

12 03 99 (451)

Introduction of "EURO 3" models

with E-OBD (European On-Board Diagnosis)

Situation:

In December 1998, the exhaust emissions directive 98/69 EC for EURO-3 and EURO-4 vehicles was published in the Official Journal of the European Union and thus enacted. Accordingly, all new model approvals from 1st January 2000, and all new vehicles from 1st January, 2001 must comply with the requirements of this directive.

BMW models with spark-ignition engines (except E31 and M vehicles) from **date of production 01.06.1999** already satisfy the requirements of this directive.

Further BMW vehicles (diesel and M models) will be classified in this EU 3 standard gradually.

The most important features of the EU 3 exhaust emissions directive are:

- Emissions limits for type approval approx. 50 % lower than for EU 2
- Stricter driving cycle (emissions measured from start)
- From 2002 additional low-temperature test (-7°C)
- Measurement of fuel evaporation emissions
- Introduction of On-Board Diagnosis (OBD)
(diesel passenger cars at the latest from 2003, lorries from 2005)
- Further emissions reduction from 2005 (EURO 4)
- Possibility of emissions tests on customers' vehicles ("in use compliance test") up to 5 years / 80,000 km (50,000 miles).
If emissions limits are exceeded due to a fault of the manufacturer, obligatory recall in the whole of Europe:
- All Service information relevant to emissions must be made available to all "interested" parties, e.g. non-BMW workshops (repair instructions, technical data, wiring diagrams, diagnosis instructions, special tools, training documentation, Service Information bulletins and spare parts catalogues).
- The installation of emissions-relevant components of "outside manufacturers" must not cause the E-OBD lamp to light up.
- Improvement of petrol and diesel fuels (reduction of aromatic compounds and of sulphur content)

Note for national version (LA) Germany:

For reasons of taxation, LA Germany models will not be classified by the EURO 3 standard for the time being, but rather by the national D4 standard, as meeting EURO 4 emissions limits before this standard becomes obligatory is rewarded with a tax break of DM 600.00. However, these vehicles comply technically with EURO 3 vehicles, i.e. they also have an active E-OBD lamp.

For your information, we have summarised all relevant details, including a description of E-OBD (European On-Board Diagnosis) and fault codes for possible irregularities in a brochure (please refer to enclosure).

Knowledge of the contents of this brochure in conjunction with DIS/MoDiC diagnosis is essential for rational fault finding in cases of irregularity in emissions-relevant engine components, especially if the E-OBD lamp lights up in the instrument cluster.

However, the following **basic principle** applies as for conventional vehicle diagnosis:

Trace the cause using DIS or MoDiC!

E-OBD diagnosis routines are covered by DIS CD Version 18.0, Edition 06/1999 onwards.

Note:

Our literature also refers to the E-OBD lamp with designations such as: fault warning lamp, MIL (malfunction indicator lamp), malfunction indicator lamp, check engine lamp etc.

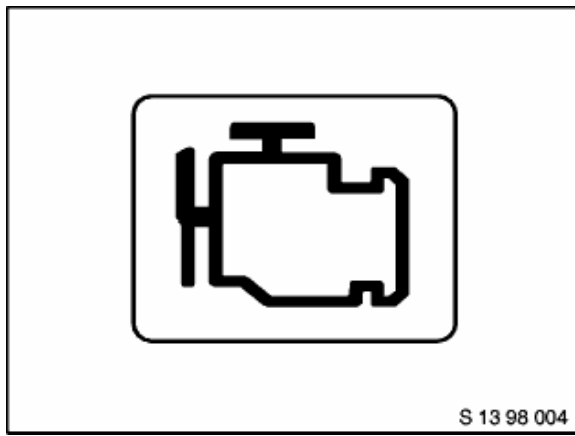
Affected vehicles:

E-designation	Model	
E36/5	316i	compact
	323ti	compact
E46	316i	saloon and coupé (LA Greece, Portugal)
	318i	saloon and coupé
	320i	saloon and coupé
	323i	saloon and coupé
	328i	saloon and coupé
E39	520i	saloon and touring
	523i	saloon and touring
	528i	saloon and touring
	535i	saloon
	540i	saloon and touring
E38	728i	saloon
	735i	saloon
	740i	saloon
	750i	saloon
E36/7	Z3 1.9	roadster
	Z3 2.0	roadster
	Z3 2.8	roadster and coupé

Action:**How can EURO 3 vehicles be identified ?**

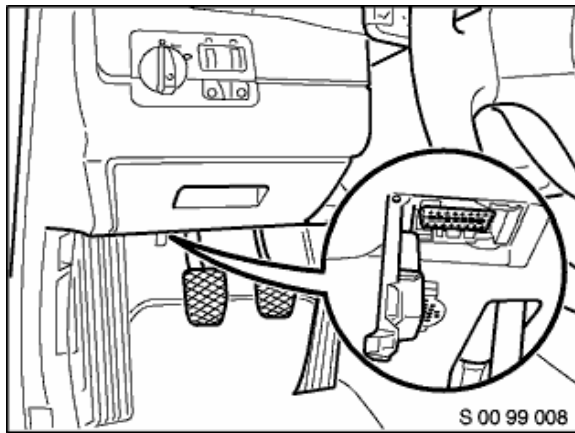
1. By the E-OBD lamp with the engine symbol in the instrument cluster. This will light up when the ignition is switched "on" in the same way as the ABS lamp and goes out when the engine is running correctly.

Should an emissions-relevant fault develop which could cause the emissions limits to be seriously exceeded, this E-OBD lamp lights up and indicates that the vehicle should be taken to a workshop as soon as possible. In the event of a fault which causes serious misfiring, this lamp will flash. A gentle driving style is then called for to prevent damage to the catalytic converter and a workshop should be consulted without delay.

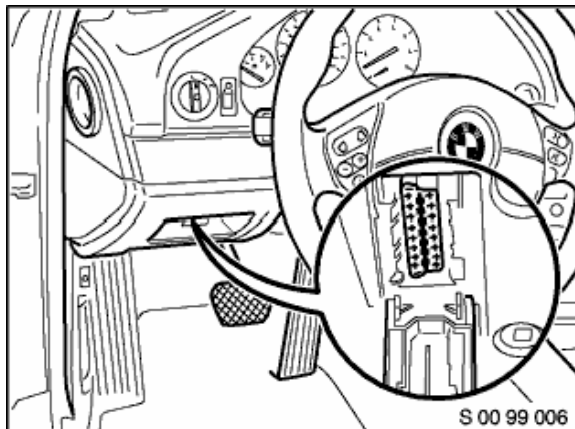


E-OBD lamp

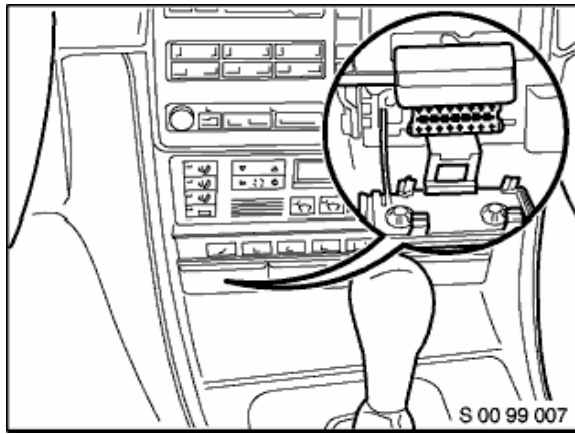
2. By the additional 16-pin diagnosis connector in the cockpit (see illustration) for connecting universal diagnosis testers (Generic Scan Tools).



BMW 3 Series and Z3



BMW 5 Series

**Note:**

When reading the OBD fault memory with universal Scan Tools, the cap for the 20-pin BMW diagnosis connector in the engine compartment must not be open or released or data transfer to the standard 16-pin OBD connector will be interrupted.

Procedure:**1. Notes on diagnosis:**

If the E-OBD lamp lights up, the fault memory must always be read at a BMW workshop using the BMW-specific diagnosis tester MoDiC 3 or DIS.

Diagnosis routines which have been specially adapted for OBD are provided on the DIS CD, Version 18.0 and higher.

If repairs are necessary, the DIS instructions should be followed.

If no repairs are necessary because the fault is intermittent, e.g. caused by sporty operating conditions or by the starting procedure being repeatedly interrupted etc., the fault memory should be cleared to extinguish the E-OBD lamp and the customer informed accordingly.

Experience with the US OBD-2 (introduced in 1995) has shown that most cases of an activated warning lamp are caused by intermittent irregularities, e.g. due to the reasons stated above, and not by the failure of a function or of a component.

An example of this is the OBD warning lamp lighting up due to particularly strict "misfiring recognition"/smooth running monitor.

The reason for intermittent faults possibly occurring more frequently is the legal OBD requirement that the fault memory/indication should be based on extremely strict internal diagnosis routines.

2. Vehicle update to EURO 3 standard:

It is technically possible to upgrade E46 vehicles from the start of series production, and E38 / E39 vehicles from September 1998 up to production break 31.05.1999 to EURO 3 standard by updating the data of the digital engine electronics.

However, you are requested not to undertake this operation without urgent sales-promoting reasons such as tax breaks, smog clearance etc.!

Reason:

- The administrative expense of rehomologation and of reissuing the vehicle documents is immense, and is only possible in isolated cases at the expense of the applicant.
- The time required for reprogramming is up to 8 FRUs. On no account will this be borne by BMW AG.

- In Germany, for example, legislation prohibits subsequent re-registration by EURO 3 / D4. Such re-registration just by EURO 3 would eliminate the tax benefit. Moreover, to satisfy the national D4 standard from 1st January, 1999, technical modifications have also been introduced to the engine management.

Note:

If a vehicle of production date from 01.06.1999 which is registered in Germany is exported to another European country, registration by EURO 3 is possible there as the OBD is fully operational, i.e. includes an active E-OBD lamp, from that date onwards.

If a EURO 3 vehicle (i.e. production from 01.06.1999) which is registered in another European country is exported to Germany, it is not possible to convert this to the national D4 standard to obtain the tax benefit.

Parts:

BMW brochure: E-OBD Function Description

Language	Part number
German	01 90 0 007 750
English	01 91 0 007 751
French	01 92 0 007 752
Italian	01 94 0 007 744
Spanish	01 93 0 007 743
Dutch	01 96 0 007 746
Swedish	01 95 0 007 745
Portuguese	01 97 0 007 747