

ODWH

Troubleshooting guide

Heater doesn't fire & blower doesn't turn on

Step 1.

Make sure the unit is receiving power.

Step 2.

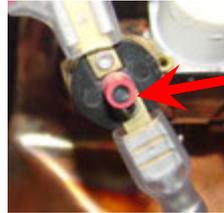
Check that the unit has been installed correctly with the flow of water coming into the pipe marked with a "C" for cold and exiting the unit on the side marked with a "H" for hot. The heater is operated with water flow and if the flow is in the wrong direction the unit will not function properly. Also verify that the unit is getting the proper amount of water flow a flow between .5 and .8 gpm is required to cycle the unit on.



Heater doesn't fire & blower doesn't turn on (continued)

Step 2.

Check that the ECO has not been tripped.



Press button to reset if it doesn't reset continue to run the water the try again after a minute or so.

Step 3.

Verify fuse has not been tripped.

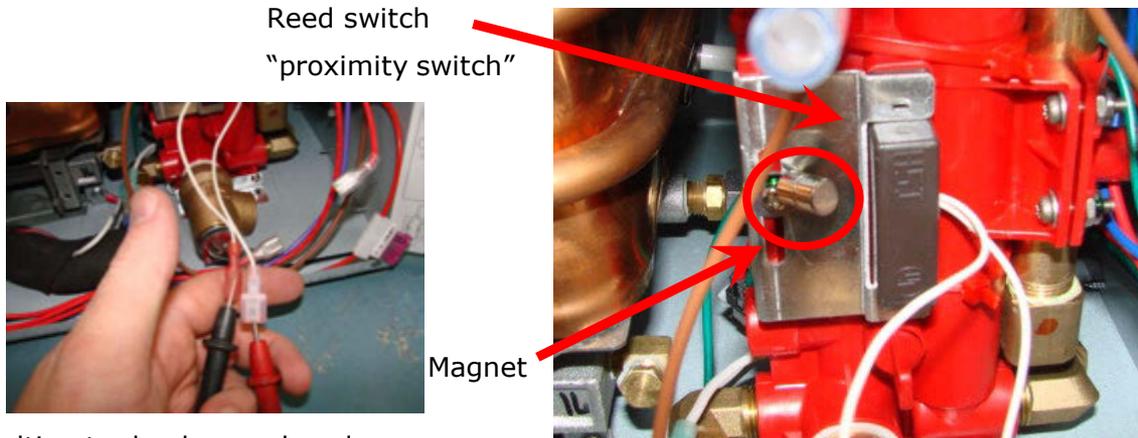


Wire inside fuse should be unbroken. If wire is broken replace.

Heater doesn't fire & blower doesn't turn on (continued)

Step 4.

Make sure the reed switch is functioning properly by using a multimeter to check for continuity while using a magnet to close the reed switch.



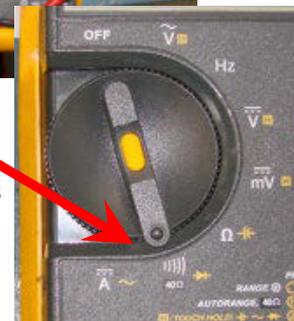
Multimeter leads are placed on separate reed switch leads to test for continuity.

Place a magnet in close proximity to the reed switch then use the multimeter to ensure the switch closed. If no continuity is found then the reed switch isn't functioning properly



Multimeter

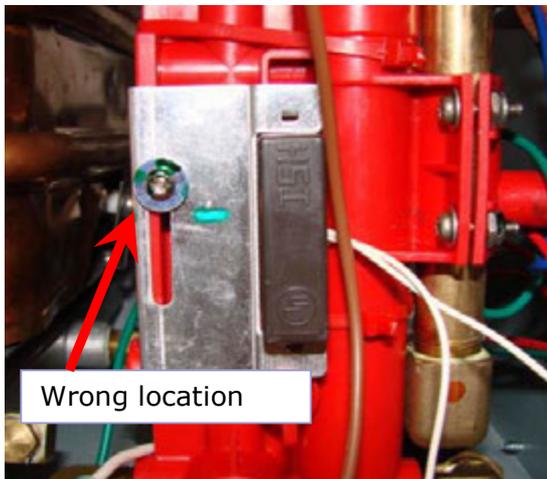
Set multimeter to this setting to check for continuity.



