

Wheels: A reader has a Ford (unknown year or model) that has a problem with starting sometimes when the engine is hot. The reader has replaced the EGR valve and cleaned many electrical connections, which seemed to help but the problem still occurs. Do you have any ideas?

Halderman: Intermittent problems are the hardest problems to find and to repair. The wise service technician should verify the problem before performing any more extensive and expensive tests. I think the EGR valve did not have anything to do with the starting problem. The EGR regulates and controls the flow of about 6% to 10% of the exhaust gas back into the intake manifold where the exhaust acts to reduce peak combustion temperature to reduce oxides of nitrogen (NOx) exhaust emissions. If the EGR valve or related components failed, the result could be a rough or unstable idle, but I do not believe it would cause a no-start condition.

A no-start condition can be caused by a lack of fuel from the fuel injectors or a lack of spark or both. When the engine fails to start, stop cranking the engine and unplug a spark plug wire from one of the spark plugs and install a spark tester. (This tester is available at most automotive parts stores and usually costs less than \$10.)

Clip the ground clamp of the spark tester to a good clean engine ground and have an assistant attempt to start the engine. While the engine is cranking, observe the spark tester. If the spark tester does not spark, then there is a possible fault with one or more of the following:

- Crankshaft position sensor or pickup coil (if the engine is equipped with a distributor)
- Ignition control module
- Ignition coil
- Fault in the connecting wiring

If the spark is observed at the spark tester, then the most likely fault is in the fuel delivery system. Use a noid (short for solenoid) light to test for an injector pulse signal from the computer. A noid light may cost \$25 or more. Most service technicians have a noid light to check for the injector pulse from the computer to the injector. If the noid light does not blink (flash) when the engine is being cranked, then the problem can be due to a faulty crankshaft position sensor and computer. All of these components are most likely to fail when hot.

HINT: If the vehicle is equipped with a dash tachometer, observe the needle while cranking the engine. If the needle of the tachometer moves, then the computer is getting a crankshaft position sensor signal and the problem is usually elsewhere.

Wheels: These tests seem to be complex. Should the reader have a service technician try to determine the cause?

Halderman: For most people, yes, I would recommend that a trained service technician perform the diagnosis. Even though many people feel that it may be saving money to try to fix it themselves, it is often less expensive in the long run to pay a professional for an accurate diagnosis rather than try to continue to replace parts that may or may not be the cause of the problem. A serious do-it-yourselfer could check for spark when the problem occurs and this will help the technician. A spark tester has to be used to get valid information about the intensity of the spark and to avoid the possibility of doing harm to the ignition system that can occur if other methods are tried.

