

DO YOU OWN A VEHICLE THAT HAS DIRECT INJECTION?

IF SO, THEN THERE IS SOME CRUCIAL MAINTENANCE THAT YOU NEED TO CONSIDER.

The following manufacturers have been producing many of their vehicles with gasoline direct injection engines (GDI) from 2006 onward: Audi, BMW, Ford/Lincoln, G.M., Hyundai, Jaguar, Kia, Land Rover, Lexus, Mazda, Mercedes, Mini, Nissan, Porsche, V.W., and Exotics.

Most engines that are GDI will have those three letters on the top of the engine or engine cover.

GDI engines inject the fuel directly into the combustion chamber. Regular fuel injection injects the fuel above the intake valves, and then draws the air/fuel mixture past the valves and into the combustion chamber.

The problem that is occurring, sometimes at very low mileage, is heavy carbon buildup on the backside of the intake valves. Since no fuel is passing by the valves, there is nothing to wash the harmful deposits off the valves. When the deposits become severe enough the valves no longer close properly and the engine begins to misfire.

Another factor that contributes to the carbon buildup is caused by an emission control called Exhaust Gas Recirculation. A certain amount of exhaust gas (which is inert) is fed back into the engine and drawn into the cylinders to dilute the mixture. This is done to lower the combustion temperature in order to prevent certain emissions. Unfortunately these gasses also leave harmful deposits on the valves.

These carbon deposits can become hard enough that the only way to deal with them is by taking the engine apart and chipping the carbon off.

Running better fuel, or putting additives in the fuel tank, or driving the vehicle harder or at higher RPM won't take care of carbon that has already built up on the valves because nothing but gasses are passing by the valves.

The answer to the problem is to deal with it before it happens.

Three crucial measures need to be taken:

1: An additive should go into the fuel tank every second oil change. Some manufacturers even have this in the maintenance schedule. This additive deals with the moisture that has bonded to the ethanol in the fuel. This ethanol/moisture mix doesn't burn and gets pushed past the rings of the combustion chamber. This very aggressive and corrosive mixture starts to attack the oils additive package, breaking it down and causing it to gas off. These additional gasses then get drawn back into the engine once again, causing more deposits on the valves.

2: A complete induction service should be performed periodically. This service runs a special formula through the intake manifold while the vehicle is idling. This non-solvent product breaks down the carbon deposits that have built up on the valves. Another product is then run through the injection

system of the engine. This cleans carbon from the underside of the fuel injectors, and the combustion chamber, and the underside of the valves.

3. More regular oil changes. Oil that comes out of GDI engines looks extremely black by comparison to oil from a traditionally injected engine. Regardless of the manufacturer's schedule, we suggest replacing oil every 5000 Km for standard oil, or 10,000 Km for synthetic oil.

Remember, oil changes and induction services are cheap by comparison to a complete engine tear down.