Heater doesn't fire & blower doesn't turn on (continued)

Step 5.

Verify that the reed switch is in the proper location. Not only can the switch be bad, but if it is located too high on the valve or too low it can prevent the switch from interacting with the magnetic field of the water poppet and cause the unit not to operate.



This example is too low notice the screw is located at the top of the slot. This location could cause problems with operation.



Proper setting for operation. Notice the screw is approximately 2/3 of the way up the slot.

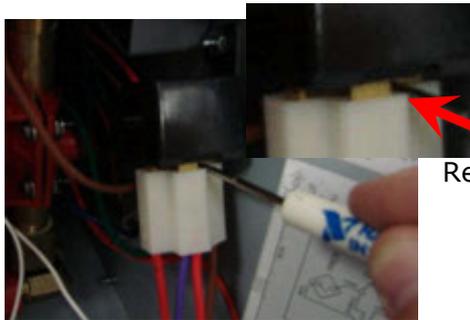


This example is too high notice the screw is located at the bottom of the slot. This location could cause the unit problems with operation.

Heater doesn't fire & blower doesn't turn on (continued)

Step 6.

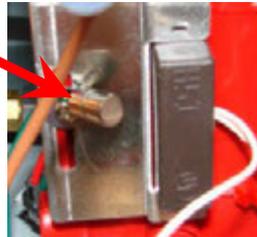
Verify that the relay is functioning properly. To do this activate the reed switch with a magnet then use a multimeter to check for voltage as described below.



Relay spades

With the unit off use a small screw driver to gently expose the spades of the relay.

Magnet



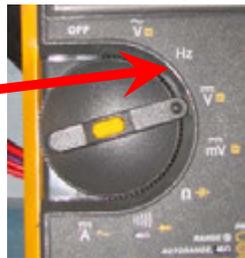
Then activate the reed switch by placing a magnet close to the switch. This should power the relay. You should hear an audible click if power is provided if not the relay isn't functioning.

Test spade



Finally test the relay using a multimeter. The red lead should be placed on the spade closest to the right wall of the unit as pictured. While the black lead can be placed against the metal casing. If the relay is working properly the meter should read near 12 volts.

Be sure meter is set as pictured for measuring DC voltage.



Multimeter

Heater doesn't fire & blower doesn't turn on (continued)

Step 7.

Verify that blower motor is operational. If the blower isn't operational then the unit will not function.



Find the wire harness connection for the blower and verify it is plugged in properly.

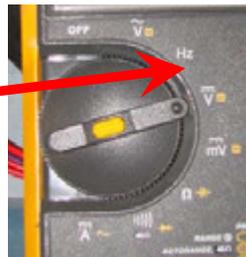


If the motor still doesn't function unplug the motor and verify that the pins on the black terminal properly aligned with the holes on the white terminal



If the motor is still not working verify with a multimeter that it is receiving 12 volts. Do this by using a magnet in proximity of the reed switch to activate the unit. Then place the red lead of the meter on the pin of the black terminal that is attached to the red wire. While placing the black lead of the meter to the metal case. The multimeter should read 12 volts if it does and the motor still isn't functioning when plugged back in the motor is faulty.

Be sure meter is set as pictured for measuring DC voltage.



Multimeter

Heater doesn't fire & blower does turn on

Step 1.

Check to see if you smell gas from the exhaust if you do follow steps 2 through 3 . If not then follow steps 4 through 10.

Step 2.

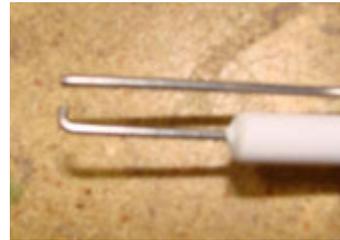
Verify that the electrode is plugged into the circuit board.



Heater doesn't fire & blower does turn on (continued)

Step 3.

