

2.8

The malfunction indicator lamp (“MIL”)

The malfunction indicator lamp is also referred to as an MIL. It indicates that exhaust gas relevant errors have occurred.

Activation is done by the control unit. Three states are possible for the malfunction indicator lamp: “OFF”, “ON” and “BLINKING”.



Fig. 6: malfunction indicator lamp (MIL)

The law specifies the following requirements for the malfunction indicator lamp, among others:

- Errors can be displayed only visually or alternatively, both visually and acoustically.
- In an activated state it shows the ISO 2575 standard symbol of an engine.
- It has to be visible to the driver (normally on the instrument panel).
- The lamp goes on when the ignition is switched ON to check the function (for protection against manipulation).
Activation occurs according to specially defined requirements:

The malfunction indicator lamp will be lit continuously

- if the ignition is ON (lamp function check).
- if an error is detected during a self test of the control unit.
- in the case of exhaust gas relevant errors if the admissible exhaust gas values are exceeded 150% in two consecutive driving cycles.

The MIL will blink (1/s) if errors, such as a misfire, occur that would lead to cylinder shut-off or cause damage or destruction to cylinders.

The MIL will go out if the exhaust gas relevant error no longer occurs in three consecutive driving cycles.



	Cycle 1			Cycle 2			Cycle 3			Cycle 4			Cycle 5			...	Cycle 43		
	check	fault code set ?	status of mil ?	check	fault code set ?	status of mil ?	check	fault code set ?	status of mil ?	check	fault code set ?	status of mil ?	check	fault code set ?	status of mil ?		check	fault code set ?	status of mil ?
1.	yes	yes	off													...			
2.	yes	yes	off	yes	yes	to										...			
3.	yes	yes	off	no	no	off	yes	yes	to							...			
4.	yes	yes	off	yes	no	off	yes	no	off	yes	yes	off	yes	yes	to	...			
5.	yes	yes	off	yes	yes	to	yes	no	to	yes	no	to	yes	no	off	...			
6.	yes	yes	off	yes	yes	to	yes	no	to	yes	no	to	yes	no	off	...	yes	code erased	off

Fig. 7: activation of the malfunction indicator lamp during the driving cycle

Explanation of the illustration

1. If an exhaust gas relevant error is detected during a driving cycle (here the first driving cycle), it will be recorded as a “non-debounced” error (mode 7, see Section 2.11) but the malfunction indicator lamp will not go on. An exception to this is combustion misfires that cause the cylinder to be switched off. As long as an error is present with cylinder shut-off, the malfunction indicator lamp will blink.
2. If the exhaust gas relevant error is detected again in the next driving cycle the error will be considered confirmed (“debounced”, mode 3, see Section 2.11). The error map will go on after the system check³⁾ is finished.
3. If the second driving cycle is not sufficient to finish checking all the components, the third driving cycle will be evaluated as the following driving cycle. If the error is detected here as well, the malfunction indicator lamp will go on.
4. In the case of sporadically occurring errors, the malfunction indicator lamp will go on only if the same error is detected in two consecutive driving cycles.
5. The malfunction indicator lamp will go out if the exhaust gas relevant error does not occur in three consecutive driving cycles.
6. A simple error entry will be erased from the memory if the error no longer occurs under the same operating conditions in 40 further consecutive driving cycles. The error will also be erased without running through the same operating conditions if it no longer occurs in 80 consecutive driving cycles.

³⁾ Check of all exhaust gas relevant components and functions.