

Tips & Technology

For Bosch business partners

Current topics for successful workshops No. 03

Trucks



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EURO 6 standard for commercial vehicles

The EURO 6 emission standard for commercial vehicles came into force on 1st January 2014. The corresponding standard for diesel passenger vehicles will apply as of 1st September 2014. The aim is to reduce the permissible nitrogen emissions by more than 50% as compared to EURO 5, namely from 180 mg to 80 mg per kilometer.

EU Regulation 595/2009 on the type approval of motor vehicles and engines with regard to heavy commercial vehicle emissions (Euro VI) and access to vehicle repair and maintenance information deals with the following aspects:

- This regulation sets down joint technical stipulations for the type approval of motor vehicles, engines and spare parts with regard to their emissions.
- This regulation also contains stipulations for the conformity of vehicles and engines in service with the requirements, for the durability of emission-reducing systems, for on-board diagnosis (OBD) systems, for the measurement of fuel consumption and carbon dioxide (CO₂) emissions as well as for access to OBD information and vehicle repair and maintenance information.

To make diesel engines in trucks more efficient, the injection system, exhaust gas turbocharger, exhaust gas recirculation system and not least the exhaust gas treatment process must all be matched.

Exhaust gas treatment with Denoxtronic

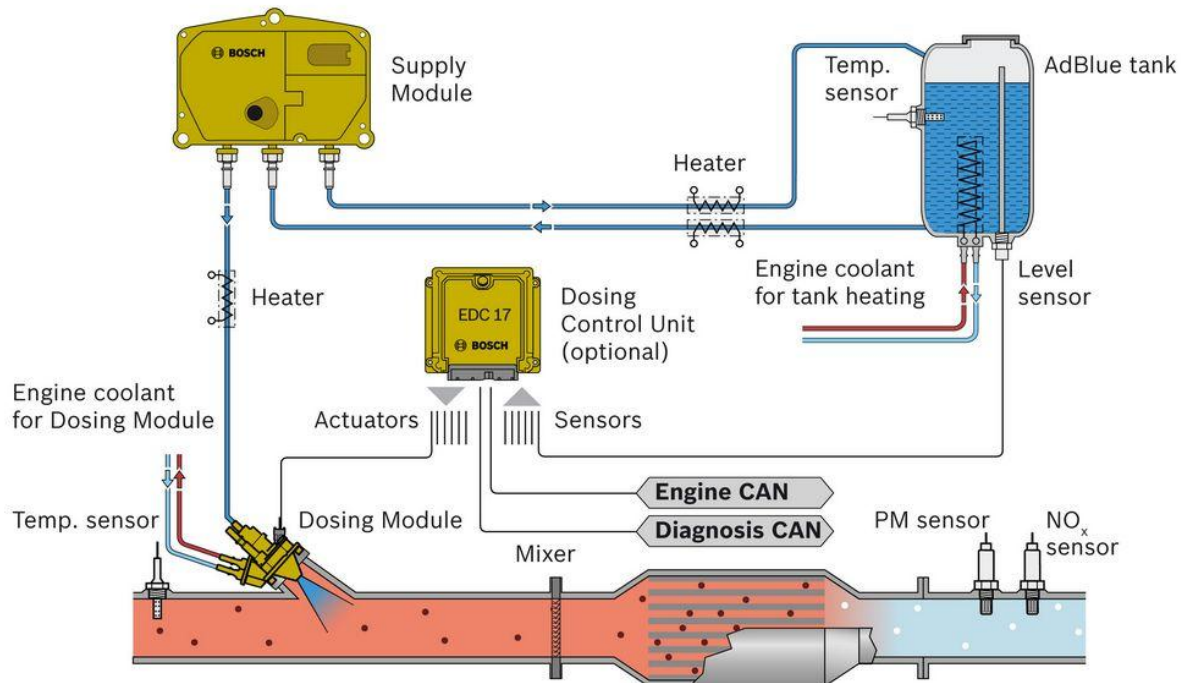
Exhaust gas treatment employing the Denoxtronic system plays a significant role in satisfying the standards (refer also to Tips&Technology No. 1). This Bosch system is available for both passenger and commercial vehicles. Both Denoxtronic versions are capable of reducing nitrogen oxide emissions by 95%. This is done by injecting AdBlue, a harmless urea solution which reacts with the exhaust gases and converts nitrogen oxides into harmless water vapor and nitrogen.

The installation of a Denoxtronic system is associated with extra expense but this is offset by fuel savings, as the Bosch Denoxtronic system can reduce fuel consumption by up to 5% in conjunction with an SCR catalytic converter. This is attained by achieving even leaner combustion.

Denoxtronic 6-5

The Denoxtronic 6-5 from Bosch is an AdBlue dosing system for use in SCR systems for commercial vehicles which is capable of meeting the new limit values.

Denoxtronic 6-5



The Denoxtronic supply module sets the system pressure. The dosing module sprays the exactly metered quantity of AdBlue into the exhaust gas flow. Use is made of the engine coolant for active cooling of the dosing module. Dosing and heating strategy control and on-board diagnosis are best implemented in the engine control unit or alternatively in a dosing control unit. By processing the current engine operating data and all the necessary sensor data, the quantity of reducing agent is matched exactly to the engine operating point and the CAT-specific properties to achieve maximum nitrogen oxide conversion.

The supply module is available with or without heating. It draws the AdBlue out of the tank and compresses it to the necessary system pressure. AdBlue freezes at temperatures below minus 11°C. For this reason the supply module is ice pressure resistant. The dosing module is protected against frost damage by draining it on shut-off and heating prior to re-starting.

The development aims with regard to future Denoxtronic versions include spray optimization and even greater robustness. Versions optimized for various market segments will also be available as part of a modular concept.

Access to OBD (on-board diagnosis) information

EU Regulation 595/2009 also contains stipulations on access to information required for checking emission limits. The specific wording is as follows:

"Unrestricted access to the information required for vehicle repair by way of a standardized format for locating technical information and effective competition on the market for vehicle repair and maintenance information services are essential for better functioning of the internal market, in particular with regard to free movement of goods, persons and services.

Much of this information applies to on-board diagnosis (OBD) systems and their interaction with other vehicle systems. It is necessary to set down technical specifications for the provision of information by manufacturers on their websites and to take specific action to ensure appropriate access for small and medium-sized businesses."

Manufacturers must provide independent companies with simple, standardized and unrestricted access to all vehicle maintenance and repair information through the internet. Independent workshops must not be at a disadvantage in relation to authorized or franchised workshops.