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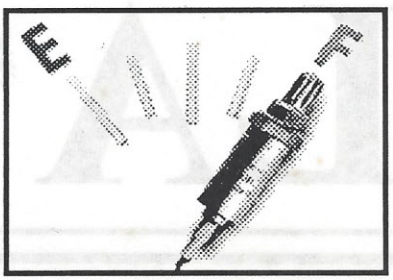


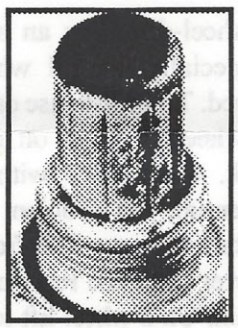
Some Oxygen Would Be Nice!

The 02 sensor, what is it? You have probably heard of a device called the 02 (oxygen) sensor. And chances are if you own a car that was built after about 1980, your car has an 02 sensor. Somewhere around the late seventies, due to stricter federal exhaust emission standards, vehicle manufacturers started to incorporate this exhaust gas monitoring device in their designs in attempt to lower emissions. Now the 02 sensor is an important and necessary inclusion on every car. What follows is a very simplistic description of what it does.

It is a sensor located in the vehicle's exhaust system, located before the catalytic converter. What it does, as the name implies, is monitors the amount of 02 gas in the engine's exhaust stream. This is a measure of the air-to-fuel mixture the engine is using. Manufacturers (and the EPA) want all engines to run as lean (less fuel and emissions) as possible, under all conditions. The 02 sensor, as it registers the 'richness' or 'leanness' of the engine, sends a signal to the engine control unit (ECU) to tell it what the air-to-fuel mixture is. Is the engine running too rich? Is the engine running too lean?

The engine control unit, based on a complex computerized engine management MAP, and inputs from dozens of other sensors and devices, is then able to adjust the fuel mixture to maintain an "ideal" value. It can richen or lean the fuel mixture by controlling the frequency or duration of injector fire. It can advance or retard ignition timing, and do a bunch of other things as well. The 02 sensor is like the "final word" on fuel mixture. "The guys down here in the exhaust system noticed that someone up there isn't doing what they are supposed to...do something, before we all choke to death".

A properly functioning 02 sensor is imperative to the operation of a modern engine. If it inaccurately tells the control unit the engine is running to lean, the control unit will over richen the motor. (Have you ever been behind a car that was belching black smoke out of the exhaust?) If the 02 sensor inaccurately tells the control unit that the engine is running too rich, it will over lean the engine and could cause it to run too hot--possibly doing serious internal damage. A properly operative 02 sensor can also compensate for a worn engine or for some other sensor or device in the engine that is not functioning properly. If for example, the fuel pressure regulator was not working right, it might cause a condition where the fuel pressure was too high--causing the engine to run rich. The 02 sensor would send the signal to the ECU to lean-out the mixture. The engine might seem to operate properly, even though the pressure regulator was out-of-specification. You might never know what ales, that little 02 sensor is healing.



Almost all vehicles from 1980 and later have an oxygen sensor. Located in the exhaust manifold, the O2 sensor monitors the oxygen content of the vehicle's exhaust gases and signals the engine computer (ECU) up to 20 times every second.

Most manufacturers recommend 02 sensor replacement intervals of 60,000MI. This is a good number. Sometimes they can fail prior to this mileage, but this would be easily identified during a scheduled service. The replacement cost for most cars is less than $200.00. This sounds expensive to replace a part you might not have noticed wasn't working properly. You may think the car runs fine, when actually the 02 sensor is not sending accurate information to the control unit. Often, when they fail, they send a false signal which causes the engine to run rich. Believe it or not, through increased fuel economy, you can reimburse that $200.00 replacement cost over a very short period of time. You will notice the car runs a great deal better, and you can enjoy the deep cleansing breath of fresh air without choking from the smog.