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

6 Muffler with reduction catalytic converter

The muffler with reduction catalytic converter (6) is secured to the left frame longitudinal member.

W14.40-1205-06

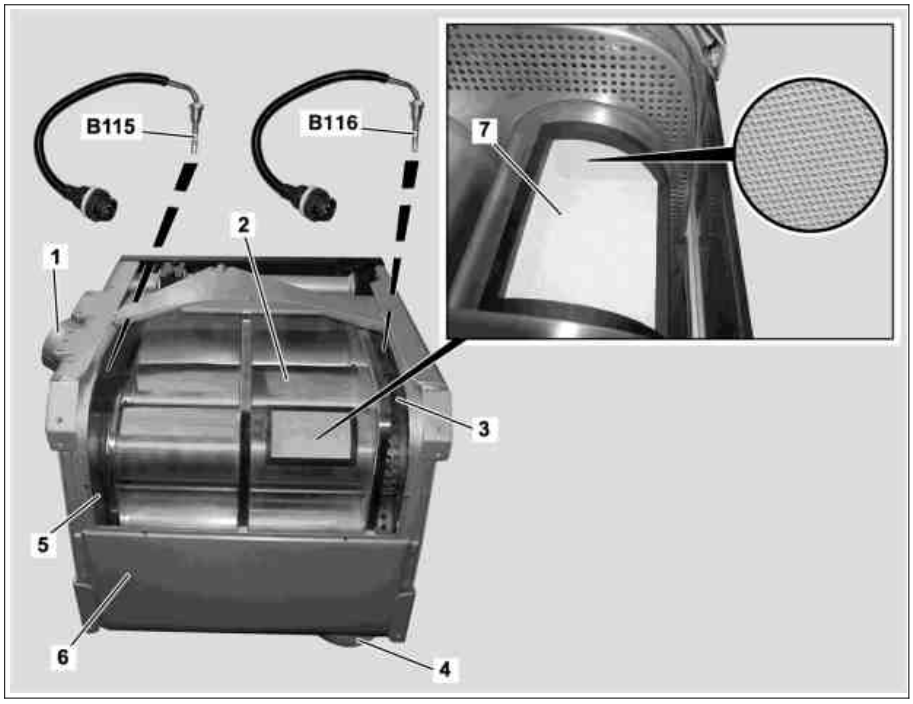
Task

The muffler with reduction catalytic converter (6) reduces the poisonous nitrogen oxides (NOx) generated by fuel combustion into non-toxic nitrogen (N_2) and water (H_2O).

Design

1 Inlet pipe
2 Reduction catalytic converter
3 Outlet chamber
4 End pipe
5 Inlet chamber
6 Muffler with reduction catalytic converter
7 Honeycomb bodies

B115 Temperature sensor upstream of SCR catalytic converter
B116 Temperature sensor downstream of SCR catalytic converter



W14.40-1090-06

The muffler with reduction catalytic converter (6) has a stainless steel housing. The reduction catalytic converter (2) is located inside this housing. Honeycomb bodies (7) in ceramic form its core, and are coated with a layer of titanium dioxide (TiO_2), tungsten oxide (WO_3) and vanadium pentoxide (V_2O_5).

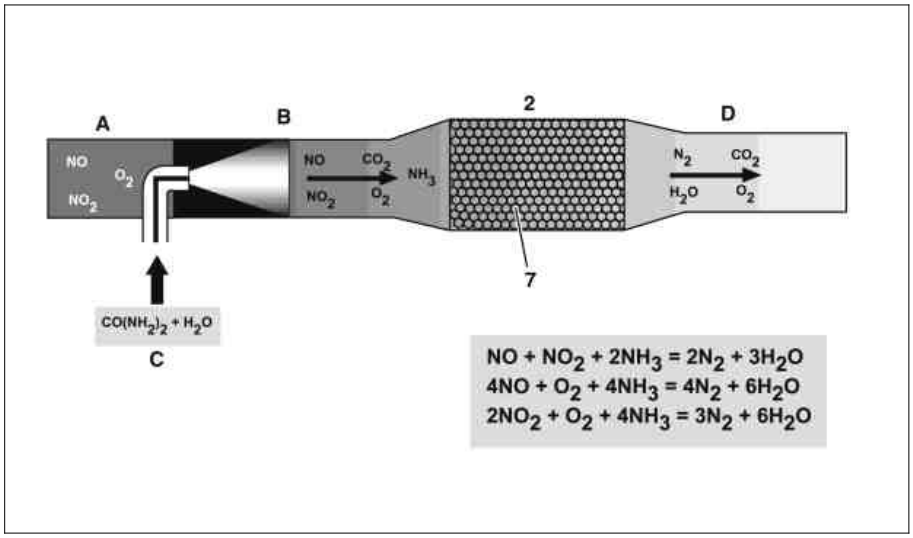
The muffler with reduction catalytic converter (6) also has the temperature sensor upstream of the SCR catalytic converter (B115) for measurement of the temperature in the inlet chamber (5) and the temperature sensor downstream of the SCR catalytic converter (B116) for measurement of the temperature in the outlet chamber (3).

Function

2 Reduction catalytic converter
7 Honeycomb bodies

A Exhaust gas stream from engine (inlet product)
B Hydrolysis segment
C AdBlue
D Exhaust gas (end product)

AdBlue (C) is injected into the hot exhaust gas stream from the engine (A). In the hydrolysis segment (B), it is converted in an initial process step into ammonia (NH_3). Along with the nitrogen oxide molecules generated during combustion (NOx), the ammonia (NH_3) flows on towards the muffler with reduction catalytic converter (2).



W14.40-1278-05

In the honeycomb bodies (7) contained inside, the second stage of the reduction process takes place: The nitrogen oxide molecules meet the ammonia molecules (NH_3) - energy in the form of heat is released. Only nitrogen (N_2) and water vapor (H_2O) are left over as products of this chemical reaction, which are not harmful to the environment

For this procedure, which is know as selective catalytic reduction, a certain operating temperature is necessary for the reduction catalytic converter (2). This is 250 °C for this purpose. For this step, the temperature sensor in the inlet chamber of the muffler with reduction catalytic converter transmits this temperature at specific intervals via the SCR frame module control unit to the engine control (MR) control unit.