

# How to check for a bad Glow Plugs and Relay

(Instructions for 1999-2003 7.3L Powerstroke Diesel)

## To check the Glow Plug Relay (GPR):

- Be sure the engine is cold, so that the PCM will tell the GPR to turn on. If the engine is hot, you won't have as much time to check.
- Locate the GPR – It's behind the fuel filter on top of the engine, a little bit toward the passenger side of the valley. There may be two relays there. If so, the rear one is the GPR. It will have two fairly large wires (yellow and brown) connected to one of the large posts.
- With your multi-meter set to DC volts, and 15 V range (if not auto-ranging), clip the positive (red) lead to the output terminal (with yellow and brown wires connected), and the negative (black) lead to a good ground point (like the battery ground terminal or someplace metal directly on the engine block).
- Turn the key to ON (do not start)
- If your GPR is good, it should click, and you'll see 11 volts or so on your meter, then, depending on temperature, it will click off up to 2 minutes later. You should do this a couple of times to make sure it consistently makes the connection.
- If you don't get voltage with this test, confirm by retesting as follows.
- Remove the two small wires from the smaller two of the four GPR terminals.
- With jumper wires, apply voltage from the battery across the two small terminals. If your voltmeter now reads voltage on the output terminal, your GPR is OK, and your problem is in the PCM circuit that tells the GPR to activate.

**PS: You should check the voltage of both large terminals on the GPR while the glow plugs are running. If the voltage reading differs more than 1 Volt then your relay is getting old and has some resistance in the contacts and is using up some of the voltage that could be sent to the plugs.**

**Typically you will see a .3 to .5 volt difference between the two terminals.**

## To check Glow Plugs:

- Remove the electrical connector on the inboard side of valve cover at the gasket. Press down on the top of the connector latch and pry gently with a screwdriver.
- There will be 9 pins on the valve cover gasket where you removed the connector. The two pins furthest forward and the two pins furthest back are for your glow plugs.
- With your multi-meter set to resistance (ohms) and low range (single digits) if not auto-ranging, clip the negative (black) lead to a good ground point.
- Probe each of the 4 outer pins individually with the positive (red) lead, noting the resistance. Good glow plugs will have a resistance between 0.6 and 2 ohms. If you get infinite resistance on any glow plug, that one is either bad or the connector under the valve cover has come loose.



GPR is to the left and barely visible in this picture

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