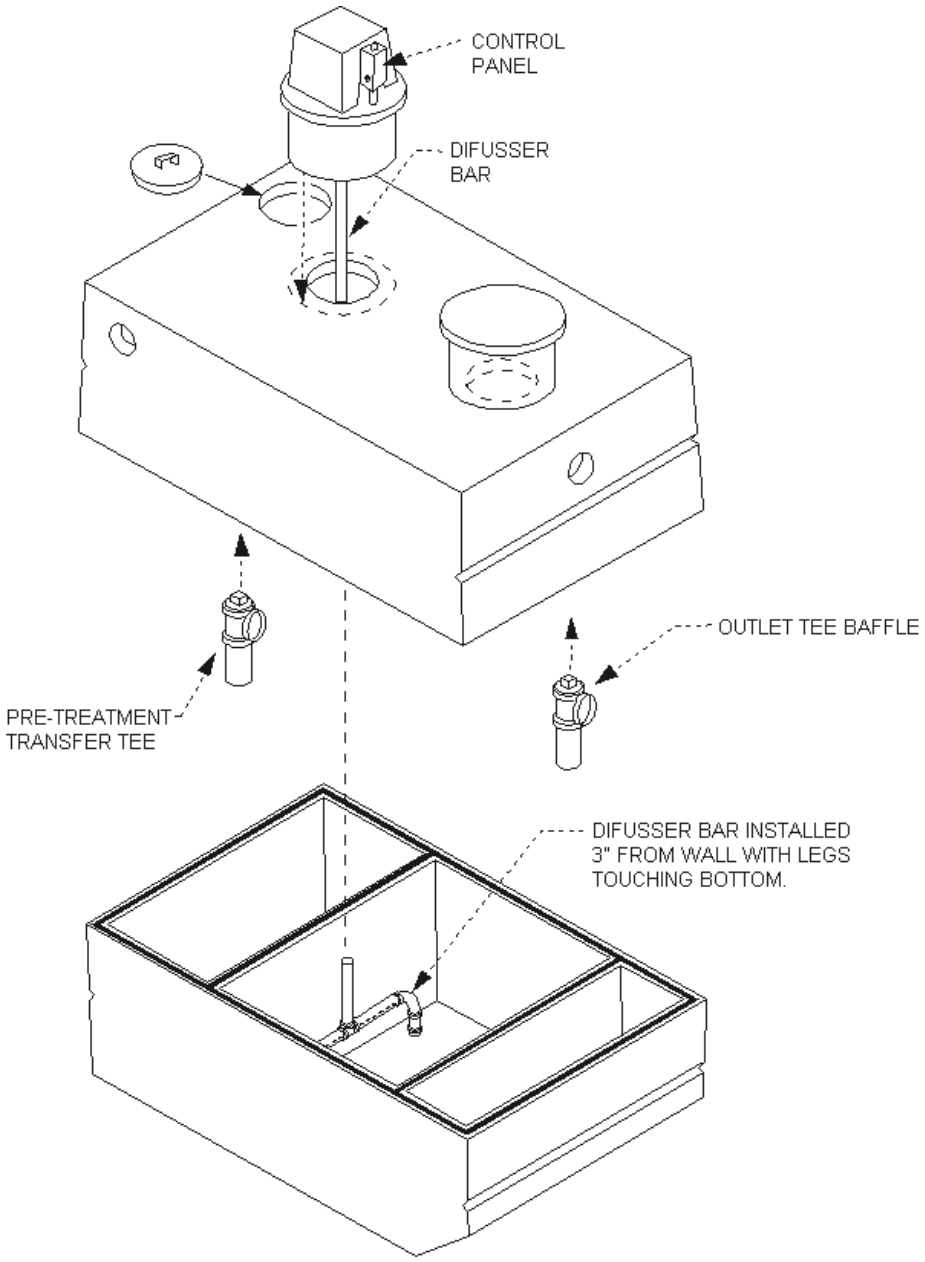
INSTALLATION MANUAL

RESIDENTIAL
WASTEWATER TREATMENT SYSTEM

MODEL: SA - 500 GPD

ANSI/NSF CLASS 1

This system has been tested in accordance with the criteria as set forth in ANSI/NSF Standard 40 and is hereby certified as conforming with requirements for classification as a Class 1 Wastewater Treatment Plant.



