Residential

AdvanTex

Installation

Orenco fiberglass

FAP

Fully Assembled Package

Anchorage Tank

Introduction

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 a Fully Assembled Package AdvanTex Treatment System using a fiberglass 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 Point:

-
- 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.*
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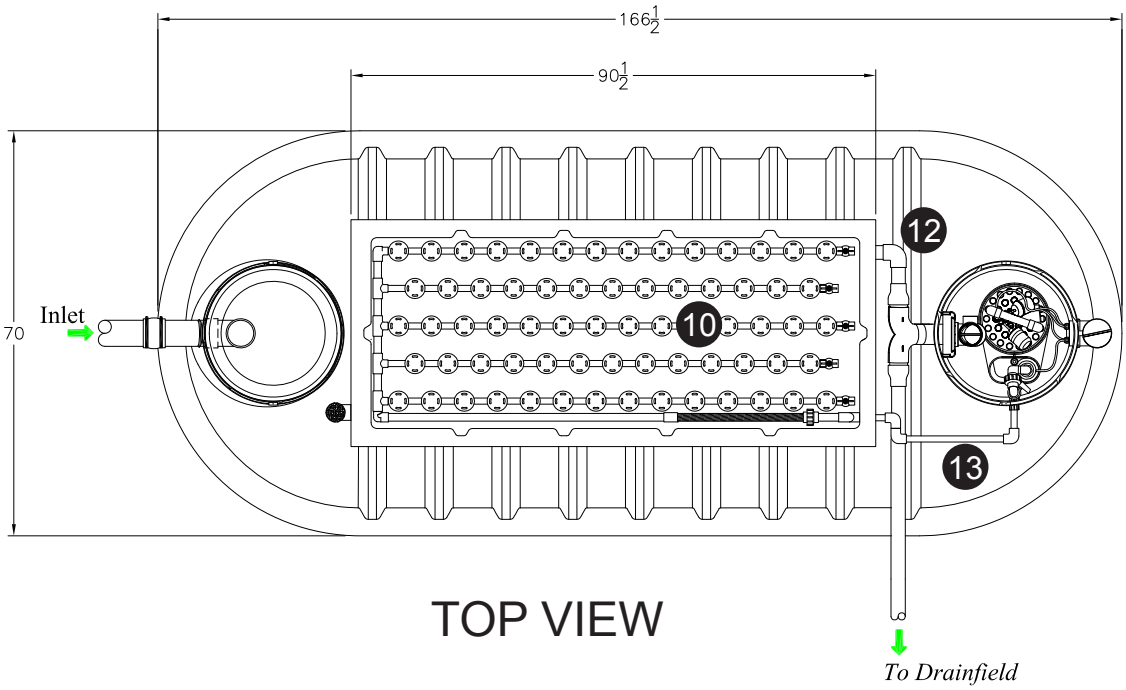
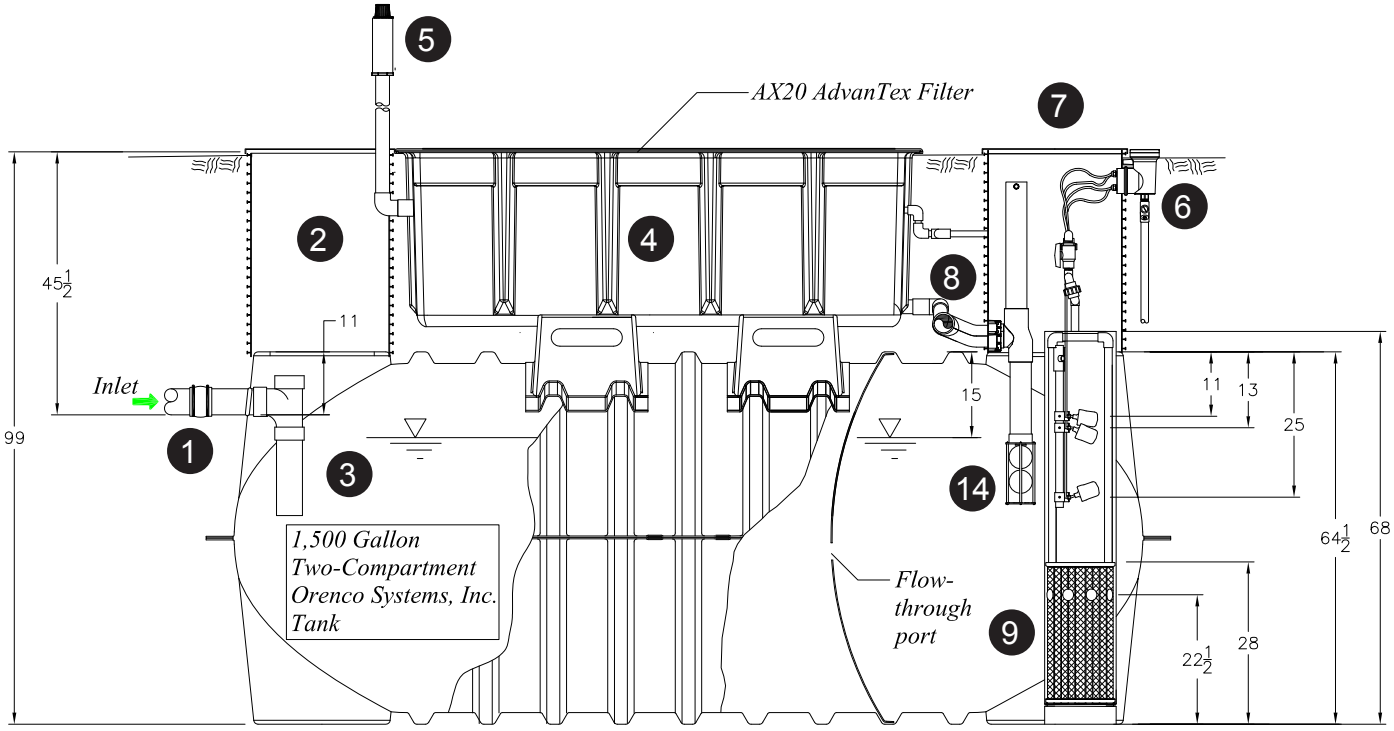
- *A grinder pump MUST NOT be plumbed into an AdvanTex Treatment System. While this is likely beyond your control, should you discover this is the case, please alert the design engineer. The grinder will create a slurry that will prevent the system from operating properly. Often we will insist upon a 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



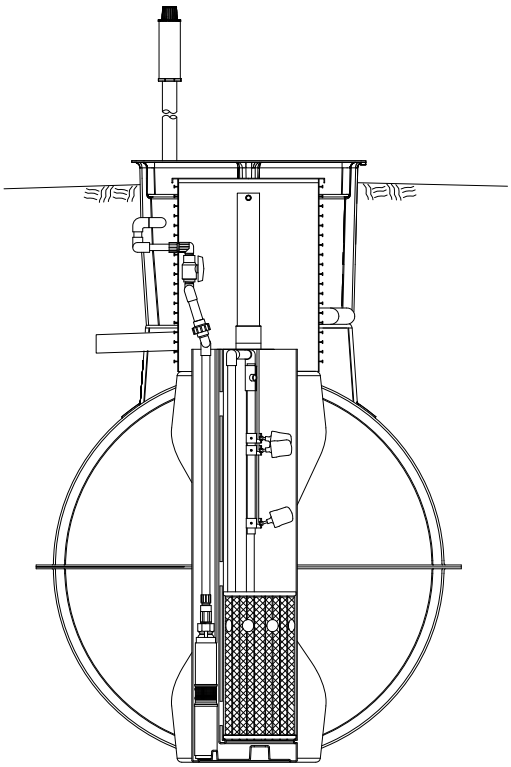
TOP VIEW



FRONT VIEW

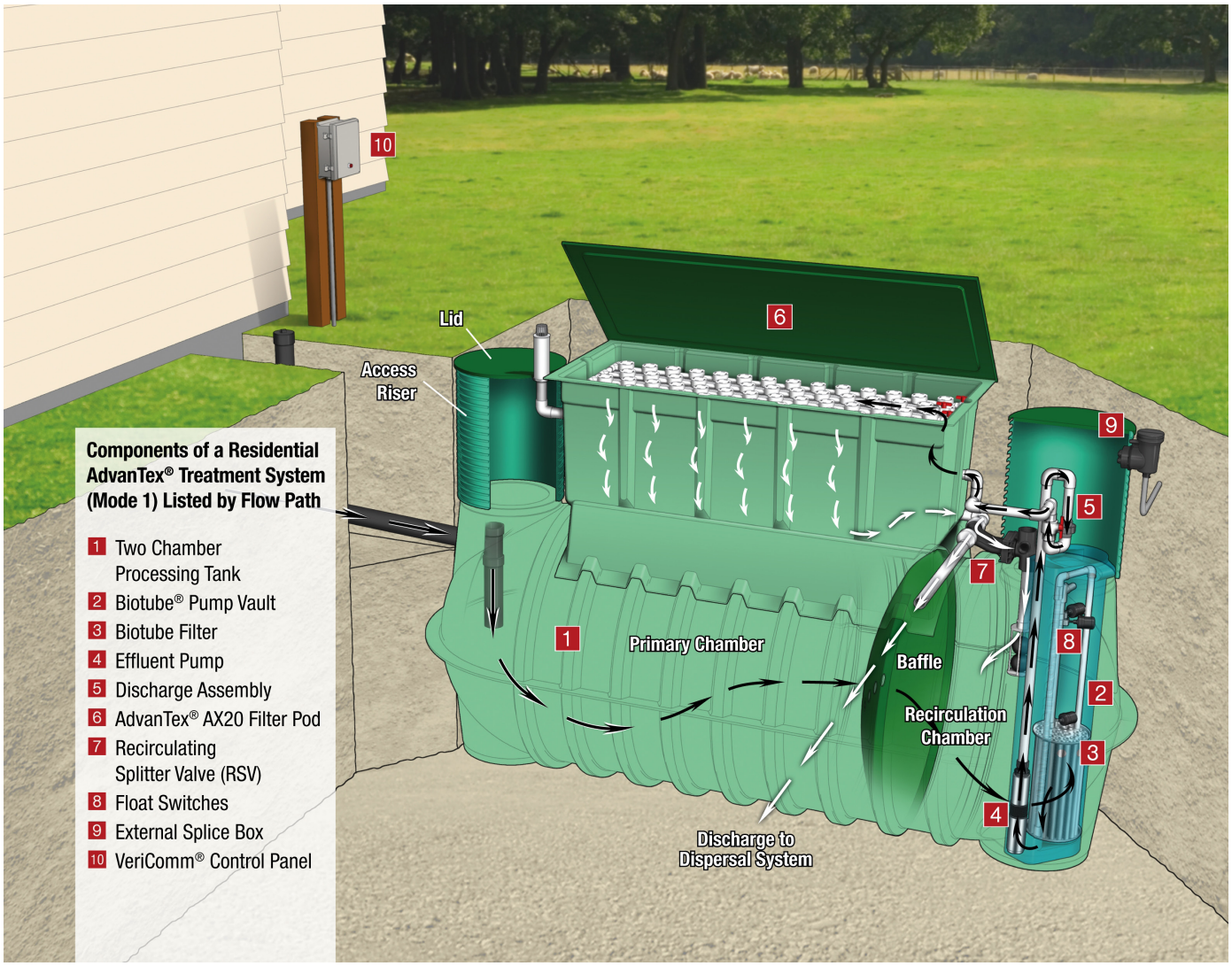
System Components

1. Tank inlet. 4X4 Fernco coupling provided.
2. 24” diameter plastic tank riser at inlet w/ 2” urethane insulation.
3. Fiberglass tank manufactured by Orenco Systems & assembled by Anchorage Tank.
4. AdvanTex AX20 filter pod fastened to the tank.
5. AdvanTex passive air vent for the filter pod.
6. Orenco external spice box for pump & float wires.
7. 24” diameter plastic tank riser for pumping system w/ 2” urethane insulation.
8. Recirculating Splitter Valve insulated in place.
9. Orenco Biotube Pump Vault with Filter, Pump, Hose & Valve Assembly, and Floats.
10. Distribution manifold inside AX20 filter pod.
11. Not used.
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



SIDE VIEW

How Does the System Work?