Verify that the electrode is providing a strong spark. To do this make sure the gap on the electrode is properly set. Also check that the electrode is not arcing to the gas manifold in a way that would prevent ignition.



Properly gapped electrode improperly gapped electrode

By looking through the opening in the heat exchanger pictured above. You should be able to see the spark of the electrode. The electrode should have a gap as large as the one pictured to the right. If it is closed down like the picture to the far right then the gap should be reset.



Sometimes the electrode may be arcing to the manifold preventing ignition. If this appears to be the case a screwdriver can be used to gently reposition the electrode away from the manifold.

Heater doesn't fire & blower does turn on (continued)

Step 4.

Since you do not smell gas from the exhaust we the problem is gas is most likely not reaching the manifold. Verify that your gas supply is turned on and the unit is receiving propane.



Gas supply is on



Gas supply is off

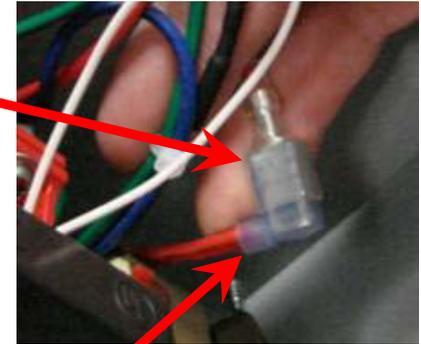
Heater doesn't fire & blower does turn on (continued)

Step 5.

If your gas supply was on but still no gas is coming from the manifold visually check that the gas valve is correctly plugged into the wiring harness. Also while you are at this connection make sure the valve is receiving power from the ignition module. Do this by unplugging the connection and using a multimeter to verify that power is coming from the ignition module. If it is not receiving power move to step 6-10. If it is receiving power and not opening you have a faulty valve. Replace it then verify this fixed the unit.



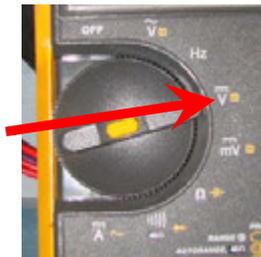
Wire harness connector



Gas valve connector

To check for voltage while the unit is attempting to light place your red probe on the male spade of the gas valve connection. At the same time place the black probe against the case. If you are reading 12 V then the valve is receiving the proper power.

Be sure meter is set as pictured for measuring DC voltage.



Multimeter

The gas valve connector is the female terminal of this connection. Be sure it is plugged in correctly.

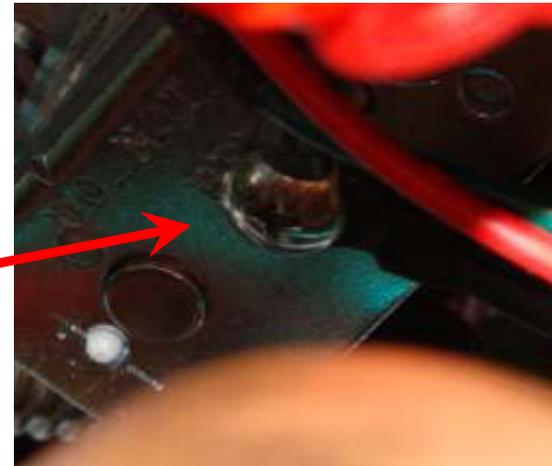
Heater doesn't fire & blower does turn on (continued)

Step 6.

After checking the gas valve connection if you are still not receiving gas to the manifold check that the wire harness is properly grounded.



Connection to ground.

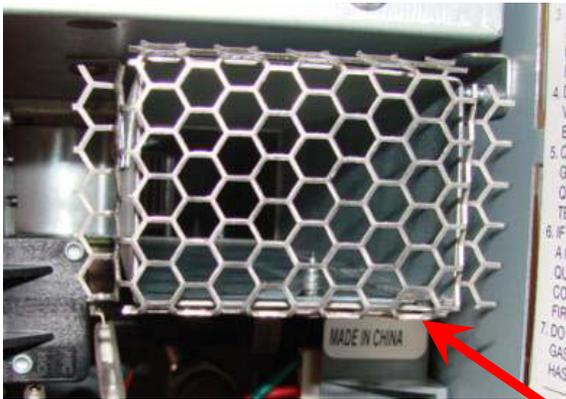


This unit has two ground connections one is below the manifold as seen in the picture to the left. The other is a ground to the valve it's self seen in the picture on the right. Check that these connections are present and not loose.

