On Board Diagnostic (OBD)

On Board Diagnostic (OBD), basic information

The control module of a system with OBD detects malfunctions during vehicle operation and stores them as Diagnostic Trouble Codes (DTCs) in a permanent memory. The DTCs remain intact in the memory if the power supply from the battery is interrupted.

The OBD function relates to the electrical and electronic parts of a system; in other words it only registers malfunctions which have an effect on the electric signals.

On Board Diagnostic (OBD) helps technicians perform a more targeted diagnostic troubleshooting. Use the VAG1551/1552 Scan Tools (ST) or the VAS5051 tester to achieve the potential offered by On Board Diagnostic (OBD). To do this, the scan tool and the respective control module must exchange data. They must communicate with each other.

The Data Link Connector (DLC) is the interface for communication between the control module and the scan tool.

Troubleshooting is started by connecting the scan tool to the Data Link Connector (DLC). This establishes a data link between the control

module and the affected system, ⇒ page 01-4

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When the data link has been established, you can then select the required troubleshooting functions provided. The functions represent program sequences within On Board Diagnostic (OBD). Their application is described in the appropriate sections of this repair manual. After first checking the control module version, start the troubleshooting procedure with "Check DTC Memory" function 02.

Any DTCs which may be stored in DTC memory will be indicated on the display of the scan tool. Diagnostic information leads via DTC tables to possible causes and specific repair procedures. DTC tables are located in the appropriate sections of this repair manual.

The OBD distinguishes between "static" and "sporadic" malfunctions. If a malfunction which has been stored as "static" is no longer present when the ignition is switched on, it is converted to "sporadic".

Sporadically occurring malfunctions are indicated as such. "/SP" will appear at right on the tester display.

A sporadic malfunction is erased automatically if it no longer occurs after a certain number of driving cycles.

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Static malfunctions remain stored until DTC memory is erased using the Scan Tool (ST).

Check control module version before replacing control module. This appears in the display of the scan tool together with the coding when communication is established between the control module and the scan tool.

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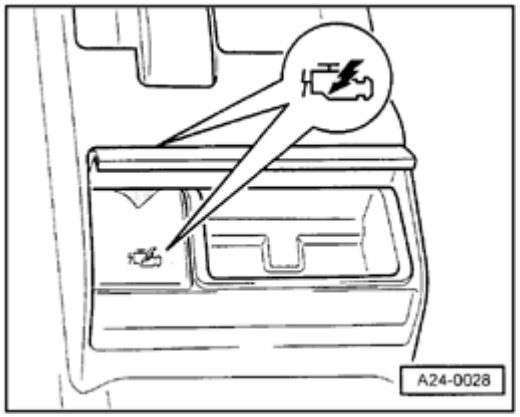
VAG1551, connecting and selecting address word

Note:

Either the VAG1552 mobile scan tool or the VAS5051 tester can be used instead of the VAG1551 Scan Tool (ST). The VAG1552 is not capable of printing out information, however.

- Observe the test requirements of each system.



- Open the vent-area ashtray.

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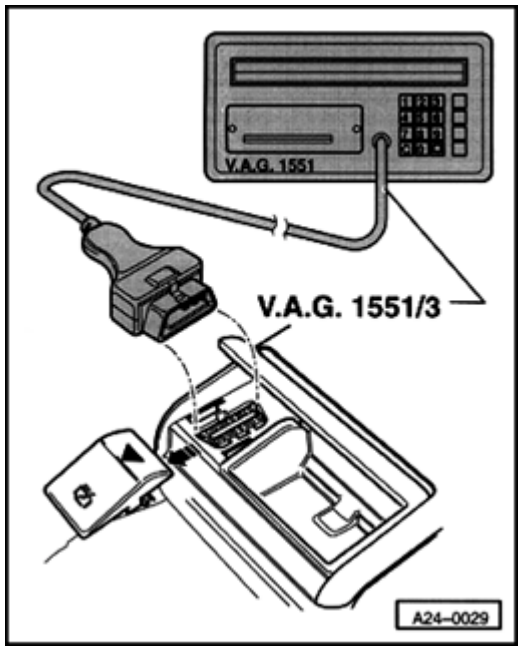

- Remove cover for Data Link Connector (DLC).