The AdvanTex® Treatment System consists of a watertight two-compartment processing tank and the AX20 textile filter pod. Wastewater from the home flows to the tank, where natural and biological processes provide primary treatment. In the first compartment of the tank, the wastewater separates into three layers; a floating scum layer, a bottom sludge layer, and a relatively clear layer of liquid in the middle called effluent.

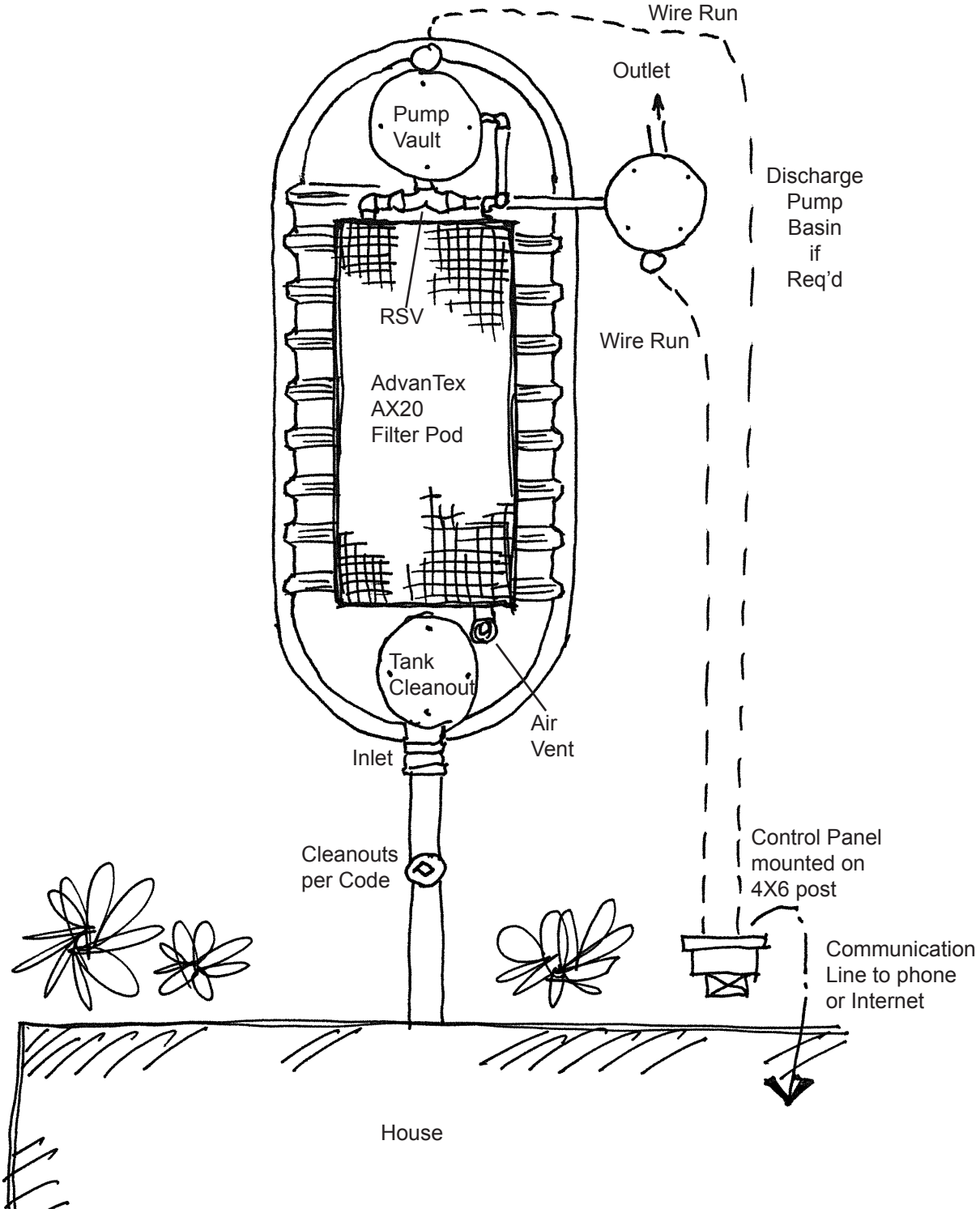
From the second compartment of the tank, a pump draws liquid effluent through the Biotube® filter and sends it up to the AX20 pod. There the effluent is sprayed over hanging sheets of porous synthetic textile media (think of it as thick felt). Microorganisms live in this moist, oxygen-rich environment.

After recirculating several times, the effluent is discharged either directly from the tank or after first being collected in a pump basin, depending on the design for a particular site. The system may include equipment for ultraviolet (UV) disinfection before ultimate dispersal of the effluent into a drainfield.

Properly sited, installed, and operated, a residential AdvanTex Treatment System can treat wastewater to a level better than what most municipal wastewater plants provide. When effluent treated in this way is dispersed to the soil, natural processes purify it further, and it eventually returns to the underlying water table, where it can be used again.

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 position of the system 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 system.



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.

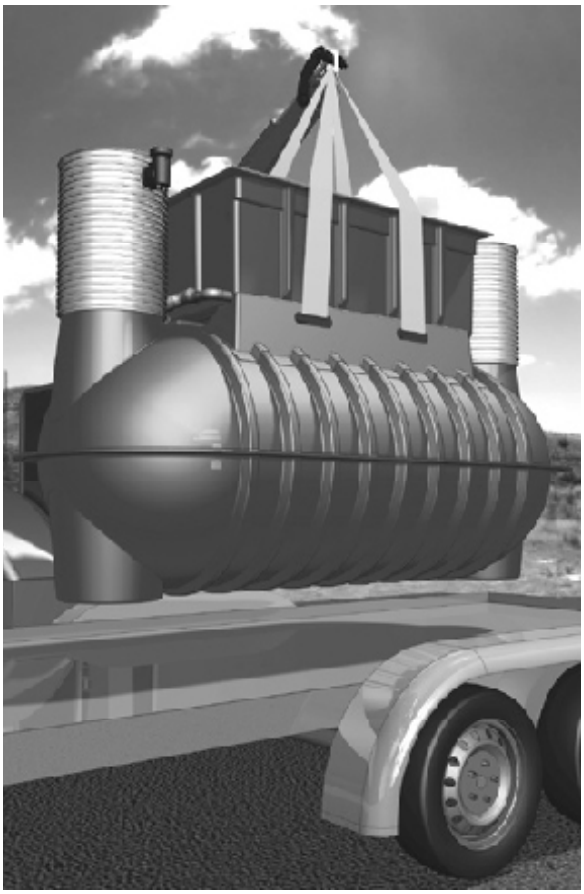
If you don't leave room for topsoil and other finish landscape materials, the riser and pod lid can get jammed. This makes opening the system difficult in the summer and impossible in the winter.

Handling the System

Size & Weight
H = 99-1/4" x L = 168" x W = 70"
Weight = 1,615 lb. dry

If Anchorage Tank delivers the system to your jobsite, it will come strapped down to a flatbed truck.

You will need straps as well to lift the system off the truck. The straps go into the fork pockets just beneath the filter pod and can be fed through to the other side. Straps and the backhoe bucket will do the trick.



IMPORTANT:

Loading and unloading a FAP from a flatbed truck can be dangerous. Avoid personal injury and product damage by using the right equipment. The Anchorage Tank delivery trucks have a bed height of approx. 54". Be sure your equipment can safely lift a 99" tall FAP unit from a 54" high truck bed, with another 32" clearance from the anchor point on your boom to the top of the pod. Your equipment must safely lift 1,650 lb.

Key Point:

Store the tank on a surface that is smooth and flat. Secure the system if it will be stored in an area susceptable to high winds or it will tip over.

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Fiberglass Tank Burial

Orenco® Injection-Molded FRP Tanks: 500-gallon through 2000-Gal. (2000-L through 7570-L)

Before You Begin

Correct installation is critical for proper function. Read these instructions before installing Orenco's 500-, 1000-, 1500-, or 2000-gallon fiberglass tanks (2000-, 3785-, 5680-, or 7570-L). These tanks are not approved for use with potable water.

IMPORTANT — *Take all reasonable safety precautions when installing the tank!*

Step 1: Excavation and Installation Planning

Step 1a: Determine the excavation depth based on the factors below:

- **Tank height** — See Table 1 for tank volumes and dimensions.
- **Slope** — The tank has to be buried at the right depth for the proper fall from the building sewer to the tank inlet. It must also meet applicable regulations governing slope. Orenco recommends a minimum slope of ¼ inch per foot (20 mm per meter).
- **Soil type** — If the native soil is rocky or unstable (for example, peat, quicksand, muck, landfill, or very soft or highly expansive clay), the hole should be over-excavated and a gravel bed or concrete pad laid in the bottom for stability.
- **Buoyancy** — Things that influence tank buoyancy include ...
  – High groundwater
  – Seasonal high groundwater or flooding
  – Attached AX20 treatment unit
  – Native soil conditions
  – Fill material
  Tank buoyancy can be counteracted by adjusting burial depth, by addition of supplemental ballast, or by a combination of the two.

IMPORTANT: *Tank depth is measured from final grade to the top of the tank. Do not set tanks shallower than 12 inches (305 mm) or deeper than 48 inches (1220 mm) without Orenco's written authorization.*

Step 1b: Determine the width and length of the excavation. The excavation should be 24 inches (610 mm) beyond all sides of the tank to allow room to compact the backfill. See Table 1 for tank volumes and dimensions.

Step 1c: Determine the type of bedding and fill materials needed.

- **Bedding** — Use compacted ≤ ¾ -inch (≤ 19-mm) rounded gravel, crushed stone, pea gravel, or sand.
- **Fill** (below midseam flange) — Use ≤ ¾-inch (≤ 19-mm) rounded gravel, crushed stone, or pea gravel.
- **Fill** (above midseam flange) — Use native material, ≤ ¾-inch (≤ 19-mm) rounded gravel, crushed stone, pea gravel, or flowable concrete.

Note: *Do not use sand for fill material. Do not use native material to backfill if it is primarily sand; very soft or highly expansive clay; or if it contains debris, large rocks (> ¾-in. or 19-mm), sharp rocks, peat, or muck.*

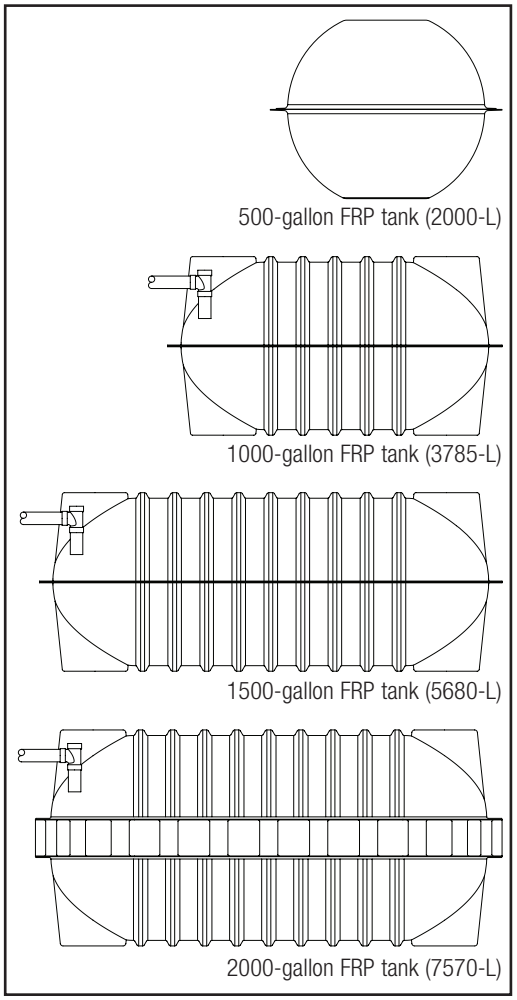


Table 1. Tank Volumes and Dimensions

Volume, Gal. (L), Nominal	500 (2000)	1000 (3785)	1500 (5680)	2000 (7570)
Length, in. (mm)	n/a	123.0 (3120)	169.0 (4290)	169.0 (4290)
Width, in. (mm)	71 dia. (1806)	72.0 (1830)	72.0 (1830)	72.0 (1830)
Height, in. (mm)	60 (1524)	64.5 (1640)	64.5 (1640)	78.0 (1980)
Inlet height*, in. (mm)	n/a	11.0 (280)	11.0 (280)	11.0 (280)
Weight, lb (kg)	200	390 (177)	590 (268)	890 (404)

***Standard** inlet height listed. Measured down from top of tank.*

Step 1d: Determine if the tank requires an antibuoyancy collar. Generally, with cohesive fill material,* no antibuoyancy collar is necessary. With non-cohesive fill material,** an antibuoyancy collar is required for all 500-gallon tanks. It is also required for other Orenco fiberglass tanks if the tank is buried shallower than ...

- 33 inches for 1000-gallon tanks (838 mm for 3785-L)
- 31 inches for 1500-gallon tanks (787 mm for 5678-L)
- 34 inches for 2000-gallon tanks (864 mm for 7571-L)

See Step 7 for more information on installing an antibuoyancy collar.

Step 2: Hole Excavation

Excavate the hole to the depth and width determined in Step 1.

- Excavate 24 inches (610 mm) beyond all sides of the tank.
- Excavate deep enough for a minimum ¼ inch per foot slope (20 mm per meter) to the tank inlet from the building's sewer line(s), once the bottom of the hole is prepped and bedded.
- If the base soil is unstable, overexcavate the site depth and set a firm, compacted base of ¾-inch (19-mm) crushed rock before placing the bedding.
- In some cases, a concrete base is necessary to stabilize the bottom of the excavation. If you have any doubt about the soil's ability to support the tank, consult a local civil or structural engineer.

Step 3: Bedding Prep

Use a mechanical compactor to compact a bed at least 4 inches (100 mm) thick of ≤ ¾ inch (≤ 19 mm) rounded gravel, crushed stone, pea gravel, or sand.

- Be sure that the compacted bed covers any boulders and rock edges, which can damage a fully-loaded tank.
- If sand is used for the bedding material, lightly moisten the sand to compact it. Do not saturate it, or the underlying base soil may become unstable.

Step 4: Tank Placement

Step 4a: Make sure the tank is empty.

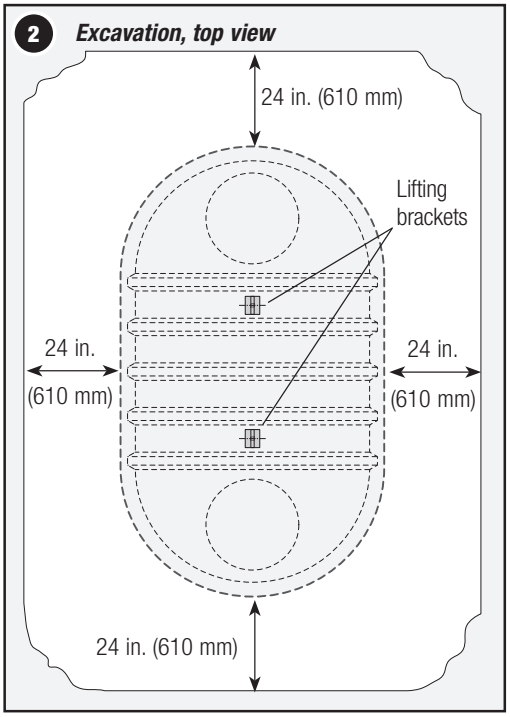
Step 4b: Attach chains or cables to the lifting brackets on the top of the tank.

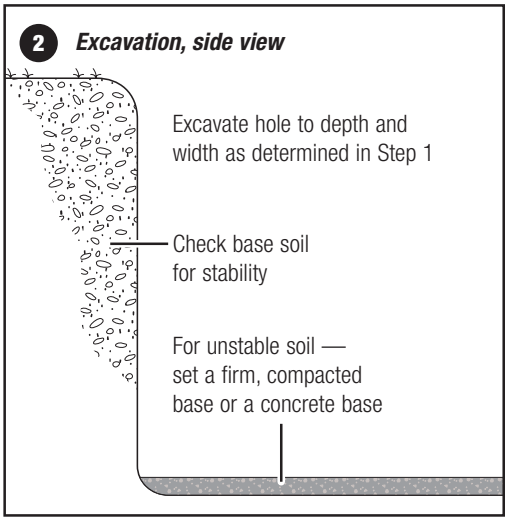
- Use properly sized lifting equipment. See Table 1 for tank weights.

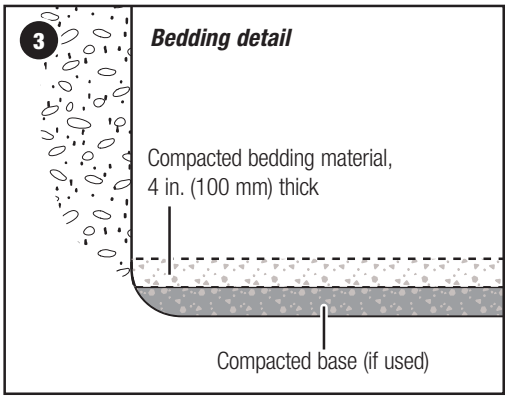
Step 4c: Carefully lift the tank into position over the excavation and slowly lower the tank into the excavation.

- Make sure the tank doesn't shift.

IMPORTANT: *Keep workers away from the excavation while placing the tank.*

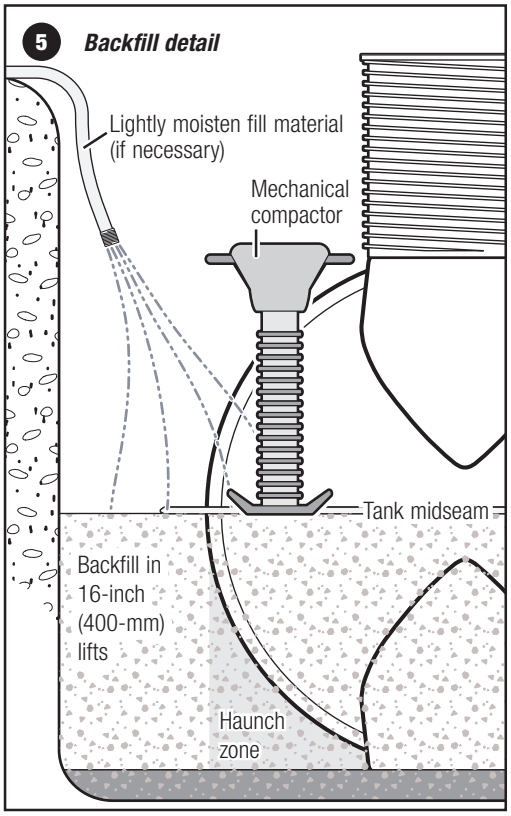


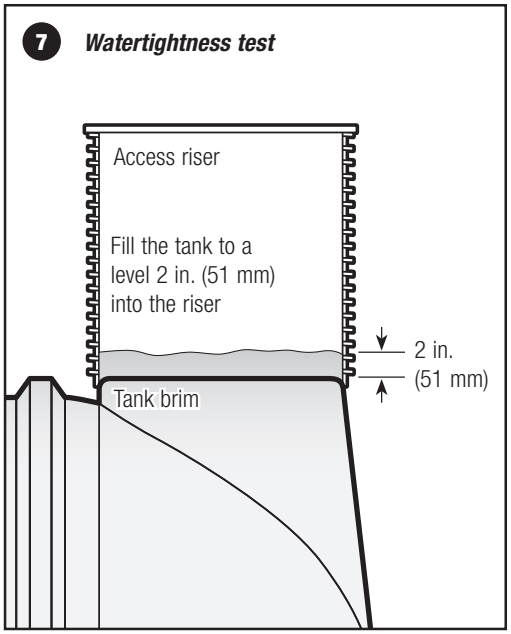




* As described in OSHA Standards (29 CFR, Part 1926, Subpart P, Appendix A), cohesive soils include clayey silt, sandy clay, silty clay, clay, and organic clay. Cohesive soil does not crumble, can be excavated with vertical sideslopes, is hard to break up when dry, and when moist, can be rolled into threads without crumbling. For example, if at least a 2-inch (51-mm) length of 1/8-inch (3-mm) thread can be held on one end without tearing, the soil is cohesive.

**Noncohesive soils or granular soils include gravel, sand, or silt with little or no clay content. Granular soil cannot be molded when moist and crumbles easily when dry.





Step 4d: Make sure the tank is level and oriented correctly on the bedding.

Step 4e: Remove the chain or cable from the tank.

Step 5: Backfilling to Midseam Flange

Step 5a: Fill the tank with about 16 inches (406 mm) of water (measured from the tank bottom), to support it from within and settle it down into the bedding.

Step 5b: Backfill a 16-inch (400-mm) layer of fill material around the tank.

- Don't backfill with sand.
- Use ≤ ¾ inch (≤ 19 mm) rounded gravel, crushed stone, or pea gravel as fill material. It should be washed, free-flowing, and free of debris.
- If you're using flowable concrete, layering and compacting aren't necessary.