Heater doesn't fire & blower does turn on (continued)

Step 7.

Verify that the flue is not blocked in any way. The unit is designed to not operate if the flue becomes blocked. The fan will still run, but if something is lodged in the flue this could prevent the heater from firing. So shut the unit off to prevent an accident then remove the screen and check the flue.



Remove the grate from the flue to allow an unobstructed look inside the flue.

grate

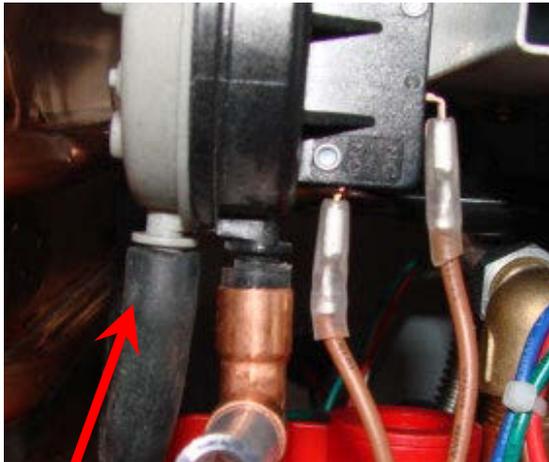


Unobstructed flue.

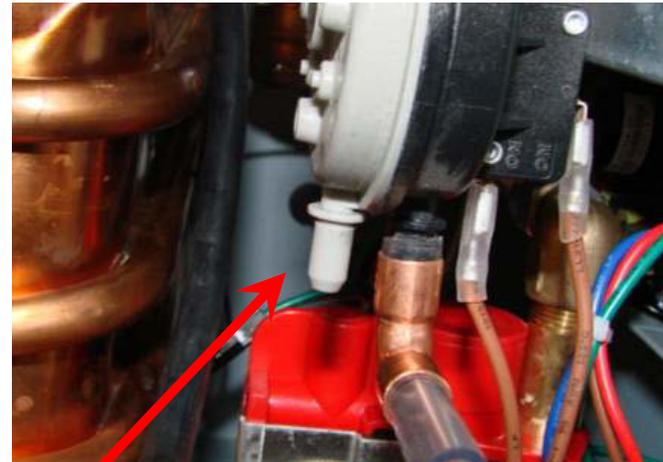
Heater doesn't fire & blower does turn on (continued)

Step 8.

Verify the pressure switch is attached to the blower assembly. If the hose that attaches the pressure switch to the blower assembly comes free it can prevent the unit from firing. Also if the hose develops a leak due to a puncture or weathering that causes it to crack it can prevent the heater from firing.



This is the tube that connects the pressure switch to the blower housing. Even if this hose is securely in place still take time to look for wear or possible leaks.