500 GPD
FINAL ASSEMBLY

CONTROL PANEL
DIFUSSER BAR
PRE-TREATMENT-TRANSFER TEE
OUTLET TEE BAFFLE
DIFUSSER BAR INSTALLED 3" FROM WALL WITH LEGS TOUCHING BOTTOM.
PRE - TREATMENT - CHAMBER
CHLORINATOR CHAMBER
AERATION CHAMBER

Installation Procedures

Contact the Local Health Department:

The homeowner / building contractor must contact the local health department prior to the installation of the ***SOLAR AIR*** system. The ***SOLAR AIR*** specifications, drawings and performance data for the system should already be on file with the health department. The health officer may request, however, that a site sketch be submitted showing the proposed method of effluent disposal and location of the ***SOLAR AIR*** system in relation to the home, property lines and potable water supply. They health department may wish to make an inspection of the site and proposed point of discharge. They may even want to take soil samples or run ground percolation tests before issuing an installation permit. You must also no if a subsequent inspection of the ***SOLAR AIR*** tank and sewer line will be required before backfilling is allowed.

Site Location:

- Select a location for the plant site that is accessible to the home sewer discharge line, and future maintenance work. The ***SOLAR AIR*** tank has three alternate inlet locations. They are located on the inlet end wall and both inlet sidewalls at the same elevation. Any one of these inlets may be used. This site should be at least five (5) feet from the home foundation, in an area that will not receive vehicular traffic. You must also take into consideration any state regulation, such as distances from potable water supplies, and property lines, which also could dictate system placement.
- Keep in mind the over all height, width and weight of the delivery truck. The escavation must be accessible without interference from trees, shrubbery, **power lines** or other obstacles. There could be additional charges if a delivery truck is delayed because the escavation is not complete and readily accessible.
- Before digging you should have all underground utilities located. This will save you from possible injuries and costly repairs.

Escavation:

Dig the hole for the system so as to allow a graded bottom at least 2 feet longer and wider than the system to be installed.

To determine the hole depth, take an elevation shot on your home sewer line. Add to that number 58" which is the distance from the bottom of the tank to the bottom of the inlet on a 500-gpd ***SOLAR AIR*** system. Now measure the length of the sewer line from the building to the plant and divide this number by 8. This will give you the number of inches of fall required on the sewer line, which is 1/8 inch per foot on 4" pipe. You will then add this number of inches for the sewer drop to your elevation shot. This will be your elevation shot for the bottom of the hole.

Setting System in Ground:

- Once the escavation is completed, it is critical that the hole be leveled out to evenly support the system and to ensure proper functioning of the system. In areas where rock is encountered, you must put a three-inch layer of sand or crushed stone for a foundation pad. Do not attempt to set the concrete system down on top of rocky or uneven surfaces. This practice could result in damage to the bottom of the tank.
- When loading and offloading system whether one piece tank or in sections thoroughly inspect spreader bar for cracks, broken welds,, etc. Cable and clamps should also be checked for burs,, nicks or lose nuts and check chains for faulty links. Never let anyone stand under or too close to suspended tank or while in the process of loading and off loading. Handle accessories (blower, control panel, rings, lids and blower housing) with care to prevent bodily damage and damage to accessories.
- *SAFETY FIRST*
- Carefully set the system down into the hole. If a manufacturer will be delivering the system to you, it would be a good idea to take elevation shots on the four corners of the tank before the truck leaves, because you may need to remove the tank to do any necessary releveling.
- Dig and install the building sewer line from the building to the system. Only household (domestic) sanitary wastewater must be allowed to enter the system. Most states require every 90-degree change in direction to be accomplished with a combination and cleanout port. This is a good practice being that sharp turns may cause a sewage stoppage. Most State Plumbing Code requires 1/8 inch per footfall on 4" sewer lines. You will stub the sewer line coming from the home into the pre-treatment compartment, no more than 4" into the tank. This line must be completely sealed where it goes into the tank. Many installers use either grout or some type of mastic sealant. In areas where many roots will be encountered, you will find that the mastic sealant will do a better job of keeping the roots out of the system.
- Water softener backwash must not be allowed to inter the system due to the high concentration of salts dissolved in this liquid.