Step 5c: Use a mechanical compactor to thoroughly compact the fill, especially in the haunch zone, to minimize settlement and provide support for the tank's wall.

- It's critical that the haunch zone is backfilled in order to minimize settling and stabilize the tank.

Step 5d: Fill the tank with water to the midseam flange.

Step 5e: Continue adding and compacting backfill material in 16-inch (400-mm) lifts, to a level just below the midseam flange.

- Each lift should be uniform and of equal height around the entire tank.
- Don't backfill above the midseam before the watertightness test is complete.

Step 6: Tank Adapter and Riser Installation (If Needed)

Step 6a: If tank adapters are needed and they haven't been installed, install them now.

- See NIN-TA-FRTA-1 for tank adapter installation.

Step 6b: If access risers have not been installed, install them now.

- See NIN-RLA-RR-1 for riser installation instructions.

Step 7: Watertightness Testing

Make sure the adhesive is cured before you perform the watertightness test.

Step 7a: Plug the inlet and outlet of the tank with a temporary, watertight plug.

Step 7b: Fill the tank with water to a level 2 inches (51 mm) into the risers.

Step 7c: Wait 30 minutes (or as required by local rules) and inspect for leaks.

- There should be no drop in liquid level and no visual leakage from seams, joints, pinholes, or other imperfections.

Step 7d: When the tank passes the watertightness test, drop the water level in the tank to below the invert of the inlet or outlet, whichever is lower.

Step 8: Add Antibuoyancy Collar, (If Necessary)

Follow the directions below to make a concrete-and-reinforcing mesh (remesh) antibuoyancy collar. The collar provides sufficient ballast for the tank even if there is groundwater to grade.

- The collar is 18 inches (460 mm) wide × 6 inches (150 mm) thick with a 12-inch (305-mm) width of remesh in the center.
- The collar requires about 2 cubic yards (1.5 cubic meters) of concrete with a minimum compressive strength of 2500 psi (17.23 MPa).
- The collar's width — not its weight — provides the necessary antibuoyancy.

Step 8a: Make a backfill dam around the tank to use as a form. The form should be 6 inches tall by 18 inches wide (150 mm by 460 mm).

- Width is measured from the outside tank wall above the midseam flange.

Step 8b: Pour a 3-inch (75-mm) lift of concrete into the form around the tank.

Step 8c: Place a continuous 12-inch (305-mm) width of remesh around the tank, on top of the concrete.

- Remesh can be 6 × 6 - 10/10 WWF or 6 × 6 - W1.4 × 1.4 (152 × 152 MW9.1/9.1).

Step 8d: Pour a second 3-inch (75-mm) lift of concrete on top of the remesh.

Step 8e: Allow the concrete to set for a minimum of two hours (or longer, if possible) so that it's hard enough for the final backfill.

Note: *An 18- × 12-inch thick collar (460- × 305-mm) can be used in place of the concrete and remesh collar. This requires about four cubic yards (3 m³) of concrete.*

Step 9: Connections and Backfilling to Final Grade

Step 9a: Before final backfill, be sure to make all tank plumbing connections.

- Make sure inlet and outlet pipes are supported by a compacted base.

Step 9b: Backfill a 24-inch (610-mm) layer of fill material around the tank.

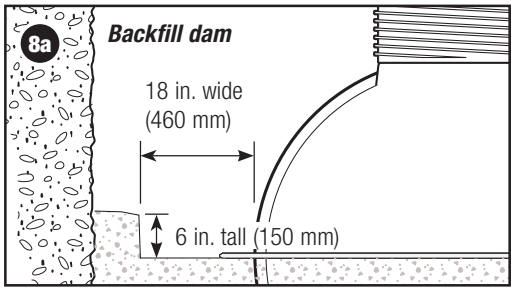
- Don't backfill with sand.
- Don't use native fill that is primarily sand; very soft or highly expansive clay; peat or muck; or if it contains debris, large rocks (> ¾-in. or 19-mm) or sharp rocks.
- If native fill material isn't usable, use ≤ ¾ inch (≤ 19 mm) rounded gravel, crushed stone, or pea gravel as fill material. It should be washed, free-flowing, and free of debris.
- If you're using flowable concrete, layering and compacting aren't necessary.

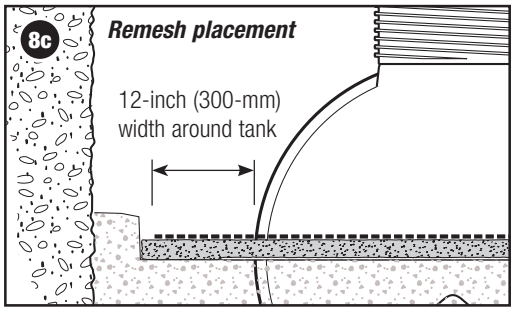
Step 9c: Use a mechanical compactor to thoroughly compact the fill.

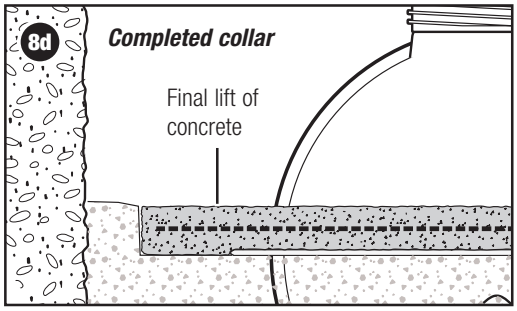
- If a concrete antibuoyancy collar has been poured on the same day as you are backfilling, compact the backfill gently to avoid damaging the collar.

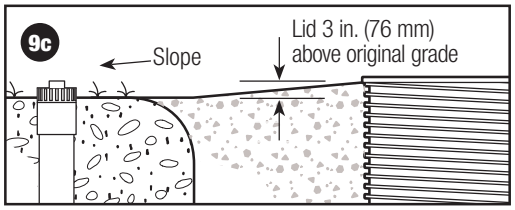
Step 9d: Add and compact fill material in 24-inch (610-mm) lifts to final grade.

- Make sure the tank access risers extend a minimum of 3 inches (75 mm) above final grade to ensure proper drainage away from the risers.









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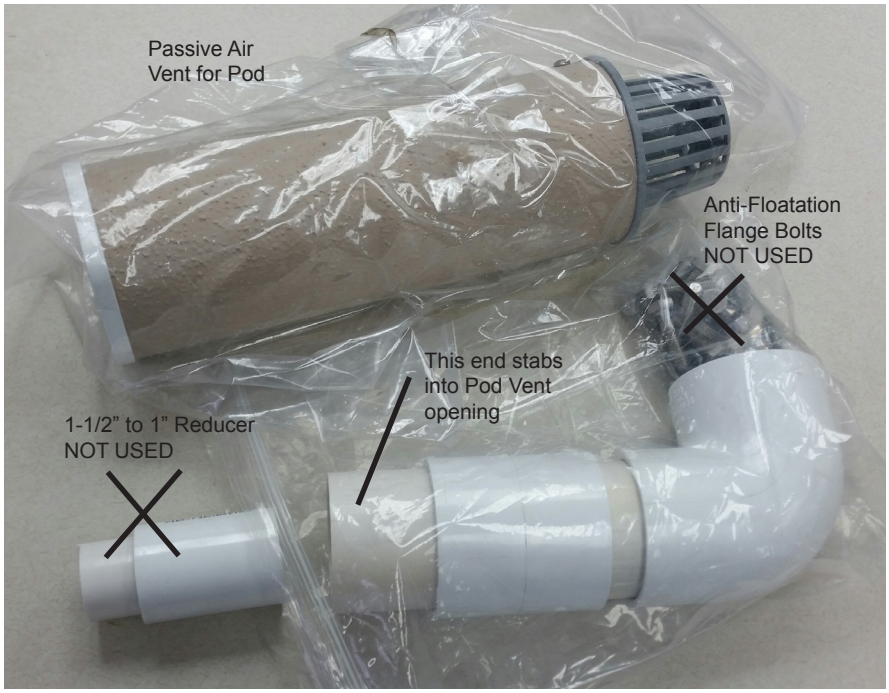
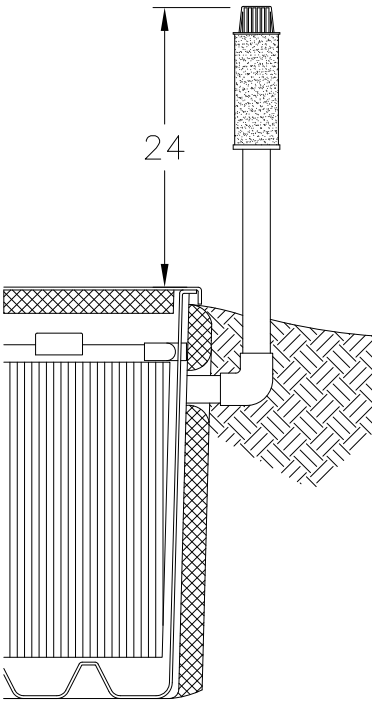
Passive Air Vent kit for the Filter Pod





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.

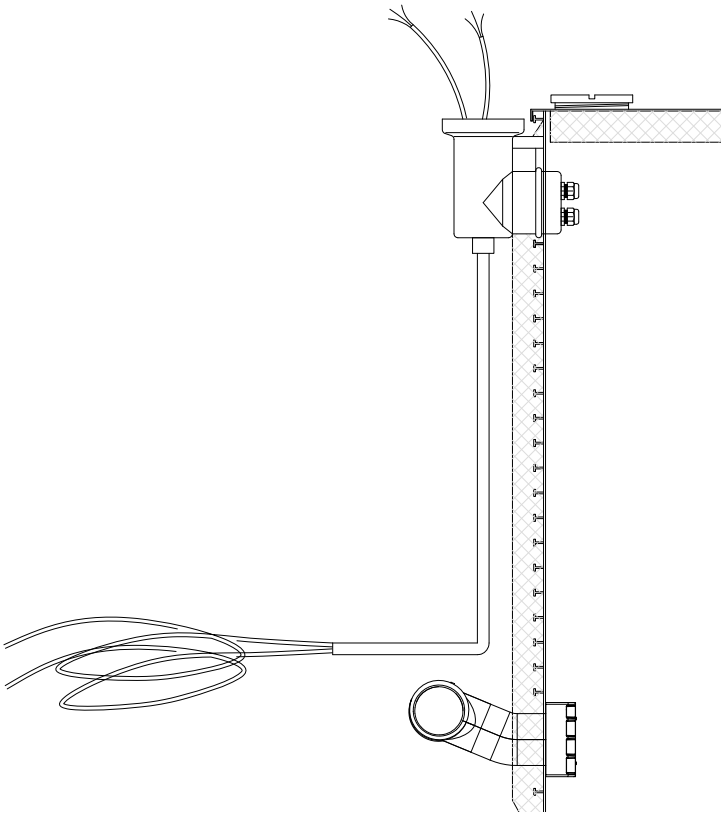
IMPORTANT: *Please ensure the Passive Air Vent doesn't impinge on the Filter Pod lid opening.*

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

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.



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.

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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.

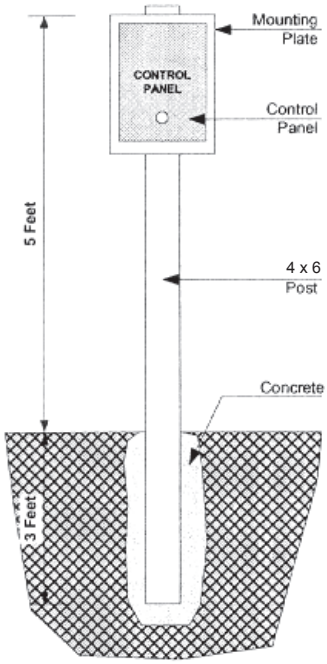
Key Point: *By now you've found the control panel inside a cardboard box and have set it aside. That control panel has a distinct identity and has been assigned to the address of that particular job site.*

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.

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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.

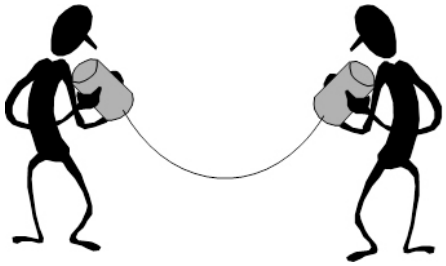
Connect the wire coming from your pump to the pump terminal. The Panel Wiring Diagram will display the correct terminal connections for your system.

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

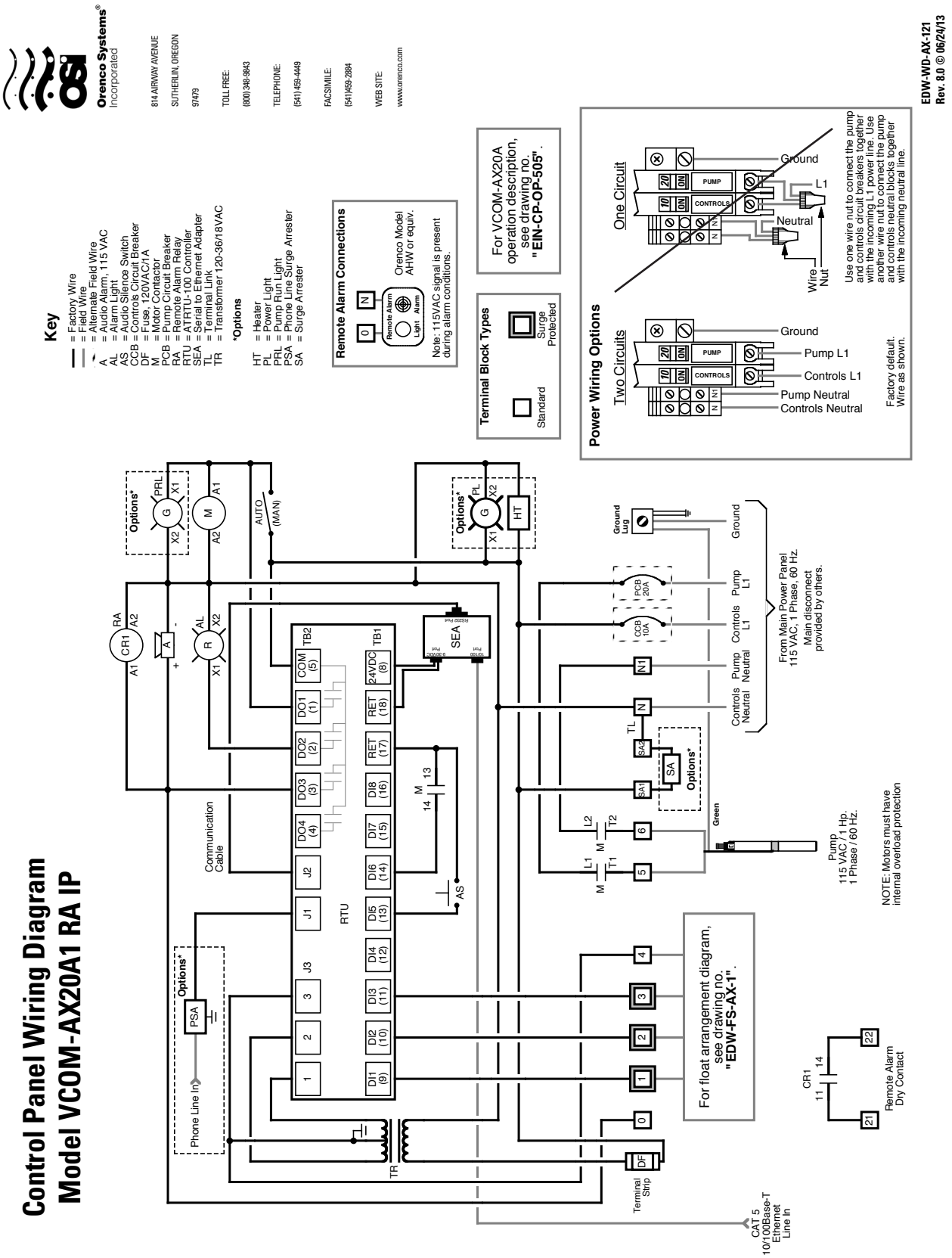
To permit remote monitoring of the system, the VeriComm Control Panels have the option to utilize a common phone line or a high speed internet connection. You will need to check with the homeowner to determine which connection method is available or desired.

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.

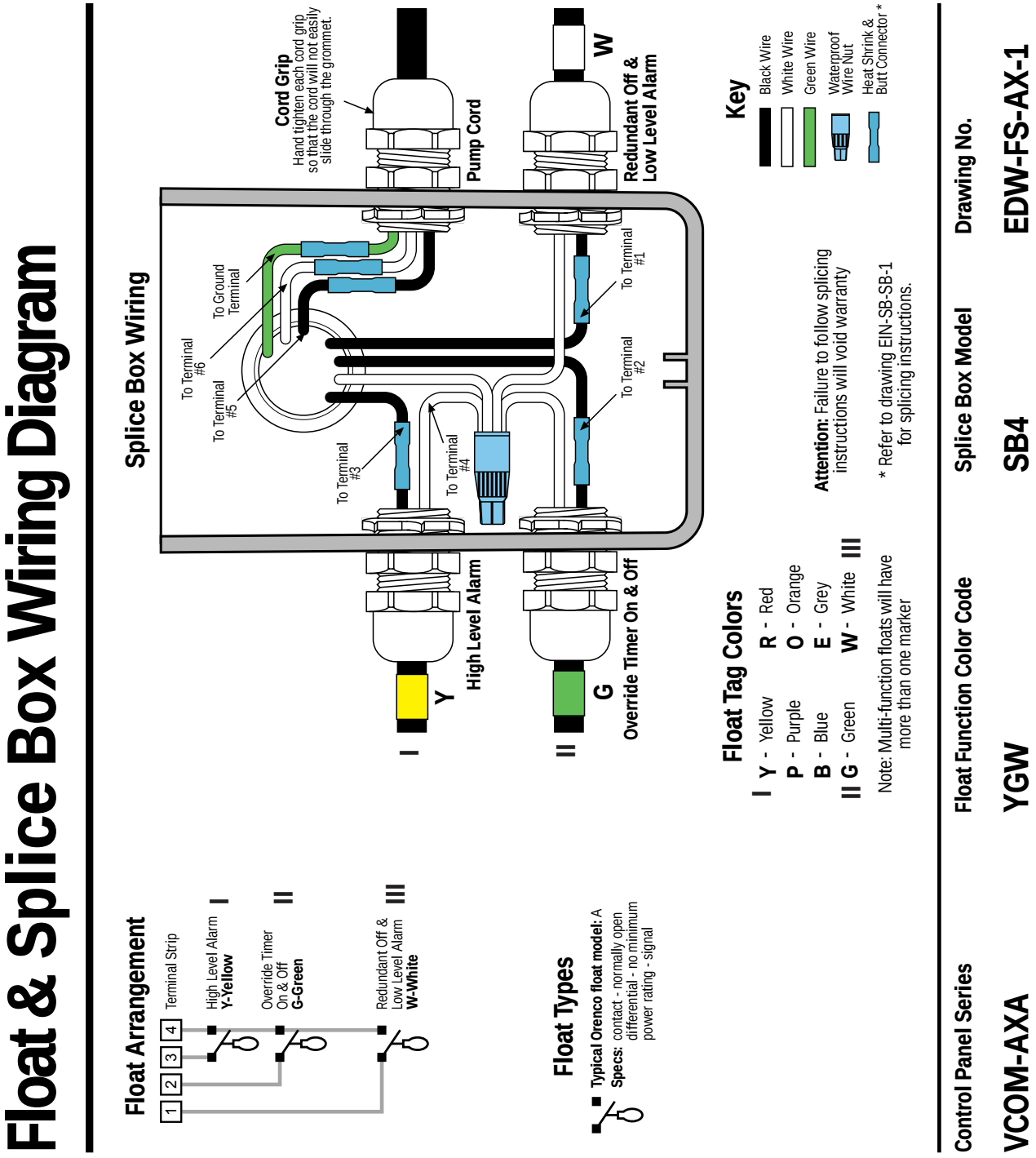
Installation of a tradional copper-wire analog telephone line is straight-forward. You'll notice a phone jack connection in the middle of the control panel. A DSL line filter/surge arrestor is also installed. Once you have a dial tone at the end of this phone line, just plug it in and you're good to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



Float and 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 Operation

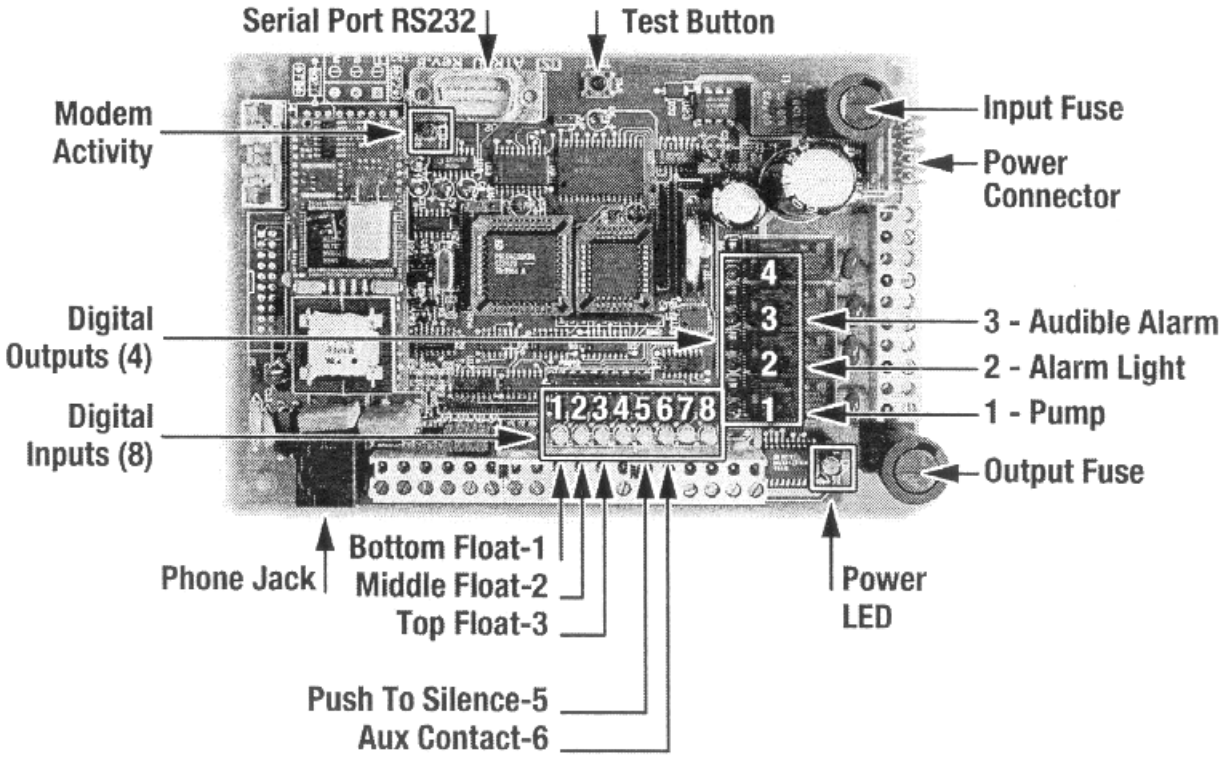
What's so special about this gray box?

