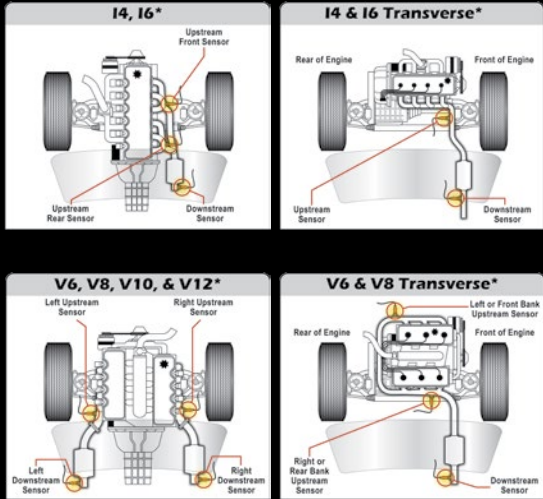




# Oxygen Sensors

## Common Sensor Locations



\*The illustrations above represent typical engine mounting configurations. \*Check the maintenance manual for the actual locations of the oxygen sensors on your vehicle.



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## What Is The Life Expectancy Of An Oxygen Sensor?

The life expectancy of an oxygen sensor is typically 30,000 to 50,000 miles. Even under normal operating conditions, oxygen sensors must endure a constant barrage of harmful exhaust gases, extreme heat and high velocity particulates. When these variables of heat and contamination exceed normal limits, longevity may be reduced.

Sometimes oxygen sensors can become contaminated by coolant, oil or silicone particulates. Oxygen sensors exposed to these contaminants will not operate as designed. Although sensors in some applications can remain serviceable up to 100,000 miles, the effectiveness of oxygen sensors will inevitably decrease over time.

At Walker Products, we recognize the need to keep vehicles running clean. A bad oxygen sensor can cause unacceptable emissions levels, affect performance and ultimately damage the catalytic converter. Make it a point to check oxygen sensors at each tune-up and replace faulty sensors with a new Walker oxygen sensor.

**For the end user and repair shops performing a vehicle tune-up, remove the oxygen sensor and check for these symptoms:**



Rich Fuel Mixture

Lead Poisoning

Glycol (Antifreeze) Poisoning

Silicone Poisoning

**REPLACE FOR BETTER PERFORMANCE AND A CLEANER ENVIRONMENT.**



# Oxygen Sensors

**Exceptional Performance....**



**....Most Complete O2 Sensor Program**

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## Oxygen Sensors....

IMPROVED ENGINE  
RESPONSE & PERFORMANCE

LOWER  
EMISSIONS

IMPROVED  
FUEL ECONOMY

LONGER  
SENSOR LIFE

MEETS  
OEM SPECIFICATIONS

**Walker Oxygen Sensors are precision made for outstanding performance and manufactured to meet or exceed all original equipment specification and test requirements.**

**100% OEM  
QUALITY**



The oxygen sensor is a device which determines the oxygen content of the exhaust gas. Since the amount of oxygen in the exhaust gas is a very good indicator of combustion efficiency, it is also the best place to monitor the air fuel ratio.

Located in the exhaust system, the O<sub>2</sub> sensor produces a voltage proportional to the amount of oxygen in the exhaust versus the air (<150mV lean & > 750mV rich). This data is used to control the air-fuel mixture through PORT or TFI injectors and carburetors. Sensors are monitored or checked anywhere from 4 to 100 times per second. The air-fuel mixture is thus always moving from rich to lean averaging very close to stoichiometric (ideal) ratios.

The ceramic sensor body is contained in a housing which protects it against mechanical effects and facilitates mounting. The ceramic body is made of stabilized zirconium dioxide (zirconia). Its surfaces are coated with electrodes made of a gas-permeable platinum layer. In addition, a porous ceramic coating has been applied to the side exposed to the exhaust gas. This coating prevents contamination and erosion of the electrode surfaces by combustion residue and particulates in the exhaust gases.

## Technical Basics

### MALFUNCTIONING AND FAILED SENSORS

Oxygen sensors can fail when the sensor's ceramic element is exposed to certain types of silicone compounds or when an oil-burning engine leads to the sensor becoming oil-fouled. Also, a small amount of tetra-ethyl lead in the gasoline can kill an oxygen sensor. Over-the-counter fuel additives, which are not "oxygen sensor safe" can also kill an oxygen sensor.

Failures can occur either 1) instantaneously at the time the contaminant contacts the oxygen sensor, causing a dead sensor, or 2) gradually over a period of time. Gradual deterioration results in a "slow" sensor which does not react as quickly as it should, causing the catalytic converter to perform less efficiently. This can lead to premature failure of the catalytic converter.

"Slow" oxygen sensors can cause a drop in fuel economy of 10-15% and cause excessive exhaust emissions and poor drivability. Unfortunately, the symptoms of a "slow" oxygen sensor are not always obvious to the vehicle owner, unless the vehicle fails an emissions test, a decline in fuel economy is noticed, or drivability problems occur.

A "dead" sensor can be detected with a relatively inexpensive digital volt-ohmmeter. A "slow" sensor can only be diagnosed by using a digital oscilloscope or scope meter. Most installers will probably not be able to spot an oxygen sensor problem until it is too late, and the catalytic converter is already well on its way to failure.

### PREVENTIVE MAINTENANCE

One-wire and two-wire "unheated" type oxygen sensors should be checked or replaced every 30,000 to 50,000 miles. These sensors rely solely on hot exhaust gas to heat up to operating temperature, and are designed to allow a large volume of exhaust gas to make contact with the active ceramic element. These sensors are exposed to contamination, especially the "wide-slot" varieties found on Chrysler, Ford and General Motors vehicles.

"Heated" type oxygen sensors have a built-in heater which heats the sensors. Much less exhaust gas needs to contact the ceramic element, making these sensors less prone to contamination.

"Heated" type sensors can also be located further downstream (closer to the catalytic converter) which increases their life expectancy. "Heated" type oxygen sensors should be checked or replaced every 60,000 to 100,000 miles.