

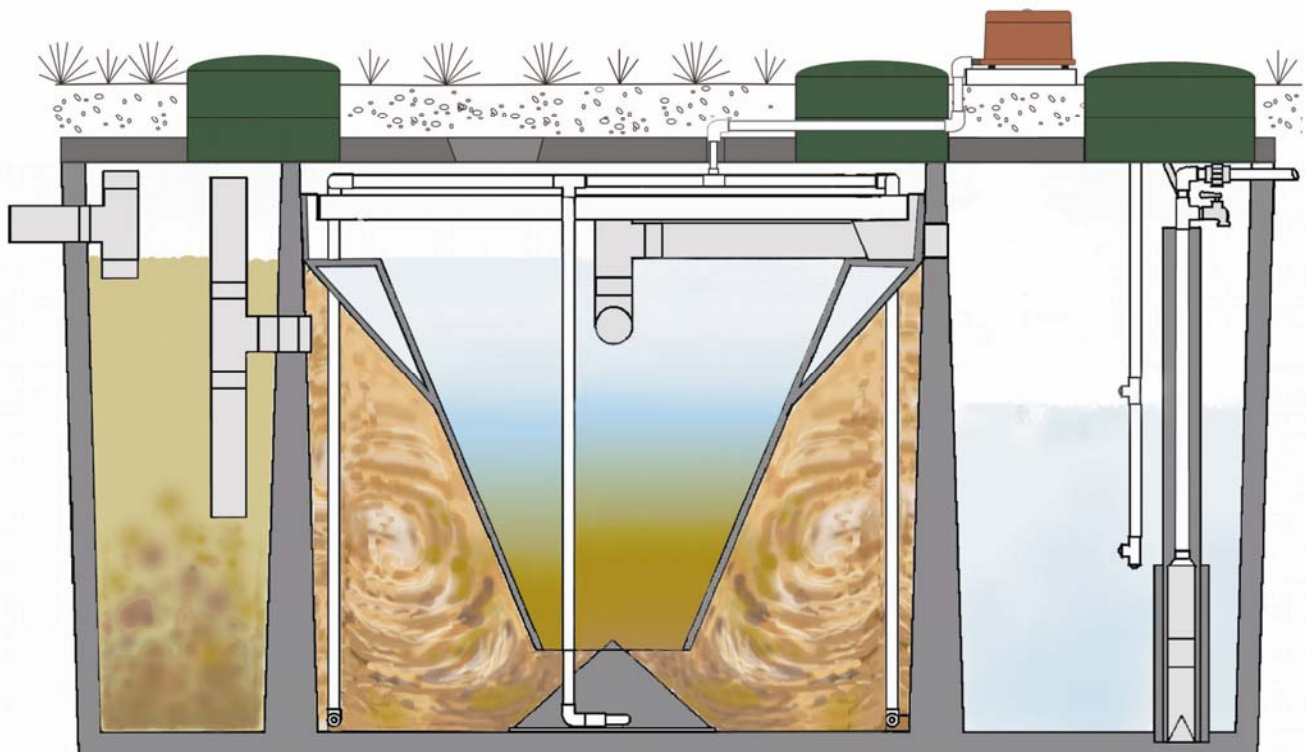


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## Panel Trouble Shooting Guide



## Controller Operation and Troubleshooting

Upon arrival at the jobsite, you need to identify if the problem you have been called out to is being indicated through the trouble lights and the beep codes.

**For New Installations:** ALWAYS CHECK ALL CONNECTIONS, WIRING AND BREAKER (SIZE, CONNECTION, AND INTEGRITY) AND GROUNDS (INCLUDING HOUSE AND PUMP GROUND) BEFORE BEGINNING ANY DIAGNOSTIC WORK.

The lights on the control panel tell you of the Status of the System and if there is an alarm present the general problem that the controller sees. The controller also has “**Alarm Codes**” which specifically tell you about a current alarm and previous 4 alarms that the controller “has seen.

