ELECTRICAL SUPPLY TROUBLESHOOTING - QUICK GUIDE

1. Circuit Breaker Tripping
2. Circuit Overload
3. Short Circuit
4. Ground Fault
5. Ground Fault Circuit Interrupter (GFCI) Tripping

SAFETY PRECAUTIONS

Basic safety precautions should be followed, including the following:

⚠ **DANGER!** ***If incorrectly installed, operated or maintained, this product can cause death or severe injury.*** *Those who install, operate, or maintain this product should be trained in its proper use, warned of its dangers, and familiar with the tools and equipment before attempting to install, operate, or maintain the product.*

⚠ **DANGER!** ***ELECTRICAL SHOCK HAZARD.*** *Always unplug or isolate from power supply prior to servicing equipment to prevent electrical shock. Only authorized technicians familiar with electrical safety should attempt this advanced troubleshooting.*

Contact Waterlogic if you need any assistance or help finding an authorized service representative.

Power Supply Requirements and General Guidelines

- Ensure Power Supply is 120V 60Hz AC with a minimum of 15-amp service.
- No other equipment is to be connected to the outlet.
- Use only Waterlogic Supplied Power Cord.
- Never Use Extension Cords.

Typical Duplex Outlet is wired to carry 15 amps. Waterlogic units will draw approximately 6-7 amps at full load. However, the current can spike up when the Compressor first starts and the heater is on. Always use a minimum 15-amp service to supply a Waterlogic unit.

1. Circuit Breaker Tripping:

A circuit breaker “trips” or shuts off the electrical flow to protect the circuit from overheating and causing damage--even possibly an electrical fire.

So, before you go and flip the switch on again, take a moment to determine what the root cause is of the tripping. The three typical causes are: Overloaded Circuit, Short Circuit, Ground Fault in Outlet not equipped with Ground Fault Circuit Interrupt (GFCI) protection. See GFCI troubleshoot for outlets equipped with GFCI protection.

2. Circuit Overload

The circuit overloading is the most common reason your circuit breaker is tripping.

That means you’re running too many heavy power consuming devices at the same time on the same circuit. Ensure adequate service and that no other devices are tied to the same circuit.

3. Short Circuit

A short circuit happens when a “hot” wire (black) touches another hot wire or touches a “neutral” wire (white) in one of your outlets or devices connected to it.

When these two wires touch, a large amount of current flows, creating more heat than the circuit can handle, so it will trip the circuit breaker.

You can identify the root of a short circuit by visually checking for discoloration of components from excessive heat caused by the short. You can perform continuity or resistance checks between components to verify short circuits. Always replace any component and associated parts that have been exposed to a strain of a short circuit. All wires and connectors should be replaced to avoid failures.

4. Ground Fault

A ground fault happens when a hot wire (black) touches the ground wire (bare copper or green) on the side of a metal outlet box which is connected to the ground wire.

Just like a short circuit, you need to find the root cause and repair anything looks out of the ordinary within the circuit or equipment.

5. Ground Fault Circuit Interrupter (GFCI) Tripping:

Ground fault circuit interrupters or GFCI's are specifically designed to protect people against electric shock as it monitors the imbalance of current between the ungrounded (hot - white) supply and grounded (neutral -black) return conductor of a given circuit. A small (5 mA) difference in current or stray current will trip the GFCI. Detecting dangerous current flow and instantly shutting off power before deadly accidental occur. The sensitive circuitry inside older (pre 2006) GFCI can wear out or malfunction and usually the test button on the GFCI itself doesn't tell you there's anything wrong.

Testing GFCI:

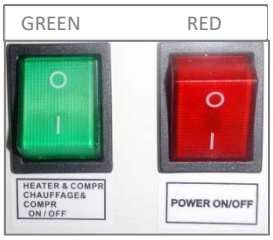
The only reliable way to check an older GFCI is to use a circuit tester that has its own GFCI test button (available at home centers and hardware stores).

Once the GFCI circuit has been properly checked, we can attempt to pinpoint the potential problem within the unit by isolating the stray current.

Plugging the suspect unit into another GFCI outlet on can indicate if stray currents are present within the unit itself.

Attempt to isolate the fault or stray current by using the following methodology:

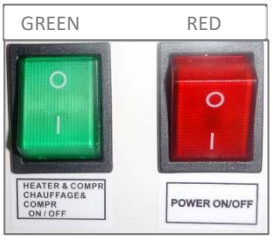
1. **Plug into properly functioning GFCI with both switches in Off (O) position.**



   1.1. GFCI Fault? Yes.
   Identify stray current and/or inspect and replace faulty component(s) up to the Main Power Switch (Red):
   - Power cord
   - Power Socket
   - Fuse Holder Assembly

   1.2. GFCI Does Not Fault. Go to step 2.

2. **Turn On Main Power (Red) Switch. Toggle to the On position (I=ON).**
   Switch should light to indicate power on.
   2.1. GFCI Fault? Yes. Go to Step 3.
   2.2. GFCI Does Not Fault. Go to Step 5.



