

Bosch Oxygen Sensors

The worldwide leader in oxygen sensor technology

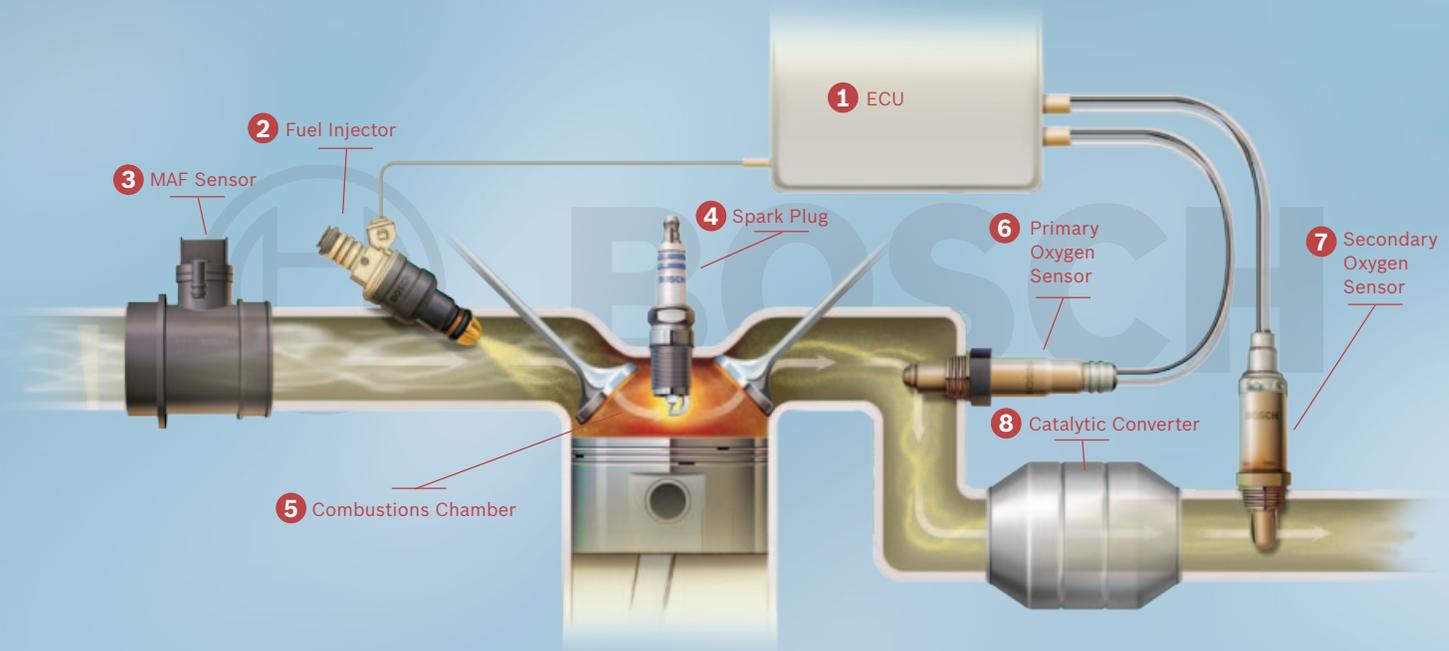
Bosch invented the automotive oxygen sensor in 1976, and has been at the forefront of the technology ever since. Bosch works closely with vehicle manufacturers worldwide to create the most efficient and reliable systems to keep your vehicle running efficiently. Our experience with vehicle manufacturers means we have the capability to produce parts that meet vehicle specifications.

What is an oxygen sensor?

An oxygen sensor detects the amount of oxygen in a vehicle's exhaust system and sends a signal to the Engine Control Unit (ECU), which adjusts the amount of fuel delivered to the combustion chamber.

Too much oxygen in the exhaust or too little fuel being fed to the engine indicates a lean mixture, which can cause performance problems. Too little oxygen or too much fuel in the exhaust indicates a rich mixture, which results in lower MPG and excess emissions. Either condition can shorten the life of the catalytic converter, which removes harmful pollutants from the exhaust.

Almost all gasoline powered vehicles since 1986 have at least one oxygen sensor, and vehicles manufactured since 1996 will have at least two. There is one sensor that is located before the catalytic converter to communicate with the ECU to let the car know if it needs to use more or less fuel. A second sensor is located after the catalytic converter to make sure that the catalytic converter is working properly.



1 Engine Control Unit

Receives information from the primary oxygen sensor regarding the amount of contaminants in the combustion system.

2 Fuel Injector

Based on a signal received from the ECM, the right amount of fuel is delivered to the combustion chamber resulting in the optimal air-fuel mixture in the engine.

3 Mass Air Flow Sensors (MAF)

MAF Sensors record the exact air-fuel ratio entering the combustion engine. The sensor then transmits this information electrical signal to the ECU.

4 Spark Plug

The spark plug is designed to produce the spark that ignites the air-fuel mixture in the combustion chamber of gasoline engines.

5 Combustion Chamber

The fuel injector sprays fuel into the combustion chamber. Fuel is then projected into the cylinder, removing all of the oxygen and igniting the the spark plug.

6 Primary Oxygen Sensor

Positioned before the catalytic converter, these sensors send engine air-fuel reference signals to the ECU so that fuel delivery is adjusted to optimal working conditions.

7 Secondary Oxygen Sensor

The secondary oxygen sensor is used to monitor the efficiency of the catalytic converter and sends signals regarding how well the vehicles catalytic converter is working.

8 Catalytic Converter

Removes contaminants from the combustions system. Without the correct air-fuel mixture provided by the ECM, the converter cannot eliminate harmful pollutants from the exhaust gases.



Why do i need to replace my oxygen sensor?

It is important to replace your oxygen sensors at the manufacturer's suggested intervals or upon failure, whichever occurs first. Prompt replacement will save you money in the long term. Here's how:

- ▶ If an oxygen sensor is not functioning properly, it may not accurately measure the amount of fuel being consumed and cannot efficiently regulate the consumption. This results in lower MPG.
- ▶ A faulty oxygen sensor can cause your catalytic converter to fail prematurely. The catalytic converter is responsible for removing the harmful emissions from your exhaust gas. Replacing a catalytic converter can cost thousands of dollars, significantly more than most oxygen sensor replacements.

When to replace an oxygen sensor

Exposure to carbon, soot, harmful gases, antifreeze, chemicals, and thermal and physical shock will shorten the life of an oxygen sensor. A worn sensor can result in reduced gas mileage, poor engine performance, and/or emissions test failure.

That's why checking, and if needed, replacing a worn-out oxygen sensor with a Bosch Premium Oxygen Sensor is an important part of every routine tune-up.



Side effects of a worn-out oxygen sensor

Wastes fuel

Can cause engine performance problems, such as surging and hesitating

Is the number one cause of excessive harmful exhaust emissions

Accelerates catalytic converter damage

Benefits of replacing an oxygen sensor

Saves money in fuel costs

Improves engine performance

Dramatically reduces harmful emissions

Prevents premature failure of the catalytic converter

What is the difference between Wideband and Air Fuel ratio sensors?

A Bosch Premium Oxygen Sensor will tell you if your engine is running rich or lean. A Bosch Wideband Oxygen Sensor is able to measure the precise amount of oxygen in the exhaust to tell your ECU exactly how much fuel your engine needs to operate at optimal combustion. Technical advances like the Bosch Wideband Oxygen Sensor have allowed vehicle manufacturers to increase fuel economy as well as engine performance.



Trust the experience of Bosch

Bosch invented the automotive oxygen sensor and has manufactured 400 million sensors since 1976. Today it is the world's largest producer of oxygen sensors and currently supplies them to virtually all vehicle manufacturers in the world.

Did You Know?

Bosch Oxygen Sensors are an exclusive NASCAR Performance® product.