1. Confirm that your current condition matches the alarm that is activated.
2. If the condition is no longer present than start to systematically go through system one component/connection at a time checking for unusual installation practices/site conditions.
3. Test individual components by causing conditions (High Water Simulation, Low Air Pressure, etc.) to make sure that component responds appropriately.
4. Once you finish diagnosing a single component and if it is NOT found to be the problem than re-hook component back to original configuration and move to the next. If you change more than 1 component/ component configurations at the same time, it will be difficult to know what component originally caused problem.

Upon arrival to site, what lights on the panel are illuminated?

If there are no lights, skip below to **No Lights, No Alarm**

### System OK (Steady Green Light)

- This indicates that the controller “see’s” all of the system functions to be in normal operation. If a visual observation of the components confirms this, then things are OK.
- If there is a problem present, and no alarm, then there is a:
  - Failure of a connection to let the panel know of the problem.
  - Failure of a component on the board to indicate the alarm condition.
    - Not Properly connected
    - Ground, Connection or **Stray Voltage** issue.

### System Alarm (Steady Red Light)

This occurs only with a **Water Level Problem** or **Aeration Problem**. If one of those lights is on too, see that Section.

Exceptions are:

- A Fast Flashing Red Light – Indicates that the System is hooked to 220 volts.
  - Immediately disconnect power to prevent damage to Controller.
  - Confirm Power at the Terminal buss with a meter. If it is greater than 130 volts, this alarm will occur.
    - Change power from 220 to 110 hook up.
    - Do not try and run controller from a Generator without a load on it.
- In “Older 5- Light” a Flashing Red Light indicates the 9 volt Battery Backup is not in place (only software versions that have a last number less than 8)
- A red light will also occur in Modes to indicate the system is not in normal operation (Red Light is used to indicated Various things in Modes 1-7)

### Water Level Problem

A **Water Level Problem** will occur when water is over the “Alarm Problem” for greater than 30 continuous seconds. When water is removed from the Alarm Probe, the Light will turn off.

Is the Tank Full of Water? If YES then:

1. Check to see if 20 Amp Circuit breaker for water pump is tripped, if so, reposition and restart. (cycle the breaker off than back on to confirm a non tripped breaker)
2. Check relay in panel to ensure proper function.
  - a. Put controller into Mode 2 to force pump.
    - i. Does the “Yellow” light on relay light up?
    - ii. If not, turn off power at disconnect.
    - iii. Move hot wire from pump to the hot wire on the terminal bus
    - iv. Turn Power back on, does pump operate?
      1. If so, relay is bad, or relay does not get the signal from the board.
      2. Try replacement of relay first, then the Door.
3. Effluent pump is clogged. Unhook union on pump pipe and activate pump. This makes sure pump is pumping water (this allows you to visually confirm pump is working properly). Pull pump out of tank and inspect intake grate. Inspect any fittings or filters between the pump and effluent discharge to make sure all components are functioning properly and don’t need additional servicing.
4. Check valve on top of water pump may be stuck, remove pipe and check for proper movement and operation.
5. Sampling port relief valve open too wide or missing. (looking for too much recirculation in tank that won’t allow water to evacuate in a timely manner)
6. Effluent discharge line is restricted, clogged or frozen.

Is the Tank Full of Water? If NO then:

1. Put the Controller into Mode 1 to allow the panel to “Display” what it “See’s”.
2. If the panel displays out an indication that is contrary to what is observed in the

tank, then there is a failure of the probe circuit on the board or in the probe.

To isolate the problem:

1. Test Controller

Remove Probe Wires (And Jumpers if it is a Remote LB Style Probe).

- Does alarm cease?
- If it does, the controller is working properly; the failure is in the Probe or the wiring to the Probe.
- If not, the Door is bad and needs to be replaced.

2. Test Probe and Wiring to the Probe

Tank Mount or Continuous Long Wire Probe

- Try another probe, lay it on the ground and insert it into the tank
  - If it works properly, installed probe is bad
    - Problem could be with Bad wires
    - Damaged insulation
    - Water intrusion into probe (from a broken or cracked probe)

### **Aeration Problem**

This will occur when the Controller fails to see greater than 40 WCI of water at the sensor in the control panel.

