



Residential

AdvanTex

Installation

using a steel tank



Anchorage Tank

Introduction



It's a team effort

As the installer, operator, service provider, or homeowner of an onsite wastewater treatment system, you play a crucial role. Neighbors, regulators, dealers, and manufacturers all rely on your expertise.

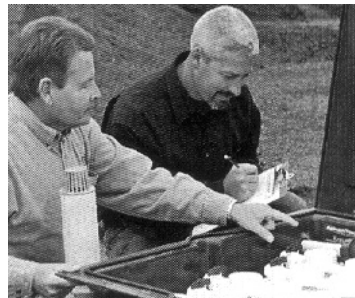
All onsite systems require servicing. No matter how much we'd all like to flush and forget, proper installation and regular servicing optimizes the treatment process and ensures that onsite systems are a sustainable technology.

To make servicing easier, Anchorage Tank and Orenco Systems, Inc. have configured the Advantex Treatment System and its components to be one of the most trouble-free and service-friendly residential treatment systems available in Alaska. Inside this manual you will find information about...

- The Advantex System configurations and treatment process
- System components
- Step-by-step Illustrated Installation Instructions

Installation, Operation, Maintenance, and Testing of an onsite treatment system requires an understanding of all this information.

So, before firing up the backhoe and rolling up your sleeves, take the time and read through this manual. Then write all over it. Reading this manual and maintaining current and accurate records will save everyone time, trouble, and money in the long run.



Before You Begin

Before you begin the installation, read through this manual and any other related documents. Please note that ***you must perform the installation according to this manual or the Warranty may be void.*** Yes, it's that important.

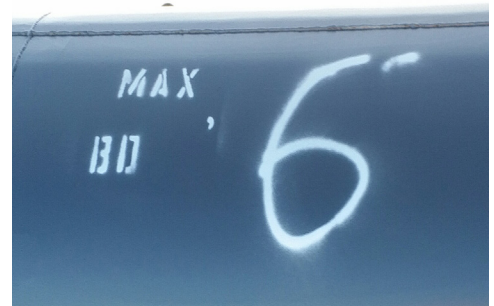
This manual provides the basic information for installing an AdvanTex Treatment System using a steel tank. It does not replace training or engineering plans. If there are any differences between your engineering plans and the instructions in this manual, contact Anchorage Tank and/or the Design Engineer.

If you are not an Authorized AdvanTex Installer, contact Anchorage Tank for training and authorization before installing this system. The job supervisor (and not just the company's owner) needs this authorization. Again, the Warranty depends upon it. Anchorage Tank can provide technical support and training with reasonable notice. We also conduct seminars on occasion and try to invite all who are interested.



Key Points:

- The steel tank supplied with the AdvanTex Treatment System is specially fabricated for this application. The Maximum Burial Depth should be stenciled on the tank but if you discover it isn't, please call Anchorage Tank. The Muni inspectors will be looking for this label.
- Please inspect your order for completeness when Anchorage Tank delivers the system (or when you pick it up at our yard). Sometimes we forget things. We'll make every effort to include everything and to alert you of "hiding places" throughout this manual to prevent Anchorage Tank slowing your project hunting down a rubber grommet.

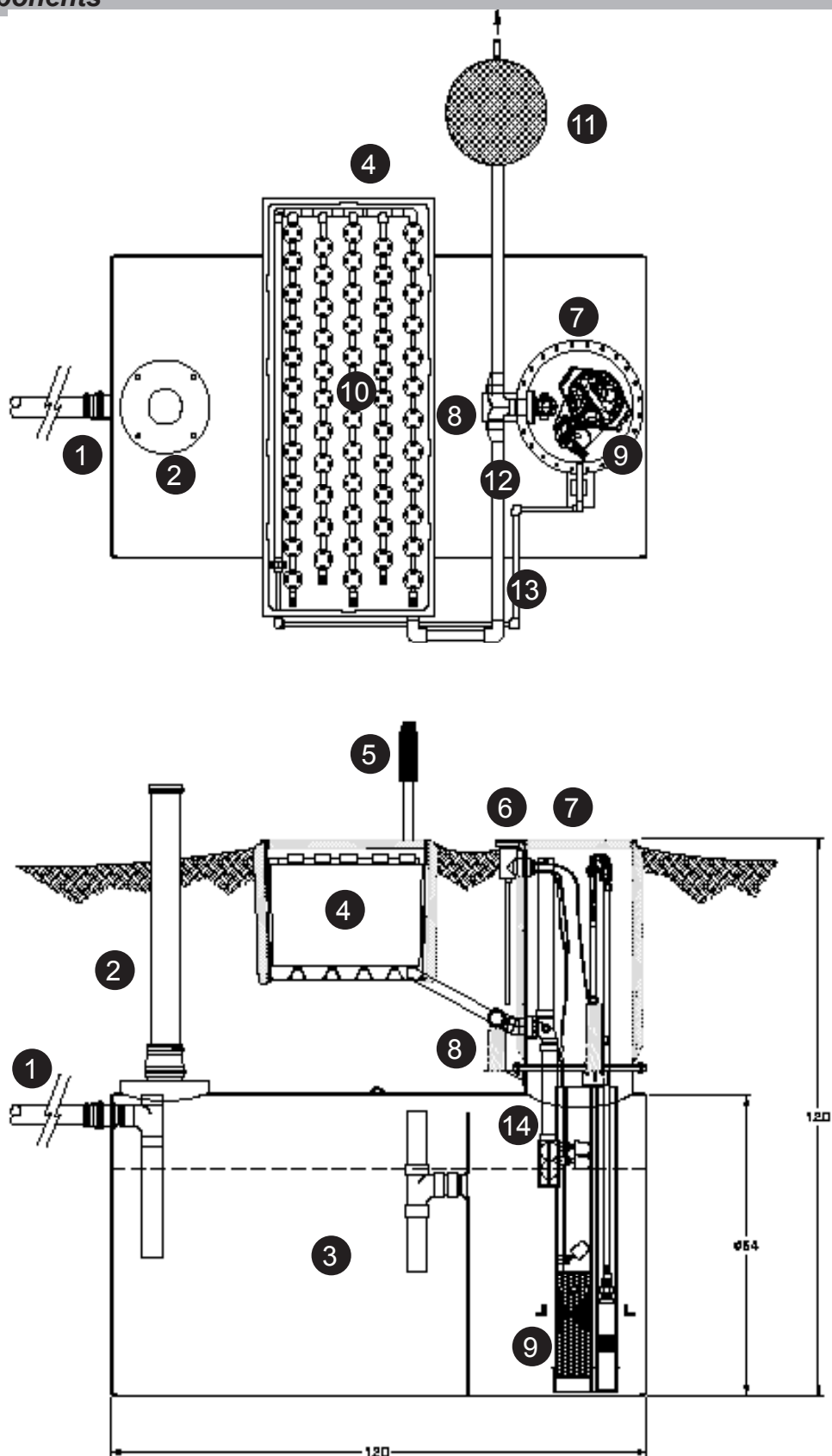


IMPORTANT:

- *The backwash discharge from a salt-type water softener MUST NOT be plumbed into an AdvanTex Treatment System. While this is likely beyond your control, should you discover this is the case, please alert the design engineer. The backwash will prevent the system from operating properly. It's not a matter of IF but WHEN the disposal field will fail. We've seen it happen.*
- *A grinder pump MUST NOT be plumbed into an AdvanTex Treatment System. While this is likely beyond your control, should you discover this is the case, please alert the design engineer. The grinder will create a slurry that will prevent the system from operating properly. Often we will insist upon a single compartment settling tank to be placed upstream of the system. It's not a matter of IF but WHEN the pod will be slimed and the disposal field will fail. We've seen it happen.*

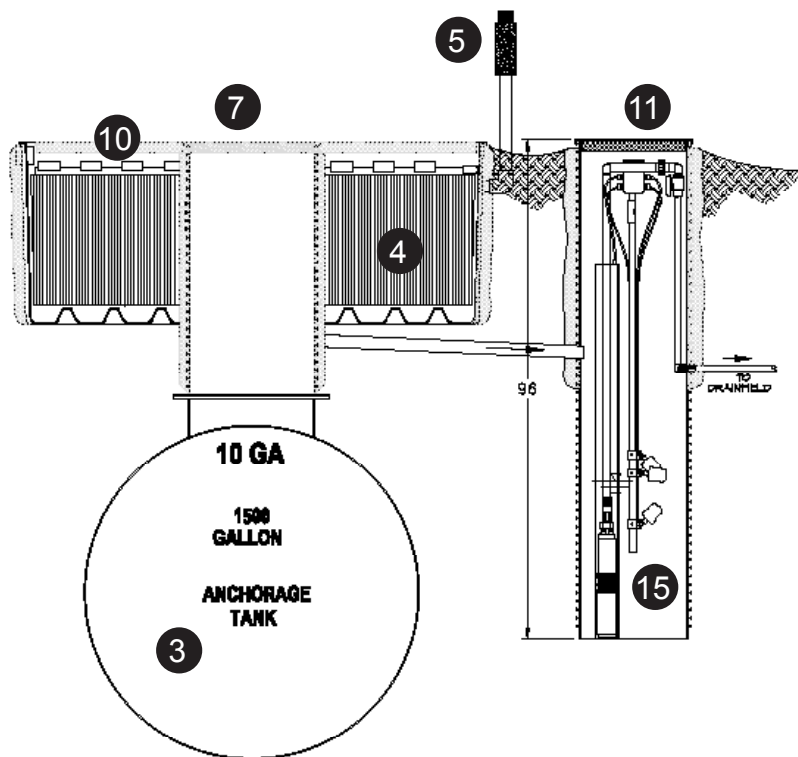


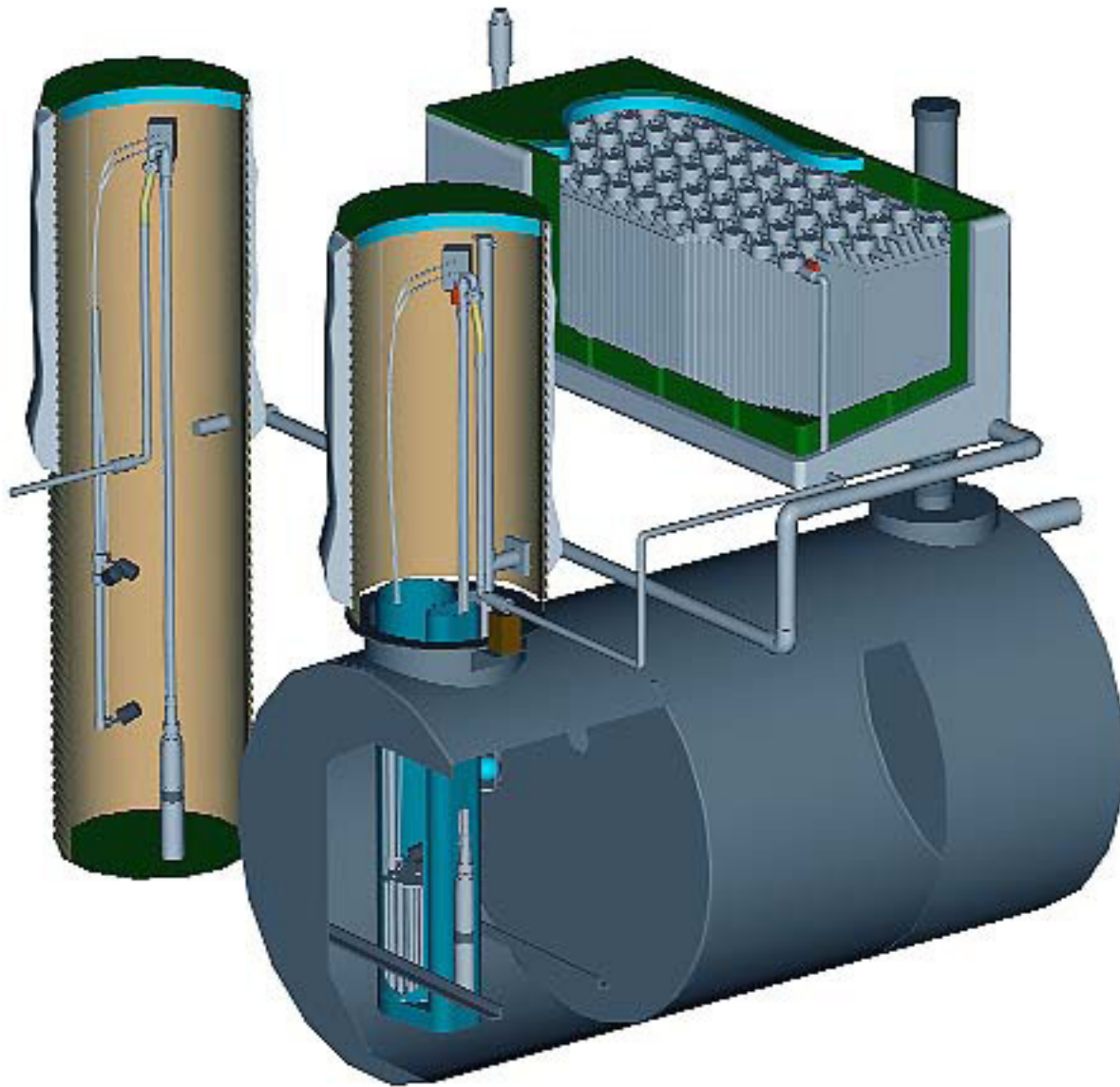
System Components



System Components

- 1 Tank inlet. 5x4 Fernco coupling provided.
- 2 6" PVC pump-out, 6" Jim cap, and 6X7 Fernco coupling provided.
- 3 Steel tank fabricated specially for AdvanTex Treatment Systems.
- 4 AdvanTex AX20 filter pod w/ 2" urethane insulation on all sides.
- 5 AdvanTex passive air vent for the filter pod.
- 6 Orenco external spice box for pump & float wires.
- 7 24" diameter plastic tank riser w/ 2" urethane insulation.
- 8 Recirculating Splitter Valve propped on support to prevent settlement shear.
- 9 Orenco Biotube Pump Vault with Filter, Pump, Hose & Valve Assembly, and Floats.
- 10 Distribution manifold inside AX20 filter pod.
- 11 Discharge Pump Basin (optional equipment - check with engineer's plans)
- 12 Filtrate return line - water returning to tank from filter pod.
- 13 Recirc transfer line - water from tank to pod (pressurized).
- 14 Recirculating Splitter Valve Ball Cage
- 15 Discharge Pump Basin Pump, Floats, and Hose & Valve Assembly.

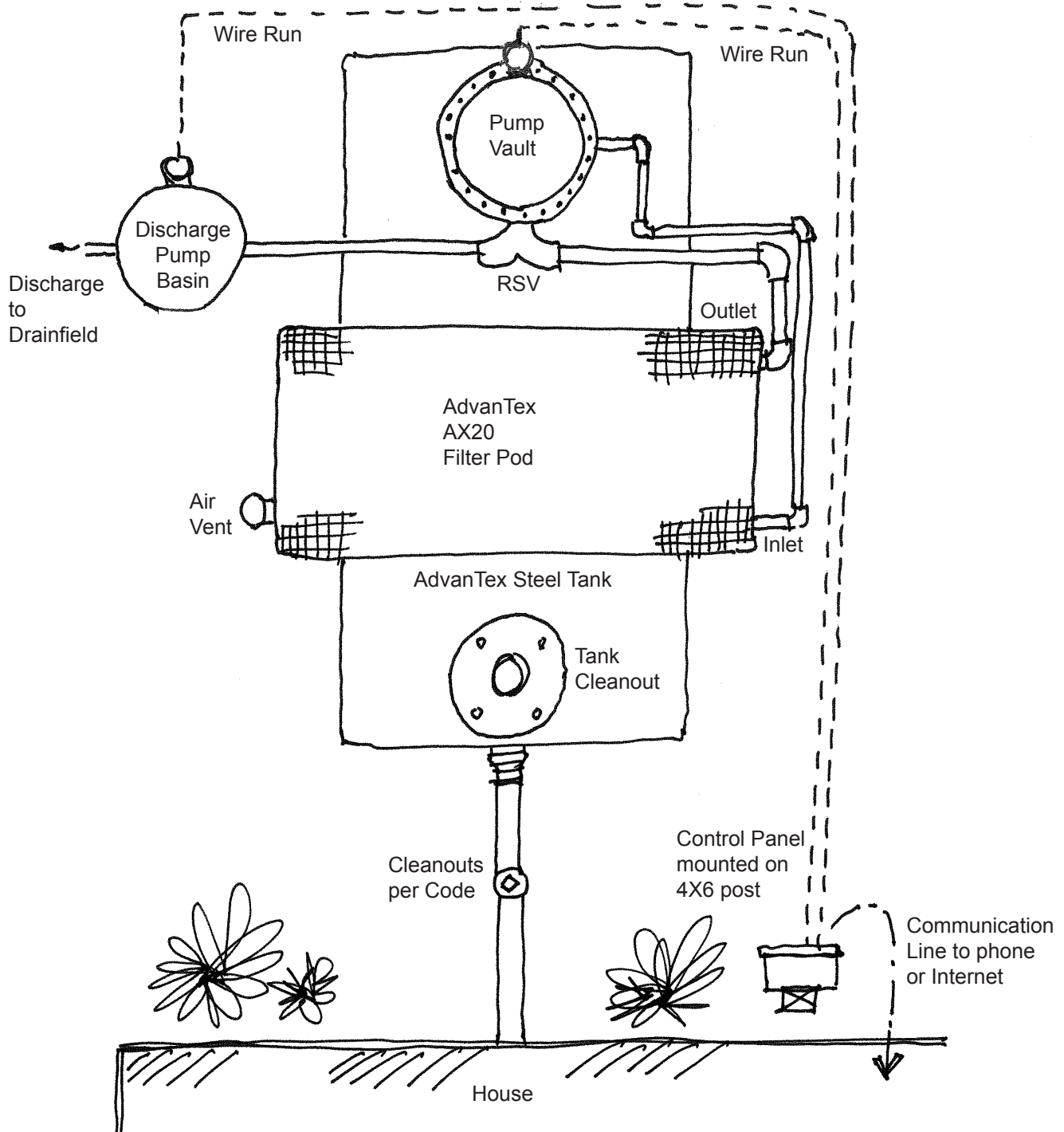


How Does the System Work?

