

# Troubleshooting Guide for Power Breezer Mach 4+



## SCOPE

This guide provides instructions for troubleshooting for the Power Breezer Mach 4+

REVISION HISTORY			
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## Recommendations:

If after following the complete troubleshooting sequence and the problem persists, please contact Power Breezer customer service for assistance via phone at 1-844-233-5673 or by email at [customerservice@Powerbreezer.com](mailto:customerservice@Powerbreezer.com)

## Warnings:

- Any repairs on a Power Breezer® should be made only by authorized personnel or Power Breezer personnel. Any repairs/modifications by others will void the unit's warranty.
- Breezer has made every effort to ensure that the directions provided in this Troubleshooting Guide are complete and accurate. Any attempt on the user's part to perform a do-it-yourself upgrade or repair will be solely at the reader's risk. Even when the Troubleshooting Guide's instructions are carefully followed, the slightest misstep in disassembly or reassembly could result in further damage to the unit. If the user is unsure about how to diagnose/repair the unit as described in this Troubleshooting Guide, please contact Power Breezer customer service for assistance at 1-844-233-5673 or [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com)
- The information in this Troubleshooting Guide is intended for use by individuals possessing adequate electrical, electronic, and mechanical experience, backgrounds, and skills. Power Breezer shall not be responsible for the interpretation of this Troubleshooting Guide's information, nor will it assume any liability in connection with its use.

## Cautions:

- System hazards include mechanical pinch points, electrical hazards, and tipping hazards. Service should be performed by those with an understanding of such hazards.
- Turn off and unplug the Cooling Unit before filling or emptying the water reservoir.
- Turn off and unplug the Cooling Unit before moving.
- Turn off and unplug the Cooling Unit before cleaning it.
- Always unplug the Cooling Unit by pulling on the plug and never on the cord.
- Do not insert fingers or other objects inside the fan head, doing so may cause bodily injury.

- Children can fall into an open water reservoir and drown, even in a small amount of water.
- Keep children away from the reservoir. Keep the reservoir lid on at all times.
- Closely supervise all nearby children and pets when using this Cooling Unit. Do not leave the Cooling Unit unattended.
- Children should never be permitted to play with the Cooling Unit.
- When possible, unplug the system for service actions. Take appropriate precautions against electrical hazards when servicing live circuits.
- Use only on an outlet protected by a ground-fault circuit-interrupter (GFCI). Avoid using extension cords.
- Do not allow the plug to become wet. Do not plug in/out while hands are wet. Doing so increases the risk of electric shock.
- Do not alter the plug in any way.
- If the power cord is damaged, do not attempt to repair it yourself. Contact Power Breezer customer service for assistance. 1-844-233-5673 | [customerservice@Powerbreezer.com](mailto:customerservice@Powerbreezer.com)
- The Cooling Unit is not to be used by persons (including children) with a lack of experience and knowledge unless they have been given supervision or instruction.
- This Cooling Unit may be used by children aged 8 years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the Cooling Unit safely and they understand the hazards involved.
- When operating the Cooling Unit, use common sense. Stay clear of moving parts and only use water that is safe for drinking.

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## Tools and Materials Needed

### Tools:

- Complete Socket Set
- Phillip's Head Screwdriver
- Flat Head Screwdriver
- "Punch-Down" Tool
- Wire cutters
- Wire Strippers
- Universal Crimpers
- Allen wrench set
- Digital VoltMeter ("Meter")

### Parts: (tested as functional)

- Control Panel - (J&W "Shark Fin" Style)
- Electrical Cord
- Water Pump - D.C.
- Atomizer Caps
- Fan Motor

### Supplies:

- Wire nuts, wire connectors, etc.
- Red & Blue Loctite
- Assorted cables
- Duct tape
- E-Box

### Documentation:

- E-box wiring diagram (180-700-750)
- Manual, etc.

## If There is No Power

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

Possible Causes of No Power:

1. Power Source
2. Circuit Breaker
3. E-Box wiring
4. Control Panel

## Troubleshooting

### Step 1 Power Source

- Inspect the power cord and its connection to the power source.
- Power Breezer fans can draw as much as 15 to 20 Amps on startup at Full Power. Check the power source's circuit breaker.
- Verify the power source with a Digital Volt Meter. Set your meter for **MODE:** A/C voltage, **RANGE:** 300 or higher.
- Measure the power source voltage and be sure that it matches your Breezer voltage.
  - a. If there is a discrepancy, correct the issue and retest.
  - b. If everything matches and still **No Power**, go to step 2.