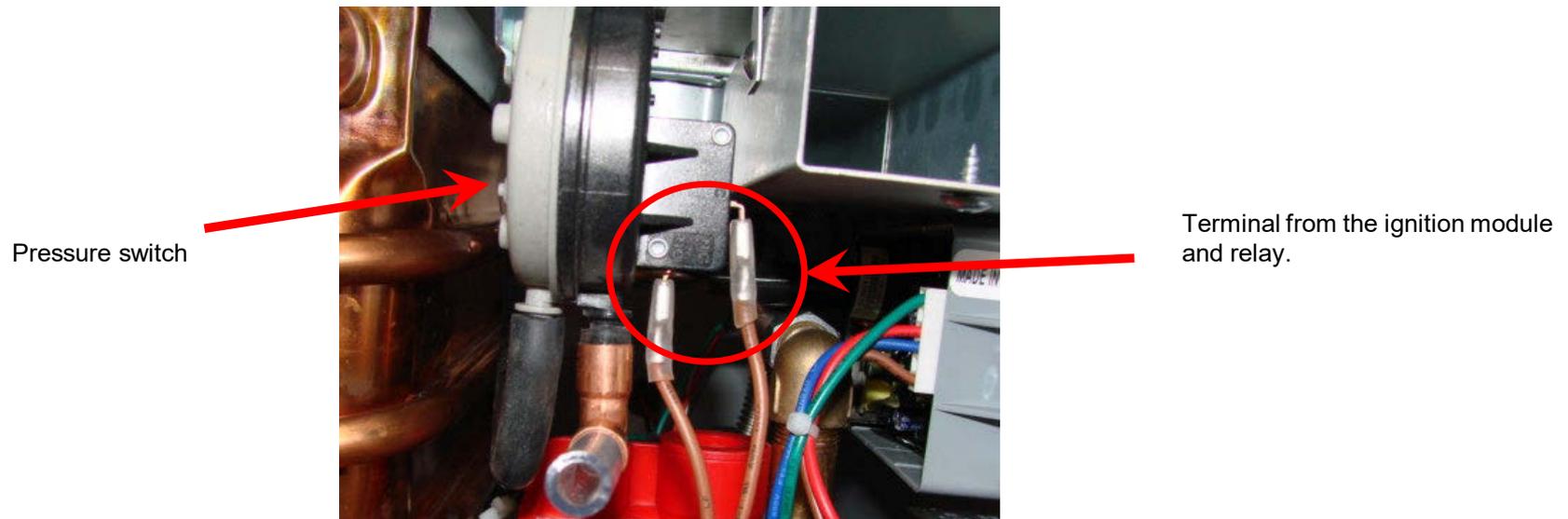


If the hose is not connected here or at the blower housing then the heater cannot close the switch and will not ignite.

Heater doesn't fire & blower does turn on (continued)

Step 9.

Next make sure that the pressure switched is wired into the circuit. The switch should have two brown wires attached one from the ignition module and one from the relay. Verify these are present and properly installed.



This switch is a normally open contact that closes when a vacuum is created by the operation of the blower motor. This causes the switch to close allowing power to pass to the ignition module and operate the gas valve. If these terminals are not installed attached to the switch the motor would still operate, but the gas valve would not.

Heater doesn't fire & blower does turn on (continued)

Step 10.

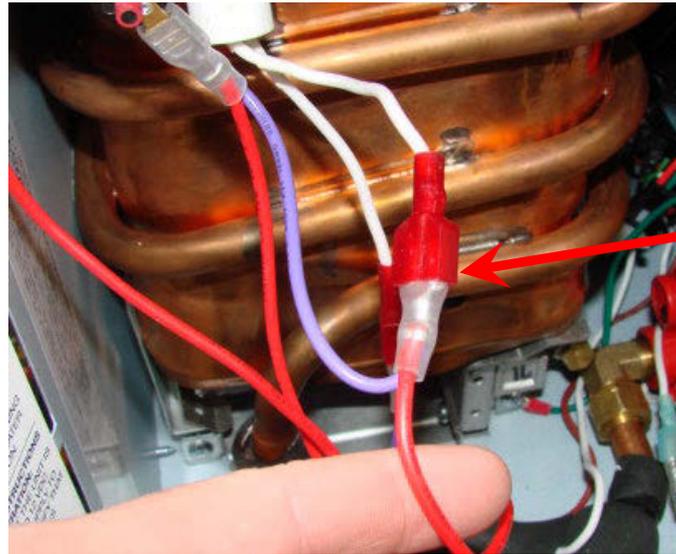
If the unit is not receiving power then we need to check the connection to the ignition module. Unplug the wire harness from the module and verify that none of the pins are damaged or bent. Then reattach the harness making sure that each pin goes in the appropriate slot and the connection is firmly in place. Then recheck the voltage at the terminal. If there is still no voltage replace the ignition module and check again.



Unit turns on immediately after being powered.

Step 1.

If the unit turns on immediately after being powered the first step is to unplug the wire pictured below. If after disconnecting this connection the unit shuts off you know that you have a faulty cold weather t-stat. If it doesn't shut off after disconnecting this continue through the troubleshooting steps.