This system is a combination of a steel septic tank with Orenco Systems, Inc. AdvanTex® filter and pump. Here's how it works: Effluent from the building enters the tank and travels the entire length of the tank. A pump located in a Biotube® Pump Vault near the outlet end of the tank pumps the filtered effluent up to a distribution manifold in the top of the AdvanTex Filter. This manifold evenly distributes the effluent over the surface, where it trickles down through the media and back into the septic tank. There, it flows back to the pump, completing one cycle. Wastewater is circulated several times through the AdvanTex Filter media. When the tank is full, the filtered effluent then flows to the drainfield. Should the drainfield be located uphill of the system, a Discharge Pump Basin adjacent to the system will pump to that location.

The Site Plan: Decide Where Everything Goes

The AdvanTex Treatment System is versatile and can be installed in different configurations. The project engineer will determine what components are necessary for the system, but it may be up to you to decide where they go. It's best to sketch the positions of the tank and the filter pod so you have a plan of attack. Be sure to include the location of the control panel, which needs to be in eyesight of the tank and filter pod. The filter pod can be placed either across or beside the tank.



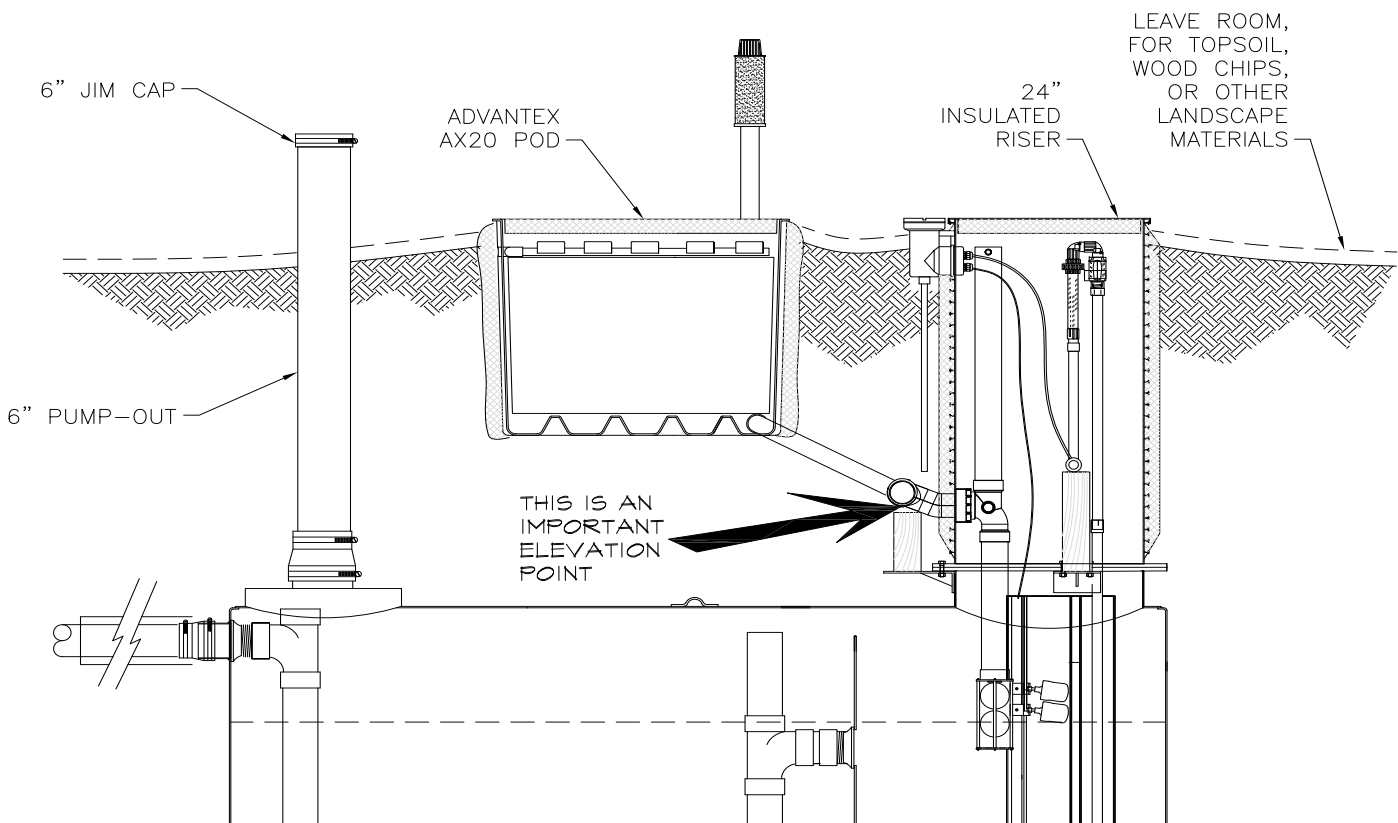
Excavating the Hole: Determining the Elevations



Before excavating the holes for the tank, etc., consider the elevations required:

The lid of the AdvanTex® filter pod needs to be 3" to 4" above finished grade. Take into account any landscaping that might affect the finished grade and be sure it slopes away from the green lids. It makes for a nice-looking installation to have the rectangular lid of the filter pod and the round Discharge Pump Basin lid (if your system uses one) at the same elevation as the lid of the tank riser. In short, all green lids at the same level.

If you don't leave room for topsoil and other finish landscape materials, the riser and pod lid can get jammed. This makes opening the system difficult in the summer and impossible in the winter.



Key Point:

See the note in the drawing above, THIS IS AN IMPORTANT ELEVATION POINT? This is the Recirculating Splitter Valve outlet, the level where the liquid leaves the system to gravity flow towards the drainfield or to the Discharge Pump Basin.

In an effort to eliminate the Discharge Pump Basin, you will be tempted to fudge this point on the tank riser. There is nothing wrong with that but it needs to be carefully considered as it affects the Stinger pipe with the ball cage inside the tank.

More on this later in the manual.

Setting the Tank

Make sure the bottom of your excavation is smooth and level and free of sharp rocks. The steel tank has a very hard coating but a sharp rock will eventually wear through and expose the steel.



Key Point: If the bottom is uneven or rocky, place a 4" layer of pea gravel (<3/4") to properly bed the tank.

Partially backfill the septic tank (and the Discharge Pump Basin if you have one and it's in the same excavation). If the native fill is unusable, place more pea gravel around the tank. *Do not use sand as it tends to wash away.*



Key Point: If the tank and the Discharge Pump Basin are in the same excavation, only backfill the Basin to just below the bottom of the inlet hole you will drill later.



Preparing the Tank Riser

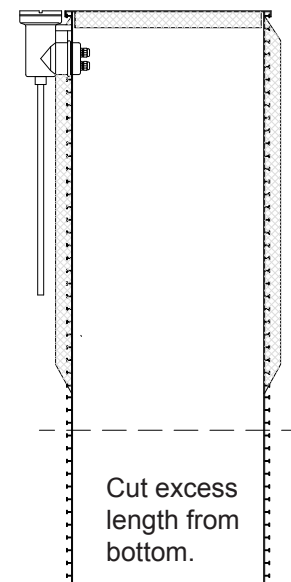
Since no two AdvanTex installations are the same, all plastic risers are shipped 6 feet long with the top four feet insulated and the external splice box installed.

Determine the desired length of the riser. Be sure to consider what elevation the riser lid needs to be and to allow for the backfill to slope away.

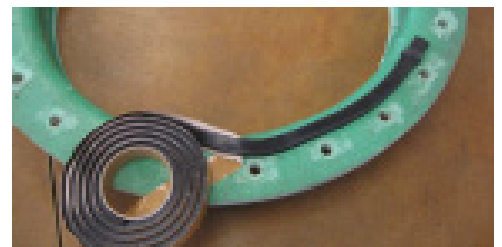
If the riser needs to be cut, **you may do so at the bottom.** A Saw-zall or circular saw can be used to cut the riser. Try to keep the cut as flat as possible since the riser will rest on that surface.



Key Point: Handling a tank riser with a bolt flange attached to the bottom is difficult at best. Instead, you will want to bolt down the green fiberglass Bolt Ring Adapter to the tank flange first.



The manufacturing process used to make the fiberglass bolt ring creates an uneven surface for the bolt flange. Therefore, rather than a traditional 1/8" neoprene gasket, we supply a roll of butyl tape to form a watertight seal. You'll want to store this tape in a warm location to keep it pliable. Also, you will be supplied with 1-1/2" long bolts for this extra thickness.

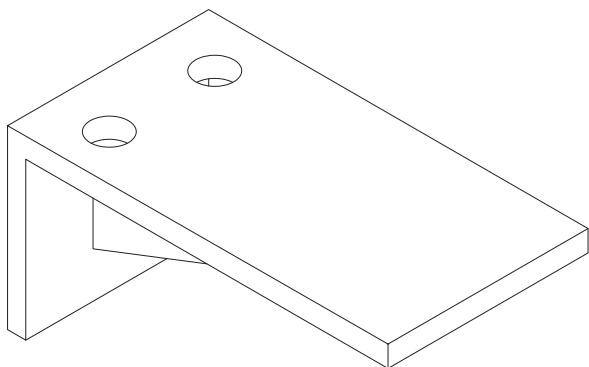


Be sure to place the butyl tape *inside* the bolt holes on the *underside* of the flange.



IMPORTANT: Watertight seams and penetrations are critical for proper system performance.

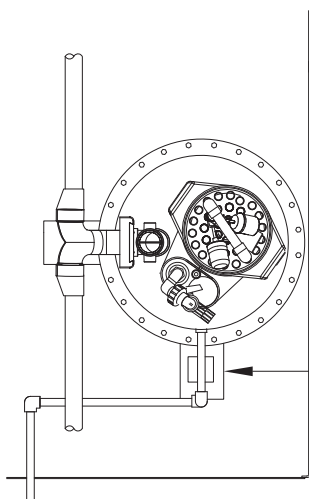
Preparing the Tank Riser: Pipe Support Brackets (Diving Boards)



No matter how careful you are when compacting around AdvanTex risers, it's the nature of Alaskan soil that settling will occur.

In an effort to prevent damage to piping that penetrates the fiberglass tank riser, we have developed a steel support bracket to hold the piping in place as the ground settles around it.

These are to be placed around the manhole under the pipe penetrations you wish to support and may be bolted in place while installing the fiberglass Bolt Ring Adapter.

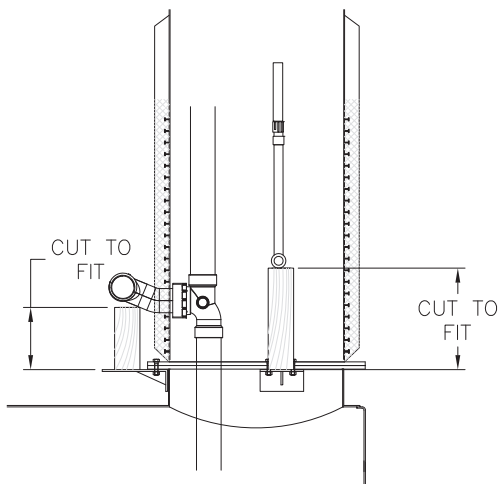


Key Points:

Along with the freedom to orient the openings in the tank riser to suit your project comes the responsibility of organizing the equipment in the tank in a manner that will allow for the following:

The Recirculating Splitter Valve (RSV) is free to hang vertically along the riser wall.

Hose & Valve Assembly piping cannot run across the tank riser in a manner that would prohibit the removal of the floats or the white filter from the blue pump vault.



Two pipe support brackets are provided with each AdvanTex Treatment System. While bolting on the riser adapter ring, simply bolt the bracket to the manhole riser beneath the pipe penetration. Cut a piece of treated wooden post, leftover Trex, plastic pipe, anything you have handy to place between the bracket and the piping. Then carefully backfill around it.

Preparing the Tank Riser

Now that you have the riser cut to the correct length, it's time to install the bracket that will hold the recirculating splitter valve (RSV). This is where your sketch comes in handy. You will want to place this hole so it will line up with your plumbing from the filter to the riser and on to the drainfield. The orientation of the electrical splice box (factory installed) is also considered.

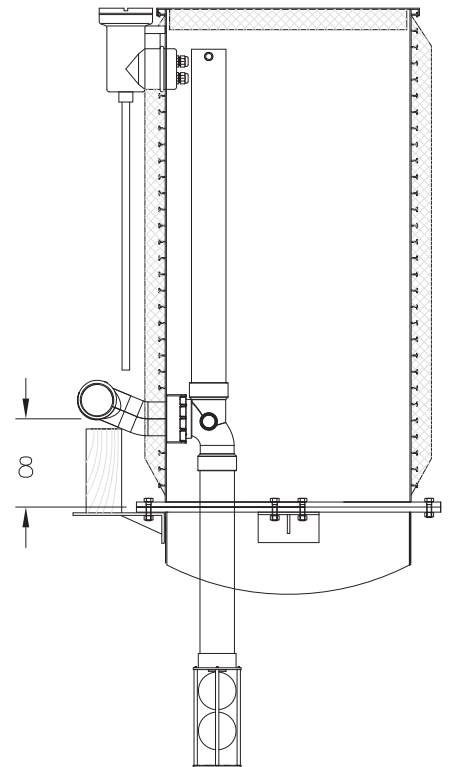
At this point the riser is not yet attached to the tank. The drawing at the right shows a completed RSV hanging on the bracket inside the riser. Normally a hole cut 8 inches above the bottom will do the trick but you will want to make sure that will allow for the correct plumbing drain slope from the filter to the riser... and from the riser to the drainfield. You may need to go higher on the riser to accomplish this, especially if your riser is taller than 4 feet.



Key Points:

Avoid drilling the hole for the bracket lower than 8" off the bottom of the riser or there won't be enough "meat" to hold this steady against shear forces of setting soil outside the riser.

You may find it easier to make these riser penetrations with the riser placed upside down onto the lid. However - be careful to remember which way is up when the riser is flipped back over for placement onto the tank.



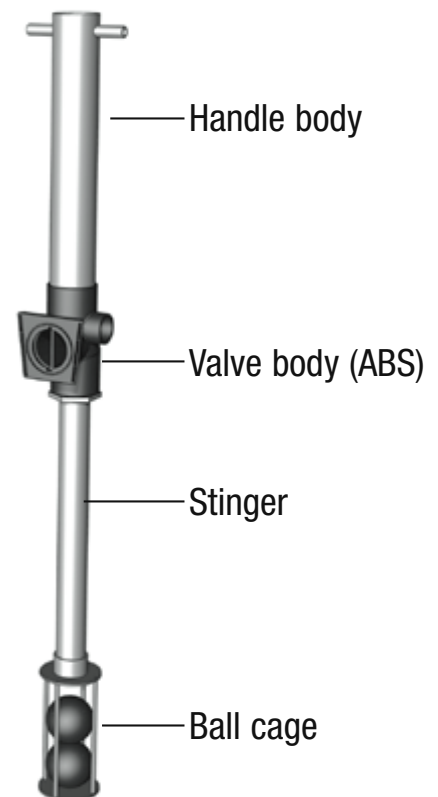
Installing the Recirculating Splitter Valve (RSV)

The RSV controls the flow of water from the filter and the liquid level in the tank below. During periods when the tank is quiet (nothing flowing in) all of the filtered water returns to the tank. When sewage enters the tank and the level rises, the two plastic balls in the cage will rise and not allow any liquid from the filter to enter the tank. This filtered water will then be diverted to the drainfield for disposal. When the liquid level in the tank eventually drops, the balls in the cage drop, and recirculation process starts again.