Installing Risers and Equipment:

This is a good time to begin installing the risers, lids and blower. It is important that care is used while off loading riser rings and lids. If you set the rings down to hard they will break. The lids also are tough to get re-enforcement in such a thin area. Much of the strength that we are relying on is the strength of the concrete mix.

- The riser rings come in 6" high increments. The top of the riser ring should finish out no less than 3" above ground level. Special considerations should be made on new construction sites as to the finished ground elevations after site work will be completed. We have found that most states are alike in where they feel systems should have an access riser and cover for easy access and inspection. We recommend a riser and lid to be installed over the closest hole to the discharge side of the tank. This access hole is directly over the dividing wall of the aeration compartment and the clarifier. This will give quick access to both the aeration and clarifier chambers. You will need to check turbidity, odor, color, and clarity for your maintenance reports. This can all be done from this access port. When looking directly over this opening

you will notice that there is a V-groove going across the 4" concrete wall. This groove allows air to vent out of the aeration compartment into the clarifier.

- If you plan on installing the blower on the top of the tank you will want to put the second riser and blower lid over the middle access hole. The diffuser bar will come up through the tank and lid. There are holes provided in the access lids in such places as to easily attach the diffuser bar to the blower. Although the access lid can be rotated to allow the whole blower and alarm system to face the opposite direction, you must keep the diffuser bar 3" from to the wall. Locate the rubber hose assembly, which may be found in the cardboard box that the blower came in. This assembly is to be installed on the blower discharge port. Slide the end of the PVC diffuser bar into the rubber hose and tighten the hose clamp over the connection. When the diffuser bar has been connected to the blower, check to ensure that the diffuser bar legs is still touching the bottom of the tank. These legs support the diffuser bar and restrict motion.
- There is also a 3 / 4 - inch coupling poured into the lid that can be used to mount the control box. Your blower kit should have a piece of pipe 3 / 4 x 3" that connects from the male adapter on the bottom of the control box to the coupling in the lid. This will not only support the control box, but it also acts as your conduit for your wiring.
- If you choose to install the blower somewhere other than the top of the system, the blower must be no more than fifty (50) feet from the system. It also should be located in a dry area. You may follow the same procedures as mentioned above when installing the blower. Keep in mind that the control box has an alarm light that should be installed in a conspicuous area, which can be seen daily under normal living conditions.
- Some states require a sample port to be installed directly after the system. If the system is set up to gravity flow to the ditch, glue a 4" piece of pipe into the 4" discharge coupling. Then glue a 4" cross with an 8" piece of pipe capped and glued to the bottom of the cross, which forms the reservoir in which to pull the samples. Extend the top of the cross to 2" above the ground and end the riser with a clean-out adapter and removable plug. Now extend the rest of the discharge line to the ditch.

Fill System with Water:

- At this time you should begin filling the tank with water. It is very important that the tank be filled with water immediately after the installation is completed. Ground water or rain can cause an empty tank to float out of the ground. In some states it is required that you fill the tank with water and check for leaks before back filling.

Back Filling:

Begin to back fill dirt around the tank. Take extra precautions while back filling around the inlet, outlet and air piping as to not damage piping. Do not allow dirt, debris or other material to enter access openings on the tank top or inlet and outlet ports during the installation or backfilling of the tank.

Large clumps of earth, rocks or debris should never be used to backfill around the tank.

Backfill the top of the tank slowly. Do not allow large amounts of dirt or large pieces of dirt to drop onto the top of the tank, as this can cause extensive damage to the equipment and riser lids.

It is a good idea to leave approximately 1/2 of a yard of dirt piled up by the plant. After a good rain it is normal for the dirt around the tank to settle. The homeowner will need this dirt to fill in around the tank.

Electrical:

Blower/Control Panel for the Linear 5078S Blower:

The *SOLAR AIR* Control Panel is the information center for failure sensing. The control panel is especially designed for the *SOLAR AIR* equipment package to alert both the homeowner and maintenance provider of malfunctions do to equipment failure. Inside the control panel located against the left wall directly above the On/Off switch is the contactor and pressure switch.

The system is also equipped with a high level alarm that indicates an unusually high water level in the system. Inside the aeration chamber is a mercury float switch that sends a signal to the control box when the water rises 4" above normal conditions. It is important to maintain correct water levels to prevent floating solids from flowing over the top of baffles and on out into the receiving streams.

On the front of the control panel is a switch. This switch is used to silence the audible alarm. When the switch is in the silence mode the light will the only failure-sensing device operable. We recommend that the switch remain in the normal mode. In this mode both the audible and visual alarms will be in operation.

On the left of the exterior side of the control panel is the Off/ On switch for the blower. You may use this switch to not only turn off the blower, but by turning this switch off you can test the failure-sensing device for the blower.

FOR PARTS AND SUPPLIES CONTACT:

NATIONAL WASTEWATER SYSTEMS, INC.
6754 HWY 90 EAST
LAKE CHARLES, LA 70615
PHONE: (337) 439-0680
FAX: (337) 439-1685

Electrical Tie-in to Control Panel:

Open the control box and become familiar with the printed diagrams.

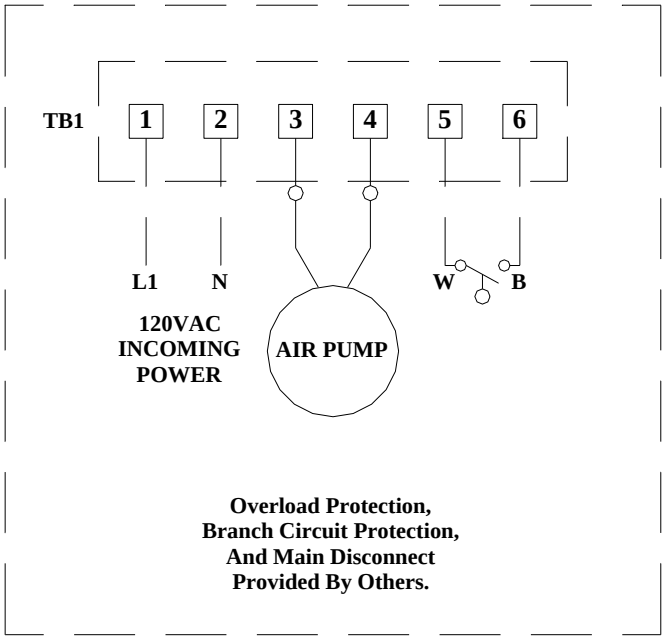
This **control panel** and **blower** operates on **115 volt**, 60 Hz, 1 phase grounded power supply.

The recommended way to tie in the electrical source to the control panel is to drill the bottom left X out on the bottom of the panel to receive a ½ inch seal-tight connector. Run the bare side of a 14/2, 115 volt pigtail 18 inches long through the seal-tight connector and connect the white/neutral wire to the TBI terminal marked N. Connect the black wire next to it on the terminal marked L1.

