MarinAire®

Heating Mode*
E4 Error Code Troubleshooting Manual

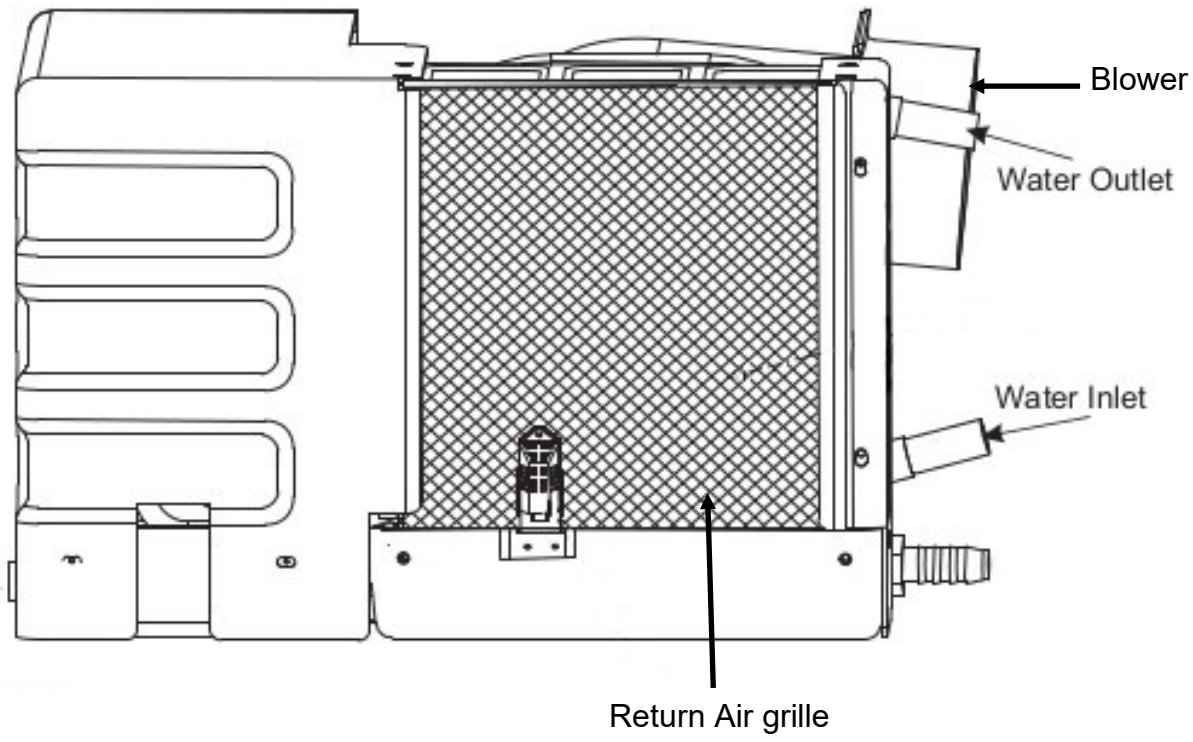
This manual is intended for professional use only by Certified Electricians.
Read this manual thoroughly.
Always practice electrical safety.
Always turn off power at the breaker before servicing.

If your unit is displaying an E4 error code during **heating mode**, then the unit is most likely experiencing either a water flow or an air flow issue. This manual will guide you through step-by-step procedures on how to diagnose what might be causing the error, and will also guide you on how to solve it.

Please note that the pressures may get high if the water inlet temperature is high and above 70° F (21° C). **With the combination of the warm waters, insufficient airflow and high setting temperature, the pressures may go above the limit even if the water temperature is below 70° F**. Then the pressures will rise and then the high pressure switch will cut the operation to protect the unit. Once the airflow is insufficient on heating mode, the heat will not be removed sufficiently from the coil. Please check and make sure that you have appropriate size of ducting based on the capacity of your unit, all the vents & diffusers are fully open, the return grill size is appropriate, filters are clean and there is no obstruction to the air flow. Improving the air flow may automatically resolve the issue.

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

Important Unit Anatomy for E4



Checkpoint 1: Measuring the water temperature

Occasionally, users will attempt to run heating mode during warm weather to test it's capability, and get E4. Heating mode is only intended for use during cold weather. To run heating mode, the water temperature must be between 40° F to 70° F. Please measure your water temperature and ensure that it is within range.

A quick note on thermometers:

Electric thermometers with a K-type probe are the most reliable ways to measure temperature. This is the only type of thermometer we recommend. Any other type of thermometer (such as the traditional mercury thermometer) will not be as accurate.

Checkpoint 2: Minimum Ducting Requirements

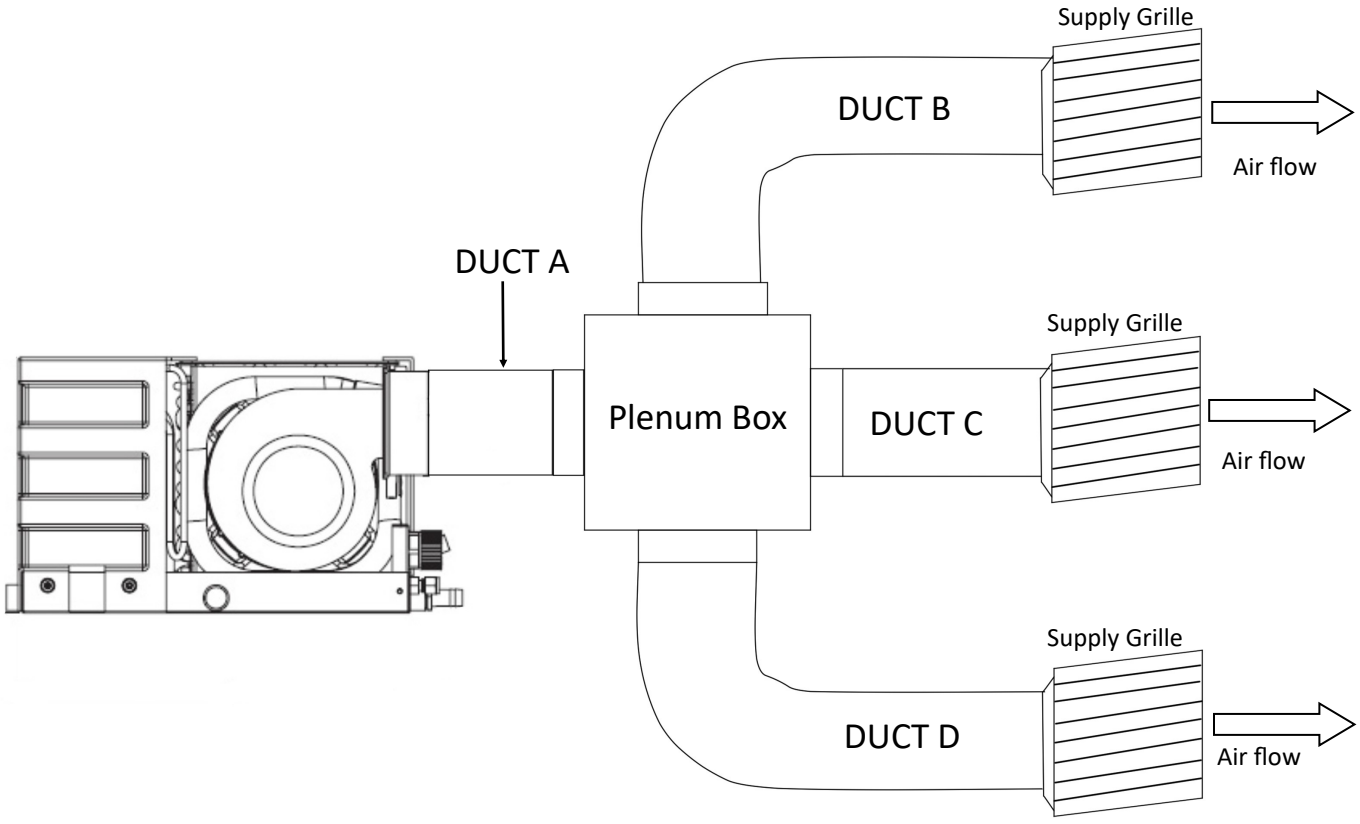
Please view the **Airflow Diagram** in the next page as a guideline for the chart provided below.