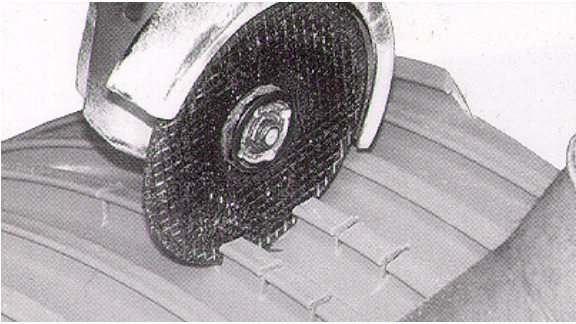


IMPORTANT:

Before you assemble the RSV body, stinger, and ball cage.... stinger length is critical for proper system performance. This will be illustrated in subsequent pages but it's highly probably the stinger that came with your kit will not be the correct length.



Installing the Recirculating Splitter Valve (RSV) Flanged Coupling



Once you've located the desired position of the RSV on the riser, on the outside, use a grinder or other cutting tool to notch through the PVC ribs. (You may also have to chisel away foam insulation from the riser.)

Using a hammer and chisel, break the ribs from the riser. Use a grinder to remove any remaining rib material. From the inside of the riser, measure and mark a point at least 8" above the bottom. Use this mark to center a hole saw to drill a 4" hole centered on that mark.

Keep these tools handy for drilling the hole for the hose & valve assembly when the time comes. Using the Hole Saw Sizing Chart below, select a hole saw for the grommet installation and drill out the opening.

Inside the riser, deburr the hole and use a clean rag to clean around it.

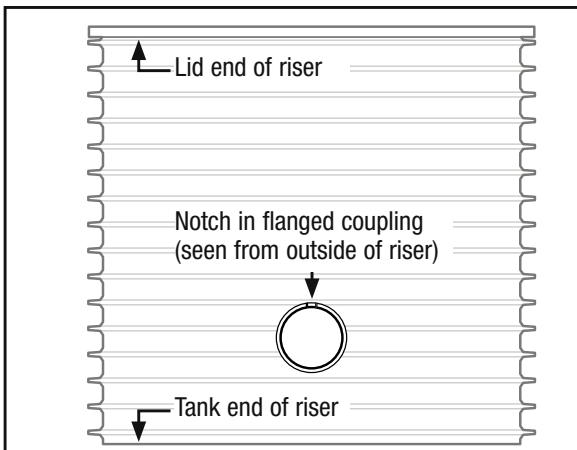
A coupling with a curved flange is supplied. This mounts on the inside of the riser wall into the 4" hole you just drilled.

Apply a generous bead of ADH100 (it's in the caulk tube) or equivalent methacrylate adhesive around the inside of the flange (the part that matches the inside curve of the riser.)

From inside the riser, insert the coupling through the hole. *It's easier to do this with the riser upside down so be sure that the notch in the coupling faces the actual top of the riser.* Press the flange firmly against the inside of the riser.



Apply a generous bead of adhesive.



IMPORTANT:

Make sure that the curve of the flange fits the curve of the riser.

Grommet Hole Saw Sizing Chart

Grommet Size inches	Pipe Diameter inches	Hole Saw Size inches	
1/2	0.84	1	
3/4	1.05	1 1/4	
1	1.315	1 9/16	
1 1/4	1.66	1 3/4	
1 1/2	1.90	2 1/8	
2	2.375	2 3/4	Hose & Valve Assembly
3	3.50	3 7/8	
		4	RSV Flanged Coupling
4	4.50	5	

Installing the Recirculating Splitter Valve (RSV)

Drive the stainless steel screws (two are provided) through the holes in the flange into the riser. This helps hold it in place until the glue dries.

Use a finger to make an adhesive fillet around the flange to form a seal.



Installing the Split Flow Tee and Quick Disconnect



IMPORTANT: The set time for adhesives in this step is just a few seconds. Make any adjustments quickly before the adhesives set.

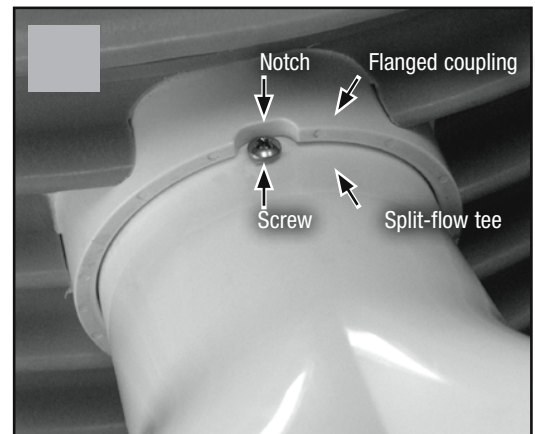
Apply a generous amount of ABS/PVC transition cement on the outside of the stem of the Split Flow Tee and the inside of the flanged coupling.

Use just enough cement to lubricate and adjust the Split Flow Tee's alignment.

From the outside of the riser, insert the Split Flow Tee into the coupling.

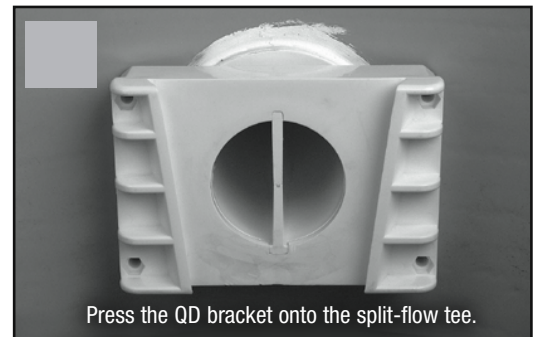
Press the tee into the coupling until the screw on the top of the tee sits in the notch on the coupling.

If needed, adjust the tee to align the center divider straight up and down.



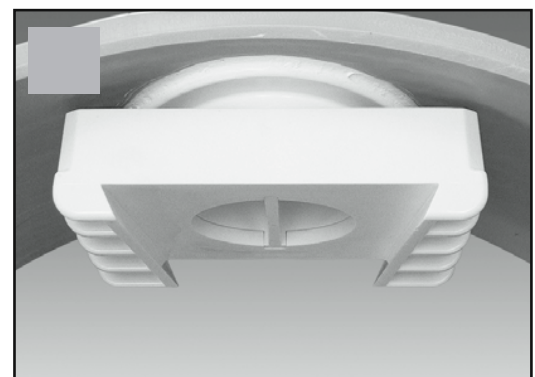
Apply ABS/PVC transition cement to the inside of the Quick Disconnect Bracket.

Use enough cement to lubricate the QD Bracket.



Press the Quick Disconnect Bracket onto the Split-Flow Tee until it is flush with the tee's center divider.

If necessary, carefully use a rubber mallet to assist you in seating the bracket.

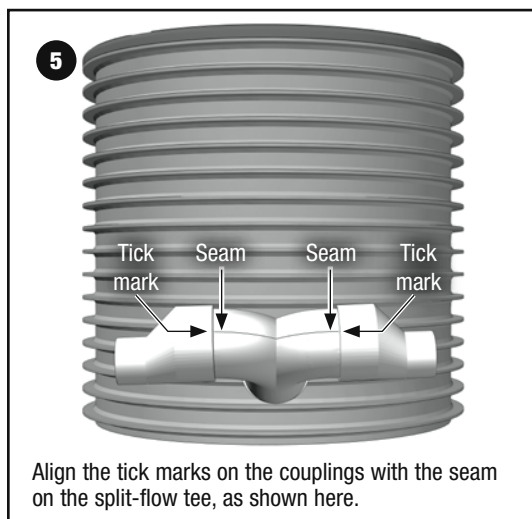


Key Points:

The QD Bracket's wide opening points up toward the lid end of the riser.

The tee's center divider should fit in the slots in the QD Bracket hole.

Installing the Recirculating Splitter Valve (RSV) and the Tank Riser



Attach Eccentric Couplings to Split-Flow Tee

Glue the eccentric couplings of the split-flow tee with ABS/PVC transition cement.

Align the tick marks on the couplings with the outer seam on the split-flow tee. This should ensure the couplings are installed with their offset openings at the invert of the split-flow tee.

Drill the Hole for the Pipe to the Pod

The pressurized pipe from the pump to the filter pod exits the tank riser as illustrated in the drawing at the left. While the hose & valve assembly piping is 1-1/2" PVC, we bump it up to 2" for extra support.

In the desired location (don't forget a diving board goes under it) drill a 2-3/4" hole with a hole saw and install a 2" grommet. Carefully slip the 2" pipe into the grommet with the elbow sticking up. When it comes time to thread the hose & valve assembly to the outlet piping, you'll thank yourself.

Installing the Tank Riser

The riser bolt-ring adapter is a green fiberglass ring that fits on top of the outlet end of the tank. By now, it should be bolted onto the tank with the butyl tape and pipe support brackets in place.

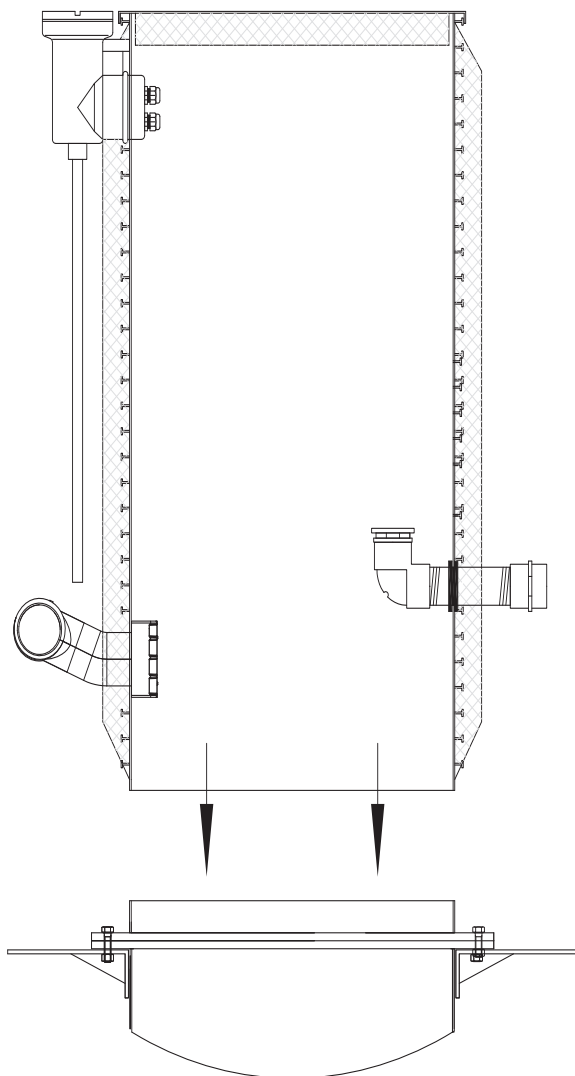
Take a moment to look over the riser itself to make sure the holes have been drilled and grommets installed for the RSV and hose & valve assembly. If everything looks OK, then it's time to glue.

This stuff stinks! Since you will be outside, ventilation will not be a problem. The bag-o-glue will have two pockets to separate Part A from Part B. Remove the plastic that separates the Parts and squeeze the bag until the adhesive is thoroughly mixed. It will look like cake frosting.

This stuff is temperature sensitive so it will harden in about 10-20 minutes working time. Be careful not to let the bag freeze. You should also avoid placing the bag on your truck dashboard as the window defroster will cause it to go off in the bag before you can use it.

Carefully cut a corner off the zip-lock bag to squeeze the adhesive out like you were decorating a cake.

Apply a heavy bead of adhesive around the outside edge of the riser adapter first, then squeeze the remainder around the inside of the riser.



Installing the Tank Riser

Carefully lower the riser into the hole and place it on the adapter.

Before the glue sets, spin the riser so it faces the desired direction.

Make sure the riser is standing straight. This is where your care in cutting off the bottom pays off.

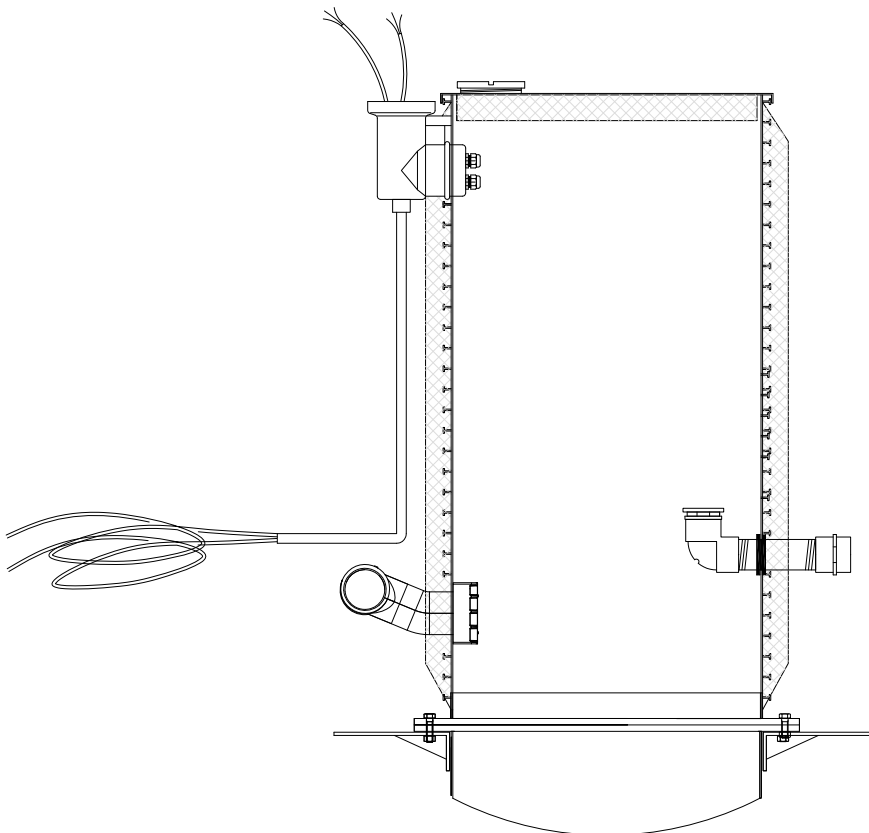
Leave the riser alone while it's drying. **You will have a structural seal within an hour - a watertight seal in 24 hours.**

This is a good time to install the 6" PVC clean-out pipe at the front end of the tank.

You may begin careful backfilling over the tank in preparation for placing the filter pod.



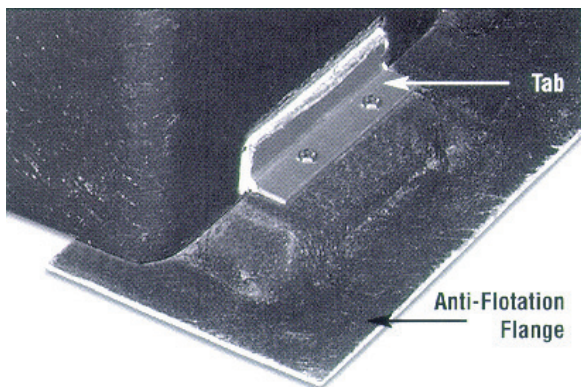
Rough in Wiring



For residential applications lay 2 pieces of 3 wire, UF (Underground Feed) conductor (with ground) in the trench between the electrical control box and the tank. (Use 12 GA for runs less than 175' and 10 GA for longer runs.) That's a total of 6 insulated wires and 2 bare grounds. If your system used a Discharge Pump Basin, place the same wiring into that wire trench. All exposed wiring must be in conduit. Mark one of the cables at each end (usually by taping it) for easy identification once the trench is backfilled. Lay two coils of wire at the house.

Although not required, it is **highly recommended** that all wiring be placed in a conduit. Experience has shown that wires between the control panel and the riser can go bad. The homeowner will appreciate your ability to snake a new wire through the conduit rather than digging up their new hydro-seeded lawn.

Preparing to AX20 Filter Pod



Installing the Anti-Floatation Flanges

Each filter pod comes standard with pre-drilled tabs on the bottom corners, three on each side, and a pair of anti-floatation flanges. These are the long green fiberglass pieces with three raised areas. The anti-floatation flanges help prevent the filter pod from popping out of the ground under saturated soil conditions or frost heaving.

Contrary to popular belief, the filter pod does not retain a lot of water and is lighter than you may think. With the soil conditions in Alaska, these flanges are cheap insurance against a disaster.

Unless you're on a hillside with no chance of rising groundwater, installation of these flanges is mandatory. It's your call.

