DENSO’s oxygen sensor started to appear on vehicles with the development of fuel injection systems. The basic job of the sensor is to monitor the air/fuel mixture under idle, and to moderate acceleration and cruise conditions. Under heavy acceleration the oxygen sensor goes into “open loop” which basically means that the engine management computer system ignores the oxygen sensor. Oxygen sensors have a smaller range of limits in detecting and adjusting the difference from an optimum air/fuel ratio.

DENSO’s air/fuel ratio sensor began to appear in the early 90s as vehicle manufacturers increased demands for better emission standards. DENSO’s air-to-fuel ratio sensors were developed to measure the air-to-fuel ratio information under a wider range of driving conditions. The air/fuel ratio sensor sends information to the engine management computer to make adjustments based on driving conditions. This wider range and variable adjustment allows the motor to burn fuel more efficiently and to produce less emissions.

As the automotive industry continues to improve on their standards, DENSO is keeping pace with advancements in their engineering to meet the demands of the industry. As car owners are holding on to their cars for longer periods of time, DENSO continues to make auto parts available for those critical replacement parts.

**Watch TechTalk™ by Federated Auto Parts this season on Two Guys Garage.**

Scan the code below to view this Federated TechTalk™ tip in full.

**Tech Tip**

Oxygen sensors help your vehicle determine how much fuel to supply to the engine. When working properly, they reduce harmful emissions, improve fuel economy, and optimize your engine’s performance. Generally, factory-recommended replacement intervals are between 30,000 to 60,000 miles.
Oxygen Sensors

Oxygen sensors are among the most sensitive and critical components on your car’s engine. Earlier fuel injection systems employed one oxygen sensor in the exhaust system to maintain closed-loop air/fuel mixture control; however, today’s engines use as many as four sensors, which monitor not only exhaust gas oxygen content, but catalytic converter efficiency as well. In order to perform these functions properly, the sensors must adhere to OE standards within incredibly close tolerances. A malfunctioning or incorrectly calibrated oxygen sensor can hurt driveability and illuminate the malfunction indicator, resulting in costly and time-consuming repairs.

Features
- Corrosion resistant stainless steel construction
- PTFE filter blocks efficiency-robbing contaminants
- Refined zirconia element improves sensor response

Benefits
- Increased performance and efficiency, reduced fuel consumption
- First Time Fit® delivers the right part the first time
- Ensures smog test compliance

Air / Fuel Ratio Sensors

As oxygen sensor technology has evolved, DENSO’s engineers have been there every step of the way. From the first thimble-type sensors to heated, quick-response sensors required to meet ever more stringent emissions regulations, DENSO has supplied the OE industry with quality components. DENSO continues to innovate with the latest development in oxygen sensors, known as air/fuel sensors. These components have a broader response range to provide much finer control of air/fuel mixtures over a greater variety of operating conditions.

Features
- Tarnish-proof platinum electrodes provide longer life and maintain accuracy
- Quick-response planar zirconia element can quickly detect oxygen concentration
- Measures A/F ratios from approximately 12:1 to 19:1

Benefits
- Increased performance by mapping A/F ratios throughout RPM range
- Reduces emissions by keeping the air/fuel mixture at an optimum ratio
- Reduces fuel consumption and maximizes catalytic converter life