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FOCUS
NOx sensor

What is it?

The NOx sensor **monitors the levels of nitrogen oxides emitted by the vehicle** to ensure compliance with emissions regulations. These gases are poisonous and highly reactive: they can cause and contribute to respiratory infections, as well as have harmful effects on local ecosystems and road visibility. Controlling the levels of NOx emitted into the atmosphere is extremely important; therefore, this sensor is an essential component for compliance with current regulations.

What is its purpose?

In addition to monitoring the level of nitrogen oxides released into the air, it plays an essential role in **controlling them through the Selective Catalytic Reduction (SCR) system of diesel vehicles**.

How does it work?

The sensor consists of two cells: one corrects the air/fuel ratio, while the other breaks down nitrogen oxides into the two elements nitrogen and oxygen. The NOx control unit, usually positioned near the sensor, calculates the level of nitrogen oxides present in the exhaust gas and sends this data to the SCR control unit. The latter then regulates the amount of reducing agent injected into the SCR catalyst, which in turn converts excess nitrogen oxides into water and nitrogen.

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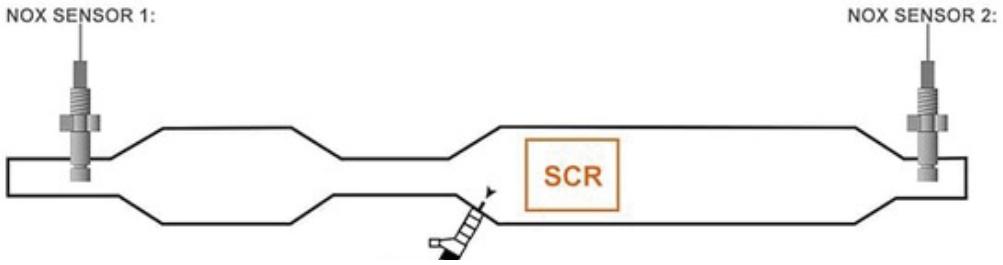
Where is it positioned?

In most cases, **the NOx sensor is located after the SCR catalyst**. This allows the SCR control unit to verify that NOx levels fall within the reference values. Some vehicles are equipped with sensors upstream and downstream of the SCR, but the use of a single sensor is more common. NOx sensors have been installed on vehicles since the early 2000s. To comply with Euro 6 regulations, a modern diesel vehicle cannot emit more than 80 mg/km of NOx, which would be impossible without the presence of this component accurately monitoring its levels.



Reasons for replacement

Precision components like NOx sensors have a limited lifespan, so **it's quite common to have to replace them** at some point during the vehicle's life.

One of the main causes of NOx sensor failure is the **accumulation of soot generated by combustion**. Soot is not only abrasive, damaging the sensor over time, but it can also deposit and cover it, preventing it from accurately measuring the gas.

Advice

Replacing the NOx sensor can be costly; therefore, the option of repair may be tempting. However, for a precision component like this, **repair may only be a short-term solution** before it fails again, necessitating a second intervention. We recommend, therefore, **using only new and quality component**s to ensure maximum durability and accurate performance.

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