The anti-floatation flanges come with stainless steel bolts for attachment to the pre-drilled fiberglass tabs on the filter pod. **They can be found in the Vent Kit pictured on the next page.** You'll notice that one side of the three raised areas of each flange is curved to match the bottom corner of the filter pod. Insulation may have to be chipped away in order for the flanges to snug up against the filter pod. With the flanges in position under the filter pod, mark and drill 17/64" diameter holes in the flanges to line up with the pre-drilled holes in the tab. You may find it easier to bolt the flanges to the filter pod by tipping it to one side. If you are careful, sling a strap on opposite corners of the lid to suspend the pod in the air. This makes the installation a little easier.



Placing the Filter Pod

Continue to backfill above the tank to a level where the pod will rest. **It is recommended to use pea gravel rather than native backfill.**

The filter pod must be level and it makes for a nicer installation to have the lid of the pod at the same height as the lid of the riser.

Be sure the filter pod is turned so the inlet & outlet openings are pointing in the direction you want them.



Key Point:

Don't forget to place blueboard insulation over the tank *but not under the filter pod except where it extends beyond the tank.*

The idea is to allow heat from the tank to rise up to the pod.

Preparing to AX20 Filter Pod

Plumbing & Backfilling the Pod

This is a good time to review your sketch to orient the piping.

The Filtrate Discharge Line is the 2" PVC pipe that drains from the pod back to the Split-Flow Tee mounted on the Tank Riser.



Key Point:

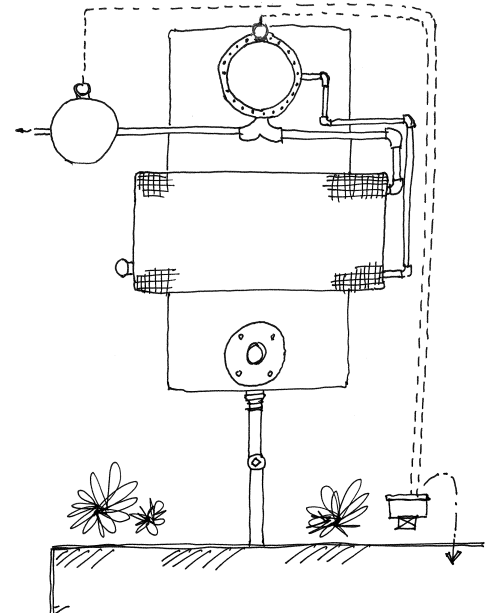
Maintain a minimum fall of 1/4 inch per foot from the invert of the Pod's outlet to the invert of the Split-Flow Tee's inlet. Make sure no sags are in the piping where water can collect as it will certainly freeze.

The Recirc Transport Line is the 1" PVC pipe that extends from the outlet on the Tank Riser to the inlet on the Pod. The gray 2" PVC that extends out the Riser through the grommet is threaded to accommodate a threaded coupling. Thread the flexible hose into this coupling - this provides some flex against soil shear forces. On the other end of the flex hose, install the 1-1/2" to 1" reducer (shown below). Between pump cycles, the weep hole in the elbow just inside the tank Riser wall allows all water trapped in this pipe to return to the tank.

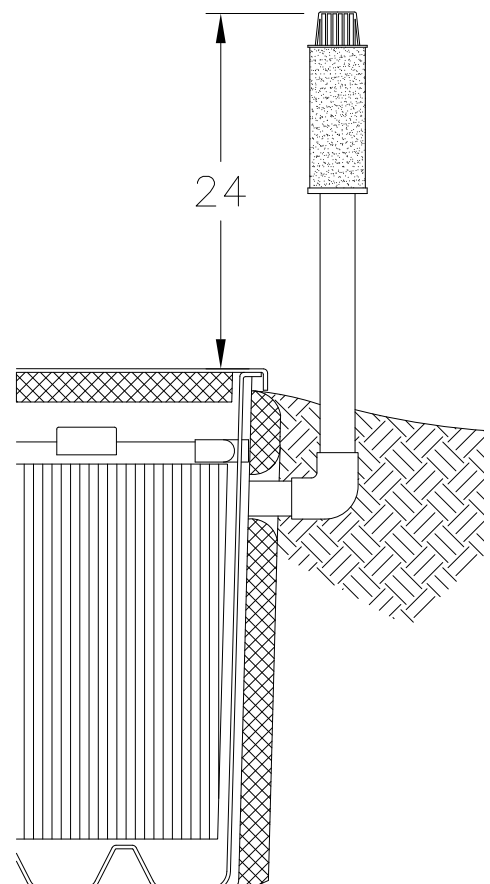
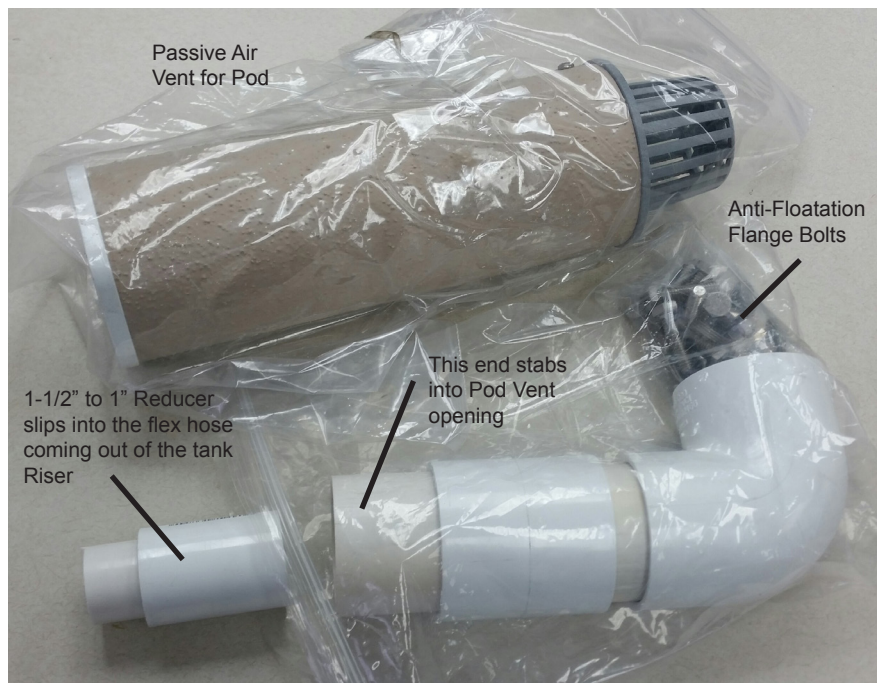


Key Point:

Make sure no sags are in the piping where water can collect as it will certainly freeze.



Passive Air Vent kit for the Filter Pod



Install the Passive Air Vent

On the end of the filter pod, opposite the inlet and outlet openings, you'll find a 2" coupling sticking through the insulation about 10" down from the lid. This is where the Passive Air Vent mounts. Cut a piece of 2" PVC pipe to a length that puts the Air Vent at least 24" above the filter pod lid.

Since the Passive Air Vent can be tripped over, or the homeowner may find it unsightly, it may be desirable to install the vent near a wall or in a location where it can be hidden by landscaping. The homeowner may even paint it a different color.

However, in all cases the line between the Air Vent and the filter pod must be sloped back towards the pod. To prevent the accumulation of water, do not allow any "bellies" or low spots in the vent piping. Keep the 2" PVC vent piping to a total length of less than 20 feet.



IMPORTANT:

Please ensure the Passive Air Vent doesn't impinge on the Filter Pod lid opening.

We've seen the vents snapped off while opening a Filter Pod lid.

Backfilling the System



At this point, you are ready to carefully backfill the system. Take care not to break the piping to and from the filter pod.

Backfill and compact around the filter pod in maximum 12" lifts. Native material is acceptable if there are no large or sharp rocks that might damage the filter pod walls. If the native soil is not usable, and it rarely is, backfill with pea gravel. Slope the ground away from the filter pod to prevent surface water and/or snow melt from ponding on or around the filter.

Use pea gravel around the Riser bottom and filter pod base. Be sure to firmly compact the gravel around the Riser. Equally important is the area supporting the Split-Flow Tee that sticks out of the Riser. If the Split-Flow Tee settles and becomes no longer level, all sorts of problems will result.

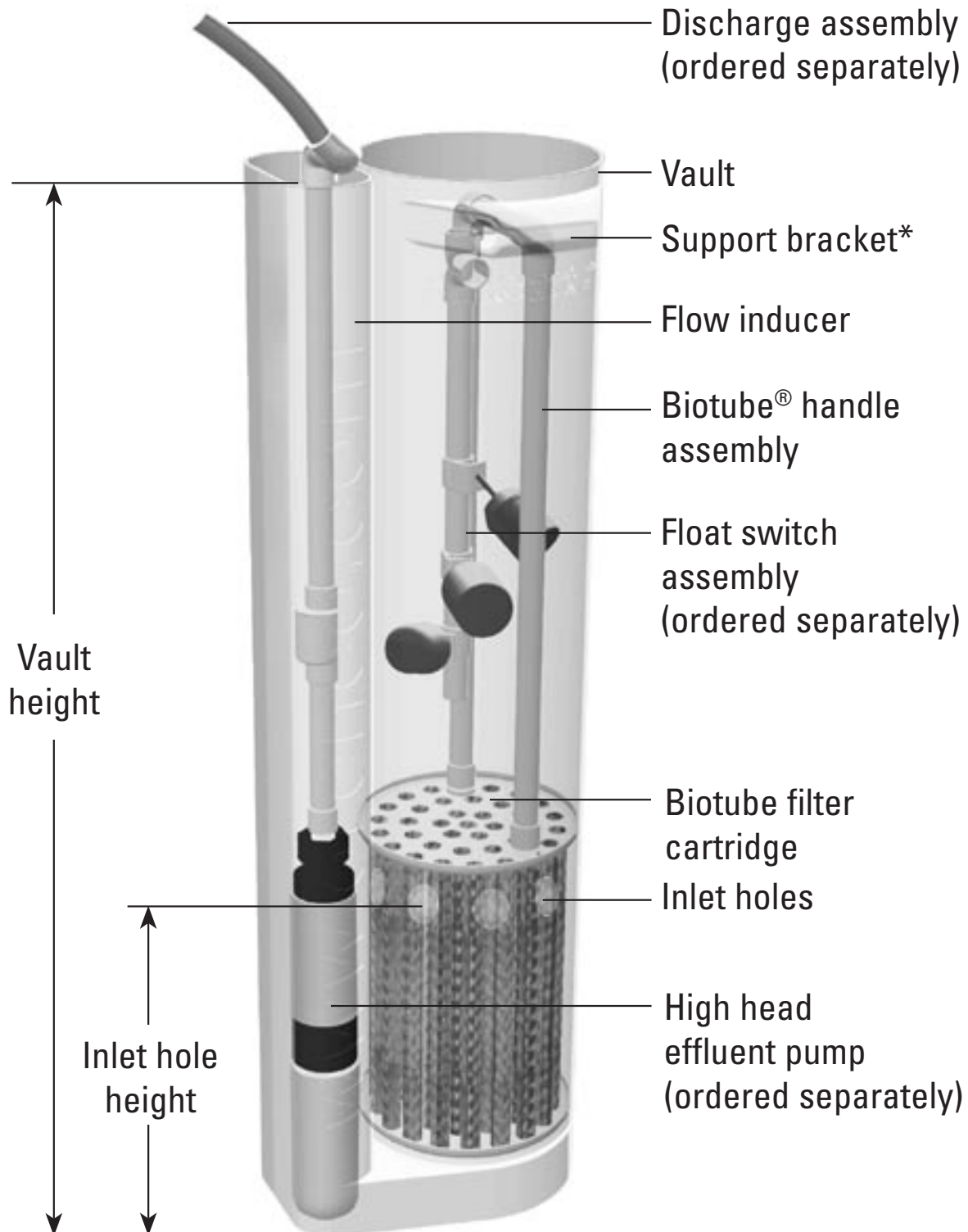


Key Point:

Proper backfilling and careful compaction is the key to your successful installation.

Install the Biotube Pump Vault

Anatomy of a Pump Vault



Install the Biotube Pump Vault

Stop for a moment and orient yourself, you have completed the dirtwork. We are standing on the ground looking through a 24" diameter manhole into the tank. We are now going to set the vault, set the floats, and make up all the recirculation plumbing.

Remove all packaged items from the pump vault. Set all the loose pieces aside as you'll use them shortly. Referring to the drawing on this page, set the float levels for your size tank.



Key Point: *This is the most important drawing in this manual.*

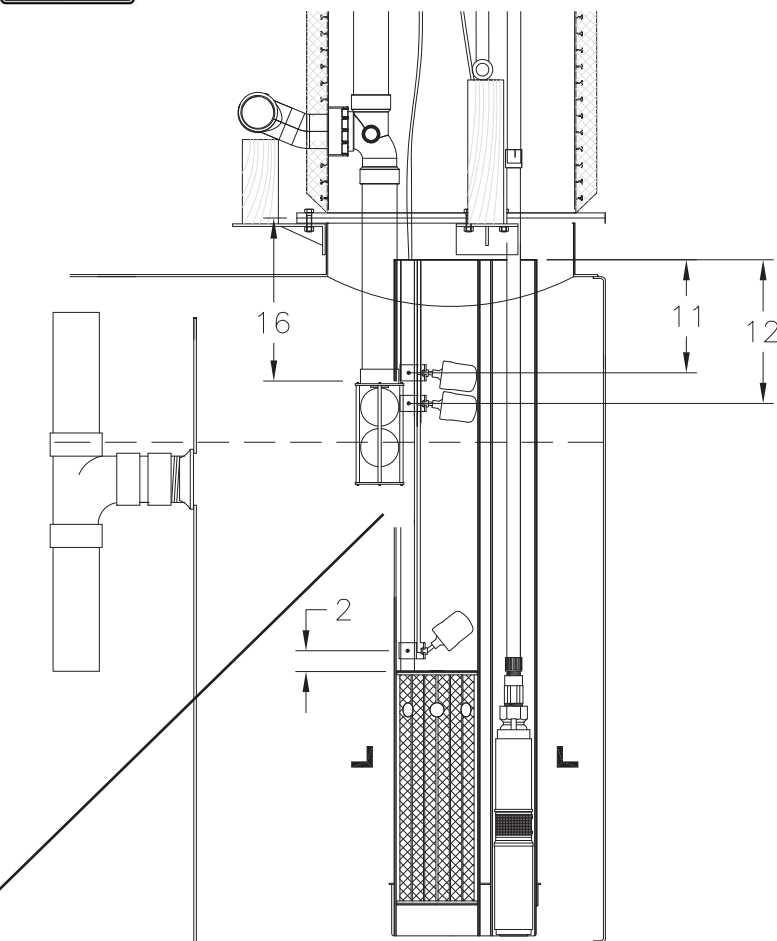
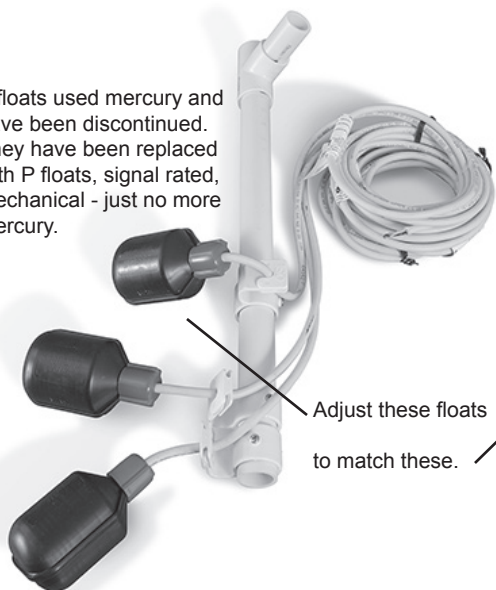


Float levels are not set at the factory.

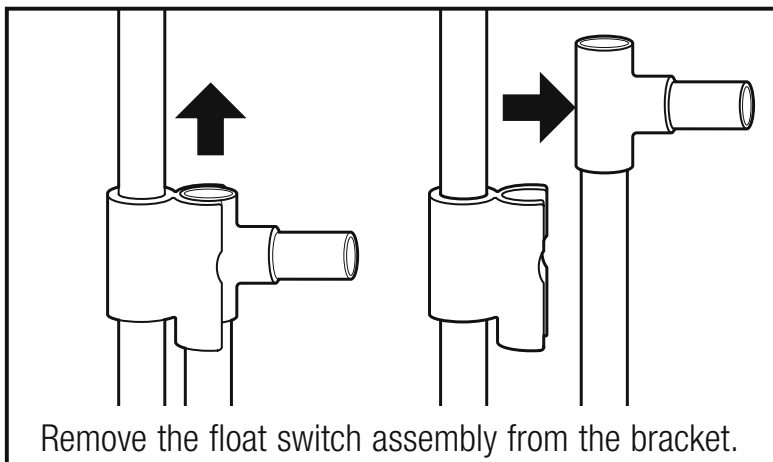
IMPORTANT:

You must verify their proper locations in order for the system to properly function.