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.



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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.

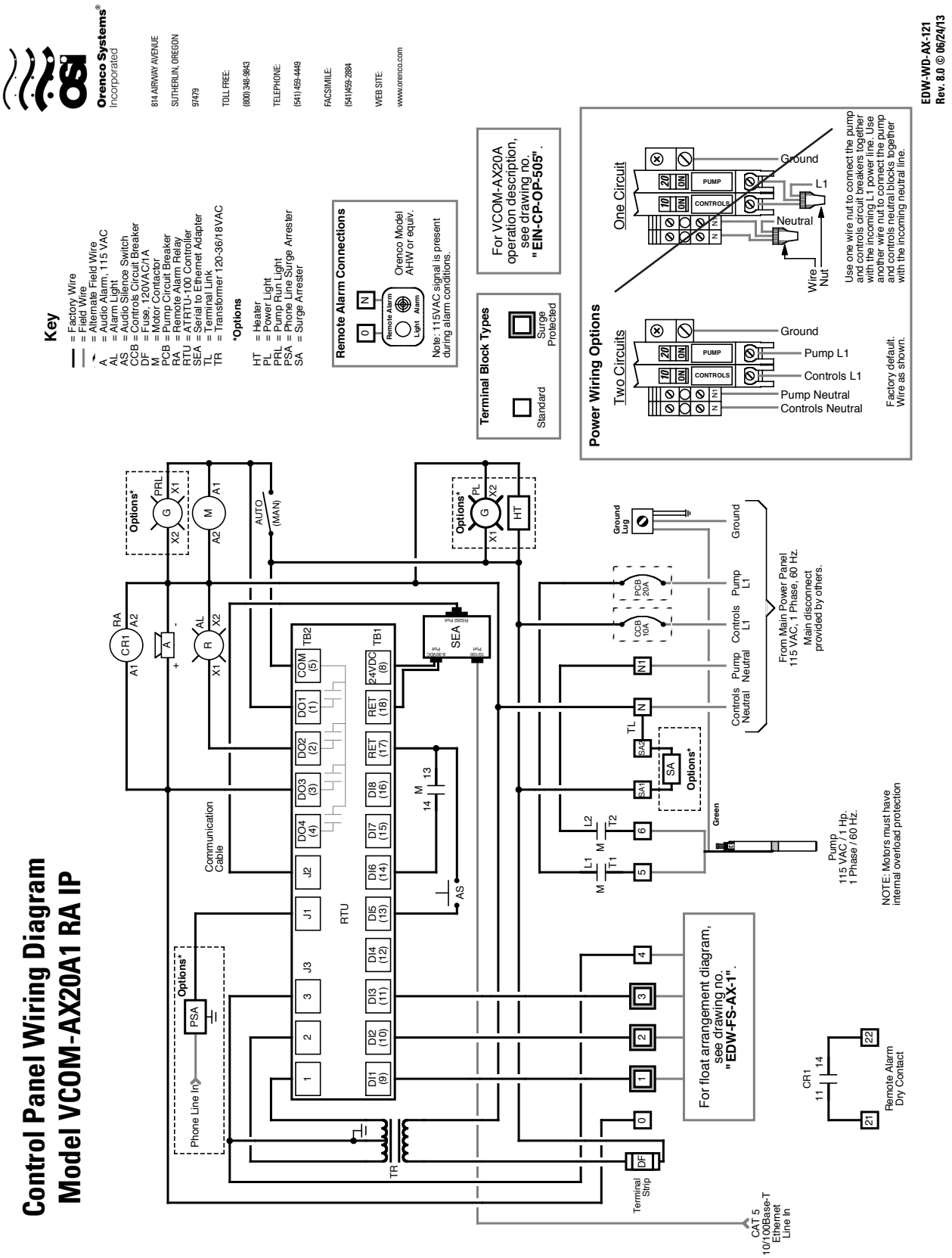
Now that you are finished..... call Anchorage Tank

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.

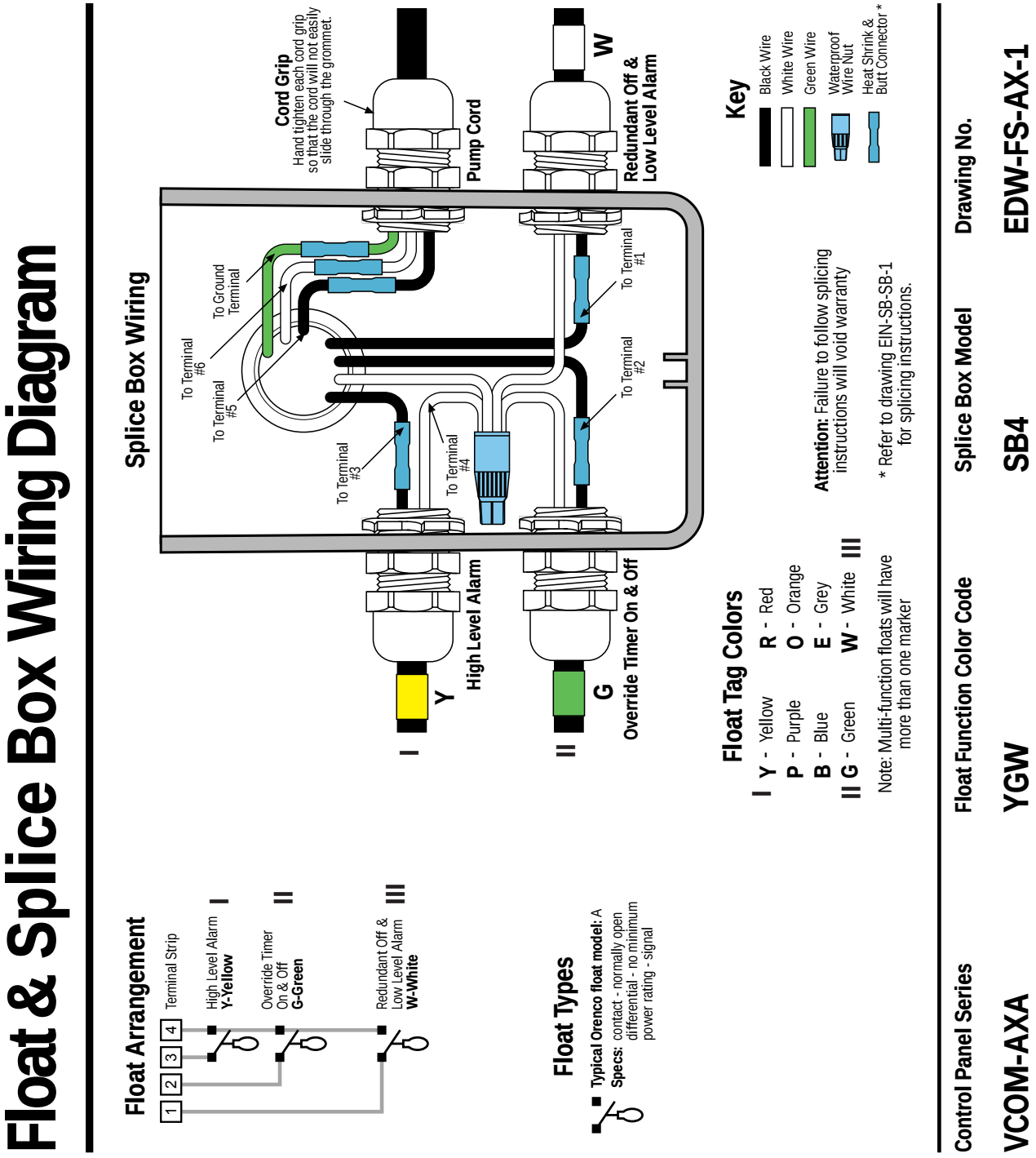
Any information you can provide is extremely helpful such as... Home for sale? Home even built? Anyone living there now? Power turned on/off? Homeowner information such as name & phone number. And anything else that might help the transition.

272-3543

Control Panel Wiring Diagram



Float and Splice Box Wiring Diagram



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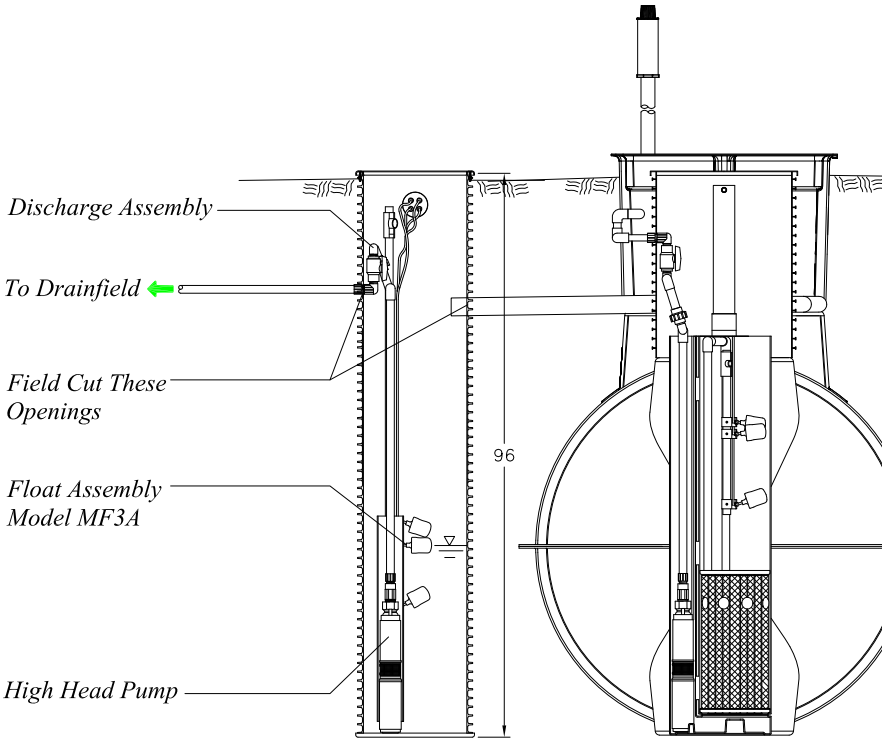
Appendix A: The Discharge Pump Basin



