



NRF TECHNICAL ARTICLE

EXHAUST GAS TEMPERATURE SENSORS - EGTS

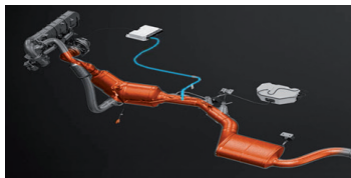


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Lower and lower permissible emissions of harmful exhaust components are required, and they are more difficult to achieve. In order to be up to the task, engine control units need to “know more”. The new “informants” are exhaust gas temperature sensors (EGTS). Over the years, their quality and variety have grown. In the fight for clean exhaust gases, they are supported by sensors: oxygen, nitrogen oxides, and particulate matter.

SO, WHAT ARE EXHAUST GAS TEMPERATURE SENSORS (EGTS)?

EGT sensors, as their name says, are used to measure the exhaust gas temperature. The values read by the sensor are sent to the engine control unit where are taken further action (based on the obtained information).

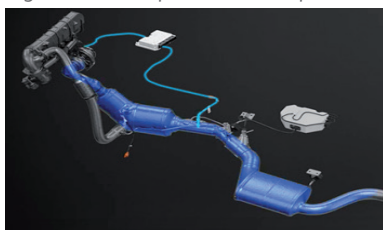


HOW DOES THE ENGINE CONTROL UNIT USE THE INFORMATION, RECEIVED FROM THE TEMPERATURE SENSORS?

Based on the received data, there are many actions which the control unit can take:

- > Correction of the mixture composition (increasing fuel)
- > Reducing the boost pressure
- > Increasing the flow of oil
- > Increasing the flow of coolant fluid

However, this data is not only used for control, it is also used for monitoring the temperature of the Diesel Particulate Filter (DPF) differential pressure sensor to determine the correct regeneration temperature - to help reduce exhaust emissions.



BENEFITS OF THE CORRECT OPERATION OF THE EGTS SENSORS:

- > Cleaner exhaust gases, reduction on nitrogen oxide (Nox) from the exhaust system
- > Better fuel consumption used in the regeneration (self-cleaning) of the DPF filter
- > By controlling its temperature, which prevents it from overheating

THE MOST COMMON FAILURES OF EGT SENSORS

- > Broken connections of internal cables, usually caused by strong vibrations
- > Sudden changes in the resistance of the thermistor element, caused by too high temperature
- > Internal breakage of the wires leading to the sensor

THE EFFECTS OF AN EXHAUST GAS TEMPERATURE SENSOR FAILURE

- > Loss of power;
- > The engine control warning light
- > Increase in the fuel consumption
- > The glow plug system warning light flashes
- > Increase in exhaust emissions (CO, NOx and HC)
- > The particulate filter system warning light flashes/lights

