

P0678: CYLINDER #8 GLOW PLUG CIRCUIT

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$100-\$300
Can I Still Drive?	:	Yes

What Does The P0678 Code Mean?

This code relates to the device diesels use to heat the cylinder head for a few seconds when attempting to start a cold engine called a glow plug. A diesel relies entirely on the momentary high level of heat through compression to spontaneously ignite the fuel. The glow plug in the #8 cylinder has failed.

When a diesel engine is cold, the extremely high air temperature produced as the piston rises and compresses the air is quickly lost through heat transfer to the cold cylinder head. The solution comes in the form of a pencil shaped preheater known as a "glow plug."

The glow plug is installed in the cylinder head very close to the point that initializes combustion, or the "hot spot." This could be in the main chamber or pre-chamber. When the engine management computer senses the engine is cold through the use of its oil and transmission sensors, it makes the decision to assist the engine in starting with the use of the glow plugs.

It grounds the glow plug timer module which in turn grounds the glow plug relay that sends power to the glow plugs. The module applies power to the glow plugs. The module is generally incorporated in the engine management computer, although so vehicles will have it separately.

Too long an activation will melt the glow plugs as they produce heat through heavy resistance and glow red hot while activated. This intense heat is quickly transferred to the cylinder head which allows the heat of combustion to maintain its heat for the fraction of a second it takes to ignite the

incoming fuel for starting.

The code P0678 tells you that something in the glow plug circuit is faulty causing the glow plug on cylinder #8 to fail to heat up. The entire circuit must be checked to locate the fault.

Note: If a [P0670](#) trouble code is present along with this DTC, carry out P0670 diagnosis before diagnosing this code.

What Are The Symptoms Of The P0678 Code?

With just one glow plug failure other than the check engine light coming on, the symptoms will be minimal since the engine will normally start with one bad plug.

Under freezing conditions you would be more likely to experience these. The code is the main way of identifying such a problem.

- The engine management computer (PCM) will set the code P0678
- The engine will be hard to start or may not start at all in cold weather or when its been sitting long enough for the block to cool.
- Lack of power until the engine heats up sufficiently.
- Engine may miss due to the colder than normal cylinder head temperature
- Engine may hesitate when accelerating
- No pre-heat period, or in other words the preheat light does not go off.

What Are The Potential Causes Of The P0678 Code?

The causes for this DTC may include:

- Faulty cylinder #8 glow plug
- Open or shorted glow plug circuit
- Damaged wiring connector
- Faulty glow plug control module

How Can You Fix The P0678 Code?

You will need a digital volt ohm meter (DVOM) for the complete test. Continue through the tests until the problem is confirmed. You will also need a basic OBD code scanner to reset the computer and erase the code.

Check the cylinder #8 glow plug by disconnecting the wire connector on the plug. Place the DVOM on ohms and place the red lead on the glow plug terminal and the black lead on a good ground. The range is .5 to 2.0 ohms (verify the measurement for your application by referring to a factory service manual). If it is out of range replace the glow plug.

Check the resistance in glow plug wire to the glow plug relay buss bar on the valve cover. Notice the relay (looks like a starter relay) has a large gauge wire leading to a buss bar where all the glow plug wires are attached. Test the wire to the number one glow plug by placing the red lead on the buss bar number one wire and the black lead to the glow plug side. Again, .5 to 2.0 ohms with 2 ohms being the highest resistance. If its higher replace the wire lead to the glow plug from the buss bar. Notice also that these leads from the buss bar to plugs are fusible links. Reconnect the wires.

Check the same wires for looseness, cracks or missing insulation. Connect the code scanner to the OBD port under the dash and turn the key to the "on" position with the engine off. Clear the codes.

Reference Sources

[P0678 Cylinder #8 Glow Plug Circuit DTC](#), OBD-Codes.