

Diesel Air heater fault finding

If your diesel heater will not start, please follow the steps in this document carefully, in most cases you will be able to fix it yourself saving you time and money. The team at Dieselheat can also help you if following these steps doesn't work.

Getting Started

See the following descriptions to determine how you should get started with re-starting your diesel heater.

1. If the heater control is dead and nothing happens when any button is pressed go to Section A.
2. If the heater turns on, blows cold air and tries to start over a period of about 6 minutes, but does not start and then shows either E10 (digital controller) or the red LED flashes continuously with no pauses (rotary controller) go to section B.
3. If the heater turns on but the fan hardly spins, or spins briefly and stops and then an error code (digital control) or the red LED flashes an error code (rotary controller) go to Section C.
(An error code on the digital controller will be 'E' and a number. On the rotary controller the red LED will flash between 1 and 8 times with a pause between groups of flashes).
4. If the heater was running and then stopped and displayed an error code (digital control) or the red LED flashes (rotary controller) go to section D.
5. If the heater is running but will not speed up, it just runs slowly all the time regardless of the power setting go to Section E.
6. If the heater is running but is making smoke or diesel smell go to section F.

Section A - Dead Control

If the control is completely dead there are 2 possible issues:

1. There is no power to the heater.
 - a. Check the fuse is ok. Pull it out and test or replace. The fuse should be located in the main cables near your battery.
 - b. Check all plugs and connections. Rough roads or movement of other things you are carrying can cause connections to come loose. Trace the wires from the heater to the battery and check all the connectors are closed or tight. Wobble things and see if the power comes back on.

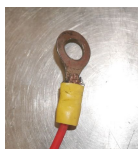


Image 1 and 2. Example of the joins to be check in the loom.

- c. Check for dislodged pins inside the plugs. Sometimes the little metal pins in the plugs can push back making a poor contact. Pull apart the connectors and check each wire going into each connector has a metal pin that is fully pushed forward in the plug.



Image 3 and 4. Example of poor connection caused by pin pushed back.

- a. Disconnect the main loom plug from the heater. This is outside the heater on 2.2kW and 4kW heaters and inside the top of the heater on 2kW. Once disconnected use a multimeter to test the voltage on the main supply wires by putting the multimeter probe into the main loom socket where the thick black and red or black and brown wires are located. If there is no power keep looking for the break.

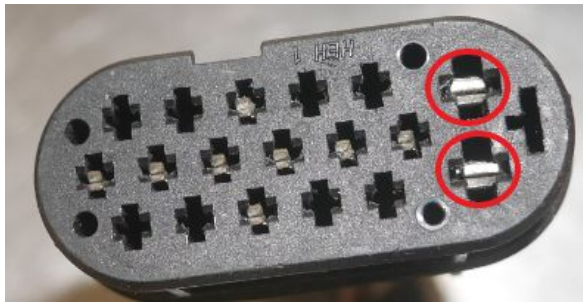


Image 5, 6 and 7. 2kw heater main loom plug with main supply wires identified.

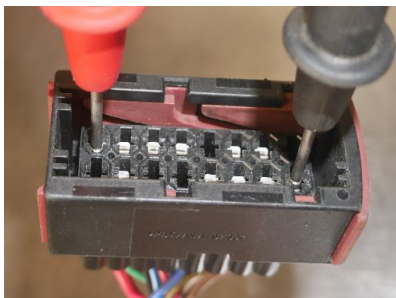
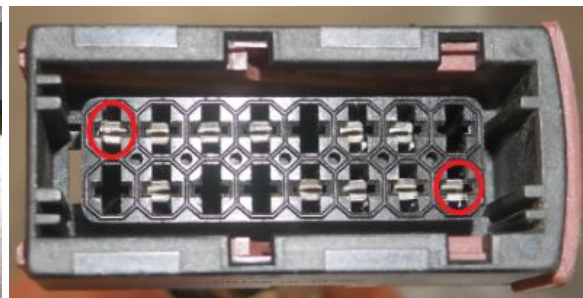


Image 8, 9 and 10. 2.2kw heater main loom plug with main supply wires identified.

2. There is an issue with the controller or heater ECU. Call Dieselheat to discuss options to service the heater.

Section B - Heater trying to start and not starting

If the heater turns on, blows cold air and tries to start over a period of about 6 minutes, but does not start, and then ends up with E10 (digital) or blinking red LED (rotary controller) then the heater is trying to start but cannot start.

The most likely causes of heaters not starting is no fuel, insufficient power or no air flow.

Please follow the steps below to check these issues. Remember to reset the heater between starting attempts by removing and replacing the fuse.

Power

1. Check your batteries are fully charged, connect to power or put a battery charger on them to rule out low battery voltage as the issue.
2. Make sure the heater is connected directly to the battery with the original wiring loom that was supplied with it. If the heater is connected via any fuse boxes, existing wiring or switches bypass all this and connect directly to the battery ensuring the supplied fuse is still in place.
3. If the wiring loom has been extended, make sure it is extended with 6mm² wire and the join is properly soldered- this is pretty heavy duty as heaters need lots of power to start - especially in cold weather.

If any of these things are not correct, fix and try and re-start the heater. If this doesn't work go to Fuel below.