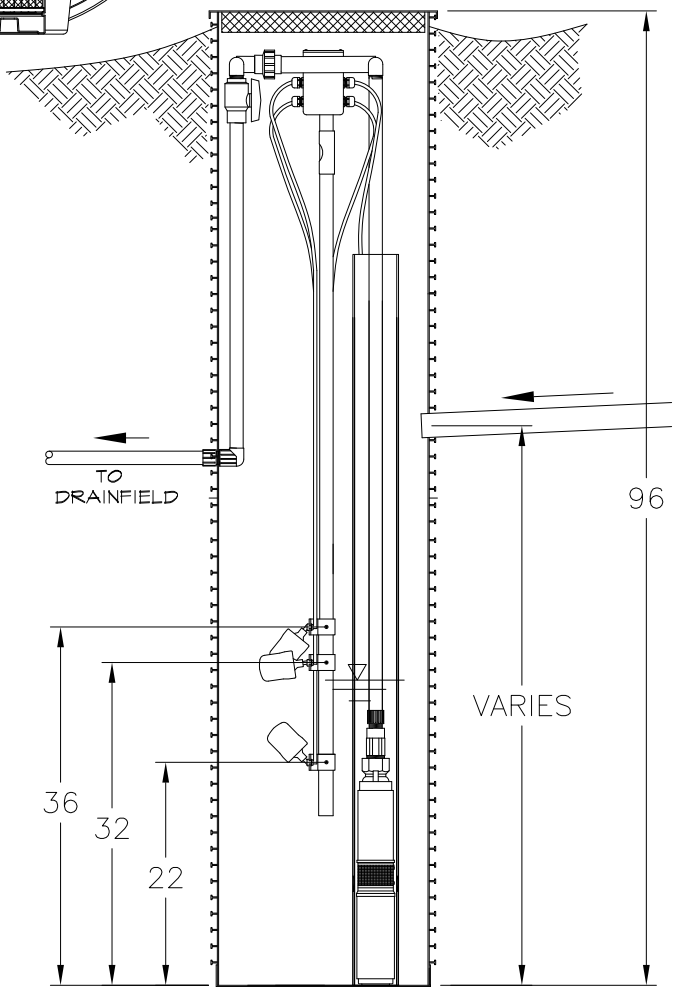
Some systems, where it is not possible to gravity drain from the Split-Flow Tee to the Drainfield, a Discharge Pump Basin must be added alongside the tank.

A different Control Panel is also needed to handle the extra floats in the Basin. The drawing to the left shows a typical system using a Discharge Pump Basin.

While the Recirc pump in the tank operates on a timer, the Discharge pump in the basin acts on demand, like a sump pump.

The floats are as follows:
- High Level
-Pump ON
-Pump OFF

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



Key Points:

The basin should stand near the tank so it can be installed when excavating and backfilling the tank & pod. You'll want to position it vertically so the green lids are at the same elevation as the system.

You will drill holes in the riser for piping in and out, so you have control over their position and height on the basin.

Incoming pipe from system: 2" PVC: uses 2" grommet and 2 3/4" hole saw.

Outgoing pipe to drainfield: 1 1/4" PVC: uses 1 1/4" grommet and 1 3/4" hole saw.

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.

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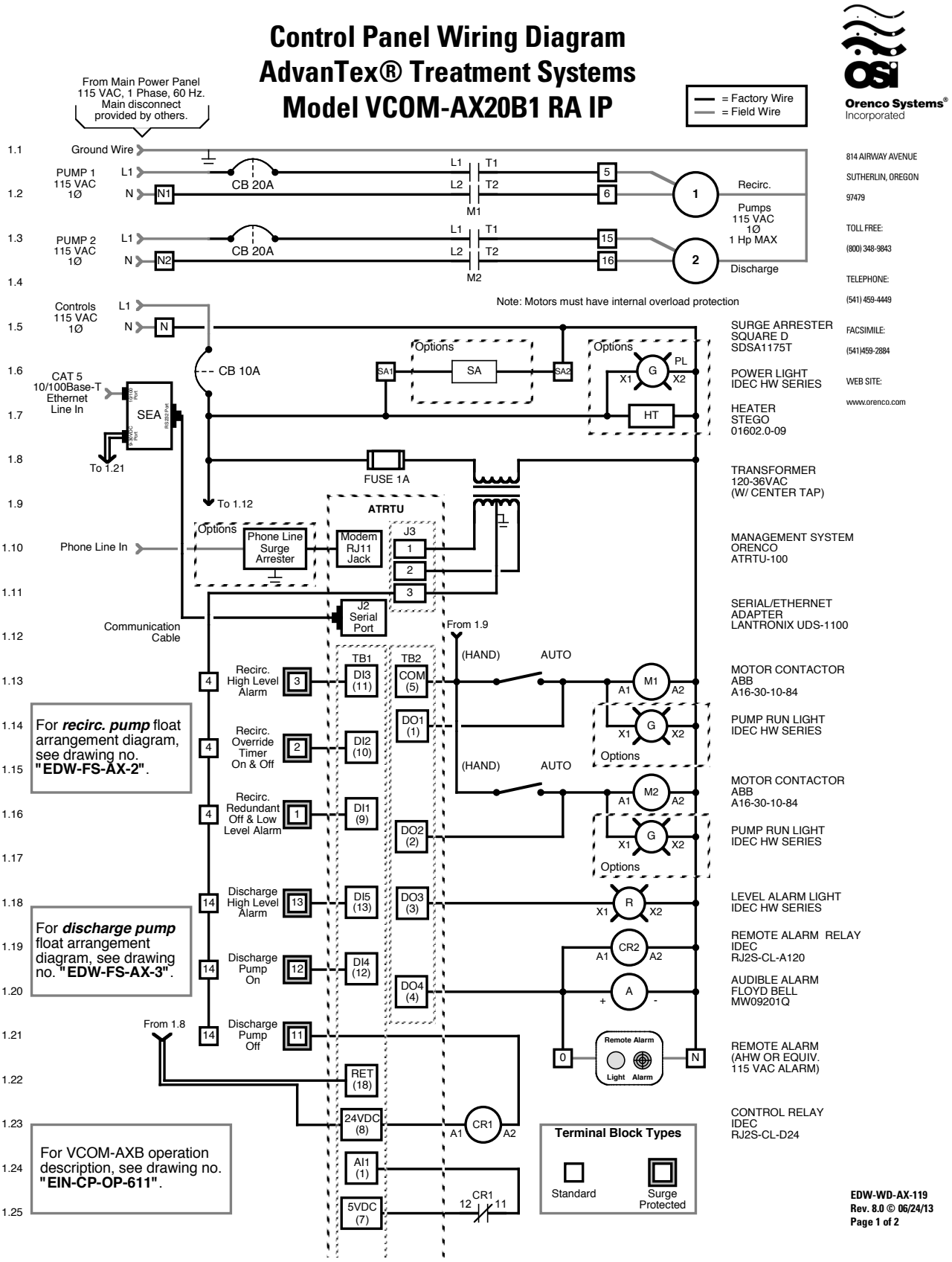
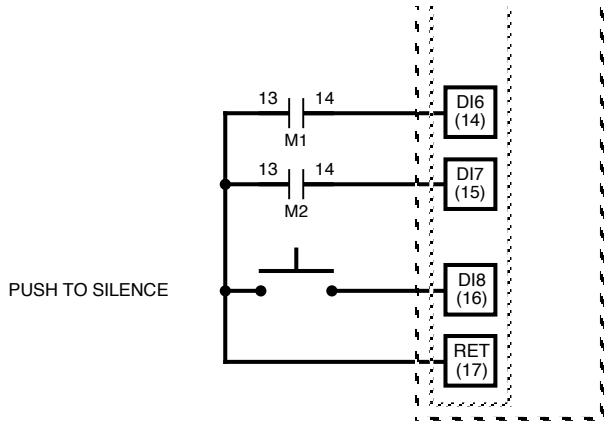
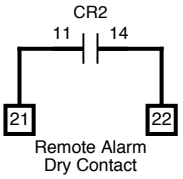
Appendix A: The Discharge Pump Basin

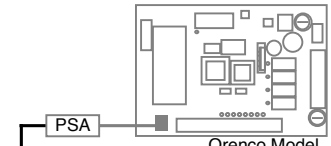


Appendix A: The Discharge Pump Basin





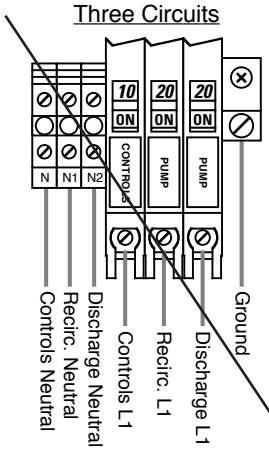
***OPTIONAL Phone Line Surge Arrester Connections**



Connect phone line to RJ-11 jack on phone line surge arrestor/DSL filter.

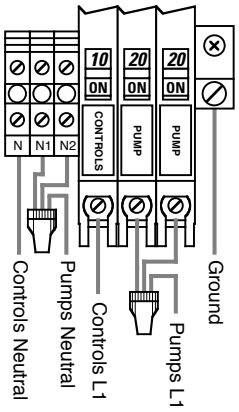
Power Wiring Options

Three Circuits



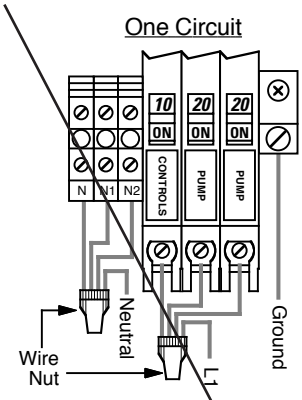
Factory default. Wire as shown.

