

MarinAire®

E4 Error Code Troubleshooting Manual

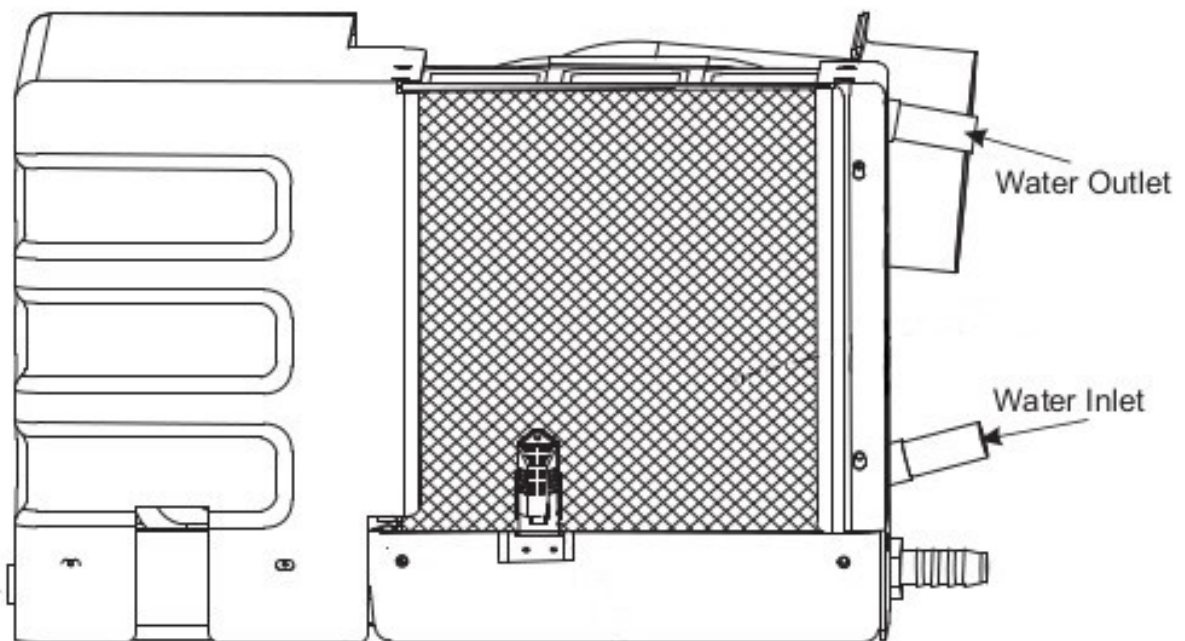
This manual is intended for professional use only by Certified Electricians.
Read this manual thoroughly.
Always practice electrical safety.
Always turn off power at the breaker before servicing.

If your unit is displaying an E4 error code during **cooling** or **dehumidifying** mode, then the unit is experiencing a water flow issue. This manual will guide you through step-by-step procedures to diagnose the type of water flow issue you might be experiencing, and will also guide you on how to solve it.

