

Motronic, On Board Diagnostic (OBD)

On Board Diagnostic (OBD), technical data

Equipment

- ◆ Data is transmitted between the control module and the VAS5051 tester or VAG1551 Scan Tool (ST) via operating mode "Rapid Data Transfer".
- ◆ DTC memory is designed for permanent memory and is therefore not dependent on voltage supply.
- ◆ Display of stored DTCs occurs after initiation of display mode ⇒ [Page 01-15](#) .
- ◆ DTC memory must be erased after malfunction is repaired ⇒ [Page 01-15](#) .

Important:

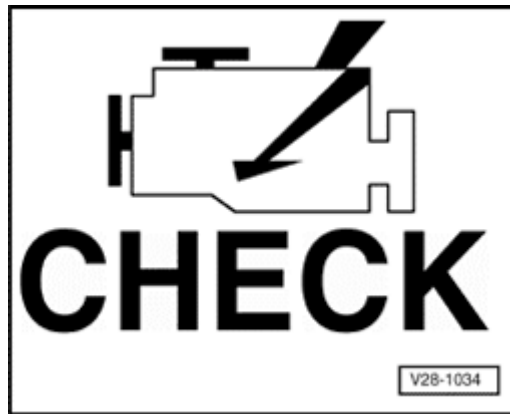
- ◆ Readiness code must be re-generated after every time DTC memory is erased ⇒ [Page 01-82](#) .

- ◆ If the ECM recognizes malfunctions that lead to a degradation of emissions values, it indicates them by lighting the Malfunction Indicator Lamp (exhaust warning lamp -K83-). Clarification of this lamp ⇒ [Page 01-3](#) .

- ◆ "E-Gas"-relevant malfunctions are also indicated in the instrument cluster by the warning lamp for Electronic Power Control ("EPC warning lamp").

Malfunction Indicator Lamp (MIL), significance

If the ECM recognizes malfunctions that lead to a degradation of emissions values, it indicates them by lighting the Malfunction Indicator Lamp for exhaust.



Installation position of exhaust MIL

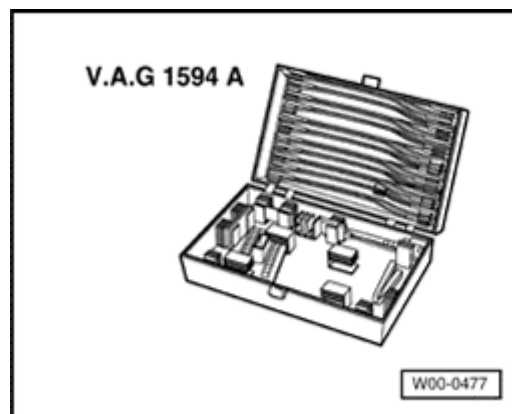
Note:

The Malfunction Indicator Lamp (MIL) can blink or remain lit continuously. DTC memory should be checked in both cases ⇒ [Page 01-15](#) .

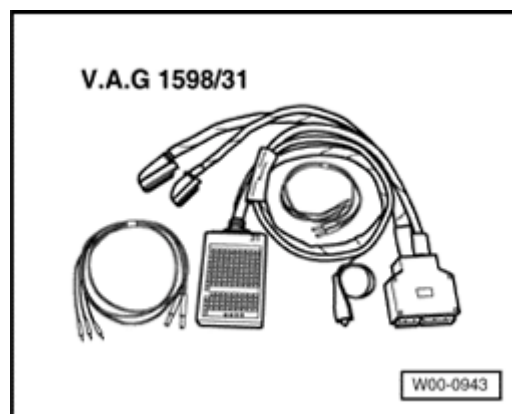
- ◆ *Blinking: There is a malfunction that causes damage to the catalytic converter in this driving condition (e.g. combustion misfire). In this case, vehicle must only be driven at reduced power!*
- ◆ *Continuously lit: There is a malfunction that causes increased emissions. Check DTC memory for Motronic ECM and automatic transmission (if installed).*
- ◆ *If there are driveability problems or if there is a customer complaint and the exhaust MIL is not lit, DTC memory must be checked. There may be DTCs stored that do not cause the exhaust MIL to light up immediately, but only if malfunction is recognized again after repeated engine starts.*

Malfunction Indicator Lamp (MIL), checking

Special Tools and Equipment



◆ VAG1594A



◆ VAG1598/31

Function test of warning lamp

- Switch ignition on.
 - ◆ Warning lamp for On Board Diagnostic (Malfunction Indicator Lamp -MIL-) must light up

A - Warning lamp for On Board Diagnostic (Malfunction Indicator Lamp -MIL-) does not light up

- Connect VAG1598/31 test box at wiring harness to ECM, do not connect ECM ⇒ [Page 24-17](#) .
- Bridge sockets 1 and 47 of test box.
- Switch ignition on.
 - ◆ Warning lamp must light up.

If warning lamp does not light up:

- Switch ignition off.
- Remove instrument cluster:

⇒ [Repair Manual, Electrical Equipment, Repair Group 90, Instrument cluster, removing and installing](#)

- Check the following wire connection for open circuit and short circuit to B+:

Test box	Instrument cluster
VAG1598/31	
Socket	Terminal
47	⇒ <i>Electrical Wiring Diagrams, Troubleshooting & Component Locations binder</i>

- Repair open circuit or short circuit if necessary.

If wire connection is OK:

- Replace Engine Control Module (ECM) ⇒ [Page 24-21](#) .

B - Warning lamp for On Board Diagnostic (Malfunction Indicator Lamp -MIL-) remains lit constantly

- Check DTC memory of Engine Control Module (ECM) ⇒ [Page 01-15](#) .

If no DTCs are stored:

- Connect VAG1598/31 test box at wiring harness to ECM, do not connect ECM ⇒ [Page 24-17](#) .

- Remove instrument cluster:

⇒ [Repair Manual, Electrical Equipment, Repair Group 90, Instrument cluster, removing and installing](#)

- Check the following wire connection for short circuit to Ground (GND):

Test box	Instrument cluster
VAG1598/31	
Socket	Terminal
47	⇒ <i>Electrical Wiring Diagrams,</i>

<i>Troubleshooting & Component Locations binder</i>

- Repair short circuit if necessary.

If wire connection is OK:

- Replace Engine Control Module (ECM) ⇒ [Page 24-21](#) .

Safety precautions

If special testing equipment is required during road test, note the following:

WARNING!

- ◆ ***Scan tools and testing devices must always be secured on the rear seat and operated from there by a second person.***
- ◆ ***If a scan tool or testing device were to be operated from the passenger seat and there were an accident involving activation of the passenger-side airbag, the person seated there could be seriously injured.***

VAS 5051 vehicle diagnostic, testing and information system or VAG1551 Scan Tool (ST), connecting and selecting functions

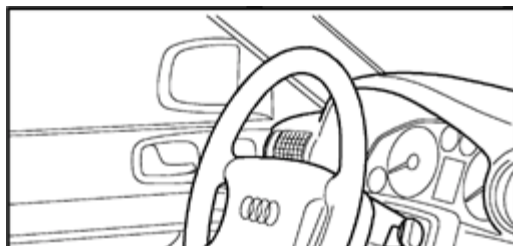
Test requirements:

- Fuses for engine electronics OK

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations binder*

- Fuel Pump (FP) OK, checking ⇒ [Page 24-49](#).
- Battery voltage at least 12.7 V
- Ground (GND) connections at engine and transmission OK

Procedure



A

- Connect VAS5051 tester to vehicle with VAS5051/1 diagnostic wire. Alternately, VAG1551 Scan Tool (ST) can also be attached using VAG1551/3B cable.

Note:

Data Link Connector (DLC) is located in front left knee bolster.

WARNING!

Observe safety precautions ⇒ [Page 01-8](#) .

Note:

The following description only explains implementation of On Board Diagnostic using VAG1551 Scan tool.

When using the VAS5051 tester, observe the tester's instructions for use

V.A.G - ON BOARD DIAGNOSTIC HELP

1 - Rapid data transfer 1)

2 - Blink code output 1)



Indicated on display:

1) Operating modes 1 and 2 are displayed alternately

Note:

If nothing appears in display:

- Perform troubleshooting procedure after "troubleshooting procedure leak test":

⇒ Electrical Wiring Diagrams, Troubleshooting & Component Locations binder

Depending on desired function ⇒ Table "Selectable functions", page ⇒ [Page 01-14](#) :

- Switch ignition on.

or

- Start engine.

- Press -Print- button to turn on Scan Tool (ST) printer. Indicator lamp in button must light up.
- Press button 1 to select "Rapid data transfer" operating mode 1.

Rapid data transfer HELP
Insert address word XX

⏪ When indicated on display:

Note:

The address word 00 initiates the automatic test sequence, i.e. it results in a DTC check on all OBD capable systems in the vehicle via rapid data transfer.

- Press buttons -0- and -1- to select "engine electronics" and press -Q- button to confirm input.

3B0907551BA 2.8l V6/5V G 0003 →
Coding 07251 WSC 12345

⏪ VAG1551 Scan Tool (ST) display indicates control module identification, e.g.:

Note:

Control module identification can be printed by pressing the PRINT key of the VAG1551 scan tool.

Control module identification (example)

- ◆ 3B0907551 part number; allocation
BA ⇒ *Parts Catalog*
- ◆ 2.8 L Engine displacement
- ◆ V6/5V Construction style of engine (V
engine, 6 cylinder, 5 valves)
- ◆ "G" i.e. no Vehicle with or without cruise
indication control system
- ◆ 0003 Data version (software
version) of control module
- ◆ Coding Control module coding
07251
- ◆ WSC 12345 Factory identification of
VAG1551, with which the last
coding was performed

- Press →button.



Indicated on display (function selection):

Rapid data transfer

HELP

Select function XX

Notes:

◆ *It will be possible to display the control module identification again after pressing buttons -0- and -1- to select "Check Control Module Versions" and confirming with the -Q- button.*

Rapid data transfer HELP
Control module does not answer



◆ *When indicated on display:*

Rapid data transfer HELP
K-wire not switching to Ground



- Perform troubleshooting procedure after "troubleshooting procedure leak test":

⇒ Electrical Wiring Diagrams, Troubleshooting & Component Locations binder

Rapid data transfer HELP
K-wire not switching to B+

Rapid data transfer HELP
Error in communication link



Selectable functions

VAS 5051 vehicle diagnostic, testing and information system or VAG1551 Scan Tool (ST)	Ignition on, engine off	Engine running at idle	Vehicle in drive mode	page
Address words				
01 Engine electronics	Yes	Yes	Yes	⇒ Page 01-9
00 Automatic test sequence	Yes	Yes	Yes	⇒ Page 01-11
Functions				
01 Check Control Module Versions	Yes	Yes	Yes	⇒ Page 01-13
02 Check DTC Memory	No	Yes	Yes	⇒ Page 01-15
03 Output Diagnostic Test Mode (DTM)	Yes	No	No	⇒ Page 01-56
04 Basic Setting	Yes	Yes	Yes	⇒ Page 01-66
05 Erase DTC Memory	Yes	Yes	Yes	⇒ Page 01-15
06 End Output	Yes	Yes	Yes	⇒ Page 01-17
07 Code Control Module	Yes	No	No	⇒ Page 01-71

08	Read Measuring Value Block	Yes	Yes	Yes	⇒ Page 01-74
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