GF14.40-W-3018C	Component description for the SCR air humidity and air temperature combination sensor	15.3.06

ENGINE 900.9 in MODEL 970, 972, 975, 976 with CODE (MS4) BlueTec 4
ENGINE 900.9 in MODEL 970, 972, 975, 976 with CODE (MS5) BlueTec 5
ENGINE 902.9 in MODEL 970, 972, 974, 975, 976 with CODE (MS4) BlueTec 4
ENGINE 902.9 in MODEL 970, 972, 974, 975, 976 with CODE (MS5) BlueTec 5
ENGINE 924.9 in MODEL 970, 972, 974 with CODE (MS4) BlueTec 4
ENGINE 924.9 in MODEL 970, 972, 974 with CODE (MS5) BlueTec 5
ENGINE 902.9 in MODEL 950.5 /6, 952.5 /6, 953.6, 954.5, 957 with CODE (MS4) BlueTec 4
ENGINE 902.9 in MODEL 950.5 /6, 952.5 /6, 953.6, 954.5, 957 with CODE (MS5) BlueTec 5
ENGINE 926.9 in MODEL 950.5 /6, 952.5 /6, 953.6, 954.5, 957 with CODE (MS4) BlueTec 4
ENGINE 926.9 in MODEL 950.5 /6, 952.5 /6, 953.6, 954.5, 957 with CODE (MS5) BlueTec 5

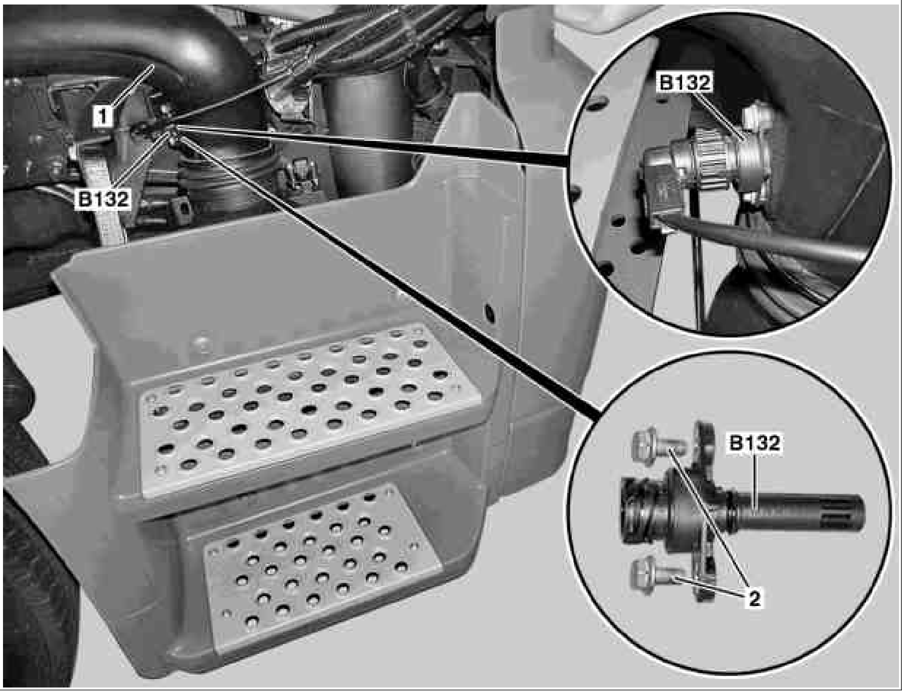
Location

Illustrated on model 950.5

1 Clean air pipe
2 Bolts

B132 SCR air humidity and air temperature combination sensor

The SCR air temperature and air humidity combination sensor (B132) is screwed into the clean air pipe between the air filter (1) and the turbocharger.



W14.40-1244-06

Task

The SCR air humidity and air temperature combination sensor (B132) measures the temperature and determines the content in water vapor in the intake air.

Body

The SCR air humidity and air temperature combination sensor (B132) is equipped with separate components to determine and measure temperature.
The components to determine air humidity are 'active', i.e. they are supplied with voltage.
in contrast to the "passive" components, for measurement of air temperature which do not a voltage supply.

Humidity sensor
To measure humidity, a plate-type capacitor with two plates and a humidity-sensitive plastic layer are fitted inside the sensor as an insulator. The insulator is fitted to the bottom plate. The top plate is a water vapor permeable electrode.

Temperature sensor
A NTC resistor is fitted inside the sensor for temperature measurement NTC stands for "Negative Temperature Coefficient" and means that the electrical resistance falls as the temperature increases.

Function

Determination of air humidity
The plastic layer between both capacitor plates is sensitive to humidity and can store water molecules. According to the humidity value of the intake air, its electrical capacity and conductivity changes.
This change in resistance is also highly dependent on the temperature and must be compensated for by measuring the air temperature.
The values of the changing electrical capacity are transmitted to the MR control unit in defined intervals as an analog signal. Using the determined value of the air temperature, the MR control unit calculates the associated air humidity.

Measurement of air temperature
Depending on its temperature, the air flowing by influences the temperature of the measuring element inside the sensor and thus the size of the electrical resistance.
The values of the changing electrical resistance are transmitted to the MR control unit in defined intervals as an analog signal. Based on the resistance value, the MR control unit calculates the associated temperature.