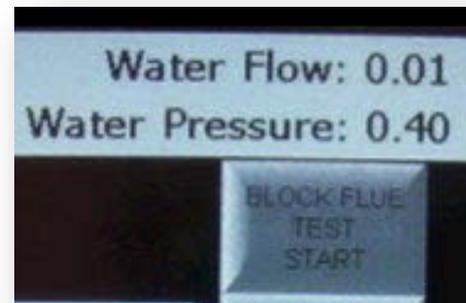
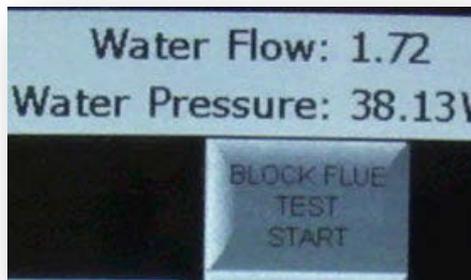
Terminal for the cold weather t-stat circuit.

Unit turns on immediately after being powered.

(continued)

Step 2.

Since you eliminated the cold weather t-stat as the problem be sure to verify that you do not have water flowing through the unit.



Check the water flow on the tester as pictured above make sure that water flow is below .5 gpm. If it is not shut the valve and make sure the heater turns off if it does not move forward in the trouble shooting guide.

Unit turns on immediately after being powered. (continued)

Step 3.

If no water is flowing through the unit then you need to check your reed switch. The reed switch may have moved from its original position and be sitting lower on the valve causing the switch's contacts to close try loosening the screw on the switch and adjusting it up to a point where the unit shuts off. To do this mark the original location before moving the switch. Then loosen the set screw and slide the bracket towards the top of the valve. If moving the switch upward doesn't eventually shut off the unit then the location of the switch is not the problem. So return the switch to its original location.



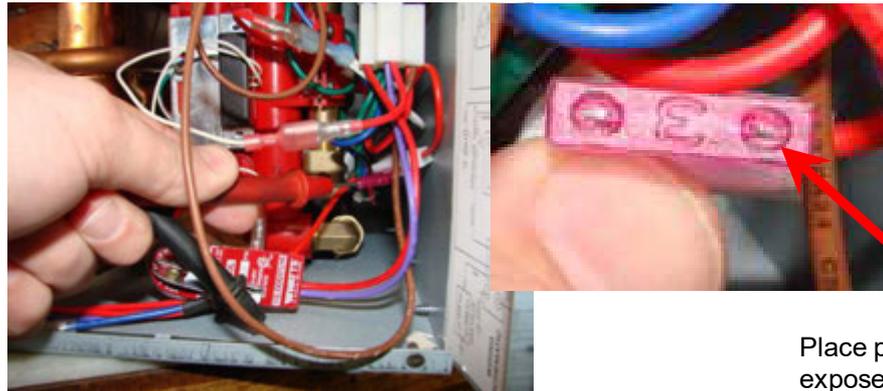
Step 4.

If steps 1-3 do not prevent the heater from operating without flow then the mod valve may be faulty. Change the mod valve and verify that this solves the problem

Unit is blowing the 3 amp fuse repeatedly

Step 1.

Verify that the voltage being provided to the heater is 12 VDC. Do this by using a multimeter to verify the heater is receiving the proper voltage.



Place probe tip against exposed portion of the fuse

To verify proper voltage set a multimeter to read DC voltage. Then place the red probe tip on the exposed metal at the top of the fuse and the black lead on the heater's case. The multimeter should read within two volts of 12 VDC. Make sure that when you meter the voltage on the fuse you are checking a good fuse and not one that has been blown.

Be sure meter is set as pictured for measuring DC voltage.



Multimeter

Unit is blowing the 3 amp fuse repeatedly

Step 2.

If the input voltage is correct and you are still blowing fuses then you may have a short in the wiring. Inspect the wiring harness for any breaks or cuts in the insulation. Also make sure that the heater was wired correctly.

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I hope this resource makes your RV repairs easier, as it has mine, but please be careful and follow proper safety practices when attempting to repair your own RV.

If in doubt, please consult with a professional RV technician!



DARREN KOEPP - OWNER, MY RV WORKS, INC.

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