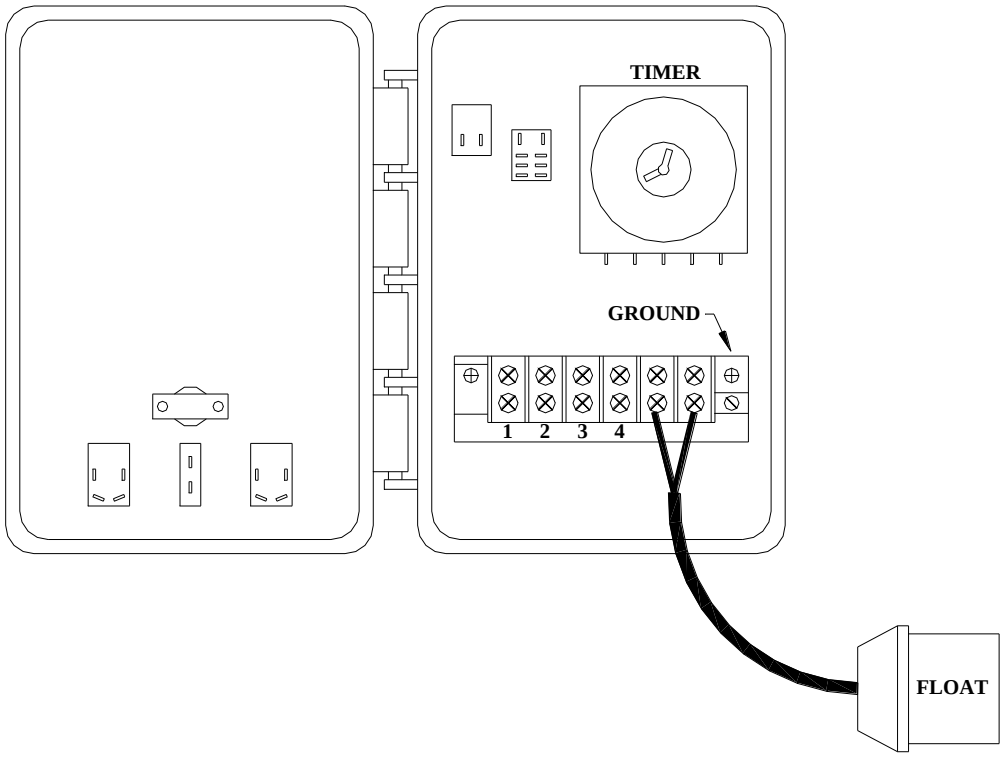
To connect the **high level alarm** you simply take the float switch and attach it to the diffuser bar approximately 56" from inside bottom of the tank. Run the end of the float wire through the 1 / 2 inch hole in the bottom of the access lid.

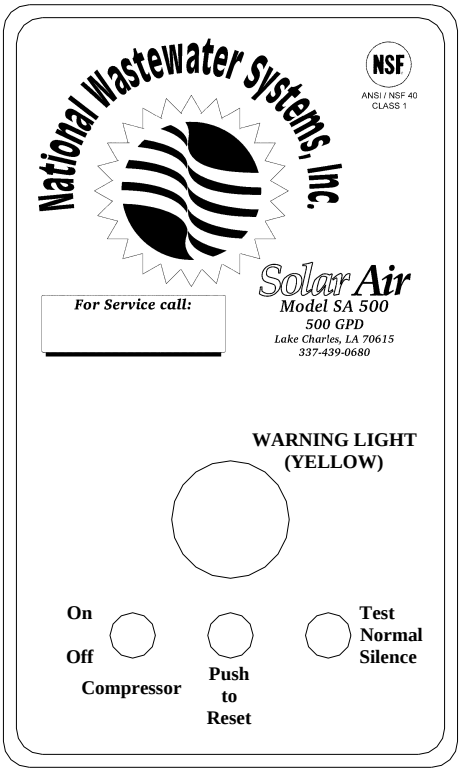
Pull the wire all the way through and tie a loose knot to keep excess wire out of aeration tank. The end of the float wire can then be ran through the bottom of the ½ inch conduit and into the control box. You may leave the excess float wire under the blower riser. (Illus. # 5) Skin about 1-½ inches of the outside insulation off. This will expose a black and white wire. Skin about 3/8 inch of insulation off of both of these. The white wire must be on the #5 terminal and the black must be on the #6 terminal to operate properly.

Field Wiring Section



Linear 5078 S Control Panel
&
High Level Alarm





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