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

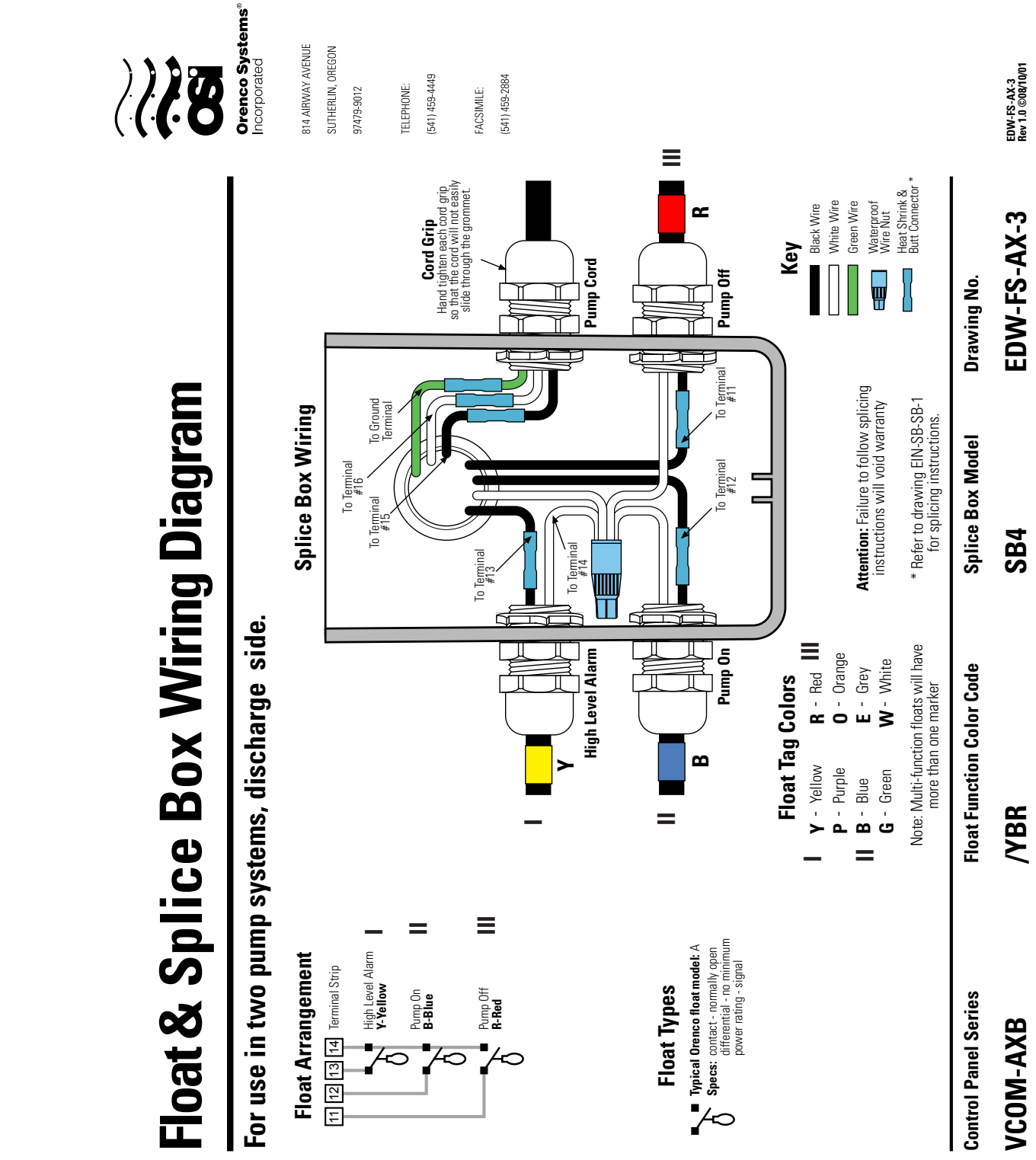


Use one wire nut to connect each pump circuit breaker together with the controls breaker and with the incoming L1 power line. Use another wire nut to connect the neutral block of each pump with the controls neutral block and with the incoming neutral line.

Appendix A: The Discharge Pump Basin

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.

Appendix A: The Discharge Pump Basin



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 Blue, and **III** for Red.

Appendix A: The Discharge Pump Basin - Control Panel Operation

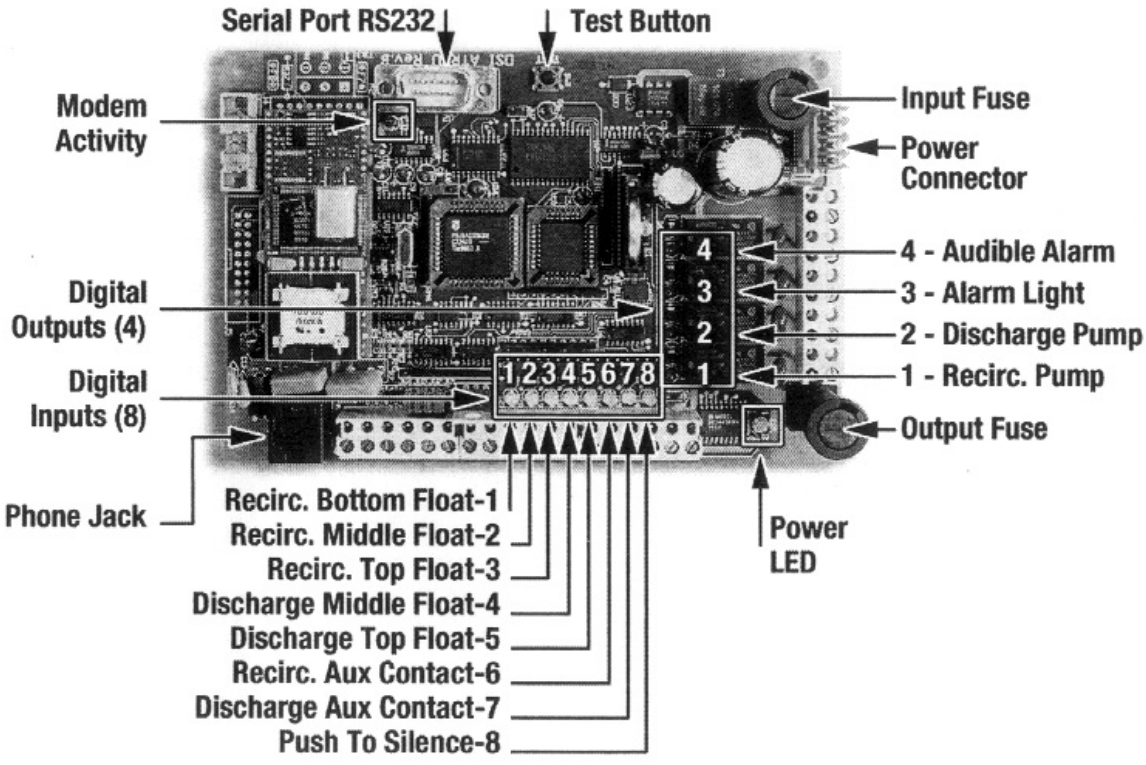
What's so special about this gray box?

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.



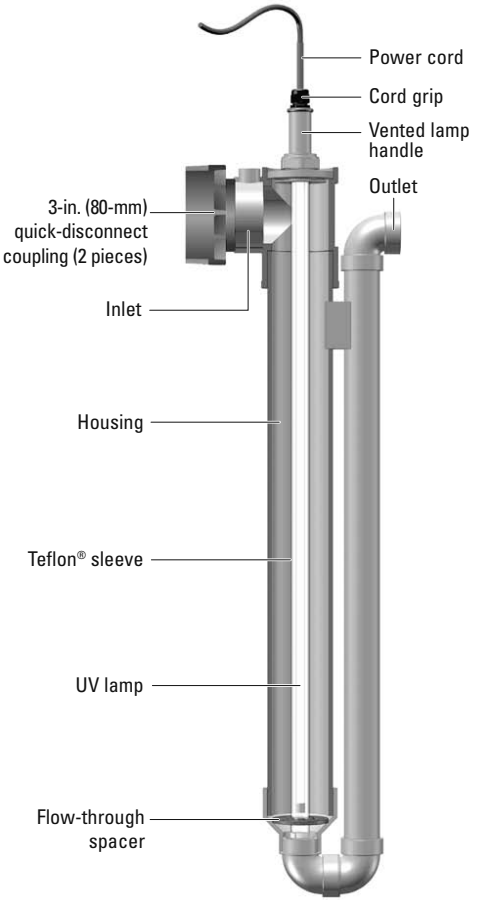
Appendix B: UV Disinfection

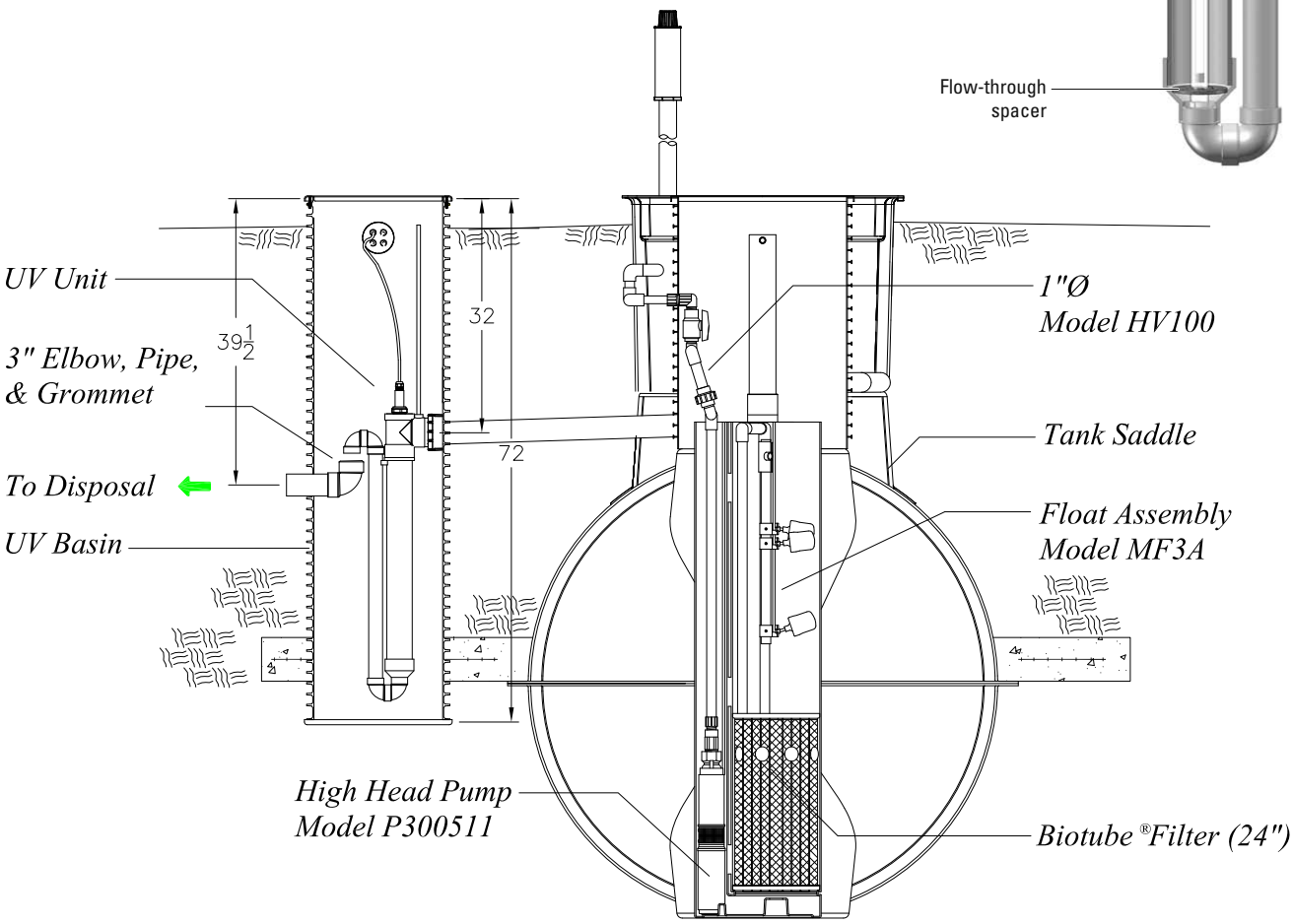
The design engineer may specify UV disinfection for the outlet of the system if site conditions warrant this extra treatment.

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.





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