### Step 2 The Power Breezer's Circuit Breaker

- The circuit breaker, on the Power Breezer, when turned on, is lit.
- Verify the switch is in the correct position.
  - a. Power from the wall goes first to the circuit breaker. If the breaker has power but the light is not on, change the circuit breaker and retest.
  - b. If the breaker is on and still **No Power**, go to step 3.

### Step 3 VFD and the wiring of the E-Box

- Open the E-Box and compare the E-Box to the drawing 180-700-750 wiring diagram.
  - a. If the E-Box not wired correctly, fix the issue and re-test.
  - b. If the E-Box is wired correctly, continue.
  - c. If correct, go to step 4.

### Step 4 Control Panel

- Substitute the Control Panel with a known good Control Panel and test.
- If the unit is working with the substituted Control Panel then replace the Control Panel and test.
- If the unit is still not working: contact Customer Service by email at [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com) or by phone at 844-233-5673.

End of this section

# Fan Not Working

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

Possible Causes of Fan Failure:

1. Obstruction
2. Damaged Cable /Incomplete Connections in the E-Box
3. Defective Control Panel
4. Defective Relay
5. Malfunctioning A/C Drive

## Troubleshooting

### Step 1 Obstruction

- Is there any obstruction in or around the fan blades?
- Yes: remove and test.
- No: go to step 2.

### Step 2 Cables and wires in the E-Box

- Inspect the cables, look for any damage to the cable and its connectors.
- Inspect the cable connections into the E-Box, looking at each wire and verifying each wire is securely connected. Next verify each wire is in its proper location.
- Secure any loose wires; place any misplaced wires into the proper location and test.
- If the wires are secure and in the correct location, go to step 3.

### Step 3 Control Panel

- Verify wiring of the Control Panel in the E-Box with the wiring diagram (180-700-750).
- Substitute the Control Panel with a known good Control Panel and test.
- If the fan is working with the substituted Control Panel then replace the Control Panel and test.
- If the fan is still not working: go to step 4.

### Step 4 Relay (The Fan Relay) is located at the end of the D/C D-rail

- Verify the wiring.
- The relay is activated when the power button (Red) is pressed, this activation gives the A/C Drive its power.
- The relay has an audible "Click." This "click" is heard when the power button (Red) is pressed on the Control Panel.
- If this "click" is not heard when the power button (Red) is pressed on the Control Panel:
  - a. Verify the relay, at position 1, on the relay, -12 V coming from the D/C D-rail.
  - b. At position 0, it will have + 12 V coming from wire # 4 of the control panel when the power is turned on (Red button).

- c. If the relay has + 12 on position 0 and -12 on position 1 and no audible “click” is heard when the power button (Red) is pressed on the Control Panel, change the relay and test.
- If the “Click” is heard and there is no Fan movement, go to step 5.

**Step 5 A/C Drive- the A/C Drive (VFD) provides power to the Fan Motor**

- Plug-in power and press the red power button on the control panel.
- The relay will activate and the VFD should turn on.
- If the VFD does not turn on, turn off unit and check the wiring.

If the problem is not resolved, contact Customer Service by email at [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com) or by phone at 844-233-5673.

End of this section

# Atomizer Not Misting

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

Possible Causes of Atomizer Failure:

1. Water Pump
2. Water Valve
3. Water Feed Hose
4. Atomizer

## Troubleshooting

### Step 1 Water Pump

- Unplug the Power Breezer for 30 seconds then begin to troubleshoot the pump.
- Ensure there is sufficient water to cover the intake of the pump.
- All hoses are connected correctly.
- Pick up the pump and feel for vibration - ensuring power is getting to the pump.
  - a. No vibration - check that the pump is getting 12 volts.
    1. Use an E-Box wiring diagram to verify wiring (180-700-750 wiring diagram).
    2. If the wiring is correct and the motor is not turning on, replace the Motor, retest.
  - b. If you feel a vibration, the pump is working, but there is no mist, go to step 2.

### Step 2 Water Valve

- Verify the blue dial on the water valve is parallel to the grey case (perpendicular will shut - off the water).
- Pull off the water feed tube from the pump to the valve.
  - A. If water is not flowing, return to the pump and return to step 1.
  - B. If water is flowing, return the hose to the valve and remove the hose from the other side of the valve.
    1. If water is flowing, go to step 3.
    2. If water is not flowing replace the valve.

### Step 3 Water Feed Hose

- Using compressed Air, ( above 40 PSI) take the nozzle, blow it into the Water Feed Tube to the Atomizer; blow into the tube for 2–3 seconds at a time. Reconnect the Water Feed Line and test.
  1. If it is misting (water flow) problem resolved.
  2. If not, go to step 4.

### Step 4 Analysis of the Atomizer

- Place a towel inside the atomizer catch tray to avoid losing the screws down the drain.

- Remove the 3 screws from the Atomizer Plate Cover.
- Remove the 3 screws from the Atomizer Plate.
- The center of the plate is now visible, on the shaft are the (2) set screws; make sure they are not loose.
- The plate can now be removed from the shaft exposing the pipe.
- Ensure the pipe is clear of any debris.
- Turn on the atomizer and allow the water to flow out.
- Re-assemble atomizer.

If the problem is not resolved, contact Customer Service by email at [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com) or by phone at 844-233-5673.

End of section

# Atomizer Not Spinning

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

Possible Causes of Atomizer Failure:

1. Control Panel
2. Wiring of the E-Box
3. Power Supply for the Atomizer

## Troubleshooting

### Step 1 Control Panel

- Verify the wiring of the Control Panel.
- Substitute the Control Panel with a known good Control Panel.
- If the Atomizer is working with the substituted Control Panel, test.
- If the Atomizer is still not working, go to step 2.

### Step 2 Wiring

- Open E-Box.
- Compare the E-Box to the drawing 180-700-750 wiring diagram.
  - If the E-Box is not wired correctly, fix the issue and re-test.
  - If the E-Box is wired correctly, go to step 3.

### Step 3 Atomizer's Power Supply

- Verify you have the correct voltage for the Atomizer on the output of the Power Supply.
  - a. Use a DVM to measure the DC voltage coming out of the Power Supply, it should be 24V measured on the V+ & V- and re-check the connections.
  - b. If the voltage is correct and everything else checks out, please contact Customer Service by email at [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com) or by phone at 844-233-5673.

End of section

# Head Is Not Rotating

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

Possible Causes of Rotation Failure:

1. Obstruction
2. Control Panel
3. Wiring of the E-Box
4. Rotation Motor

## Troubleshooting

### Step 1 Obstruction

- Look over your Breezer and pay attention to the Head.
  - a. Is the head seated correctly on the pole? Look at the bottom of the head and verify that the pole is inserted into the head uniformly.
  - b. Can the head freely move side to side? Check to make sure that cables did not get wrapped around the pole.
  - c. Grab the head and gently see if you can move it left to right.
  - d. If not, determine why and retest.
  - e. If it does, go to step 2.

### Step 2 Control Panel

- Verify the wiring of the Control Panel in the E-Box with the 180-700-750 wiring diagram.
- Substitute the Control Panel with a known good Control Panel and test.
- If the Rotation function is working with the substituted Control Panel then replace the Control Panel and test.
- If the head is not rotating, go to step 3.

### Step 3 Wiring

- Verify by comparing the rest of the E-Box to the drawing 180-700-750 wiring diagram.
- If the E-Box is not wired correctly, fix the issue and re-test.
- If the E-Box is wired correctly, go to step 4.

#### **Step 4 Rotation Motor Assembly**

- To access the Rotation Motor:
  - a. The head must be placed on the side or back into the tank.
  - b. The hex screw, on the bottom of the rotation pipe, must be removed.
  - c. The rotation pipe must be lifted out of the Breezer.
  - d. The panel above the E-Box now can be removed and the rotation motor with its linkage can be viewed.
- Look at drawing 140-700-300, Tank Rotation Assembly, and verify the rotation motor with its linkage is connected as it is depicted in the drawing 140-700-300.
  - a. If it is not, correct the misassembly according to the diagram and re-test.
  - b. If it is correct and still not working properly, contact Customer Service by email at [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com) or by phone at 844-233-5673.

End of section

# Water Pump Not Working Properly

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

Possible Causes of Pump Failure:

1. Water Hose
2. Wiring of the E-Box
3. Control Panel
4. Water Pump

## Note

Since the pump has a “Safe - Mode” to prevent the pump from being damaged from running without water, always unplug the unit and wait 30 seconds to clear any debris in and around the pump. Then, plug the unit back in and test to verify failure.