A floats used mercury and have been discontinued. They have been replaced with P floats, signal rated, mechanical - just no more mercury.



Remove the float assembly from the vault. Loosen the set screw in the upper float holder and slide it to its proper location. The measurement is made from the top of the blue pump vault to the center-line of the cord grip. Retighten the set screw and reinstall the float assembly in the pump vault. *Do not alter the floats' tether lengths.* Make sure the floats can swing freely without hanging up on each other or on the screen so you may need to turn them so they swing free.



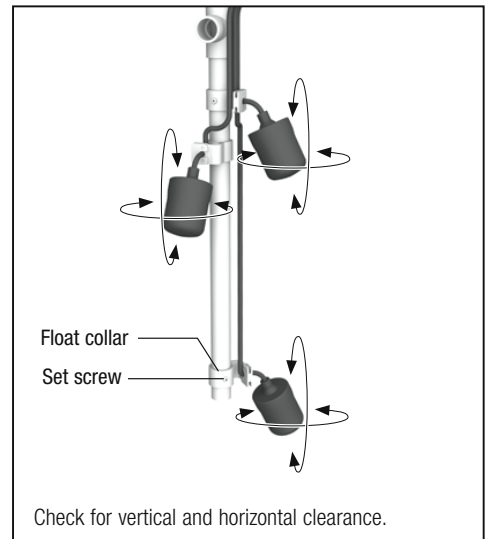
Install the Biotube Pump Vault

Gently lower the blue Biotube® pump vault through the 24" diameter riser into the tank and it will rest on the tank bottom and stand between the angle brackets welded across the tank. You may need to try a few positions while turning the vault to match the orientation of your Riser outlets. Fasten the yellow retrieval rope with the green velco straps near the electrical j-box. Be sure to bring up the float wires as the vault is lowered. Push the float cords through the 3 cord grips on the splice box. The pump wire gets inserted into the fourth cord grip. Tighten the cord grips by hand, then test the tightness of the grip by tugging firmly on the cord. A cord is secure when the cord grip is tight enough to prevent slippage.



Key Point:

All splicing should be done with heat shrink/ butt connectors and/or watertight wire nuts by your electrician. Leave a length of electrical cord coiled inside the riser adequate to allow easy removal of pumps and floats. Leave wires long enough inside splice box to permit possible cutting and resplicing in the future.



Install the Biotube Pump Vault



This is what the Hose & Valve Assembly looks like when you pull all the parts shipped inside the blue pump vault.

The Hose & Valve Assembly



IMPORTANT:

Always use lots of teflon paste on all the threaded joints. They are designed, as you can see, to be taken apart. Therefore, it should go without saying that these joints should never be glued, although we've seen it done. Joints must be hand tightened only. Move the swing joints to make the plumbing fit. If it doesn't fit, you're probably doing something wrong.



Key Point:

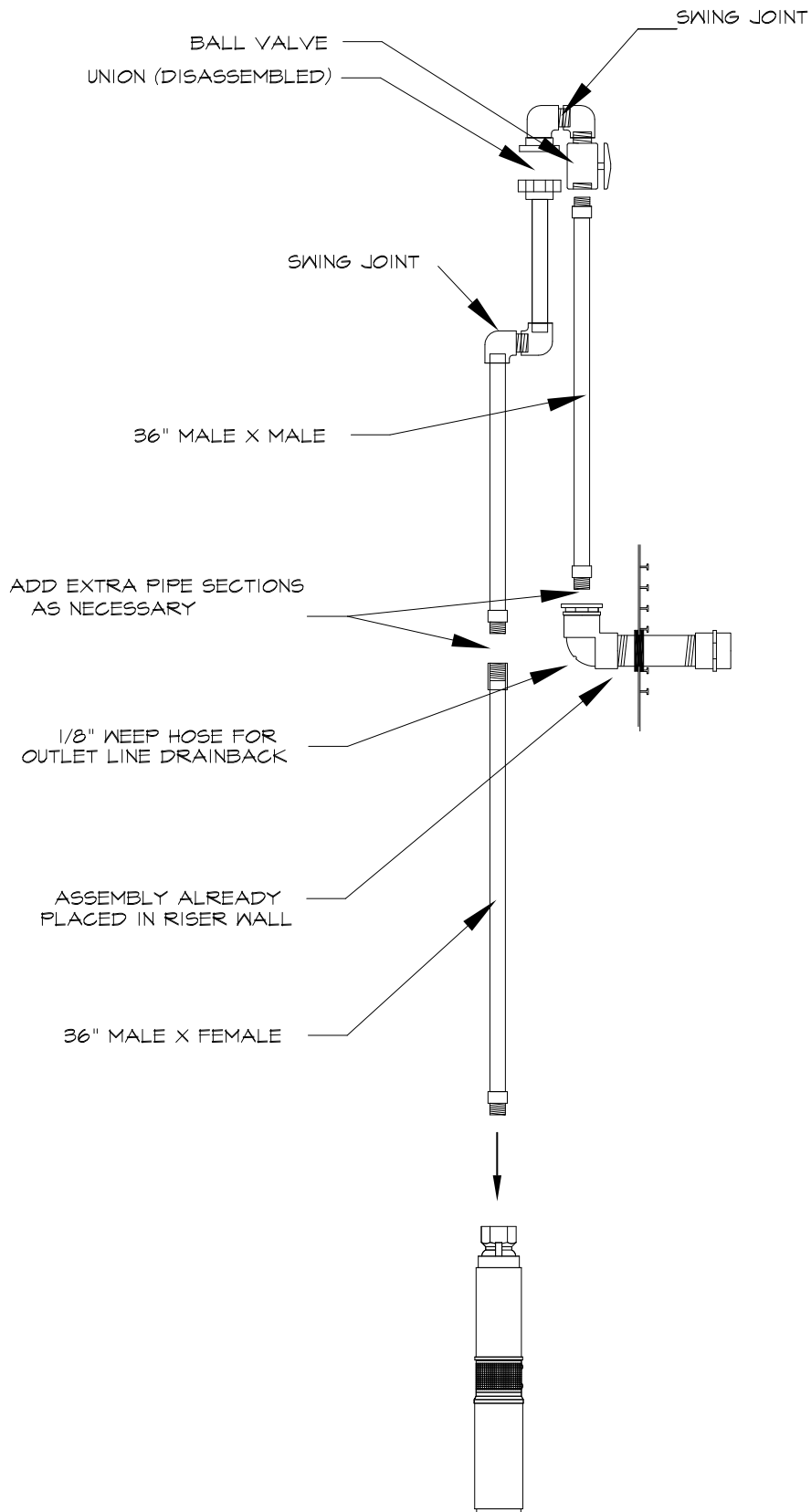
However, if a joint is slip, then it needs to be glued. We've found them unglued when they eventually pop apart.

Lay out the pipe pieces of the hose & valve assembly as shown in the photo on the left. The swing joint piece usually needs to be twisted to the way it looks on the drawing. If using a 6' long or longer manway, add one of the extra lengths of pipe to each side of the plumbing.

Start with the discharge side of the hose & valve assembly. Disconnect the union in the swing joint and thread the double male end pipe into it. Reach down into the riser and screw it into the threaded 90° fitting you installed in the riser when you put in the 2" diameter grommet. This is why alignment of the 90° was so important. Don't cross thread it. If you can't thread this piece in from ground level, it may be necessary to go down into the tank to do it. The PVC piping will stand a little bending, but go easy. If excessive strain causes the piping to break, you can bet it will do so at 30 below, after the tank has been in use for a while. In cases of gross misalignment, it may be necessary to cut the vertical pipe and install a small length of 1-1/4" pressure hose to obtain the necessary flexibility for aligning this piece with the other plumbing.

Next you make up the pump side of the plumbing by connecting all the pieces shown in the drawing. Carefully lower the pump into the oval opening in the blue plastic vault. It doesn't matter which side, as it is designed to hold two pumps. Turn the swing joints to align the union halves. You'll have a little bit of wiggle room but be sure to leave room for the RSV. Connect the unions hand tight only. Make sure the floats can swing freely without getting hung up on the plumbing. It's a tight squeeze!

The Hose & Valve Assembly



If you find instruction sheets stapled around the cord, please remove them.



Feel free to extend the Hose & Valve Assembly higher into the Riser.



Installing the Recirculating Splitter Valve (RSV)

Determine the Stinger length

Since the RSV Bracket may be installed on the riser wall at any location, the only way to properly determine the Stinger length is to cut it to a length that will allow the top of the RSV Cage to be approximately 16" below the top of the riser flange.

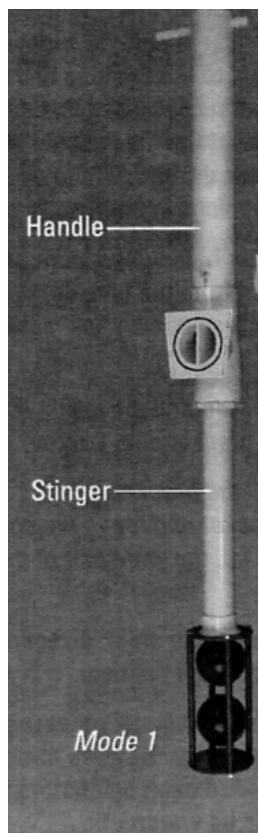
The Stinger pipe supplied is 18" long, so you may have to use another piece of pipe to reach the depth required, depending upon where the RSV bracket is mounted on the riser wall.

This is important! It is highly recommended to keep the Stinger length less than 36" in length.

Stinger lengths greater than 36" allow too much water to stand in them and the two balls in the cage will not float to seal off the RSV properly.

However, if all else fails and your system needs a Stinger length of greater than 36", contact Anchorage Tank for a special reducing washer that can be inserted in the Stinger. The washer reduces the flow into the RSV and permits a greater length.

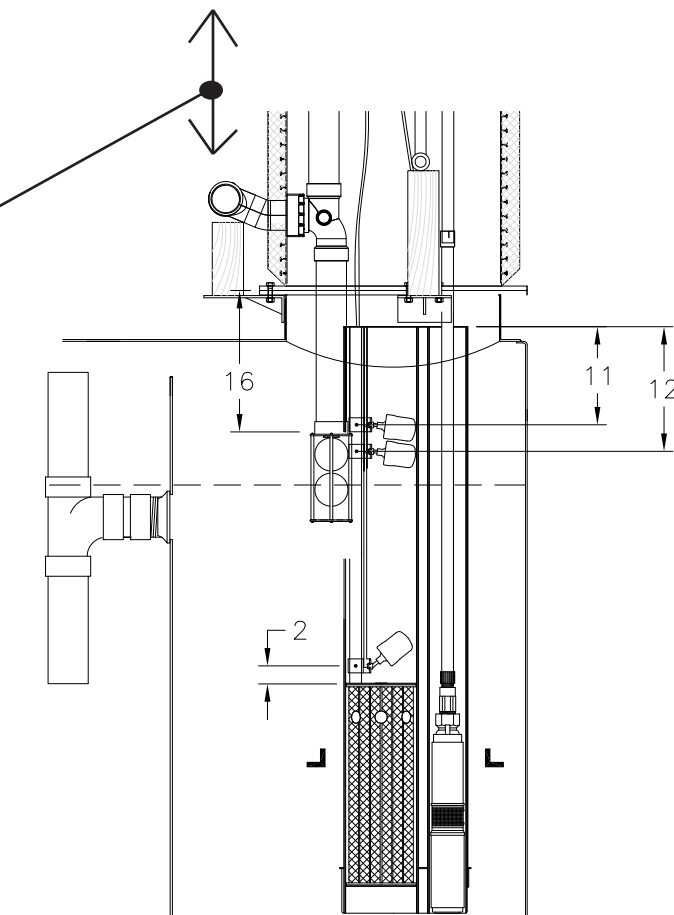
After you've cut the stinger pipe to the correct length, attach it to both the RSV cage and the RSV body using all-purpose cement. Then attach the handle to the top of the RSV body in the same manner. The handle should extend up into the Riser so it's easy for the Service Provider to grab for removal.



The RSV Split-Flow Tee penetration in the tank Riser is where it's tempting to fudge it higher to gain gravity flow to a drainfield, thus eliminating the use of a Discharge Pump Basin. Be careful to check the rated burial depth of your tank. Also, by penetrating the tank Riser higher, your Stinger pipe gets longer since the top of the ball cage still needs to be 16" below the manhole seam.

This is a very important measurement. If you use the stinger pipe that comes with the kit, the ball cage may be too high in the tank, causing all sorts of alarms to track down when the system is operational. Please verify you have 16" from top of cage to riser seam when it's in place.

Carefully lower the RSV into the bracket attached to the inside of the Riser. Basically, this is a plastic pitless adapter. It will be a tight fit, but slide the RSV down until it comes to a rest at the bottom of the bracket. From above, it will appear flush when it's properly seated.



Installing the Control Panel

Call the Electrician... and share this manual with him

In the Municipality of Anchorage, an electrician must be employed to do the wiring. Outside the city, whether required or not, this is a good idea unless one is thoroughly familiar with wiring and local codes.

A set of wiring instructions is inside the control panel and should override anything printed in this manual. Control Panels change from time to time and the wiring diagram in the panel will be the most accurate for your system.



Key Point:

By now you've found the control panel inside a cardboard box and have set it aside. That control panel has a distinct identity and has been assigned to that particular address.

On the inside of the control panel door, you will find a label that shows the model number and a six-digit RTU number. (RTU stands for Remote Telemetry Unit). The RTU number is the identity of the system for as long as it is in operation. Why is this a big deal to you? Well... if you are installing and taking possession of more than one system at a time, it is easy to simply grab the first panel you find for the electrician... and it may end up at the wrong house! Anchorage Tank makes the RTU / address assignments as systems are sold so if you get confused - please call Anchorage Tank. This has happened before. Imagine how much fun it is to have a control panel "phone home" with an issue and the Service Provider shows up at the wrong house where nothing is wrong.

Placement of the Control Panel

There has been a lot of debate where to place the Control Panel. Each site is different but the rule of thumb is that the physical installation of the Control Panel should be within view of the Tank & Filter, at a convenient height, usually 5 feet above grade.

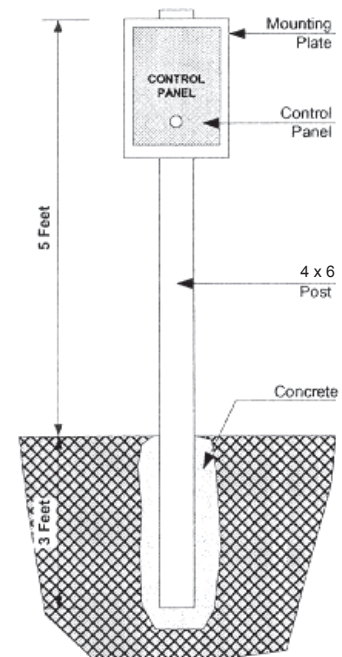
The Control Panel contains motor contactors that make a clunking sound each time the pump is activated. If the Panel is attached to the wall of a house, it sounds like a moose kicking the wall every ten minutes. With that in mind, it is preferable to mount the Panel on a treated 4x6 post right next to the wall.



IMPORTANT:

The Control Panel should NOT be placed inside the home. The idea is for the Service Provider to access the panel for maintenance and emergency situations and NOT bother the homeowner.

Initially it may sound good to have the panel located indoors but it actually isn't. The panel is designed to be located outside.



Installing the Control Panel



Key Points:

- Do not remove the colored markers or the paper tags from the float cords. These should be left on the float cord, outside the splice box.

- Do not thread the markers and tags through the cord grips.

- Adequate length of cord should be left within the splice box to allow for easy removal for future disconnecting and re-splicing.

- Wire that is improperly sized (too small) can cause excessive voltage drop, poor pump performance, and premature failure.

- Splices that are not waterproof may cause malfunction of the pump controls if water should leak into the splice box. We've seen it happen.

Floats and Pumps

At this point, the floats and pump is in place and their wires have been stabbed into the splice box.

Just in case they aren't, thread the float and pump cords through the cord grips into the PVC splice box, leaving adequate length of electrical cord coiled inside the riser to allow easy removal of the pump and float assembly. Tighten the cord grips by hand and then check the tightness by tugging on each cord.

The wires from the Control Panel to the splice box should be run in conduit. **A conduit seal should be used to prevent infiltration of water into the splice box.** The number of wires depends upon the number of pumps and floats, but most 3-float 1-pump systems use 2 runs of 3-wire 12 GA direct-burial. That gives you a total of 6 wires and two bare grounds.

All splices made in the splice box should use waterproof wire nuts or butt connectors and heat shrink tubing.

HANDY HINT

At the home's electrical panel, you will use two 20 amp breakers, one for the control side of the panel and the other for the pump side.



