

Explaining The Oxygen Sensor

Due to the vital role and suggested service intervals, the oxygen sensor can be a quality maintenance repair for your customers.



What is the life expectancy of an oxygen sensor?

Shorter than what your customers think.

And that's the problem.

But it's also one of the easiest to solve problems when a customer comes in and asks for a "tune up" or preventive maintenance.

Basic maintenance is key today and checking the oxygen sensor is a great place to start.

According to Walker Products, which offers one of the industry's most robust oxygen sensor programs, an oxygen sensor's life expectancy can vary greatly depending on the condition of the vehicle and whether it is properly maintained. Generally, based on typical maintenance routines, an oxygen sensor's effective life span is between 30,000 and 50,000 miles. After that, performance begins to degrade, which will in turn affect the vehicle's overall fuel economy and performance. That can arrive quickly in the eyes of today's drivers, many of whom won't have their vehicle paid off by the time it needs replaced. However, if the engine is properly maintained in all aspects, the oxygen sensors could last much longer, up to 100,000 miles in some cases. The truth is, many vehicles on the road today would not meet the maintenance requirements to achieve that level of sensor life.



It's no surprise that oxygen sensors need to be checked regularly and replaced as needed; they perform under fierce conditions, battling harmful exhaust gases, extreme heat and high velocity particulates. And the harder someone drives his or her vehicle, the more punishment the sensors take.

The Oxygen Sensor's Impact

Remember earlier you read about the oxygen sensor? That's a key component, as faulty oxygen sensors cause a very large amount of emission inspection failures. Why? Because not all oxygen sensors are created equal.

The oxygen sensor reports to the engine management computer the air/fuel ratio in the exhaust system. While it no longer is a one-wire unheated sensor like it was in the 1970s, but rather a four- or five-wire air/fuel ratio sensor, that means it can report information more accurately, but can be damaged more easily. These sensors include heated, fast light off, ultra-fast light off, Titania, zirconia, thimble, planar and wideband sen-

sors. Staying up-to-date with these technologies is critical in diagnosing the oxygen sensor and this technology will only continue to grow as emission controls become stricter every year.

What Goes Wrong?

A few things, actually. There are two scenarios technicians need to look for when inspecting an oxygen sensor to determine the cause of failure (and thus finding the root cause of the problem). First, it can happen instantaneously when a contaminant comes into contact with the oxygen sensor's ceramic element.

Technicians who suspect this type of failure should look for evidence of certain types of silicone compounds or of an engine that is burning oil. Small amounts of tetra-ethyl lead in gasoline as well as over-the-counter fuel additives that are not "oxygen sensor safe" can kill an oxygen sensor.

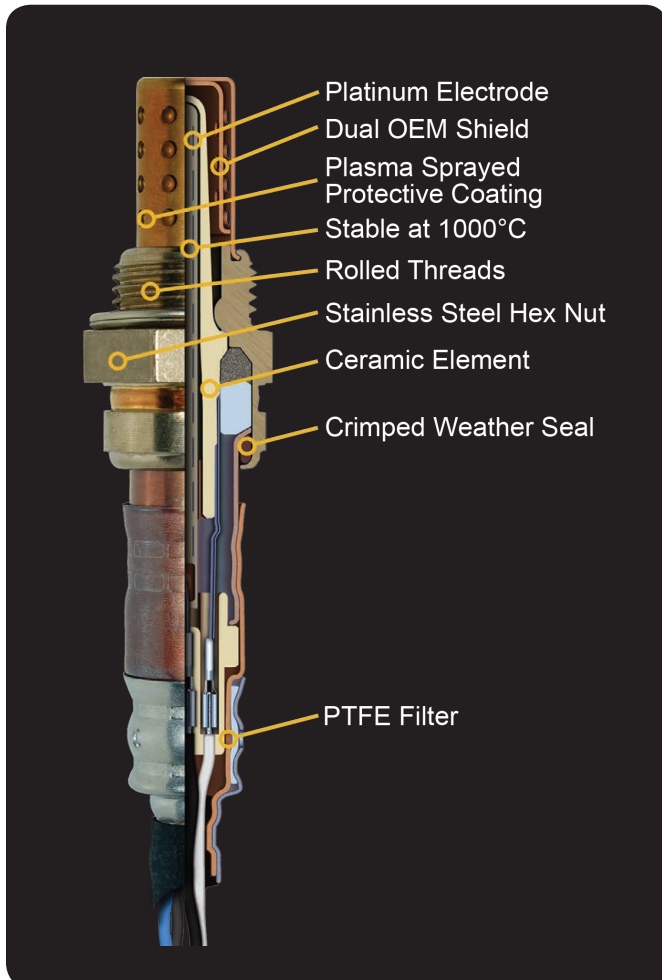
The second scenario is the gradual deterioration, resulting in a slow sensor that reacts so slowly that it causes a catalytic converter to perform less efficiently. This can lead to premature failure of the catalytic converter.

In this case, technicians will hear complaints of decreased fuel economy (approximately 10 to 15 percent in most cases), excessive exhaust emissions and overall poor drivability. Now, while a customer might notice they are covering fewer miles per fill-up, they might not be aware of other problems as they adjust to vehicle driving conditions and, in the case of emissions, simply cannot observe this. That's where technicians who perform emissions tests can assist customers by detecting these issues.

But technicians can be the hero of this story when using the proper equipment. Using a digital volt-ohmmeter (DVO), a technician can detect a dead oxygen sensors. Two other tools - a digital storage oscilloscope (DSO) or scope meter - will be able to diagnose a slow oxygen sensor.

Not All Sensors Are Alike

How do you know that you're getting a quality sensor? Walker Products' robust oxygen sensor programs features the highest quality components to ensure OE fit, form, and function guaranteed. Designed, engineered, and 100% tested in house to ensure unsurpassed quality and sensor longevity for the greatest customer satisfaction.





Walker oxygen sensors feature a ceramic body is made of stabilized zirconium dioxide and contained in a housing that protects it against mechanical effects and facilitates mounting. A gas-permeable platinum layer comprises the electrodes that coat the surface, and a porous ceramic coating applied to the side exposed to the exhaust gas prevents contamination and erosion of the electrode surfaces by combustion residue and particulates in the exhaust gases.

That means when you install Walker oxygen sensors, your customers get improved engine response and performance, lower emissions, better fuel economy and longer sensor life.



Put a little bit of money in now, and you could save big down the road. In fact, for the cost of two tanks of gas, you'll be able to stretch your fuel economy and potentially buy less gas. What a selling point!

Selling to Customers

But how do you explain that to your customers? It starts with the basics: an oxygen sensor monitors the oxygen content of the exhaust gas, which is processed by the vehicles engine computers to evaluate engine efficiency. For quick explanations, service writers can share four simple benefits customers can receive by replacing their O₂ sensors:

- Improved engine response and performance
- Lower emissions
- Improved fuel economy
- Longer sensor life

Essentially, put a little bit of money in now, and you could save big down the road. In fact, for the cost of two tanks of gas, you'll be able to stretch your fuel economy and potentially buy less gas. What a selling point!

When a shop offers to check the oxygen sensors at any appropriate service interval, the customer can ward off further damage by having faulty or contaminated sensors replaced. Here is a breakdown of replacement intervals.

- 30,000 - 50,000 miles: One-wire and two-wire "unheated" type oxygen sensors. These sensors are early technology units that depend on exhaust heat to become active and are generally more sensitive to the elevated contamination of dirty or unbalanced exhaust, especially the "wide-slot" varieties found on early Chrysler, Ford and General Motors vehicles.

- 60,000 - 100,000 miles: "Heated" type sensors and air fuel ratio sensors are the latest high-tech products in this segment. Their engineering advancements and sophistication allow them to operate more efficiently by placing built-in heaters to warm the sensor up on initial startup. In addition, these sensors are generally found in newer vehicle applications that are more fuel efficient, therefore exposing the sensors to less harmful exhaust gases - all of which adds to the life expectancy of the oxygen sensors themselves.

Using these selling tips, installation information and Walker Original Equipment Oxygen Sensors, your customers get improved engine response and performance, lower emissions, better fuel economy and longer sensor life. That translates to increased trust and potential business for your shop, a win-win.

The most robust oxygen sensor program in the industry.

Air-Fuel Ratio Sensors

Planar Sensors

Titania Sensors

Wide Band Sensors



The Walker Products Oxygen Sensor program is the most comprehensive offering available to the aftermarket. All sensors feature 100% OE Fit, Form and Function for all makes and all models.

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