when the pump is on. Turn the recirc pump on by flipping the MOA switch in the control panel to Manual. **Watch the liquid level inside the screened vault as the pump is running for about 30 seconds to determine if there is any noticeable liquid level differential between it and the tank liquid level.** Return the MOA switch to Auto. When the liquid level difference between the inside and outside of the vault is about two inches or more, or if the low-level alarm is activated, the Biotube cartridge may need to be cleaned. **

Filter Cartridge Cleaning

Step 1:

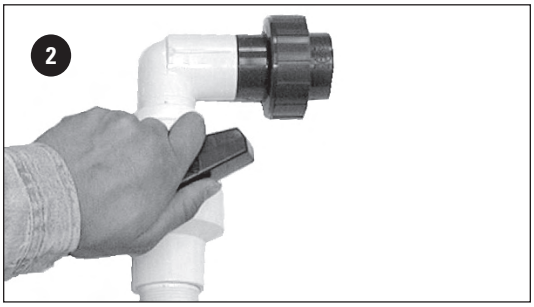
Disable power to the pump. This can easily be done by switching the HOA switch to the "Off" position, flipping the pump control circuit breaker(s) and the control circuit breaker to "Off." All these features should be readily accessible in the control panel.



Turning power off

Step 2:

If the discharge assembly contains a ball valve, make sure it is completely closed. If necessary, disconnect the union in order to allow removal of the filter cartridge.



Closing ball valve

Step 3:

Slide the cartridge out of the vault and hold it over the open inlet of a septic tank. The float assembly may need to be removed. Carefully spray the buildup that has formed on the cartridge tubes back into the the tank. Do not clean over open vault! If significant solids are evident in the bottom of the vault, go to step 5 for cleaning the vault.

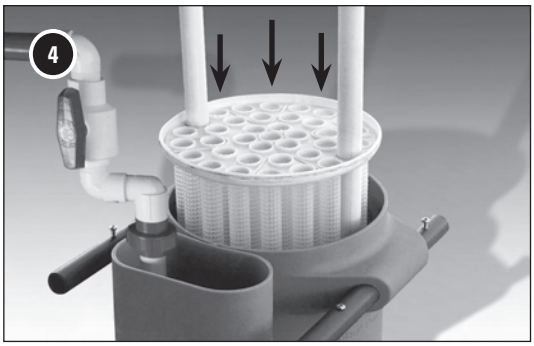
Important: After cleaning the filter cartridge, inspect the pump vault, pump, and float stem assembly. If any further maintenance is required, do not replace the filter cartridge as described in Step 4. Go to step 5.

Cleaning the filter cartridge

** U.S. Patent Nos. 4,439,323 and 5,492,635*

*** Premature plugging of the cartridge may result from abuse of the system. Such abuse might take the form of a large scale home canning project with concurrent overuse of the garbage disposal. More likely though, it will be excessive inflow resulting from a plumbing leak under the house, a leaky septic tank, a homeowner taking in laundry, two or more families using a tank designed for one, etc. Plugging of the cartridge, however, should be considered a success, not a failure, as the cartridge serves to protect the integrity of the collection and treatment facilities. Cleaning a cartridge is quick and easy and infinitely preferable to the damage that solids carryover can cause downstream in the system.*

Maintenance Instructions (continued)



Slide filter cartridge back into vault

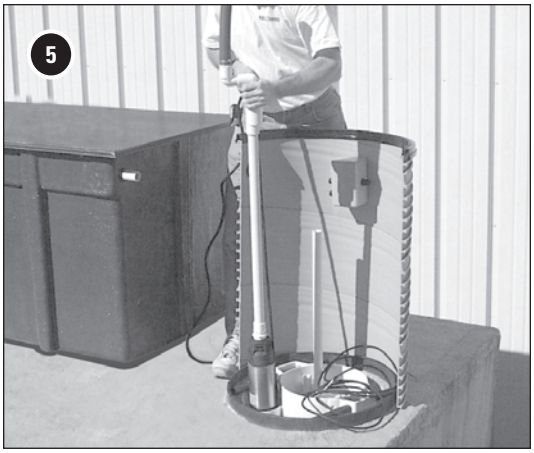
Step 4:

Slide the cartridge back into the vault. Make sure to open the ball valve.

Go to Step 9.

Vault Removal and Cleaning

The vault does not normally need to be removed for basic cartridge cleaning. However, when pumping the tank, it may be necessary to inspect and clean the vault.



Pulling the pump

Step 5:

Pull the pump. (Be sure you've closed the ball valve, as shown in Step 2.) Service the pump and float assembly, as described in their respective instructions.

Maintenance Instructions (continued)

Step 6:

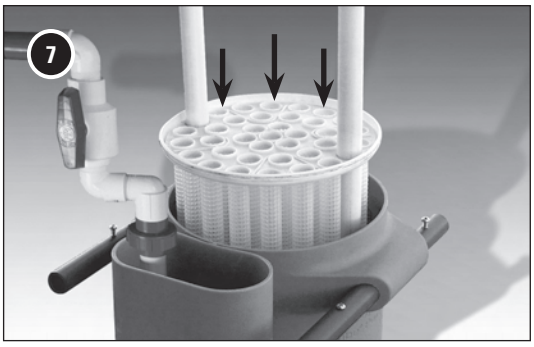
Slowly lift the Biotube vault out of the tank, allowing the effluent in the vault to empty out the drain flap. Any solids should be dumped back into the septic tank.

Lifting vault from tank

Step 7:

Slide the cleaned cartridge (see Steps 1-4) into the vault. Clip the float stem assembly onto the cartridge. Return the vault into the tank and gently lower the pump into the vault.

Important: To prevent the vault from floating and the cartridge from being fouled by solids floating in the tank, it is essential to run clear water (as from a hose) into the vault to sink it. If the pump chamber has been pumped, refill the tank with clean water to the system's normal operating level.



Sliding filter cartridge back into vault

Step 8:

Connect the union and make sure the ball valve is open.

Important: Sinking the vault

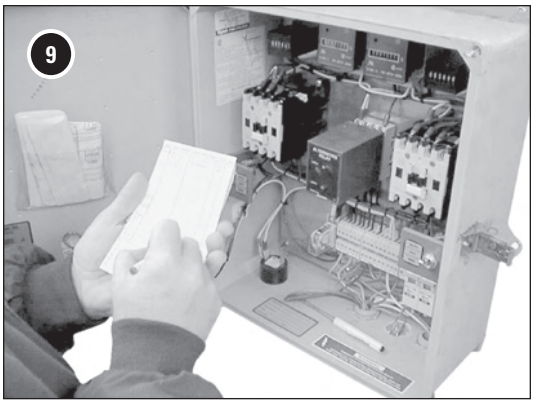
Step 9:

On the form that follows, record that you have cleaned the cartridge. Also record any observations that you made regarding the tank or system in general.

Step 10:

Return power to the system.

Make sure to clean up thoroughly when finished.



Recording activities

Inspection/Maintenance Form

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Date installed: _____ Vault Model: _____

Tank Model: _____ Size: _____ Single/Double Compartment: _____

Date Inspected	Cartridge Cleaned? Yes	No	Visual Inspection Notes: