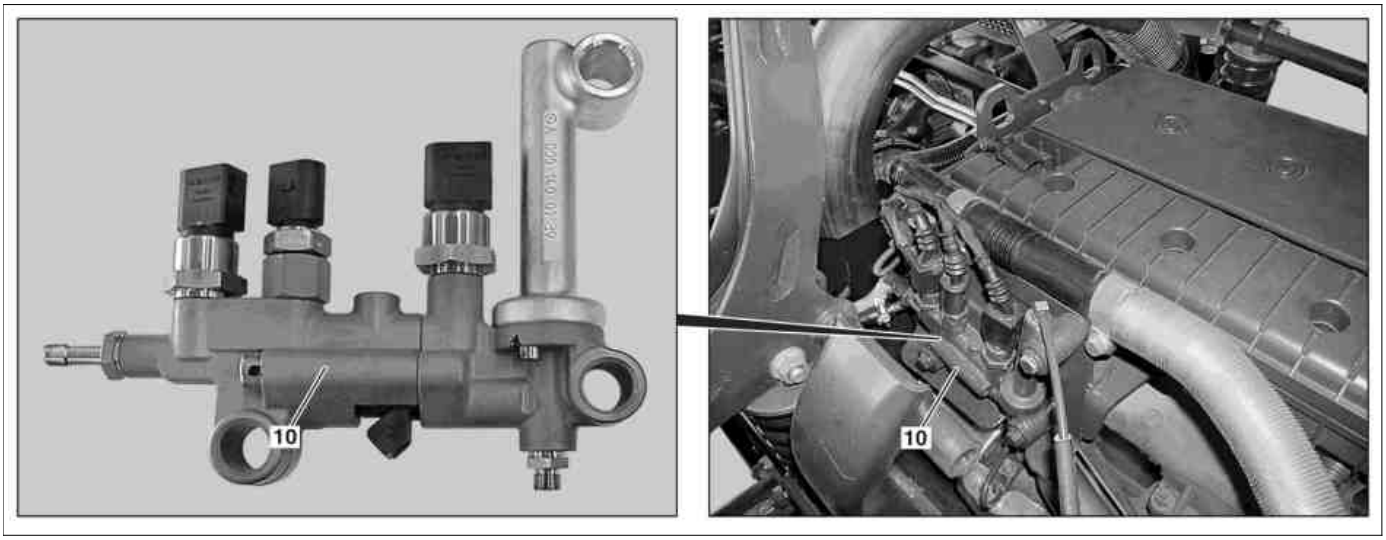
ENGINE 900.9 in MODEL 970, 972, 975, 976 with CODE (MS4) BlueTec 4
ENGINE 900.9 in MODEL 970, 972, 975, 976 with CODE (MS5) BlueTec 5
ENGINE 902.9 in MODEL 970, 972, 974, 975, 976 with CODE (MS4) BlueTec 4
ENGINE 902.9 in MODEL 970, 972, 974, 975, 976 with CODE (MS5) BlueTec 5
ENGINE 924.9 in MODEL 970,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



W14.40-1247-08

Illustrated on model 950.5

10 Metering device

Location

The metering device (10) is located close to the rear cylinder head.

Task

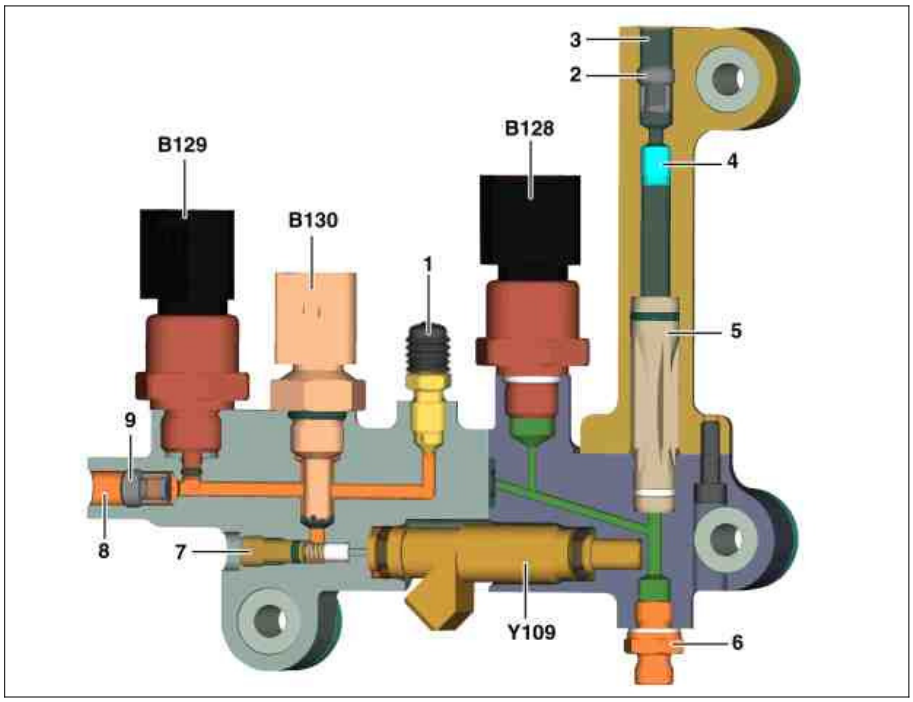
In the metering device (10), compressed air and AdBlue are mixed together into an aerosol, which is then injected into the exhaust gas stream according to the control signals from the engine control (MR) control unit.

Design

1 Vent valve
2 Compressed air filter screen
3 Compressed air inlet
4 Check valve
5 Diffuser
6 Aerosol outlet
7 Calibration screw
8 AdBlue inlet
9 AdBlue filter screen

B128 SCR compressed air pressure sensor
B129 SCR AdBlue pressure sensor
B130 SCR AdBlue temperature sensor
Y109 SCR AdBlue metering valve

The metering device is a two-part, bolted aluminum housing. The AdBlue components are located one side and the compressed air components on the other. The SCR AdBlue metering valve is located in between (Y109).

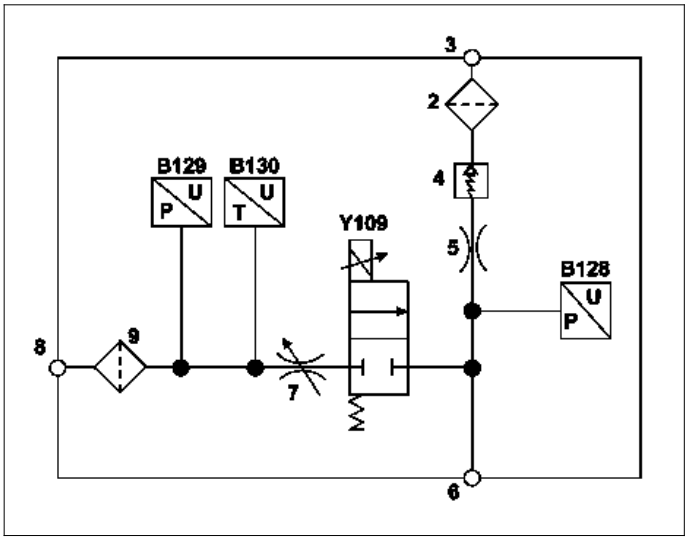


W14.40-1033-76

Function

2 Compressed air filter screen
3 Compressed air inlet
4 Check valve
5 Diffuser
6 Aerosol outlet
7 Calibration screw
8 AdBlue inlet
9 AdBlue filter screen

B128 SCR compressed air pressure sensor
B129 SCR AdBlue pressure sensor
B130 SCR AdBlue temperature sensor
Y109 SCR AdBlue metering valve



W14.40-1030-11

The pump module pumps AdBlue via the feed line to the metering device. From here, it passes to the AdBlue inlet (8), to remove any possible contaminants, initially at the AdBlue filter screen (9) with a mesh width of 30 µm and is then available at the closed SCR AdBlue metering valve (Y109) at operating pressure. A continuous air stream passes through the compressed air inlet (3) after the engine is started.This air stream has already passed through the compressed air filter screen (2).

When the SCR AdBlue metering valve (Y109) opens at the intervals calculated by the MR control unit, AdBlue flows through the SCR AdBlue metering valve (Y109) and due to the pressure and exhaust flow ratios, is then carried along towards the injection nozzle.

Thanks to the continuous flow of compressed air through the metering device, no AdBlue deposit can remain in the metering device.

Aeration of the metering device following Ignition OFF
After the ignition is switched off, the metering device is purged to prevent frost damage from frozen AdBlue. This takes place during control unit run-on (max. 300 s) by the specific opening and closing of the SCR pressure limiter solenoid valve at the compressed air controller unit and the SCR AdBlue metering valve (Y109) at defined intervals. The basic variables for the duration of the purging procedure are the pressure present at the SCR AdBlue pressure sensor (B129) and the pressure at the SCR compressed air pressure sensor (B128).

If the pressure difference lies above a certain threshold, the SCR AdBlue metering valve (Y109) is opened and compressed air flows against the direction of glow of the SCR AdBlue metering valve (Y109) into the metering unit and forces the remaining AdBlue back into the line between the metering device and the pump module.

Based on these sensor signals, if the MR control unit detects that the metering device has been sufficiently filled up with air, then purging is terminated. This is the case when the pressure measured at the SCR compressed air pressure sensor (B128) is greater than the pressure at the SCR AdBlue pressure sensor (B129).

The AdBlue line between the pump module and the metering device is an elastic hose line. It can take up the additional volumes generated by the frozen AdBlue. In addition, the pressure n this line is reduced by a pressure reduction function of the pump module to almost atmospheric pressure.