

# SYSTEM 3 SIDE DISCHARGE INSTALLATION (115/230V OPERATION)

## IN THE BEGINNING

Before installing or operating this system, familiarize yourself with these instructions. You will also need the instructions packed with the pumps and control panel.

### BASIN LOCATION AND INSTALLATION

Below ground discharge piping is typical when the system will reside out in the open. Overall basin depth depends upon invert elevation and working depth. In addition to the invert depth, a minimum of two and one half feet of basin depth is required below the invert to support pump operation. Excavate to the proper depth and line with a 4" layer of pea gravel. Set the basin in place but do not backfill at this time.

Install the invert or inlet pipe as shown in the drawing. The basin is shipped with the caulking hub loose. This allows you to place it at the required elevation. Use the 4ADA adapter, included with the system, to seal the inlet pipe in the hub.

### PUMP AND DISCHARGE PIPE INSTALLATION

Install the pumps and discharge piping as shown in the drawing. Note that the check valves are shown installed in the vertical position. This is done to save space and is not the most reliable position. When installing checks vertically use valves that can be disassembled and cleaned in place. With basins larger than 36" in diameter, the pumps can be located off center in order to accommodate horizontal installation of the checks. Also note that the drawing shows the piping converging to a common discharge and then dropping to some lower level before exiting the basin. This is done so

the shut off valves can be easily reached from the surface. If the discharge elevation is no more than two feet below the top of the basin, the shut off valves can be installed on the same level and thus eliminate additional fittings. Discharge penetration through the basin wall may be via bulkhead fitting or a Tyler style compression gasket.

### INSTALLING THE J-BOX, FLOAT BRACKET, AND FLOAT SWITCHES

Use a 1.5", solvent weld conduit flange to install the junction box in the location shown in the drawing. Tag the pump power cords and lead them through the appropriate compression fittings.

Bolt the stainless steel float bracket to the basin wall below the j-box. Nylon, snap action cord restraints are used to attach the float cords to the bracket.

The floats switches incorporate weights and hang straight down from the float bracket. They require no additional support. Adjust the float switches in the following manner. Label one float *Pump Off* and set it so that is just above the pump discharge when hanging straight down. Label the second switch *Pump On* and set it so that it hangs level with the top of the pump. Label the third switch *Override* and set it 6" above the second float. Label the fourth float *Alarm* and set it 3 to 6" above the third float. Secure each float cord to the bracket with a nylon cord restraint. Lead the float cords through the water tight compression fittings on the j-box.

After all piping is complete, backfill the basin carefully to ensure that its vertical alignment is maintained.

### INSTALLING THE CONTROL PANEL

The NEMA 4X fiberglass control panel is designed for inside or outside installation. Locate the panel in an area where the alarm light can be seen if pump failure occurs. Install the control panel according to the instructions provided with the panel. The

standard, 1/2 HP SYSTEM 3 requires a dedicated 230 VAC, 15 AMP circuit. If you have specified 115VAC a dedicated 30 amp circuit is required. Also note that the hot side of the 115VAC line must be connected to L1, otherwise the control circuitry will not function. In either case a grounded neutral is required. Refer to the control panel instructions if your SYSTEM 3 includes pumps larger than 1/2 HP.

If the control panel is located near the basin, the pump power cords and float cords may be long enough to reach without splicing. If not, additional wiring must be pulled from the panel to the j-box. Label the power and control wires and follow the wiring instructions included with the control panel.

### START UP

Switch on power to the control panel. Test operate each pump by momentarily placing each HOA switch in the *Hand* position. Place the HOA switches in the *Auto* position. Slowly fill the basin with water. Insure that the pumps are fully submerged before starting. If not, readjust the "pump on" float switch. During pumpdown insure that the water level does not fall below the pump discharge or the pump may become air locked the next time it starts. If it does, readjust the "pump off" float. Fill the basin again and insure that the pumps alternate. Switch both HOA switches to the off position and allow the basin to continue to fill. Insure that the alarm switch activates the alarm. Switch both pumps to auto. Both should start and continue to run during pumpdown.

If the pump starts but the water level does not drop, the pump may be air locked. Loosen the pipe coupling to vent the trapped air. If the level still does not drop, check the pumping elevation and orientation of the check valve.

### TROUBLE SHOOTING

Your sewage pumps and control panel have been tested at the factory. Although failures do occur after installation, 99% of all initial

problems are due to improper installation. Use the following check list to trouble shoot your system. If the problem is not corrected, contact PL&A.

#### Pumps do not run

Make sure the supply and panel circuit breakers are on. If 115VAC power is installed, make sure the hot lead is connected to L1. Check that float switches are wired to the proper terminals. Make sure the "pump off" and "pump on" floats are positioned correctly. Check continuity of the floats.

#### Pumps run but do not pump

Make sure pumps are not air locked. Release the coupling to discharge trapped air. Check the check valves for proper orientation. Two valves are required. Check for blockage in the line. Make sure vertical elevation does not exceed the capacity of the pumps.

#### Pumps runs but pump slowly

Check for blockage or a partially closed valve. Make sure vertical elevation does not exceed pump operational head.