Isolate or disconnect unit from power and open Top Cover to access main Printed Circuit Board (PCB).

3. **Isolate (disconnect) Main PCB**

Unplug “Line” socket (red connector) with
Blue and Brown wires from main power switch to PCB.

3.1. Reset the GFCI and cycle power back ON to check the unit with PCB isolated.

3.2. GFCI Does Not Fault? Stray current isolated to Power Switch. Check and Replace Main Power Switch

3.3. GFCI Still Faults, go to step 4.

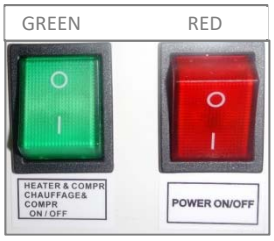
4. **Isolate (disconnect) the UV Ballast**
Unplug “BT” connector with two white wires from main PCB

4.1. Reset the GFCI and cycle power back ON to check the unit with UV system isolated.

4.2. GFCI Does Not Fault: Stray current isolated to UV. Check and Replace faulty UV component(s)
- UV Ballast
- UV Lamp
- UV Harness

4.3. GFCI Still Faults…go to step 5.

5. **Turn On Heater/Compressor Power (Green) Switch to (I) Position. Switch should light to indicate power on.**



5.1. GFCI Faults? Go to Step 6

5.2. GFCI Does Not Fault. Indicates problem is resolved. Ensure Full Machine Function including Compressor and heater are operational before completing work.

6. **Isolate (disconnect) the Heater Circuit**
Unplug HEATER white connector with two red wires from PCB.

6.1. Reset the GFCI and cycle power back on to check the unit with heater circuit isolated.

6.2. GFCI Does Not Fault:

Check and Replace faulty component(s)

- Hot Tank
- Heater Circuit Harness

6.3. GFCI Still Faults, go to step 7.

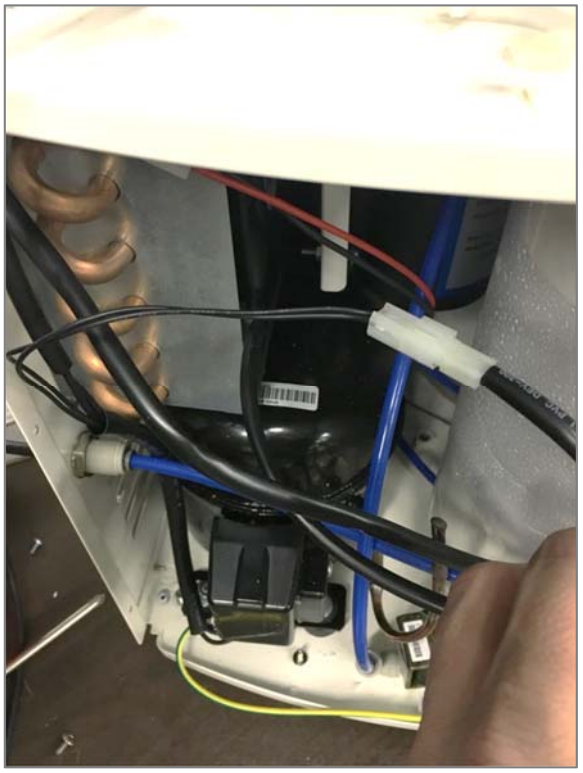
7. Isolate (disconnect) Refrigeration Circuit (Compressor and Fan).
Unplug "COMP" white connector with two black wires from PCB.

7.1. Reset the GFCI and cycle power back on to check the unit with Compressor circuit isolated.

7.2. GFCI Does Not Fault: Stray Current is in refrigeration circuit. Go to Step 8.

8. Isolate (disconnect) Fan.

Unplug Fan from Compressor Feed Wire.



8.1. Reconnect the Compressor to the Main PCB

8.2. Disconnect Fan from Compressor Lead
Access fan connector by removing left side Panel.

8.3. Check the Circuit with Fan isolated.

GFCI Does Not Fault. Replace Fan.

GFCI Still Faults, Stray Current in Compressor.

8.4. Check and Replace Faulty Component(s)

- Cold Thermostat
- Compressor Starter
- Compressor