IMPORTANT:

Don't forget the remote alarm. This connects to the control panel using phone wire and is normally placed inside the garage. The remote alarm is a code requirement.

Connecting to the Control Panel

Connect the wires coming from the floats to the terminals in the Control Panel. Refer to the appropriate *Float & Splice Box Wiring Diagram* for the correct terminal locations for your system. The diagram found in your Control Panel supercedes anything printed herewith.

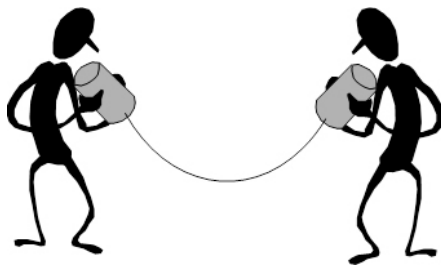
Connect the wire coming from your pump to the pump terminal. The Panel Wiring Diagram will display the correct terminal connections for your system.

Connect the incoming power to the panel. Power to the panel must be appropriate to the Control Panel and pump motor e.g., 120 VAC, single phase for a 120 VAC motor, 240 VAC single phase for a 240 VAC motor, etc.)

Ensure that the panel is properly grounded and that the fuse or breaker and wire size, from the main power panel to the pump, are correctly sized. A separate circuit for the pump controls and each of the pump motors is recommended.

Note: Voltage for the controls in the panel is always 120 VAC, although the pump voltage may be 120 VAC or 240 VAC.

Use 600 CU conductors only. Torque to the following: Terminal blocks @ 15 LB-IN. Circuit breaker @ 20 LB-IN and ground lugs @ 45 LB-IN.



Key Points:

Do not service the pump or any electrical wiring in the pump vault without disconnecting the power at the circuit breaker and/or fuse.

Serious injury and/or damage to the system could result if the panel is not properly grounded. Ensure that the fuse, breaker, and wire size, from the main power panel and to the pump, are sized correctly.

The pump vault is a hazardous area and may contain explosive gases. Take appropriate precautions according to local, state, and federal regulations before commencing work in the pump vault.

It is the responsibility of the installer to comply with all local, state, and federal regulations that may govern the installation of systems of this nature. Failure to comply with such regulations may void the manufacturer's warranty and could possibly cause bodily injury.

Connecting for Remote Monitoring

To permit remote monitoring of the system, the VeriComm Control Panels have the option to utilize a common phone line or a high speed internet connection. You will need to check with the homeowner to determine which connection method is available or desired.

Should they decide on a regular phone line, please be aware these panels do not need a dedicated phone line, merely an extension of an existing line.

Installation of a traditional copper-wire analog telephone line is straight-forward. You'll notice a phone jack connection in the middle of the control panel. A DSL line filter/surge arrestor is also installed. Once you have a dial tone at the end of this phone line, just plug it in and you're good to go.

Digital connections (internet) normally require assistance from the internet provider. (GCI, etc.) Please ask the homeowner to call Anchorage Tank for further information .

Control Panel Wiring Diagram



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TOLL FREE:

(800) 348-8843

TELEPHONE:

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FACSIMILE:

(541) 459-2884

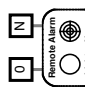
WEB SITE:

www.orengo.com

Key

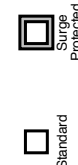
- = Factory Wire
 - - - = Remote Field Wire
 - A = Alarm, 115 VAC
 - AL = Alarm Light
 - AS = Audio Silence Switch
 - CCB = Controls Circuit Breaker
 - DF = Fuse, 120VAC/1A
 - PCB = Motor Contactor
 - RA = Remote Alarm Relay
 - RTU = ATRTU-100 Controller
 - SEA = Serial to Ethernet Adapter
 - TL = Terminal Link
 - TR = Transformer 120-36/18VAC
- *Options**
- HT = Heater
 - PL = Power Light
 - PSA = Pump Run Light
 - PSA = Phone Line Surge Arrester
 - SA = Surge Arrester

Remote Alarm Connections



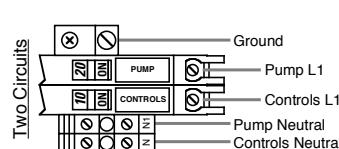
Note: 115VAC signal is present during alarm conditions.

Terminal Block Types



For VCOM-AX20A operation description, see drawing no. "EIN-CP-OP-505".

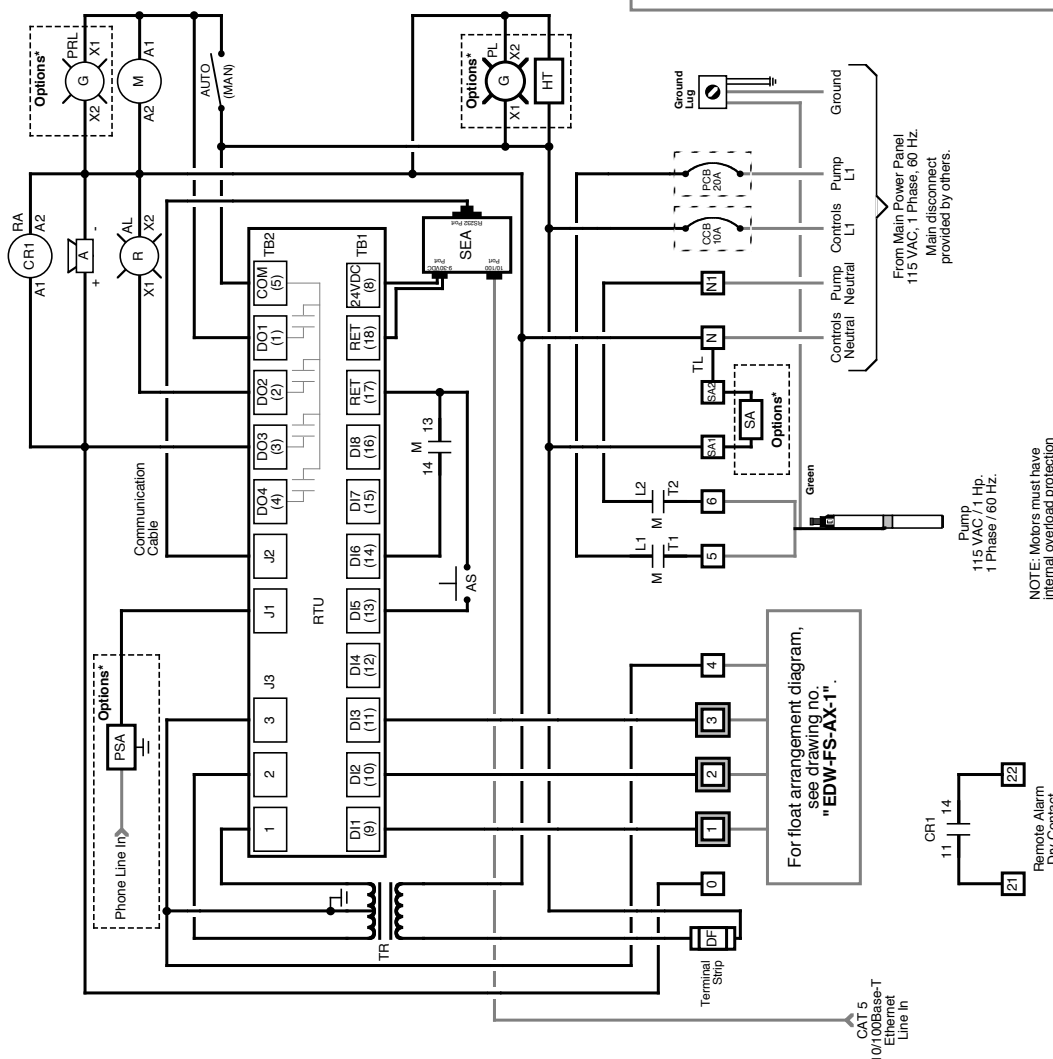
Power Wiring Options



Factory default. Wire as shown.

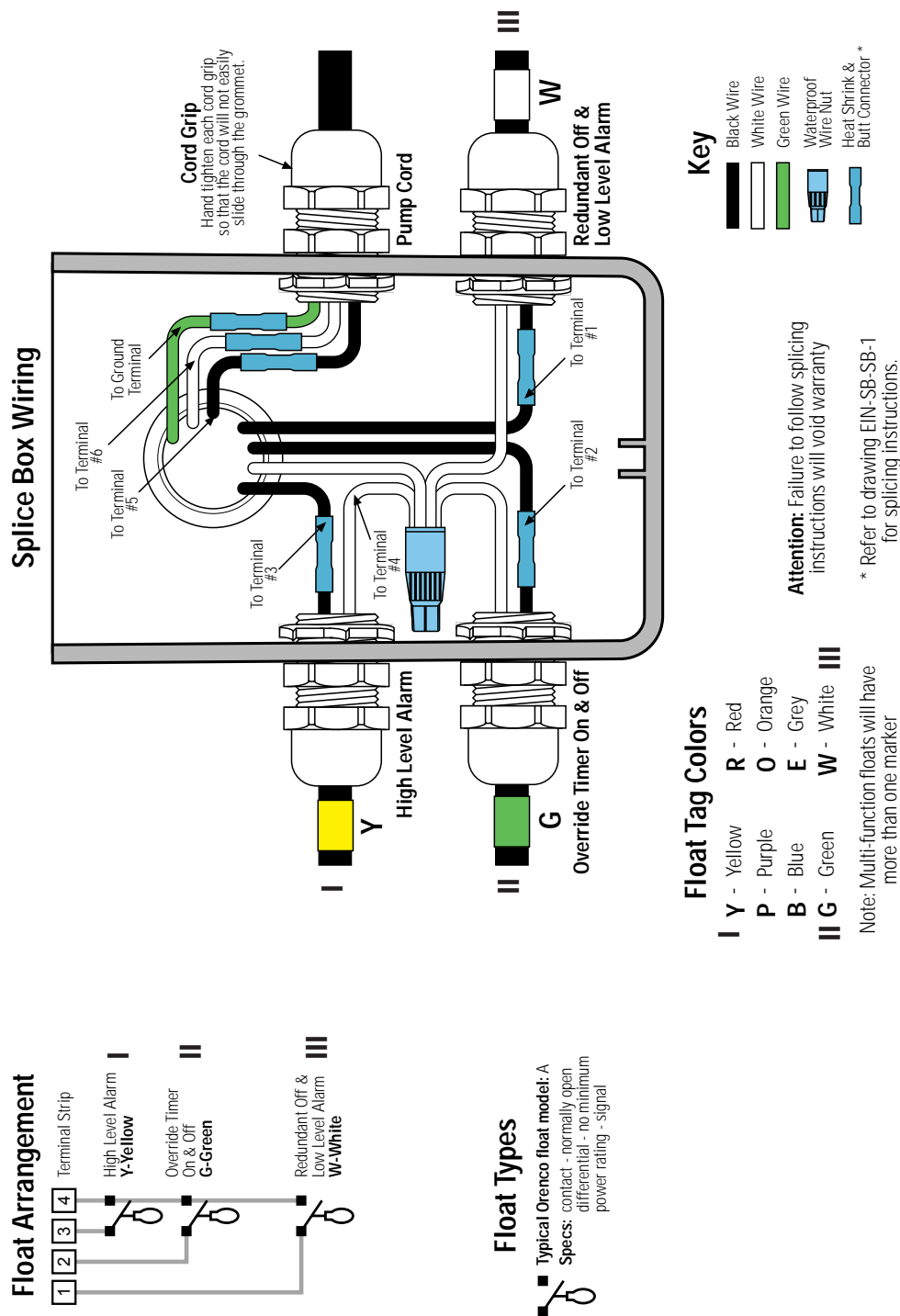
EDW-WD-AX-121
Rev. 8.0 © 06/24/13

Control Panel Wiring Diagram Model VCOM-AX20A1 RA IP



Float and Splice Box Wiring Diagram

Float & Splice Box Wiring Diagram



IMPORTANT:

Contrary to what this diagram shows, Orenco no longer color codes their float wires. Because of this, you will want to mark the yellow float cords yourself with a black Sharpie pen. For example: place a tick mark I for Yellow, II for Green, and III for White.

Control Panel Series	Float Function Color Code	Splice Box Model	Drawing No.
VCOM-AXA	YGW	SB4	EDW-FS-AX-1

Control Panel Operation



What's so special about this gray box?

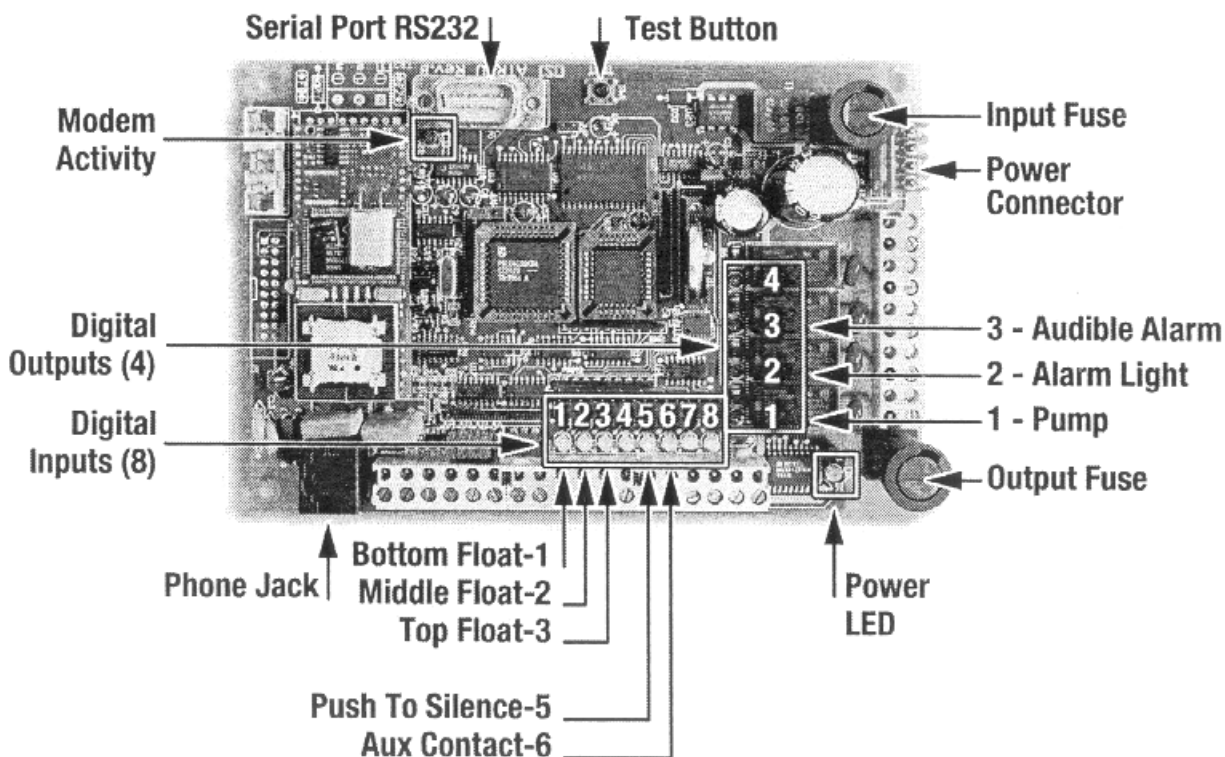
The VCOM-AXA telemetry-enabled panel is used for remote monitoring and control of timed, recirculating simplex pumping operations with gravity discharge. Other configurations of AdvanTex require a different Control Panel and those will be discussed in an appendix to this manual. The AXA panel is the most commonly used so we'll look at it first.



Basic control logic manages the day-to-day functionality of the Control Panel. The VCOM-AXA system continuously recirculates, until the Recirculating Splitter Valve (RSV) seats, then the system discharges small amounts of treated wastewater throughout the day. During peak flow conditions, more aggressive timer settings (overrides) are used to manage the increased demand.

Fault conditions are automatically reported to the VeriComm Monitoring System (a web-based database by Orenco Systems) and not locally at the panel, making the system virtually invisible to the homeowner. Alarms and Alerts cause an email to be forwarded to Anchorage Tank personnel. However, if these conditions are not responded to, or the system cannot communicate with the VeriComm Monitoring System (the phone line or internet might not be connected), then the local alarms at the Panel will activate.

To silence local alarms, press the "Push to Silence" button until the audible alarm stops.



A few more chores to close out the job

At this point, the system has been installed and the electrician has completed the wiring. Just a few more items and the job is finished:

A quick plumbing check will ensure everything is ready to go.



Key Point:

In an ideal world, the tank would be filled with water but that's not always possible if the well is low-producing or if the house is not yet built. However, if possible, fill the second compartment of the tank with a garden hose (through the 24" diameter manhole) to a level where the bottom float is submerged and the upper two floats are still dangling in air. This should be enough water to test the recirculation.