### MAINTENANCE

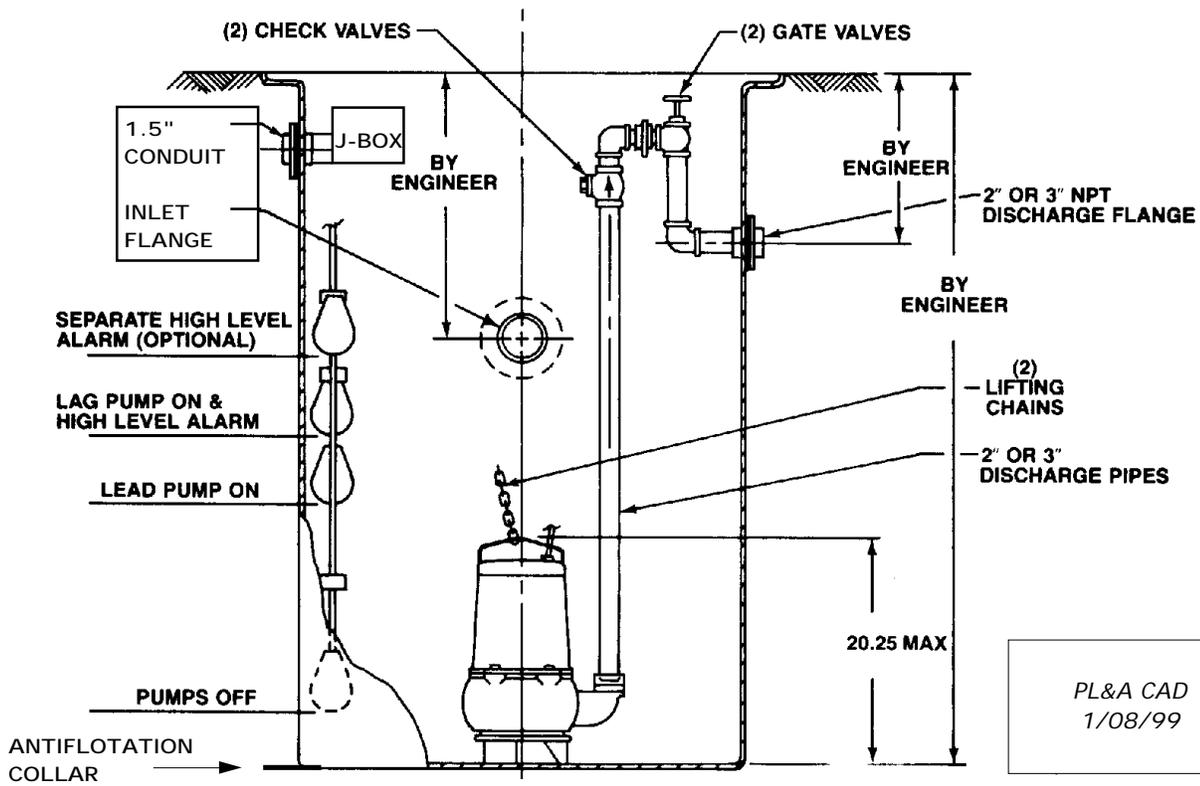
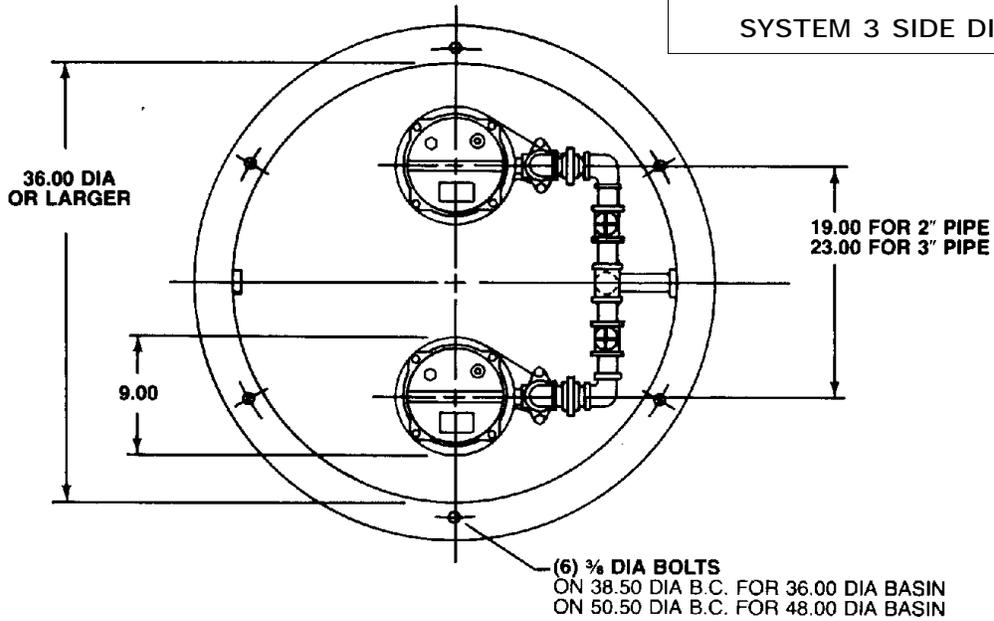
The system requires very little maintenance. Two to three times a year, raise the pump ports and hose down the pumps, floats, and piping. This will remove sludge buildup that could cause plugging or float hang up. If you hear unusual noises or notice erratic pump operation, investigate the cause. Usually, most problems result from faulty or hanging float switches. Replace faulty switches before they damage the pumps. If the system trips a breaker during operation, check for pump damage or severe plugging.



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