

Wheels: Ernest via e-mail states that his 1987 Toyota Tercel is puffing black/blue smoke from the exhaust and is using a quart of oil every 200 miles. Do you have any ideas about solving the problem?

Halderman: There are several simple and inexpensive things that could be wrong and there are several expensive things that could cause your problem. I'm going to start with the simple and less expensive causes first.

- A defective fuel pressure regulator
- A defective fuel injector(s)
- A faulty choke or other carburetor problem if the vehicle is equipped with a carburetor

The blue smoke is caused by the engine using oil.

Wheels: These items sound expensive yet you said they were inexpensive. Could there be just one low cost cause to his problem?

Halderman: Yes. If Ernest is lucky, the fault that causes the black smoke could be the cause of the blue smoke too. Let me explain why. If an excessive amount of fuel is drawn into the engine, the fuel can wash down the cylinder walls. Without a thin layer of oil to help seal them, the piston rings may not be able to seal properly allowing oil from the crankcase to be drawn into the combustion chamber. Consult a competent service technician to diagnose the problem. Some of the tests that I would recommend include:

- a compression test
- a cylinder leakage test
- check the fuel pressure regulator for proper operation
- check the fuel injector for leakage and proper resistance and flow
- check the carburetor if equipped

Ernest will have to pay a technician to perform these tests, but this is the only way to be sure what the root cause of the problem may be.

Wheels: What could be the most serious item that could be defective?

Halderman: Engine oil can get into the combustion chamber and be burned and pass through defective valve stem seals or piston rings. The most serious fault would be defective or worn piston rings. To correct this would require an engine overhaul. Ernest would have to seriously consider the cost of the repair versus purchasing another vehicle if this turns out to be the cause. A replacement engine could be as low as \$1000 and could exceed \$2000. If the valve stem seals are worn or defective, these can be replaced for \$300 to \$500.

Wheels: Is there anything Ernest could have done to help prevent this from occurring?

Halderman: Regular oil changes every 3000 miles or 3 months is the best insurance you can buy to guard against engine wear. Every driver should also try to avoid operating his or her vehicle when the fuel gauge reads below ¼ tank. Condensed water can accumulate in the bottom of the tank and when the gasoline level drops, it is more likely that this water can be drawn into the engine because the fuel pump draws fuel from the bottom of the tank. Often alcohol from alcohol-enhanced gasoline can also be drawn into the engine in a more concentrated form than usual when the tank is low. This alcohol can damage rubber parts such as the diaphragm in fuel pressure regulators. And then there are failures that no one can prevent or predict that often occur to older, high mileage vehicles.