Fuel

If the heater is new or ran out of fuel it can take up to 6 complete start cycles to purge the fuel line of air and get fuel into the heater. A start cycle takes about 6 minutes and consists of 2 attempts to start by the heater after which time it will lock out.

1. If the heater has locked out and the controller is indicating failure to start (error 10 on digital or flashing red LED on manual controller) remove the fuse and put it back to reset. Restart the heater and try this up to 6 times.
2. If you have tried to start the heater 6 times and it hasn't started disconnect the fuel line from the bottom of the heater and then get someone to turn it on. When you hear the fuel pump tick about ¼ of a teaspoon of diesel should come out of the fuel line for each tick. If there is no fuel go to Fuel Fault Finding below, if there is fuel, skip Fuel Fault Finding and go to Air and Exhaust.

Fuel Fault Finding

If you have removed the fuel line from the heater and no fuel comes out when the pump ticks then you have no fuel flow to the heater. Check the following, at the end of each test re-check the fuel flow by turning on the heater with the fuel line disconnected and seeing if about ¼ of a teaspoon comes out of the fuel line each time the pump ticks.

1. If this is a new install check that your fuel tank is not more than 2m below the fuel pump, this is the allowable limit for the fuel pump to suck up the fuel.
2. Double check your fuel tank has fuel in it. If you are in a motorhome with fuel coming from the main vehicle tank check it is more than ¼ full as the fuel pickups often do not go to the bottom of the tank.
3. Check your fuel is not old, if you have a white plastic tank sunlight will allow algae to grow in the fuel and this can block the fuel lines. If this has happened drain your tank and lines and replace the fuel.
4. Check all the fuel connections between the tank and then fuel pump, even the slightest air leak on the inlet side of the pump will allow air into the fuel line and stop fuel flow. Re-test for fuel flow after you check all the connections.
5. If 1, 2, 3 and 4 have not worked, you will need to check the fuel line and filter for blockages by disconnecting the fuel line from the pump inlet and allowing fuel to drain through it from the tank (if the tank is above the line). One way or another test until you are sure fuel can pass through the fuel line.

If you now have fuel flow to the heater reconnect the fuel line and re-start the heater.

If 1 to 5 above haven't worked then there may be a fuel pump issue. This is very rare so we suggest double checking the above before contacting Dieselheat for a new fuel pump.

Air and Exhaust

If the heater has fuel getting in and has a good source of power and is still not starting you should remove the air inlet pipe and exhaust pipe off the bottom of the heater to check they are not blocked.

After the air inlet pipe and exhaust are removed try and start the heater a couple of times. If the heater starts after these pipes are removed you should wash out the inlet pipe with water or a hose and check the condition of your exhaust. If it is black and full of carbon you should replace it, if it is just full of mud wash it out and put it back on.

Still not going???

If your heater has good power, good fuel and air and it won't start it's time to call Dieselheat and talk to us about posting it back for a service.

Section C - Error Code before starting

If a heater is not starting and showing an error code almost immediately when you turn it on check the error code listings at the back of this guide.

An error code on the digital controller will be 'E' and a number. On the rotary controller the red LED will flash between 1 and 8 times with a pause between groups of flashes.

Try and clear the error by removing the fuse (which should be near the battery) and putting it back in and restarting the heater.

If the error codes is E10 (digital) or the LED blinks once per second (evenly with no pauses) on a rotary control reset the heater by removing the fuse and go to Section A and follow these steps.

If this doesn't work call Dieselheat for assistance on what to do next.

Section D - Error Code after starting

If the heater was operating, then stopped and shows an error code, check the list of codes at the back of this guide. In many cases the error will relate to over temperature. If this is the error code check section E.

Section E - Heater will not speed up

If your heater runs but will not speed up, or shuts down after running for a while, chances are the inlet air temperature is over 30deg. In this situation, the heater will not speed up and if the inlet temperature gets much above this it will shut down with an error code. This is normal operation, diesel heaters are not designed to operate in hot conditions. Re-test your heater early in the morning when it is cool.

If the ambient temperature is not over 30deg check that you don't have a lot of uninsulated hot air duct in the same cavity as the heater. Even if the room air temperature is under 30deg the actual air going into the heater can exceed 30deg if it is being preheated by the hot ducting. Test this by opening up the cavity the heater is installed in and seeing if it operates properly. If this solves the issue you will need to insulate the ducting, better ventilate the cavity or add inlet air ducting on the heater.

Section F - Smoking heater

If you heater had trouble starting and then starts it may smoke for a while whilst excess unburnt fuel is burnt off.

If you heater is smoking all the time check the air inlet and exhaust to ensure they are not partially blocked.

If the air inlet and exhaust are not blocked and the heater still smokes after operating for 15min on full power it needs a service. Please call Dieselheat to arrange this.

Sending a heater to Dieselheat

If you have followed these procedures and your heater still won't start it is probably going to need to be sent to Dieselheat for a service. Call us first to have a chat. To remove the heater to send it back follow these steps:

1. Remove the air inlet and exhaust.

2. Remove the fuel line from the bottom.
3. Undo the 4 nuts that hold the heater onto the mounting plate.
4. Unplug the wiring loom.
5. Remove any ducting
6. Lift out the heater, wrap in bubble wrap and cardboard and post to PO Box 288
Cygnet 7112 in a 5kg pre-paid air bag.