So far the AX20 Filter Pod has remained closed. This was on purpose because the Pod can flex out-of-square if the lid is opened before it has been carefully back-filled. Carefully remove the three screws holding the pod lid in place. The lid is held open by a slide rail on one side.

Inspect the interior of the pod to ensure all the fabric is hanging in the rack. Sometimes they pop out during shipping & installation. It's easy to place them into the grooves.

Open the red ball valves at the end of each lateral. In the control panel, flip the Recirc Pump switch to MANUAL for 30 seconds or so. This will flush out any bits of gravel & gunk that may be in the piping. Flip the switch back to AUTO and close the ball valves. Turn the pump on again to inspect the water dancing across the top of the filter sheets. If you get a single squirt, slide the orifice shield over top of the hole. If you're happy with the results, turn the pump back to AUTO. Before closing the pod lid, sweep away any gravel or dirt from the outer edge of the pod. It seals better that way.



Now that you are finished..... call Anchorage Tank

When the system is complete and the communication line is installed, please give a call to Anchorage Tank so we can get it registered with both Orenco Systems and VeriComm, and schedule the System Start-Up with the Service Provider.

Any information you can provide is extremely helpful such as... Home for sale? Home even built? Anyone living there now? Power turned on/off? Homeowner information such as name & phone number. And anything else that might help the transition.

272-3543

Appendix A: Multi-Pod Systems



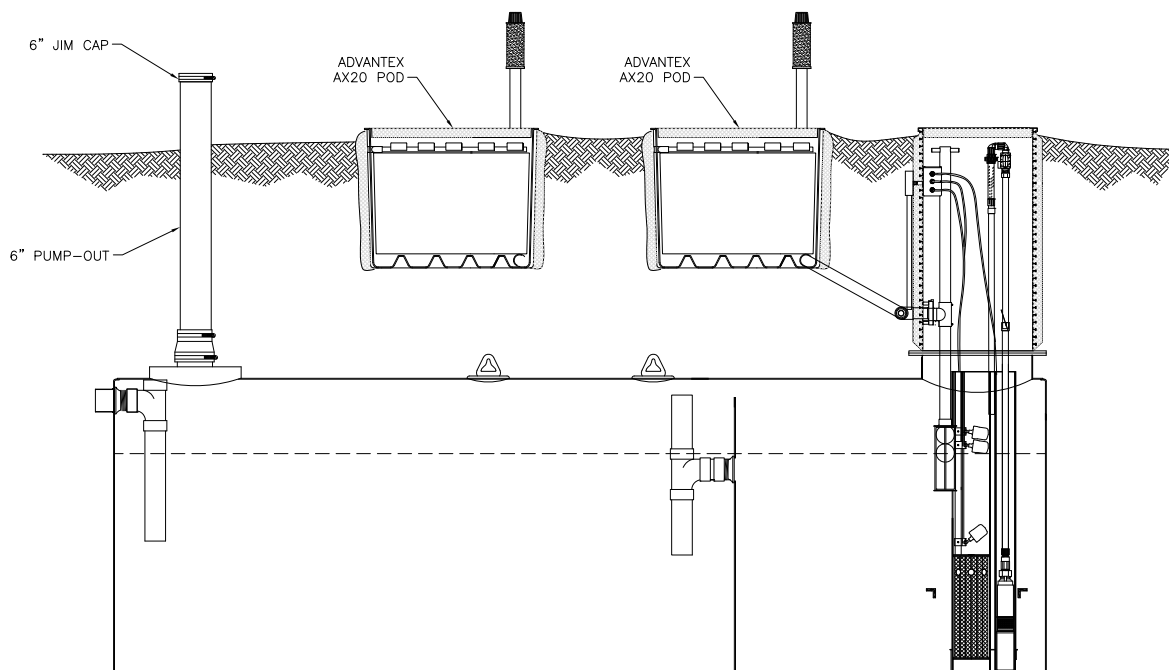
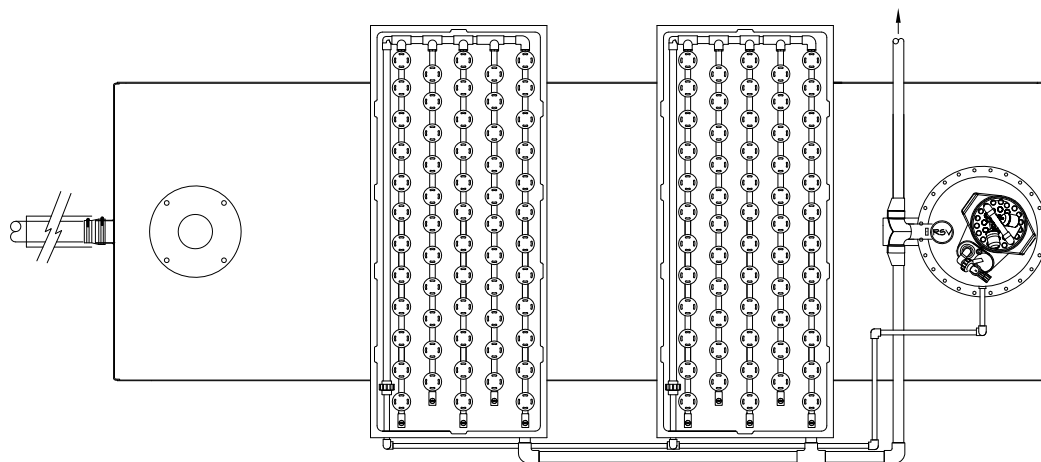
Key Point:



Recirc Pump
should be
Model PF50
50 GPM pump

Homes with 5 or more bedrooms require larger tanks and multiple pods. The installation is very similar to a single-pod system with a few exceptions:

- The AX20 Filter Pods are piped together for filling and draining back to the tank.
- With the extra tank length, there should be plenty of room to orient the pods side by side.
- The additional pod will have an additional Vent kit.



10 GA

1500 GALLON

ANCHORAGE TANK

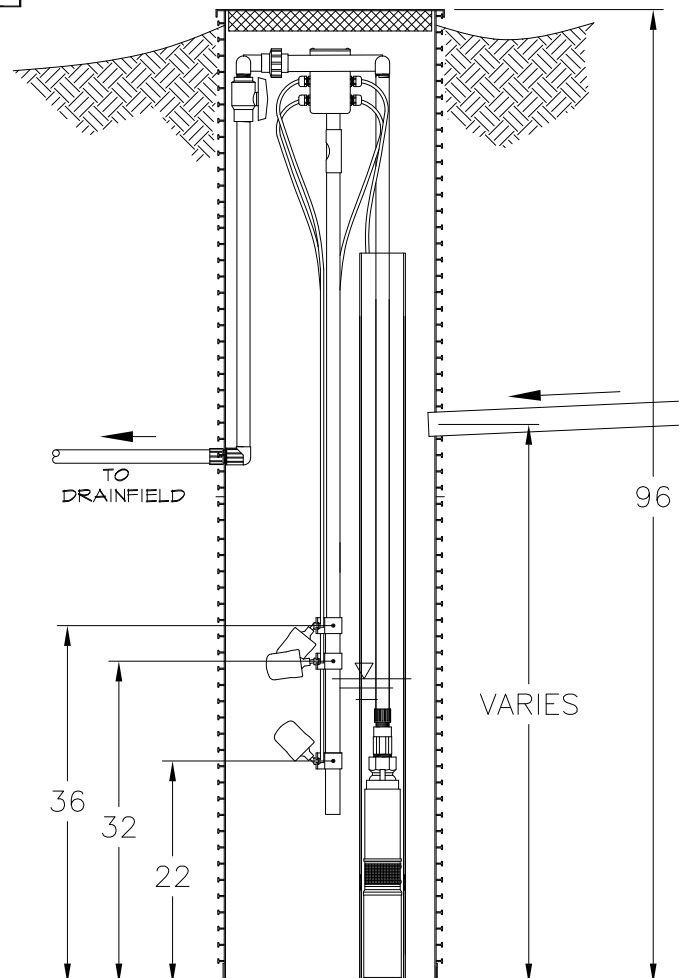
96

TO DRAINFIELD



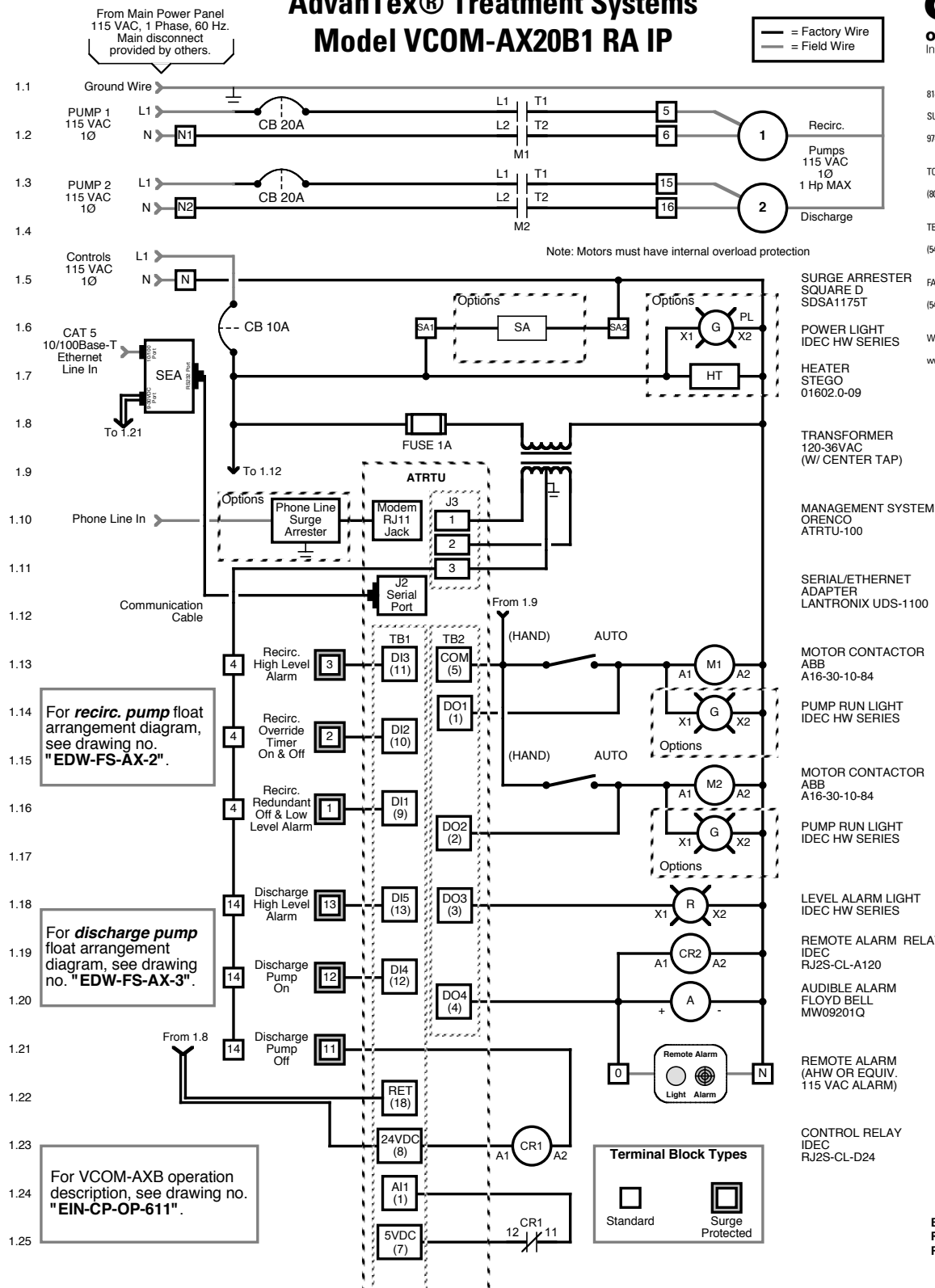
Enter the basin as high as possible (and still maintain the slope required from the system) to leave as much room as possible for the pump and the floats below.

You may need a greater distance between the Pump ON and OFF floats if you have a long distance to the drainfield.



Appendix B: The Discharge Pump Basin

Control Panel Wiring Diagram
AdvanTex® Treatment Systems
Model VCOM-AX20B1 RA IP



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SUTHERLIN, OREGON
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ABB
A16-30-10-84

PUMP RUN LIGHT
IDEC HW SERIES

LEVEL ALARM LIGHT
IDEC HW SERIES

REMOTE ALARM RELAY
IDEC
RJ2S-CL-A120

AUDIBLE ALARM
FLOYD BELL
MW09201Q

REMOTE ALARM
(AHH OR EQUIV.
115 VAC ALARM)

CONTROL RELAY
IDEC
RJ2S-CL-D24

EDW-WD-AX-119
Rev. 8.0 © 06/24/13
Page 1 of 2

Appendix B: The Discharge Pump Basin

2.1

2.2

2.3

2.4 PUSH TO SILENCE

2.5

2.6

2.7

2.8

2.9

2.10

2.11

2.12

2.13

2.14

2.15

2.16

2.17

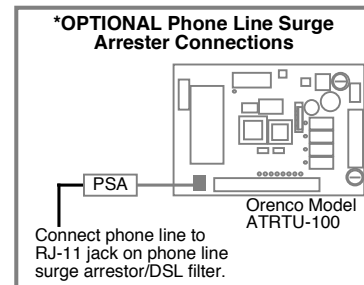
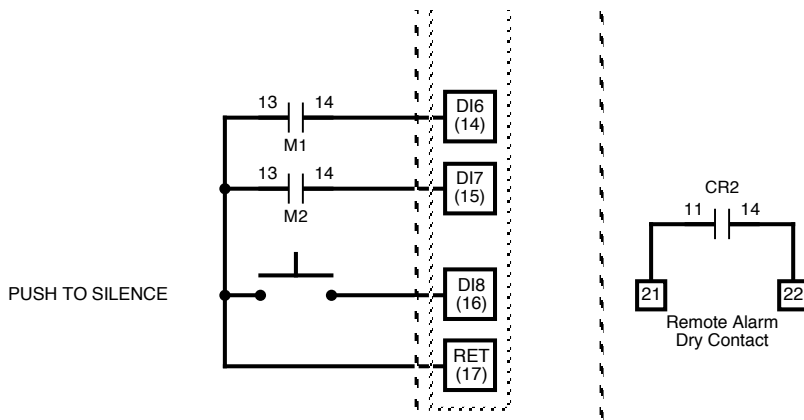
2.18

2.19

2.20

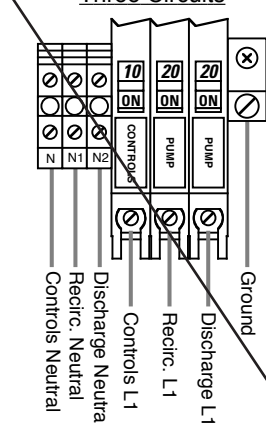
2.21

2.22



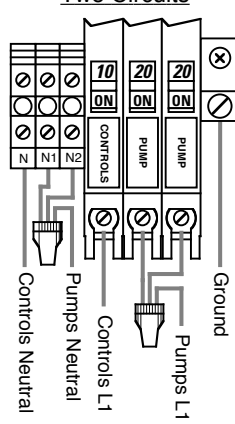
Power Wiring Options

Three Circuits



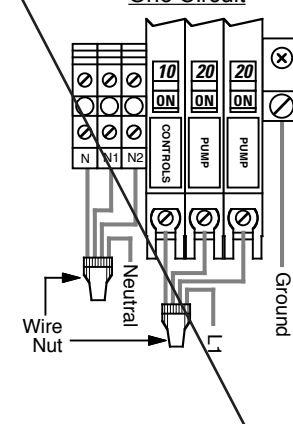
Factory default.
Wire as shown.

Two Circuits



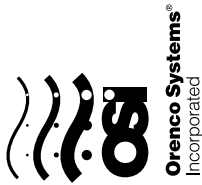
Use one wire nut to connect each pump circuit breaker together with the incoming L1 power line. Use another wire nut to connect the neutral block of each pump with the incoming neutral line.

One Circuit



Use one wire nut to connect each pump circuit breaker together with the controls breaker and with the incoming L1 power line. Use another wire nut to connect the neutral block of each pump with the controls neutral block and with the incoming neutral line.

