

Diagnosing Glow Plugs

Steps	Procedure
Step 1	Take a multimeter
Step 2	Set multimeter to Ohms
Step 3	Check the resistance value of multimeter
Step 4	Check the voltage of the battery
Step 5	Locate the Glow Plug
Step 6	Remove the caps or connectors to the glow plug
Step 7	Clip the multimeter's negative lead to a ground point in the engine
Step 8	Connect the positive lead of your multimeter to the glow plug terminal
Step 9	Check the readings on the multimeter
Step 10	Identify and Replace the faulty Glow Plugs

1) Take a multimeter. While the multimeter can seem daunting because of its many numbers and dials, you only need to use one setting for this test. Analog meters may apply higher voltage to the circuit than the digital meter, so use them with care.

The first reading you get from a digital multimeter may not be accurate, since the current can fluctuate. Digital multimeters have a difficult time measuring current that is constantly changing. Because analog multimeters have a changing display, they can show you the current fluctuations. However, analog multimeters are less accurate overall.

It is best to use a digital multimeter for this test. A digital multimeter shows the exact number result of the test. An analog multimeter is harder to read because every possible result is listed at the top.

If you are using an analog multimeter, make sure to choose one with at least 20k ohm/V sensitivity.

2) Set multimeter to OHMS

3) Find resistance value of your multimeter. Cross the two leads of the multimeter over each other and record the result. Make sure the metal clamps of the leads touch each other. If you are using a digital multimeter, then the reading will appear across the screen. Subtract this amount from the glow plug reading.

4) Test the voltage of the battery. Put your multimeter in DC Volt reading mode. Place the negative lead of your multimeter onto the negative terminal of the battery, and the positive lead onto the positive terminal. The reading should be close to 12.5 Volts when the car is off and close to 13 Volts when the

car is running. If this is not the case, check your battery or alternator before proceeding. Glow plugs will not work correctly if they do not have the correct voltage running into them.

5) Locate the glow plugs.

6) Remove the caps or connectors to the glow plugs. There is usually a cover or cap over the glow plugs. Remove the cover or cap in order to apply the multimeter clamps to the glow plugs. Look at the connector and pins for any signs of rust or corrosion and looseness. Take this opportunity to clean them.

7) Clip the multimeter's negative lead to a ground point in the engine. The main two ground points can be found by following the wire that leads from the negative battery terminal into the engine wall or following the wire that leads from the alternator into the engine wall. These wires are attached to bolts. Attach the negative lead onto one of these bolts for grounding. Consult your owner's manual to find the exact locations of the ground points.

8) Connect the positive lead of your multimeter to the top of the glow plug. If the multimeter's negative lead is still connected to the negative battery terminal, then you can leave it there

9) Evaluate the multimeter's reading. Refer to your shop manual to determine the test specs for your vehicle. Subtract the resistance value of your multimeter from the resistance value of your glow plug. For example, if your plug's resistance measured .9 ohms and your meter's resistance measured .2 ohms, the real reading for the plug is .7 ohms.

All the glow plugs in your engine should have similar readings. One glow plug with a higher resistance can affect your engine's performance--even if the plug is still good.

10) Replace the glow plugs. If one or more of the glow plugs is faulty, replace all of them. Never replace a single plug. If the area around the glow plugs has dirt or buildup, clean it first. Some manufacturers have special tools to clean out the bore where the glow plugs are inserted into the cylinder head. These tools clean out carbon buildup in the area inside the combustion chamber or pre-charge chamber. The tool also cleans the threads that the glow plug screws into. This tool is sometimes called a "reamer."