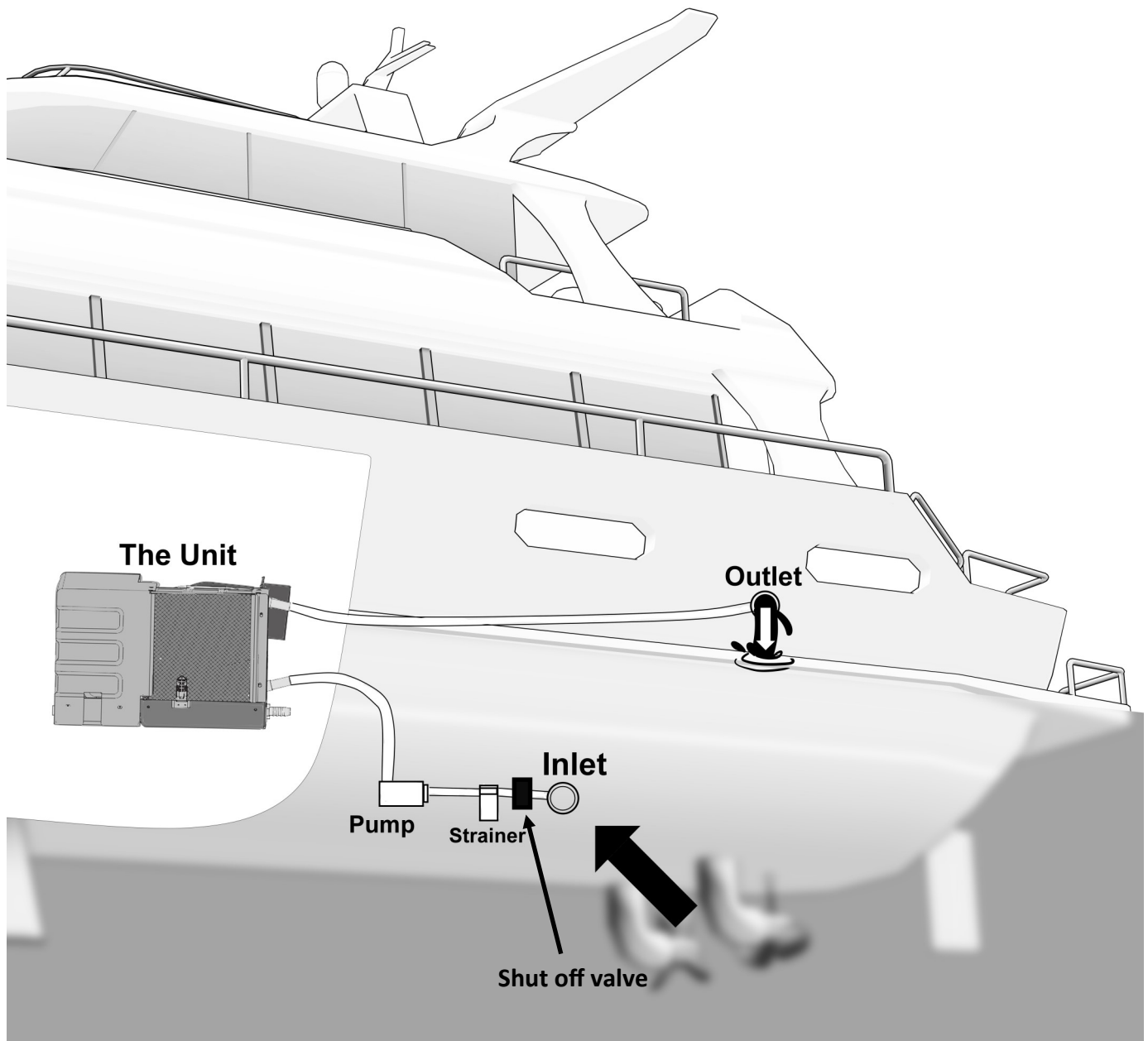
NOTE: When most customers call in for an E4 issue, they will visually diagnose their water flow by looking at the water flowing out of their outlet. Oftentimes a reduction in water flow is not visually significant enough to diagnose through sight or touch, it must ALWAYS be tested. Luckily, testing for water flow is easy!

Please read through this manual carefully, and conduct the tests in the order that they are given.

Important Unit Anatomy for E4



Important Plumbing Anatomy for E4



Most marine air conditioners have a plumbing set up similar to the illustration above. Please familiarize yourself with these components and locate them on your boat.

CHECKPOINTS

Prior to testing for E4, we will conduct some preliminary tests for obvious problems.

First ensure that your pump is the correct GPH for your unit and that your pump is magnetic. Any type of pump other than a magnetically driven pump is not recommended. (ie. sprinkler pump, pool pump, cal, little giant.. Etc..)

Next, use the chart below to determine if your pump GPH is adequate for your unit.

If you are running multiple units on a single pump, add the GPH per unit.

(for example: for two MSBA6K2's..... 300 GPH + 300 GPH =600 GPH pump minimum req.)

*Note that this chart is only for units that are branded as MARINAIRE TECHNOLOGIES INC. If you have any other type of brand please consult with them to find out their minimum water flow requirements as they may be drastically different from the figures below.

RECOMMENDED PUMP SIZES PER MODEL

MSBA6K/C2	300 GPH
MSBA9K/C2	300 GPH
MSBA11K/C2	500 GPH
MSBA14K/C2	500 GPH
MSBA16K/C2	500 GPH
MSBA20C2	1000 GPH
MSBA24C2	1000 GPH

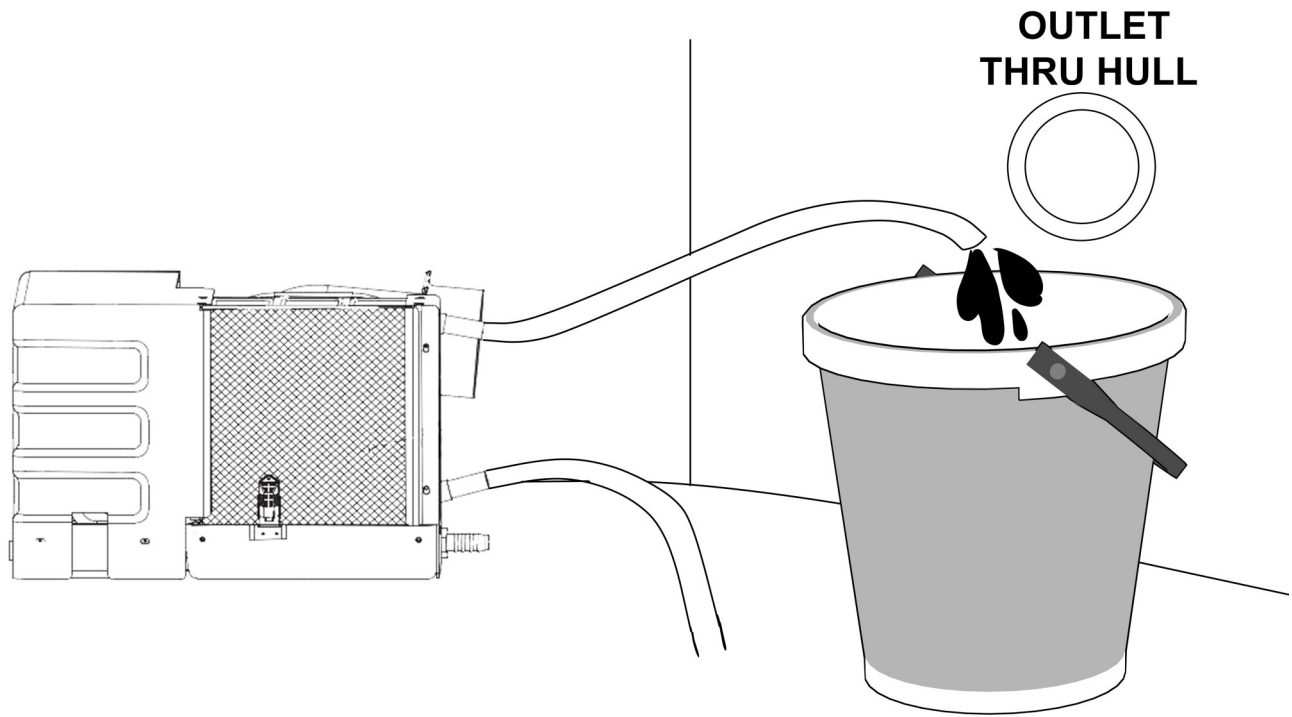
RESETTING THE UNIT

First, turn the power off at the breaker. Once you ensure that the power is OFF, please go to your thermostat and press the POWER button two times. Make sure that the screen is completely blank. This should reset the unit. Turn the power back on at the breaker. In most cases, E4 should disappear (this has not solved your problem yet– E4 will return shortly!).

Please ensure that your strainer and filter are clean and that there is water coming from the outlet. If there is water coming out of the outlet please move on to TEST 1.

If you have absolutely no water, move on to TEST 2 or check/replace your pump.

Test 1: The Bucket Test



The bucket test will measure the GPH output of your water. Please unhook the hose from the outlet of the unit as depicted above and position it inside a 5 gallon bucket. The inlet side of the hose should be left as is, with the strainer, pump, etc, attached. You will measure how many seconds it takes to fill the bucket according to the BTU of your unit. Please check the chart below:

6000 BTU	Must be filled within 120 sec
9000 BTU	Must be filled within 100 sec
11000 BTU	Must be filled within 75 sec
14000 BTU	Must be filled within 65 sec
16000 BTU	Must be filled within 55 sec
20000 BTU	Must be filled within 40 sec
24000 BTU	Must be filled within 35 sec

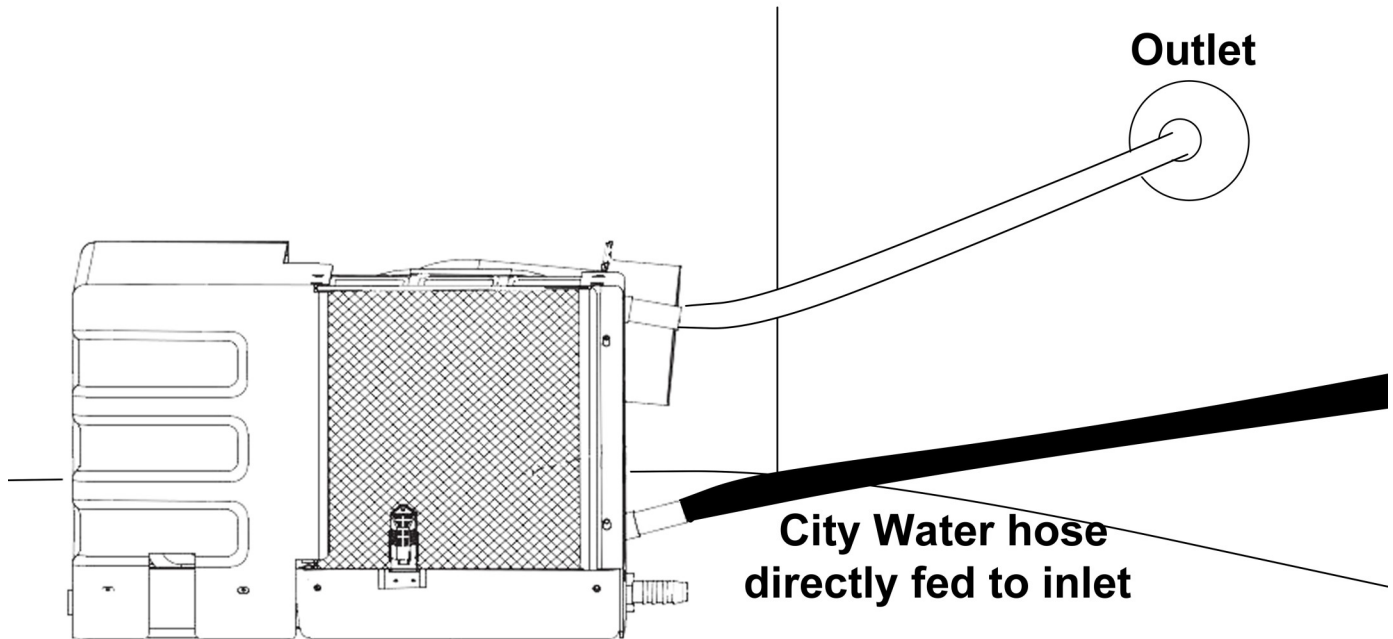
If you are not getting the water flow rates as listed in the table, then there could be a few issues causing this to happen:

The most common reason for an E4 error is a blockage in the hoses/lines. This blockage is usually made up of sand/seaweed/muscles and other water debris. Often times, boat owners must flush their lines with fresh water a couple of times before E4 is cleared. It is common for boat owners to repeat the flushing process or to replace the hoses completely. However, note that replacing the hoses does not flush out the unit.

Another culprit of low water flow could be due to improper plumbing installation or an improper pump. For example, very long hoses with too many turns and bends will require a higher GPH pump than recommended. The hose could also be kinked, etc. You must fix these issues until you get the flow rates at the table.

If your unit has adequate water flow according to the table above, then move to TEST 2.

Test 2: Connecting to city water



Sometimes a water flow issue might be more complicated. In this case, please connect city water **DIRECTLY** to the inlet of the unit as illustrated above.

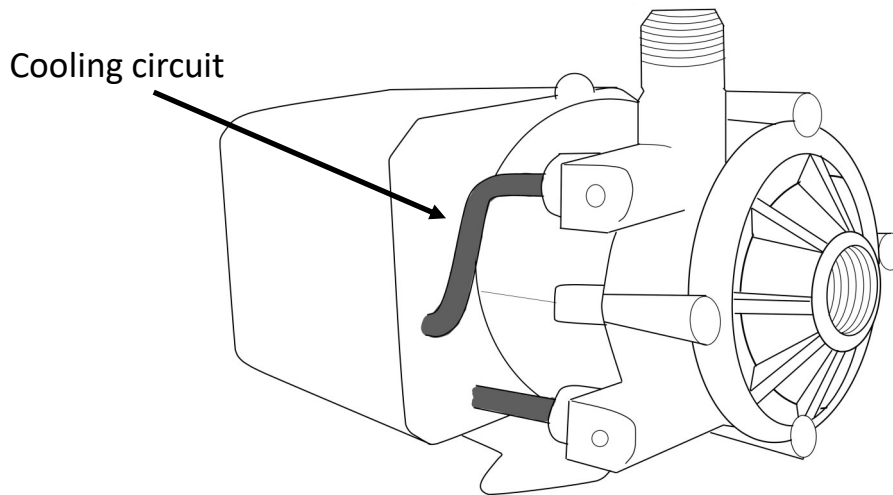
Once you connect the unit to city water, let it run for about one hour and periodically check to see if you get an E4 error. Have the unit on cooling mode only. Do not set it to auto mode as the unit may switch to heating.

If E4 has disappeared while connected to city water, this indicates that there is no problem with the unit.

If you are sure the unit has been flushed and that you have the correct GPH of pump, another possibility is a faulty pump phenomenon that we refer to as “intermittent stopping”. Please refer to Test 3 to check for intermittent stopping.

If you get an E4 error while connected to city water **AND** when you have reset your unit through the circuit breaker, please move to Test 4.

Test 3: Checking for intermittent stopping



While it is uncommon, intermittent stopping of the pump is a possibility.

Remove the pump cap from your pump and check the impeller. Make sure that the inside of the pump is clean and that the impeller can spin freely. Occasionally, the cooling circuit of the pump may be clogged. This is what causes intermittent stopping. Not all pumps will have this line visible or easy to reach. The pump depicted above is a march pump. If your pump does not have this line, your next best option is to replace your pump or to call the pump manufacturer for assistance.

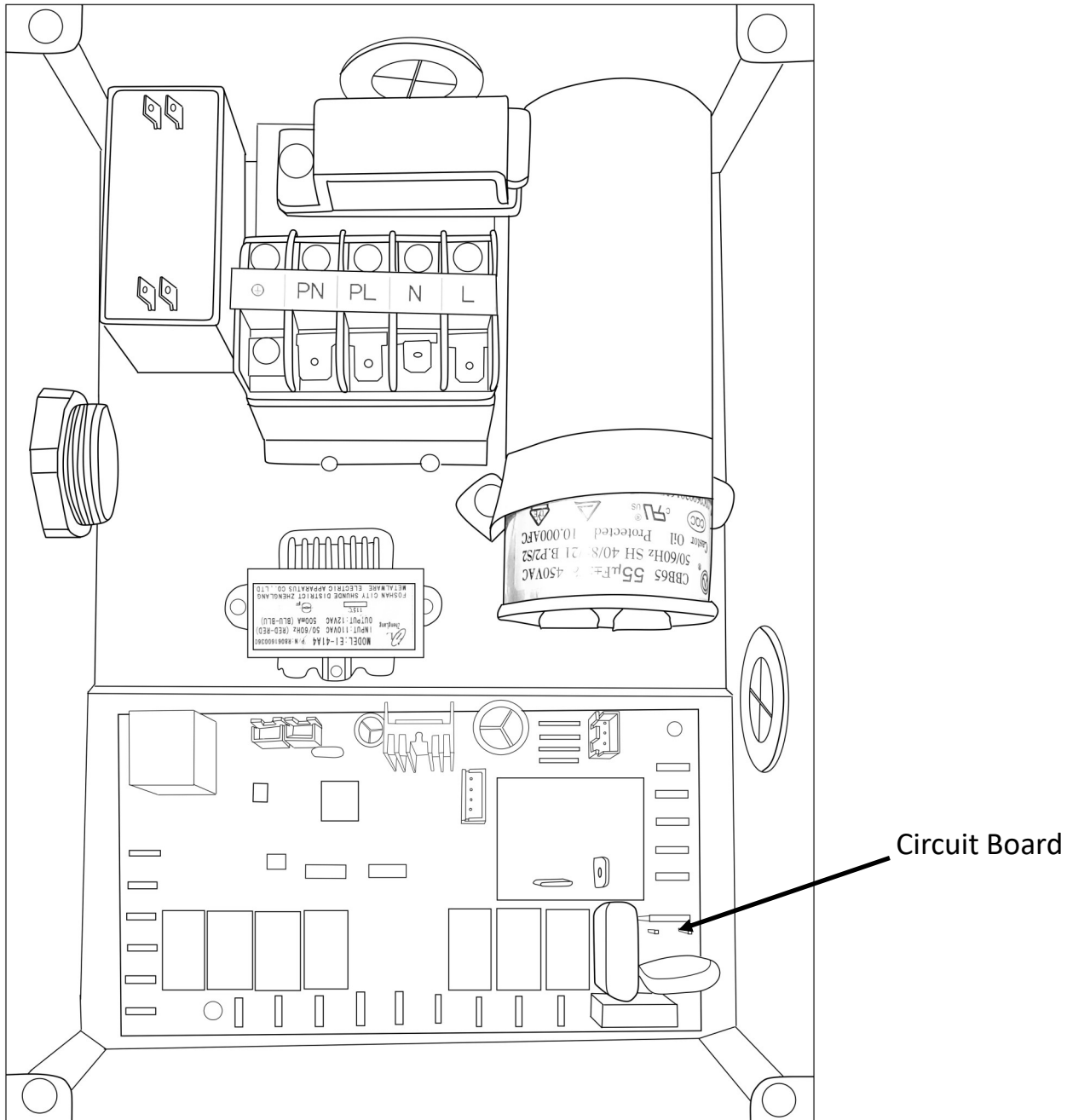
Please locate your pump and identify the cooling circuit as illustrated above and flush it out. If you require assistance, please contact the pump manufacturer.

Test 4: Circuit Board

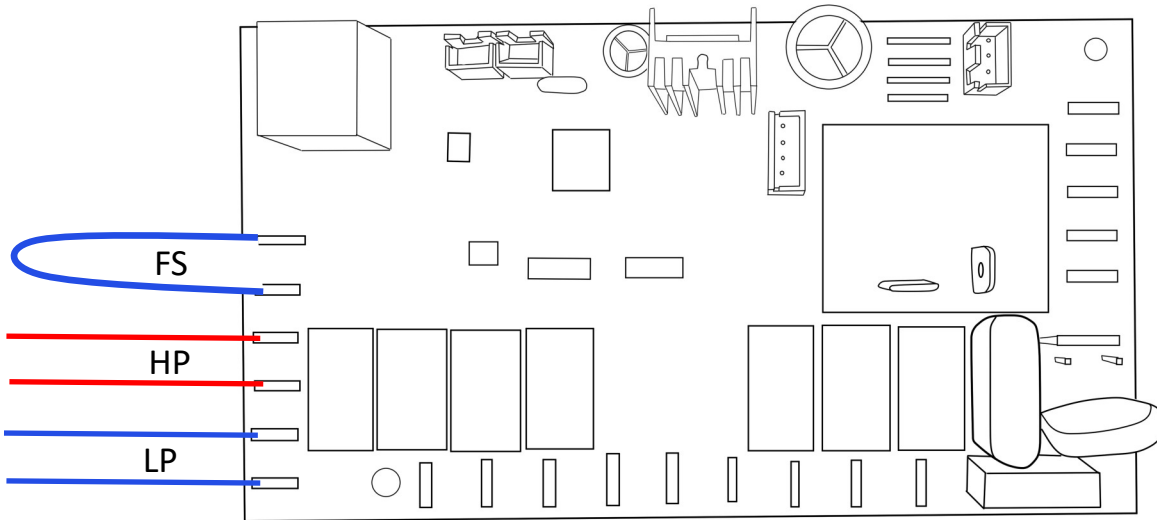
If your unit displays E4 immediately after resetting the unit AND when connected to city water, then there may be a problem with the circuit board connections.

Please turn off all power at the circuit breaker and locate your units electric panel.

Unscrew the metallic lid and locate the green circuit board at the bottom of the panel.



Checking the Cables:



On the lower left corner of your circuit board, you should be able to identify 6 sets of cables, 2 of which are looped if you do not have a flow switch.

On the circuit board itself, they are labeled FS, HP, and LP, respectively.

The two HP cables will either be red or labeled “HP” around the wires on a small ring.

Ensure that the HP cables are plugged in to the correct terminals and that they are making contact with the circuit board.

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