Appendix B: The Discharge Pump Basin



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97479-9012

TELEPHONE:

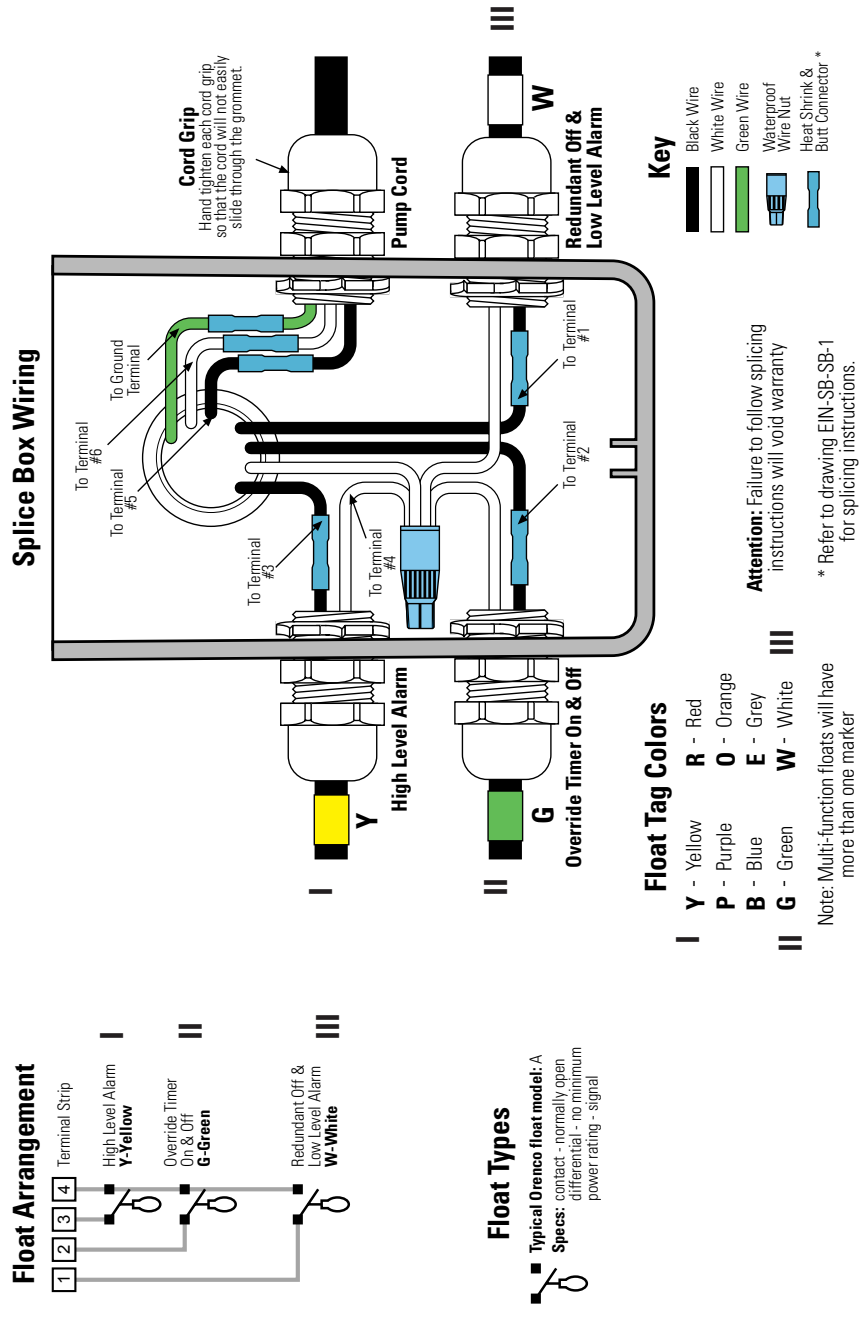
(541) 459-4449

FACSIMILE:

(541) 459-2884

Float & Splice Box Wiring Diagram

For use in two pump systems, recirc. side.



EDW-FS-AX-2
Rev 1.0 ©08/10/01

Control Panel Series	Float Function Color Code	Splice Box Model	Drawing No.
VCOM-AXB	YGW/	SB4	EDW-FS-AX-2



IMPORTANT:

Contrary to what this diagram shows, Oreco no longer color codes their float wires. Because of this, you will want to mark the yellow float cords yourself with a black Sharpie pen. For example: place a tick mark I for Yellow, II for Green, and III for White.

Appendix B: The Discharge Pump Basin



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814 AIRWAY AVENUE

SUTHERLIN, OREGON

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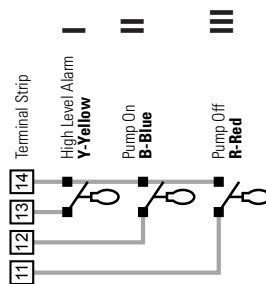
FACSIMILE:

(541) 459-2884

Float & Splice Box Wiring Diagram

For use in two pump systems, discharge side.

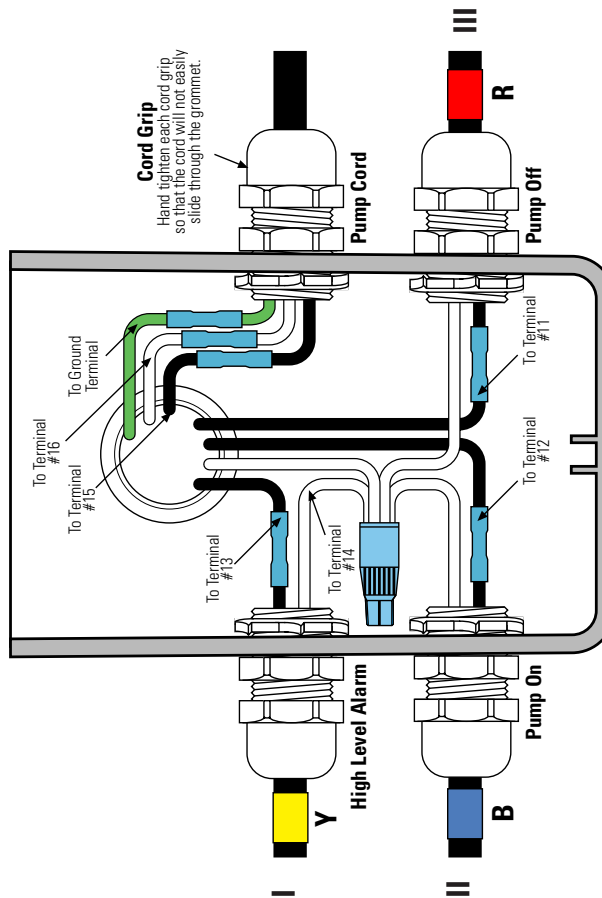
Float Arrangement



Float Types

Typical Oreco float model: A
Specs: contact - normally open
differential - no minimum
power rating - signal

Splice Box Wiring



Float Tag Colors

- I Y - Yellow R - Red
- P - Purple O - Orange
- II B - Blue E - Grey
- G - Green W - White

Note: Multi-function floats will have more than one marker

Key

- Black Wire
- White Wire
- Green Wire
- Waterproof Wire Nut
- Heat Shrink & Butt Connector*

Attention: Failure to follow splicing instructions will void warranty

* Refer to drawing EIN-SB-SB-1 for splicing instructions.

Control Panel Series

VCOM-AXB

Float Function Color Code

/YBR

Splice Box Model

SB4

Drawing No.

EDW-FS-AX-3

EDW-FS-AX-3
Rev 1.0 ©08/10/01



IMPORTANT:

Contrary to what this diagram shows, Oreco no longer color codes their float wires. Because of this, you will want to mark the yellow float cords yourself with a black Sharpie pen. For example: place a tick mark I for Yellow, II for Blue, and III for Red.

Appendix B: The Discharge Pump Basin - Control Panel Operation



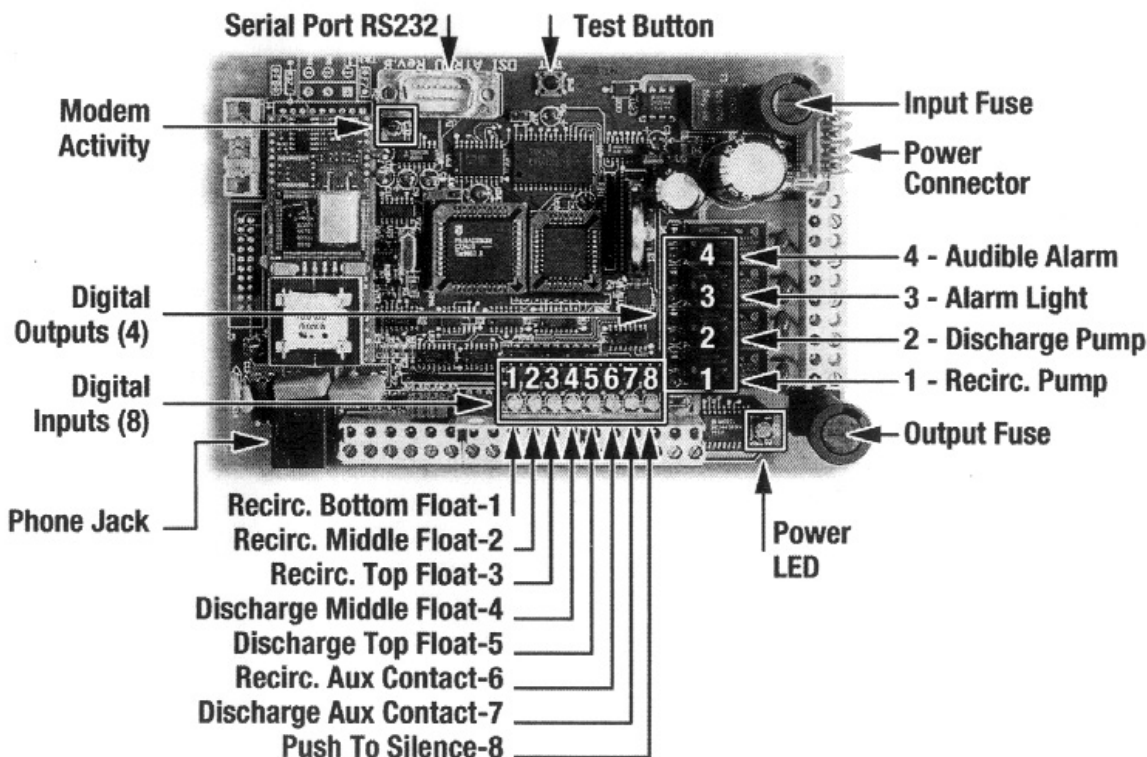
What's so special about this gray box?

The VCOM-AXB telemetry-enabled panel is used for remote monitoring and control of the dual pumping operations of a timed recirculating pump (in the Tank) and an on-demand discharge pump (in the Discharge Basin).

Basic control logic manages the day-to-day functionality of the Control Panel. The VCOM-AXB system continually recirculates influent; until the Recirculating Splitter Valve (RSV) seats, then the system gravity discharges small amounts of treated wastewater throughout the day into the Discharge Basin. During peak flow conditions, more aggressive timer settings (overrides) are used to manage the increased demand. As the Discharge Basin fills with treated effluent, floats activate a discharge pump to a dispersal field.

Fault conditions are automatically reported to the VeriComm Monitoring System (a web-based database by Orenco Systems) and not locally at the panel, making the system virtually invisible to the homeowner. Alarms and Alerts cause an email to be forwarded to Anchorage Tank personnel. However, if these conditions are not responded to, or the system cannot communicate with the VeriComm Monitoring System (the phone line might not be connected), then the local alarms at the Panel will activate.

To silence local alarms, press the "Push to Silence" button until the audible alarm stops.



Appendix C: UV Disinfection

The design engineer may specify UV disinfection for the outlet of the system if site conditions warrant this extra treatment.

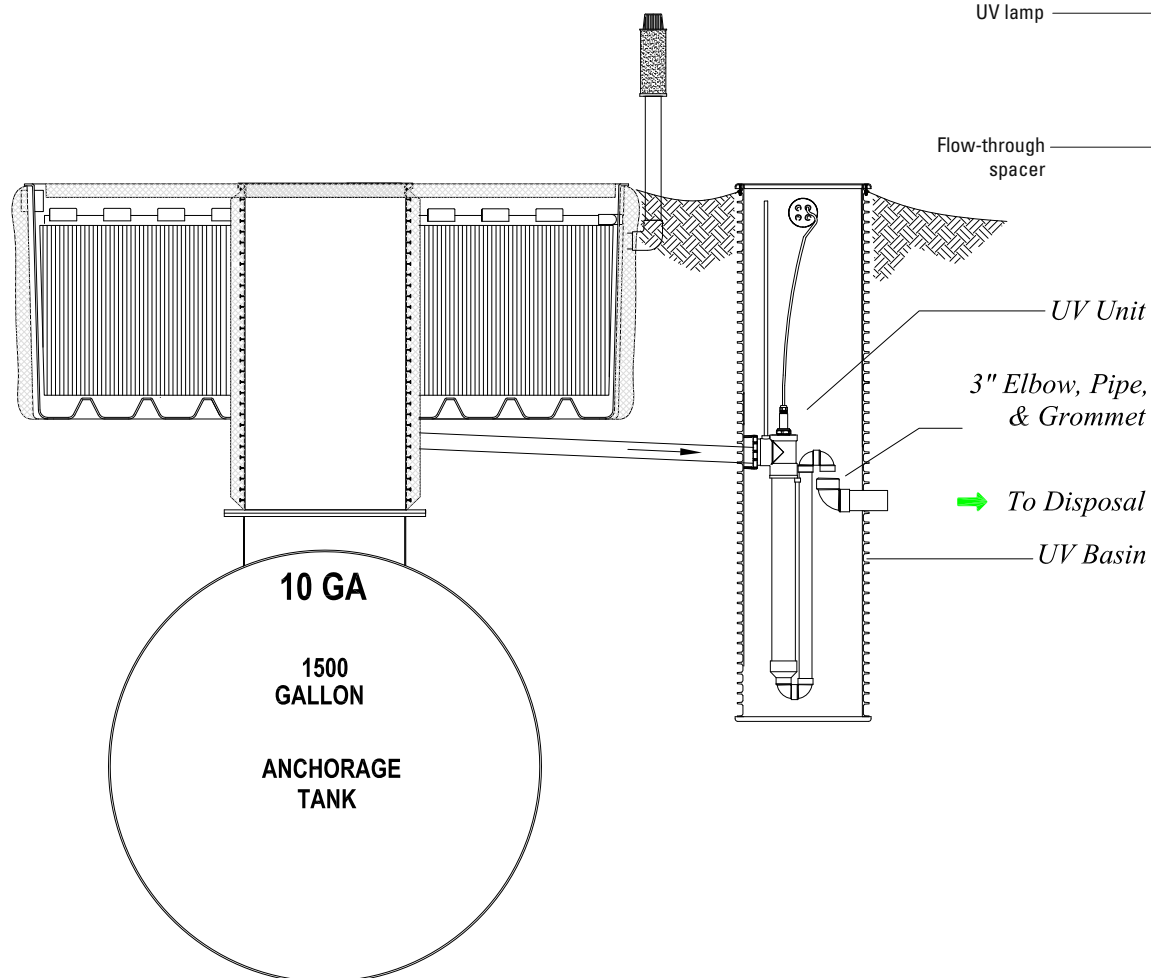
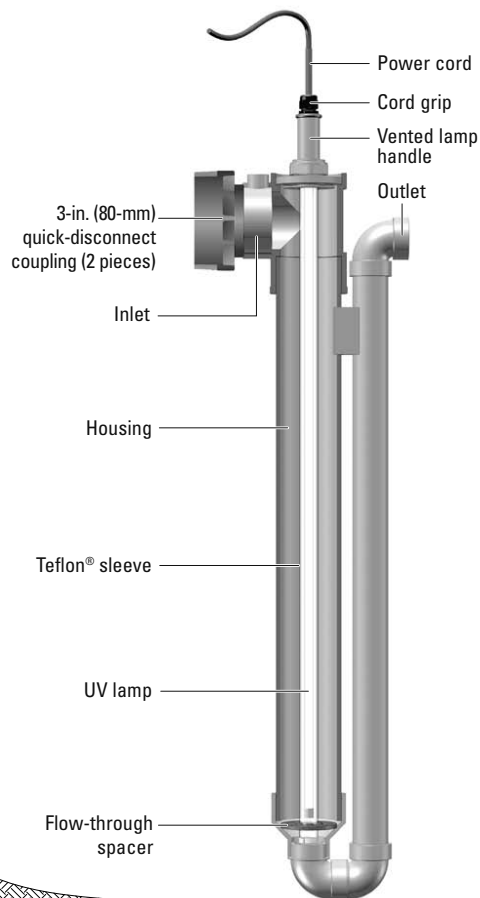
Orenco Systems, Inc. has designed a residential UV unit for this very purpose. Anchorage tank can build a custom UV basin to house this unit to keep it “in the dry”. The ballast for the Orenco UV unit is placed in the control panel. Special VeriComm panels may be ordered to allow remote monitoring of the UV function along with the other system operations. Typically we use the following:

- AX20AUV for gravity systems, the UV hangs in its own basin
- AX20BUV for pressurized systems where the UV hangs in the Discharge Pump Basin.



Key Point:

Plan on a lead time to fabricate the UV basin and order the proper VeriComm control panel.





2017 Edition