GF14.40-W-3002C	Component description for fill level and SCR AdBlue temperature combination sensor	15.3.06

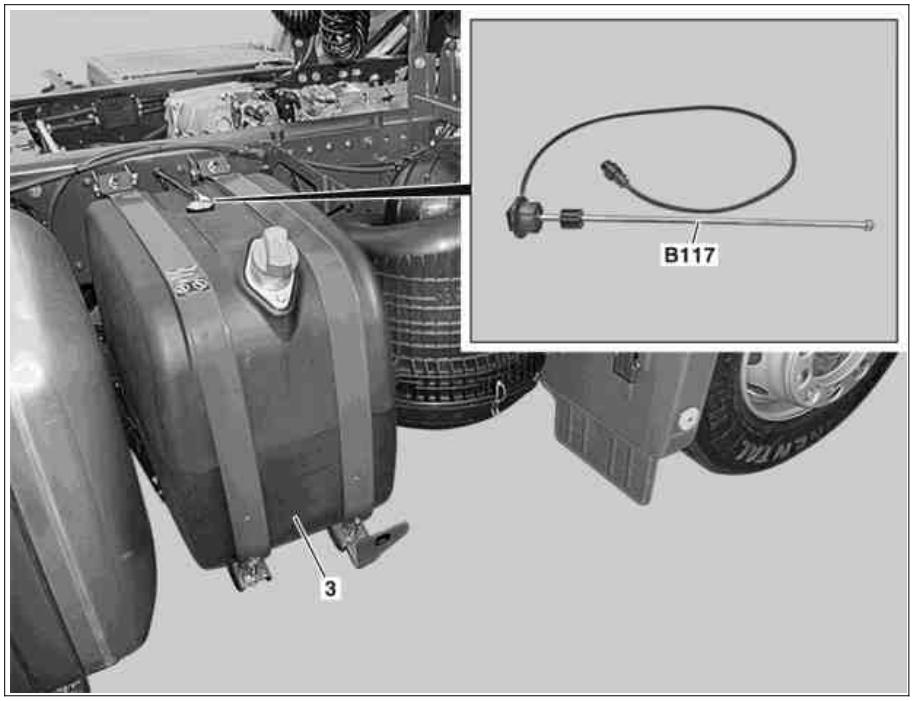
ENGINE 900.9 in MODEL 970, 972, 975, 976 with CODE (MS4) BlueTec 4
ENGINE 900.9 in MODEL 970, 972, 975, 976 with CODE (MS5) BlueTec 5
ENGINE 902.9 in MODEL 970, 972, 974, 975, 976 with CODE (MS4) BlueTec 4
ENGINE 902.9 in MODEL 970, 972, 974, 975, 976 with CODE (MS5) BlueTec 5
ENGINE 924.9 in MODEL 970, 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
3 AdBlue tank

B117 Fill level and SCR AdBlue temperature combination sensor

The fill level and SCR AdBlue temperature combination sensor (B117) is installed into the AdBlue tank (3) from the outside. This is located on the right or left longitudinal frame member.



W14.40-1254-06

Task

Fill level and SCR AdBlue temperature combination sensor (B117) detects the fluid level and the temperature of the AdBlue supply in the AdBlue tank(3).

Design

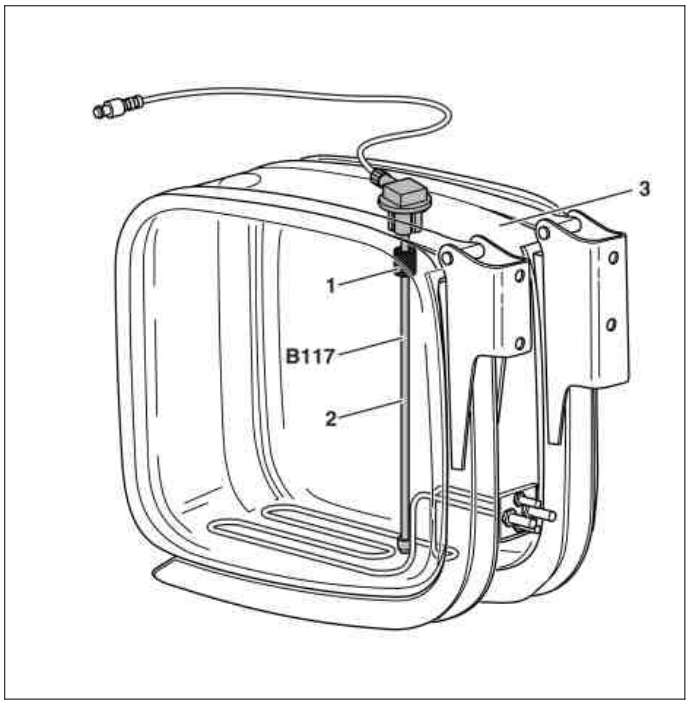
1 Float
2 Immersion tube
3 AdBlue tank

B117 Fill level and SCR AdBlue temperature combination sensor

The fill level and SCR AdBlue temperature combination sensor (B117) contains separate components to determine the fill level and to measure the temperature.

Fill level sensor
To determine the fill level, the fill level and SCR AdBlue temperature combination sensor has (B117) an immersion tube (2) with a built in resistor data channel consisting of so-called reed contacts and a float (1), which contains a permanent magnet.

Temperature sensor
For temperature measurement, an NTC resistor is located in the lower end of the immersion tube (2) as a measuring element. NTC stands for "Negative Temperature Coefficient" and means that the electrical resistance falls as the temperature increases.



W14.40-1066-12

Function

Determination of the fill level

The sensor to determine the fill level functions according to the float principle with magnetic transfer. A ring magnet fitted in the float actuates tiny reed contacts via its magnetic field through the wall of the immersion tube (2). These reed contacts pick up an uninterrupted measured voltage at a resistor data channel (voltage divider principle), which is proportional to the height of the fill level.

The values of the electrical resistance that changes along with the position of the float (1) are transmitted in defined intervals as an analog signal via the SCR frame module control unit to the engine control (MR) control unit. Using the resistance value, this calculates the associated fill level.

Determination of temperature

The AdBlue surrounding the fill level and SCR AdBlue temperature combination sensor (B117) influences the inside of the measuring element according to its temperature and thus the size of the electrical resistance.

The values of the changing electrical resistance are transmitted in defined intervals as an analog signal via the SCR frame module control unit to the engine control (MR) control unit . Based on the resistance value, the MR control unit calculates the associated temperature.