Reasons for this can be:

1. Blower is not operating
2. There is a pressure leak on the sensor hose
  - at the blower,
  - at the connection to panel or
  - at the sensor in the panel
3. There is a frozen sensor line (winter only)
4. There is a kink on the sensor hose (inside or outside of the panel)
5. Tank has been recently pumped out and not refilled yet
6. A Break in the Aeration Plumbing
7. Blower needs to be rebuilt (typically 3-5 years of operation)
8. Debris (grass, leaves, mud, mulch) is around or under aerator, causing it to overheat and shutdown. Blower must be on a raised pad and all of these items cleared away

To Troubleshoot

Put the Control Panel into **Mode 3** which will display out the system backpressure in Water Column Inches. A typical system will read 57(+/- 5) at startup.

- Inspect Air Line for Leaks, if not,

- detach from Controller and confirm air is blowing from hose
- if there is no air, see 3-8

Over time, as solids increase in the system, this number will go up. 100 WCI is a point where a stone flush should be done. If the Sensor Reads 175, that is as high as the sensor can read and there is not enough air being delivered to the system to get complete treatment.

### **No Lights at Arrival**

This indicates that the Computer Panel is NOT getting power. This can occur if the power is disconnected to the panel, improper wiring or wire size, or the resettable fuse on the board has tripped:

1. Check to see if there is power on the Terminal Strip at the bottom of the control box.  
If not:
  - Check Disconnect near the panel
  - Check Breaker in House
    - If you have not discovered the problem yet,
  - Have the customer Call an electrician to restore power to the panel.
2. If you have power at the Terminal Strip, then the board is not getting 14 volts, or the "Safety Fuse" on the controller has tripped.
  - Disconnect "harness" plug from control board and "re-install".
  - If this corrects the problem, then this may have occurred from a power surge or other irregularity.
  - If this occurs again in a short period of time, replace the door.
  - If this does not resolve the problem, then replace the door.
  - If that does not resolve the problem, then the transformer is bad.
    - Replace the transformer,
    - If the panel fires up, re-install original door.
    - If original door does not work, the problem (A lightening Strike or Electrical Surge) took out the Transformer and the Door.

### **Stray Voltage**

- If you have a green light with water running out of the tank or if you put the controller into Mode 1 and have no lights when water is present, or they flash on and off, then you need to look for a source of stray voltage.
  1. Stray voltage can have a back feed on the probe circuit and cause it not to see the water.
  2. Stray voltage can come from multiple source including but not limited to:
    - a. solenoid wires (for Recirculation or Field Flush),
    - b. pump wires (the connections inside or outside the pump tank or cuts in the cord/wire) or

- c. even an outside source through the ground
  - i. pool equipment,
  - ii. air-conditioner unit,
  - iii. Electric Fence (Dog Type or for Livestock)
  - iv. near-by electrical or telephone sub stations, etc.).

#### To Troubleshoot

1. If no lights are on in Mode 1, unhook probe and test the probe inputs on the board with jumpers. (Connect a wire to the Ground and then connect it to each probe input).
2. If the panel works with the jumpers, reinstall probe wires. Turn off panel and unhook any electrical components from the controller that is located inside the pump tank (pump wires (all 3), solenoid wires, etc.). Turn power back on and put in mode 1.
3. If lights illuminate then systematically, one by one re-hook wires, testing in Mode 1 between each hook up to see which one is causing the problem. Change or address problem component that is causing issue.
4. If the probe still isn't reading with all components unhooked than run new probe wires on top the ground, submerge new probe staff in water and see if lights illuminate.
5. If lights do illuminate correctly than replace with new probe (be careful to not get in a rush and cause another problem).
6. If new probe still isn't working pull new probe out of water and "play like flute".
7. If you can make lights illuminate out of the tank than you still have stray voltage from an outside source that needs to be addressed.
8. Make sure electrical splices for pump wires and solenoid wires are in DBR's.

If you still have a problem, call your representative for further instructions.