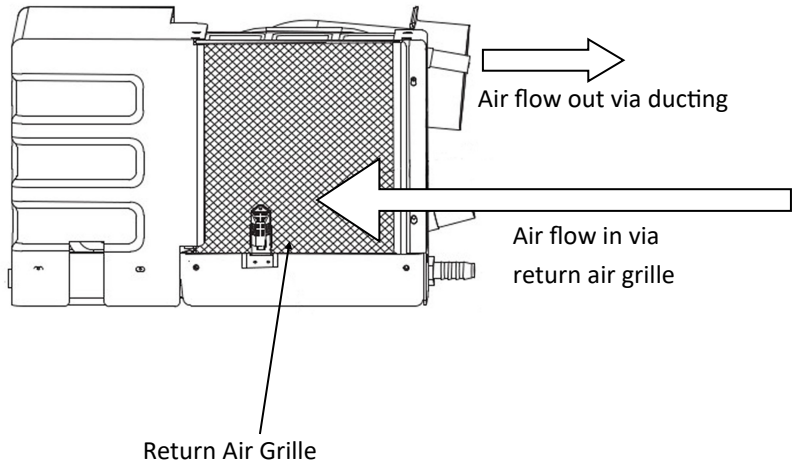
	Return Grille	**DUCT A** Max Length 2 ft	**DUCT B** Max Length 20 ft	**DUCT C** Max Length 20 ft	**DUCT D** Max Length 20 ft	**DUCT E** Max Length 20 ft
MSBA6	10X10	4"	4"	3" to 4"	OPTIONAL	OPTIONAL
MSBA9	12X12	6"	4"	4"	OPTIONAL	OPTIONAL
MSBA11	12X14	6"	6"	4"	OPTIONAL	OPTIONAL
MSBA14	14X14	6"	6"	6"	3" to 4"	OPTIONAL
MSBA16	14X14	6"	6"	6"	3" to 4"	OPTIONAL
MSBA20	16X16	7"	8"	6" to 8"	3" to 6"	OPTIONAL
MSBA24	16X16	7"	8"	6" to 8"	3" to 6"	OPTIONAL

Please make sure that all vents are open and that air is flowing freely in to the cabin. Check for leaks of air within the ducting and make sure that everything is secure. All vents and diffusers should be open and there should be no blockages to the return air grille. Also make sure that all air filters are clean including the one that comes with the unit. The return air grille should be positioned adjacent to that of the unit, not far above or below.

If you are skeptical of your ducting, an easy way to test it would be to remove the ducting from the blower and let the unit run freely and directly in to the cabin. Note that there should be no walls/covers/filters blocking the unit in from any side, as that could also result in poor air flow and would not be a good way to test your problem.

Airflow Diagram





Checkpoint 3: Checking the Water Flow

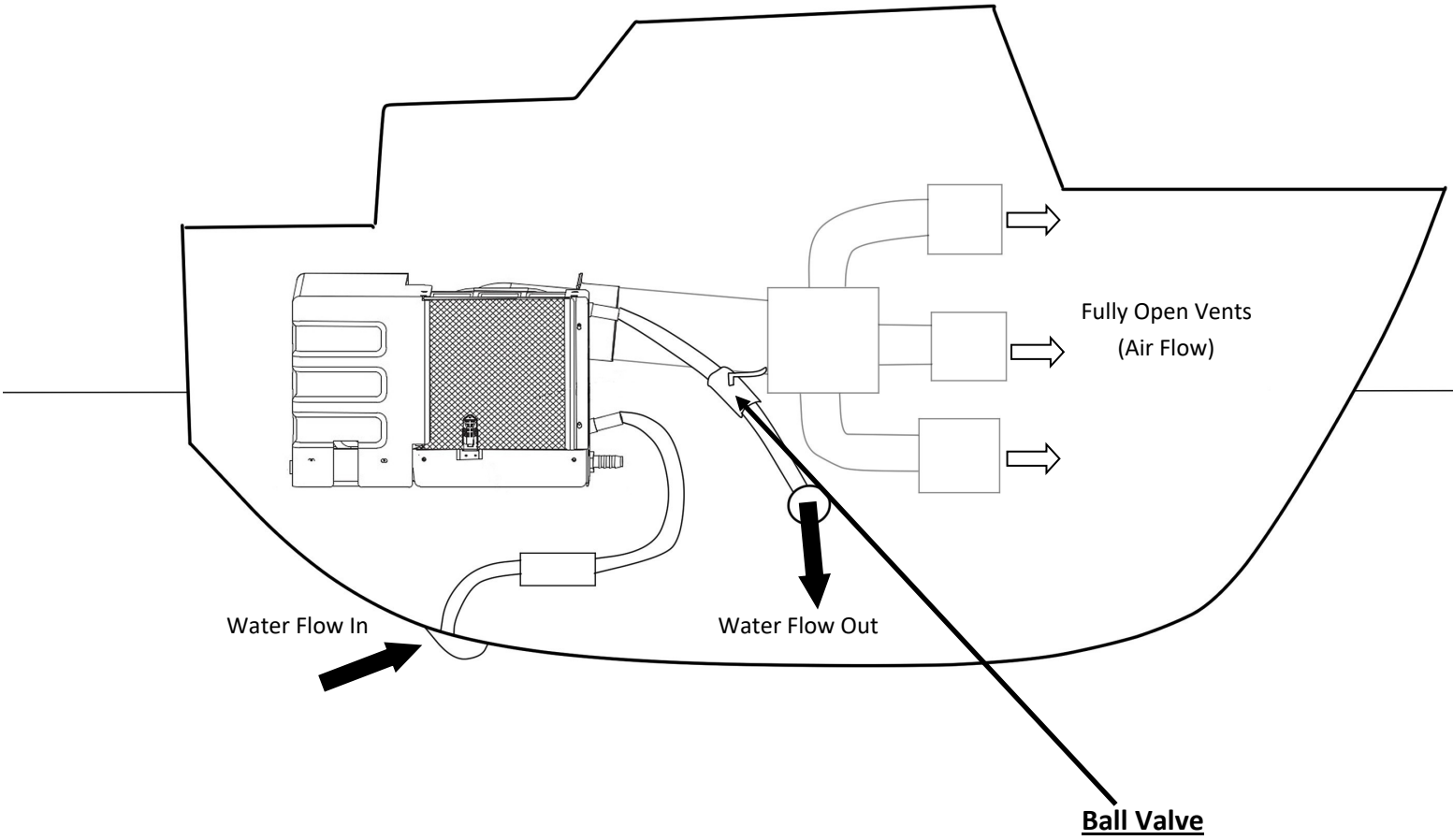
If you have already confirmed the last two checkpoints, the final point to check would be the waterflow. If you are getting E4 during heating, there is a possibility that your unit might be getting too much water flow/pressure. Water flow must not exceed the recommended flow rate.

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.

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

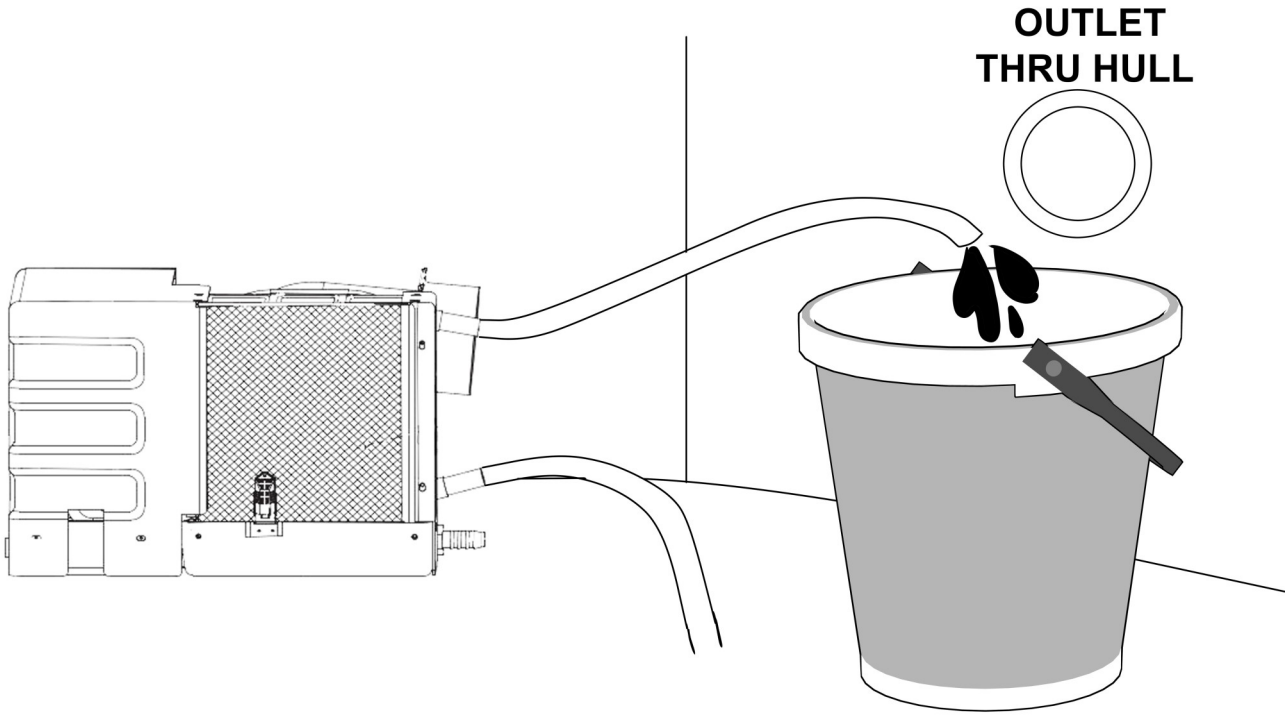
How to Reduce the Water Flow



Water flow must not exceed the recommended flow rate. You can adjust (lower) the water flow rate from the ball valve shown in the above installation. The ball valve must be installed between the unit and the output thru hull. If you are curious about your water flow rate, you can always measure it with a bucket test.

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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:

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 water flow is not visually significant enough to diagnose through sight or touch, it must ALWAYS be tested.

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