- Connect scan tool to Data Link Connector (DLC) with the ignition off using VAG1551/3 adapter cable.

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VAG - On Board Diagnostic	HELP
1 - Rapid data transfer1)	
2 - Blink code output1)	

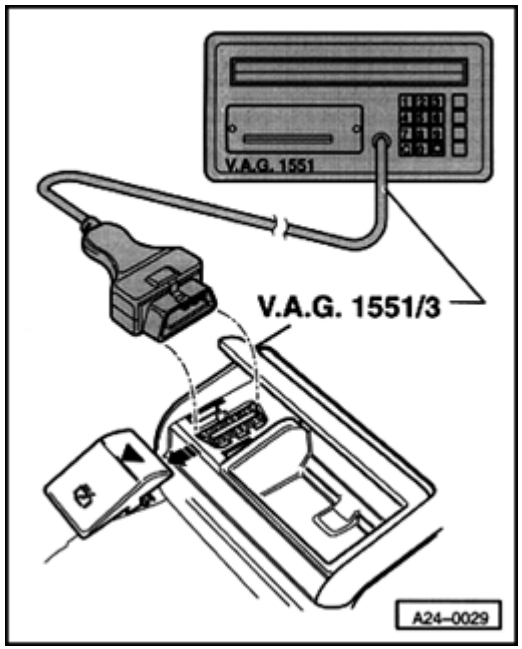
➢ Indicated on display:

1) Appear alternately on display

Notes:

- *If nothing is indicated on display, check diagnostic connection.*

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*



➢

- *The PRINT button is used for switching on the printer. Indicator lamp in the button comes on when printer is switched on.*
- *Depending on the program, additional operating information can be printed out by pressing the HELP button of the VAG1551 scan tool.*

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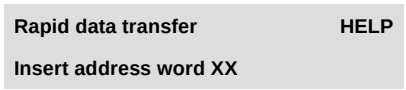
- Switch ignition on.

- Switch printer on by pressing PRINT button on scan tool.

- Press button -1- to select "Rapid data transfer" operating mode 1.



Indicated on display:

Note:

The address word selects the control module that you wish to test using the scan tool. The address word consists of two digits and is indcated in the relevant section of this repair manual.

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Note:

*For example: Pressing buttons -0- and -3-
selects the "Brake Electronics" address word 03.*

Rapid data transfer Q
03 Brake electronics

Indicated on display:

- Press -Q- button to confirm input.

Rapid data transferScan tool sends address word 03

Indicated on display after entering address word 03:

Note:

If a malfunction occurs when establishing communication between the VAG1551 scan tool and the control module, refer to the four displays and instructions that follow.

Rapid data transfer HELP
Control module not responding!

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

- Press the "HELP" button to print a list of possible causes of the malfunction.

Rapid data transfer HELP
No signal from control module

- Test cable connections for data link connector wire -K-.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

- Test power supply and Ground (GND) connections for ABS control module (w/EDL) -J104-.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

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Rapid data transfer	**HELP**
Error in communication link	

If displayed:

- Repair the malfunction.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

- After repairing the malfunction, once again enter "Brake Electronics" address word 03 and press -Q- button to confirm.

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XXX XXX XXX YYY YYY YY YY YY ZZZ → **Coding VVVVV WSC WWWWW**	➢ If the data link between the scan tool and the control module is established and works properly, the display will now show the control module identification (X), the system identification (Y), the hardware and software versions (Z), and the dealership number (W). ***Notes:*** ♦ *The → button is used for advancing through the program sequence.* ♦ *The various On Board Diagnostic (OBD) systems to be tested are described in more detail in the relevant sections of this Repair Manual booklet.* ♦ *The control module index can only be changed by replacing the control module.* ⇒ *Parts catalog* ♦ *If the control module identification number does not appear in the display, check the diagnostic wiring.* ⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations* - Press → button.
Rapid data transfer HELP **Select function XX**	➢ Indicated on display: