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.

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

▶ A Bosch Air-Fuel Oxygen Sensor detects if your engine is running rich or lean.

▶ A Bosch Wideband Oxygen Sensor measures 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

Since 1976 Bosch has produced over 1 billion oxygen sensors. In addition to being the originator of this important technology, Bosch is the leader and global aftermarket supplier of oxygen sensors.

BOSCH
Invented for life

Robert Bosch LLC
Broadview, Illinois 60155

Robert Bosch, Inc.
Mississauga, Ontario L5N 1R1

www.boschautoparts.com
www.boschautoparts.ca

1806021

BOSCH
Invented for life

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. We work closely with vehicle manufacturers worldwide to create the most efficient and reliable systems to keep your vehicle running smoothly. 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 located before the catalytic converter to communicate with the Engine Control Module (ECM) 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.

Diagram Labels
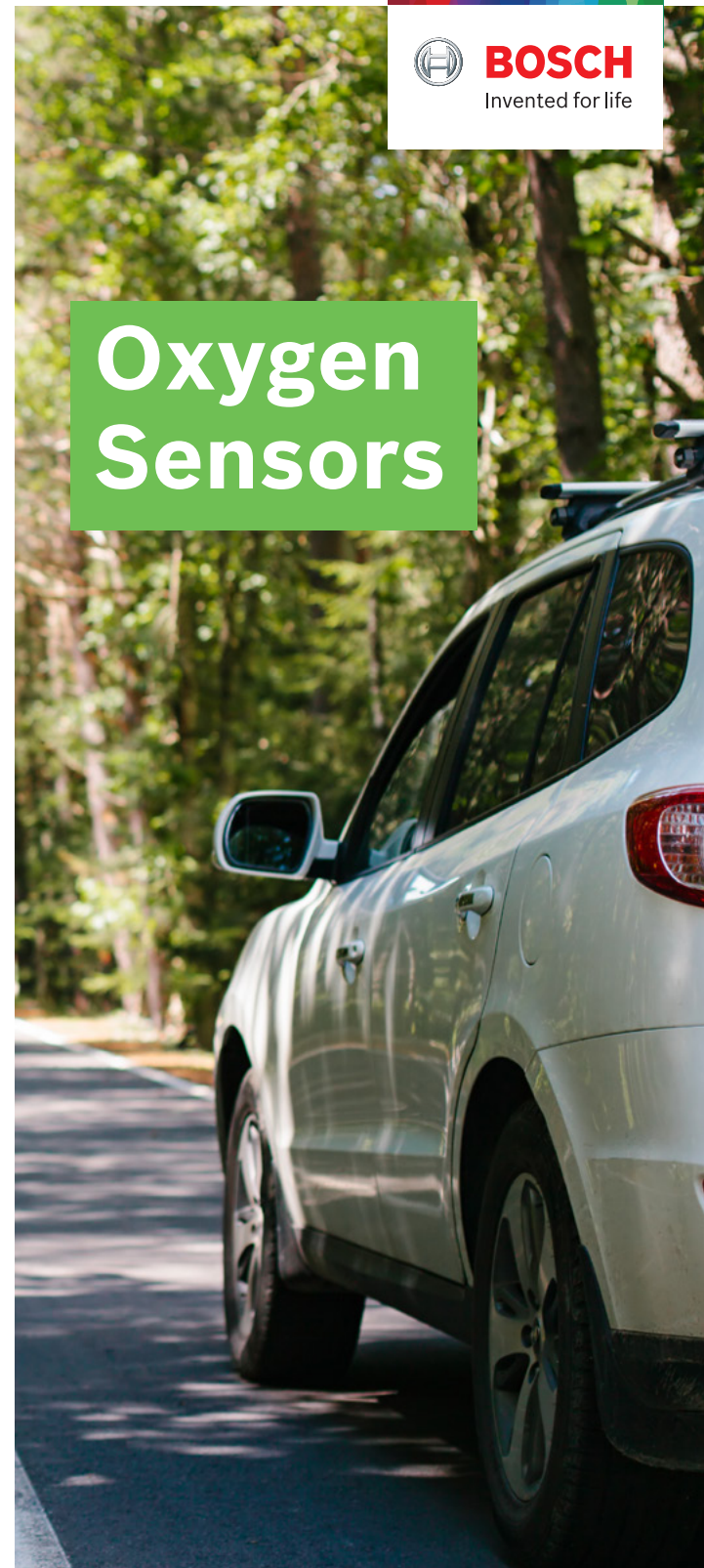
1 **Engine Control Unit**
Receives information from the primary oxygen sensor regarding the amount of contaminants in the combustion system.
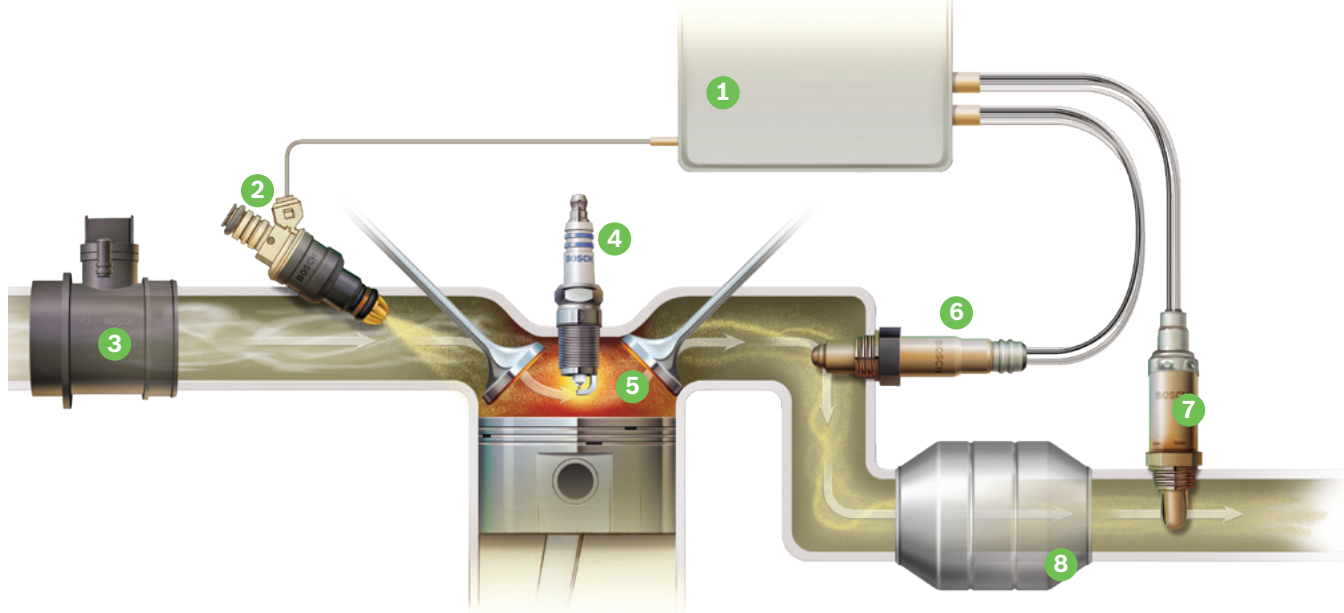
2 **Fuel Injector**
Based on a signal received from the ECM, the fuel injector delivers the right amount of fuel to the combustion chamber — resulting in the optimal air-fuel mixture in the engine.

3 **Mass Air Flow (MAF) Sensors**
A MAF sensor measures the exact amount of air entering the vehicle's engine. The sensor then transmits this information via an electrical signal to the ECU.

4 **Spark Plug**
The spark plug produces 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 **Upstream 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 **Downstream Oxygen Sensor**
The downstream oxygen sensor monitors the efficiency of the catalytic converter and sends signals regarding how well the vehicle's catalytic converter is working.

8 **Catalytic Converter**
Removes contaminants from the combustion system. Without the correct air-fuel mixture provided by the ECM, the catalytic converter cannot eliminate harmful pollutants from the exhaust gases.

Tune-up for Lower Emissions and Greater Fuel Economy

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

▶ Produces excessive harmful exhaust emissions

▶ Wastes fuel

▶ Causes engine performance problems, such as surging and hesitating

▶ Accelerates catalytic converter damage

Benefits of replacing an oxygen sensor

▶ Reduces harmful emissions

▶ Saves money in fuel costs

▶ Improves engine performance

▶ Prevents premature failure of the catalytic converter

Premium Planar Type Sensors reach operating temperature in half the time of thimble-type sensors, reducing emissions by over 50% during the cold-start phase. The multi-layer sensor element, with an integrated heater, delivers precise performance over a long performance life.
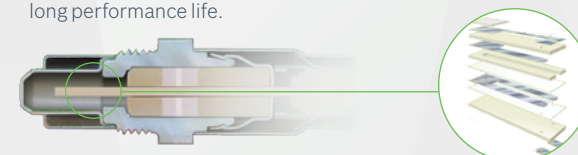
Premium Thimble-type Sensors feature the Bosch patented Platinum Power Grid made with more platinum for optimized sensing and peak performance.
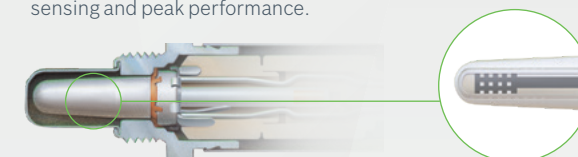
Improves engine performance

Increases fuel efficiency

Reduces harmful emissions

Prevents premature failure of the catalytic converter