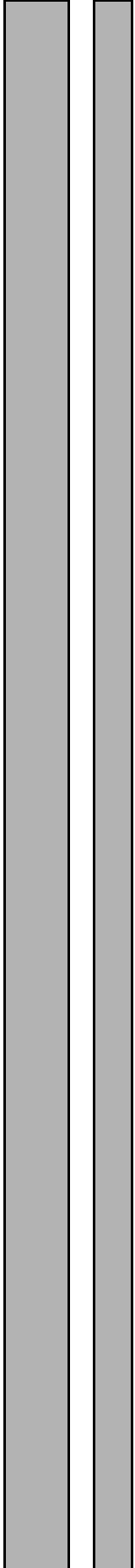


SCANIA

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Issue 1 **en**

OBD (On Board Diagnostics) and NOx control



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Introduction

On Board Diagnostics

OBD (On Board Diagnostics) is a legal requirement within the EU which was introduced in 2005. The requirement specifies that it must be possible to detect faults on the vehicle which affect the emission levels and warn the driver via a lamp in the instrument cluster.

NOx control

New EU legislation entered into force on 1 October 2007. The new law is called NOx control and means that there is a requirement to monitor the level of nitrogen oxides (NOx level) in the exhaust gases. If there is a fault which means that the permitted limit values are exceeded, the law indicates what action must be taken.

What does the law say?

NOx control says that monitoring of the NOx level must take place in several steps:

- If the vehicle has a fault that causes the NOx level to exceed the lower limit value, the driver must be warned.
- If the vehicle has a fault that causes the higher limit value to be exceeded, the driver must be warned at the same time as the maximum torque of the vehicle is limited.
- If the vehicle has a fault which means that the NOx level cannot be monitored, the driver must be warned and there must be a gradual reduction in torque. An example of such a fault is an electrical fault on a NOx sensor, which does not in itself cause the NOx level to be exceeded but only prevents it from being monitored.

The legal requirement also means that information, which is intended for the authorities, must be available in the vehicle. The information must be stored in the control unit for 400 days or 9,600 hours, see next section.

Function description

This is how it works in our vehicles

In order to comply with the new legal requirements, fault code generation has been developed in the engine management system and this has, to some extent, required the mechanic to adopt a new procedure for troubleshooting, repairing and verifying that the fault has been repaired. Fault codes which are related to the vehicle emissions of nitrogen oxides (NOx) are handled in a special way by the system. They switch on the lamp in the instrument cluster which warns about a high level of contaminants and in some cases limits the vehicle torque. Depending on how great an effect the fault has on the NOx level, the vehicle maximum torque is limited either by 40% as soon as the vehicle is stopped (speed is 0 km/h), or after 36-50 hours running time. An explanation of the relevant fault code is provided in the fault code text in SDP3.

These fault codes cannot be deleted from the control unit if they are active. This means that the fault code cannot be deleted, the warning lamp cannot be switched off nor can full torque be regained until the fault code has become inactive. In order for the fault code to become inactive so that it can be deleted, the control unit must carry out an internal test activated through SDP3 (Devalidation of fault codes for NOx control) in which it can be checked that the fault has been rectified. An alternative is to drive the vehicle until the same check is carried out on the control unit. The conditions which must be complied with in order to allow the control unit to verify that the fault has been rectified are described in the fault code text in SDP3.

When the fault code has generated a fault code which is related to NOx control, a non-erasable fault code to inform the authorities concerned is also generated as a result of this. The fault codes are only intended as an information code for the authorities and do not signify that there is anything wrong with the vehicle. When the vehicle has been repaired and the control unit

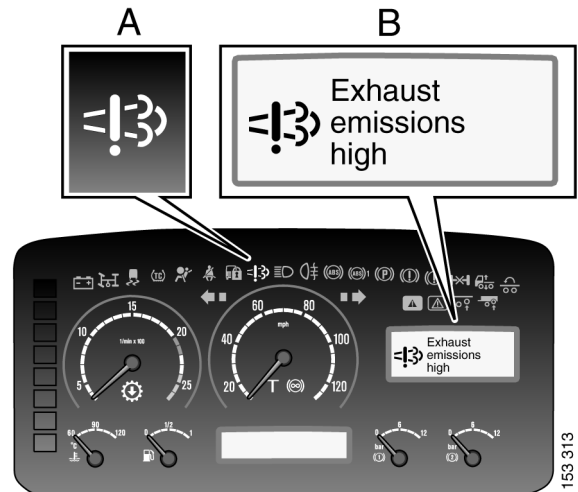
has determined that the fault has been rectified, this fault code becomes inactive, but it cannot be deleted. These fault codes are stored in the control unit for 400 days or 9,600 hours after they have become inactive. It is important to note that these fault codes do not require any action on the part of the workshop.

Warning lamp A

Lights when the NOx level exceeds the lower limit value.

Note: To switch off warning lamp A when there are no active fault codes:

- 1 Check that warning lamp B has gone out.
- 2 Switch on the ignition with the starter key but do not start the engine.
- 3 Turn off the ignition using the starter key and wait for at least 15 seconds.
- 4 Repeat the procedure twice. The warning lamp goes out about 30 seconds after the starter key has been turned on for a fourth time.



Warning lamp B

- Lights when the NOx level exceeds the higher limit value.
- There is a risk of torque reduction. An explanation of the relevant fault code is provided in the fault code description in SDP3.

Note: To switch off warning lamp B the work method in SDP3 is used.

Information codes for NOx control

Some fault codes generate information codes when the fault code is activated.

Information codes cannot be deleted by using SDP3.

The information codes do not indicate a fault but are intended to provide information for the authorities.

The information codes indicate whether the control unit had previously activated fault codes in the vehicle which affected the emissions of nitrogen oxides (NOx).

If an information code has been inactive for 400 days, it is automatically deleted.

P2BA7 (11175) - Empty reductant tank

P2BA8 (11176) - Open circuit in reductant metering

P2BA9 (11177) - Inadequate reductant quality

P2BAA (11178) - Low reductant consumption

P2BAB (11179) - Incorrect EGR flow

P2BAC (11180) - Deactivation of EGR

P2BAD (11181) - Unknown fault source

P2BAE (11182) - NOx control monitoring system