## Troubleshooting

### Step 1 Water Hose

- Turn on the unit.
- Turn on the atomizer.
- Trace the hose.
  - a. If the hose is leaking ensure the hose is pushed past the “O” ring in the adapter.
  - b. Verify the hose is connected to the water valve and the valve is connected to the Atomizer.
  - c. Verify the valve is turned on; this is when the blue arm is parallel to the body of the valve.
- Verify the hose is not clogged.
  - a. Using compressed air, take the nozzle, blow into the Water Feed Tube to the Atomizer for 2–3 seconds. Reconnect the Water Feed Line and test.
  - b. If it is misting (Water flow), the problem is resolved.
  - c. If the hose was not clogged, go to step 2.

### Step 2 Wiring of the E-Box

- Open E-Box.
- Compare the E-Box to the drawing 180-700-750 wiring diagram.
- If the E-Box is not wired correctly, fix the issue and re-test.
- If the E-Box is wired correctly, go to step 3.

**Step 3 Control Panel**

- Verify the wiring of the Control Panel.
- Substitute the Control Panel with a known good Control Panel and test.
- If the water Pump function is working with the substituted Control Panel then replace the Control Panel and test.
- If the water pump is still not working, go to step 4.

If the problem is not resolved, contact Customer Service by email at [customerservice@Powerbreezer.com](mailto:customerservice@Powerbreezer.com) or by phone at 844-233-5673.

End of section

- ### A. How to Access and Remove the E-Box

## B. How to Substitute a Control Panel

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box.

- A. Have a known good Control Panel with its Control Cable (6 wires in the Control Cable are black and numbered 1 through 6 and a green wire is referenced as 7).

### Control Cable:

1	+12 V Speed Reference: SR	DC Block
2	+12 V Controller Power: C+	DC Block
3	-12 V Controller Gnd: C-	DC Block
4	Fan Control: FC	Fan relay #1
5	Atomizer/Pump Control: WC	Atom./Pump relay #1
6	Rotation Control: RC +12 V	DC Block
7	Fan Speed Signal: FS + 12 V	DC Block

- B. Open E-Box.
- C. Look at drawing 180-700-750 - wiring diagram.
- D. On the right of the wiring diagram, you will see the “Control Cable” wiring directions.
- E. Remove the current Control Panel cable and substitute the known good Control Panel cable and Control Panel.
- F. Test the Control Panel by:
- Turning on the Unit
  - Turning on the Atomizer
  - Turning on the Rotation
  - Varying the Speed of the Fan

## C. Changing The Water Pump

Make sure to unplug the unit while checking connections or anything pertaining to the electronic box and plug back in when testing.

- A. Open the E-Box:
  - 1. Remove the 2 lower hex bolts with a 13 mm socket.
  - 2. Slide the E-Box out like a dresser drawer.
  - 3. Turn the E-Box upside-down.
  - 4. Remove the two screws securing the lid with a 3 mm Allen wrench.
- B. The wiring diagram for the E-Box (180-700-750-wiring drawing) has the DC Pump Cable wiring instructions on the bottom of the page.
- C. Disconnect the DC Pump Cable from the E-Box:
  - 1. Each wire of the pump goes into a “Phoenix” connector.
  - 2. These connectors have a round hole the wire enters and a square hole next to it that is used to release the wire.
  - 3. Remove the wire from the connector using a small flat head screwdriver with the flat end facing up. Then move the screwdriver past the wire to the back of the square hole and insert the screwdriver perpendicularly into the connector. This will release the wire.
  - 4. Remove the water pump wires from the E-Box.
- D. Locate the Control Panel on the Power Breezer and lift the tray that the Control Panel is seated in; this will expose the DC Pump Cable going from the E-Box to the tank. Pull the DC Pump Cable up from the E-Box.
- E. Go to the Tank and pull the DC Pump Cable through and place the defective cable in a container for analysis at a later date.
- F. Take the New DC Pump Cable and thread it through the same path as the old DC Pump Cable to the E-Box.
- G. Connect the DC Pump to the E-Box per the wiring diagram.
- H. Test the new water pump and the Power Breezer.
- I. Close the E-Box.

You have reached the last page of the **Troubleshooting Guide for Power Breezer Mach 4+**. If your Cooling Unit’s problems cannot be resolved using the procedures found in this guide, please contact Customer Service by email at [customerservice@powerbreezer.com](mailto:customerservice@powerbreezer.com) or by phone at 844-233-5673.