

Volkswagen Golf 4 / Bora (1998-2005), GTI / Jetta (1998-2005), R32 (A4)

Note: For Guided Fault Finding information, refer to VAS 5051 Diagnostic Tester

01 - On Board Diagnostic (OBD)

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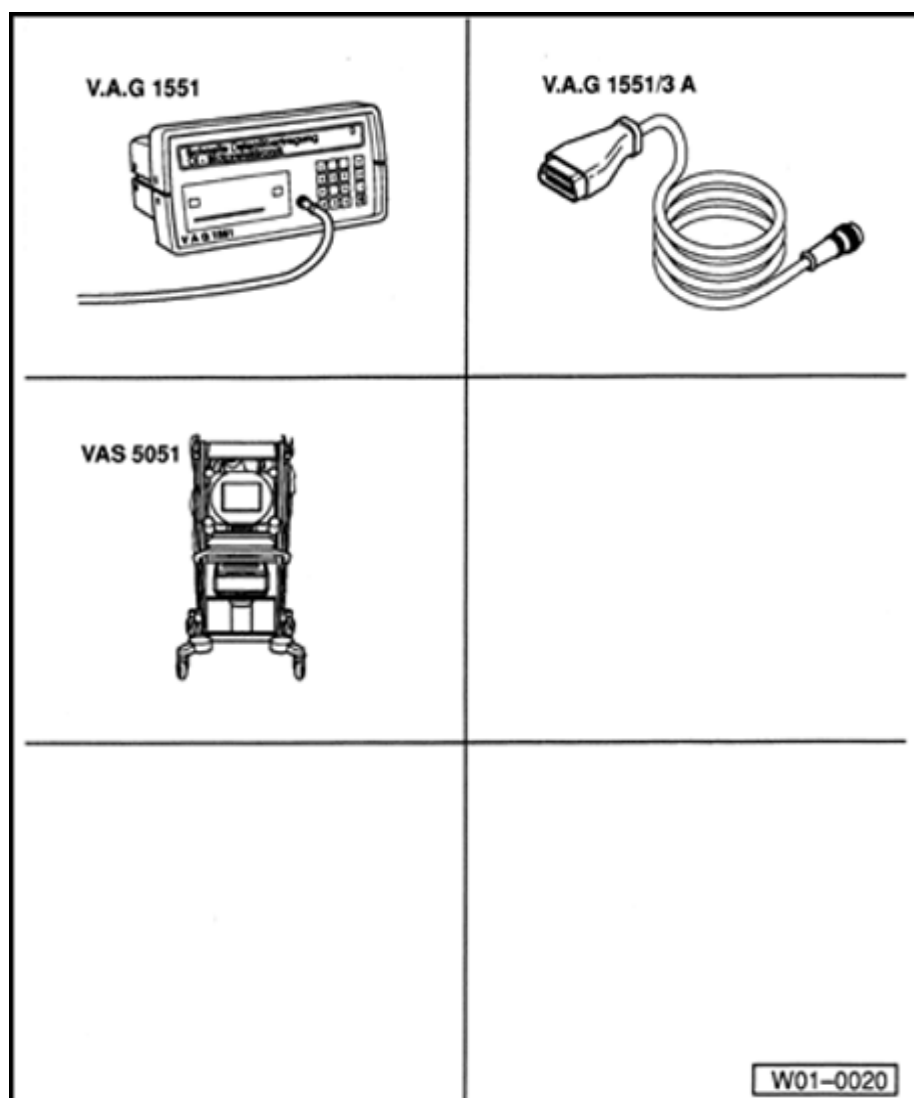
[Gateway, coding \(function 07\)](#)

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On Board Diagnostic (OBD) through m.y. 2001

Tools

Special tools and equipment

- ◆ VAG 1551/1552 Scan Tool (ST)
- ◆ VAG 1551/3C cable
- ◆ VAS 5051 or VAS 5052 Vehicle Diagnostic Testing and Information System



VAS 5051 or VAG 1551, connecting

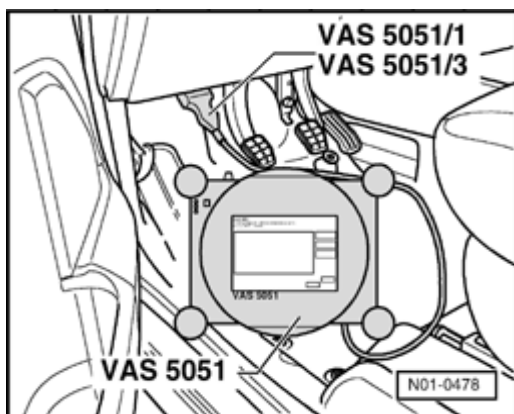
All functions previously performed with the VAG 1551 or VAG 1552 can also be performed using the VAS 5051 tester via operating mode vehicle self-diagnosis.

⇒ *Operating instructions for VAS 5051 tester.*

VAS 5051, connecting

Test requirements:

- ◆ All fuses OK according to wiring diagram.
- ◆ Battery voltage must be at least 11.5 volts.



- Connect VAS 5051/1 or VAS 5051/3 diagnostic wire to Data Link Connector (DLC)
- Switch on ignition.

Select operating mode, vehicle system and function:

- Press "Vehicle Self-Diagnosis" selection on display.
- Select the vehicle system to be tested on display (touch screen).
- Select the desired function on display.

Display will indicate the control module identification and the coding.

Display will indicate all relevant diagnostic functions.



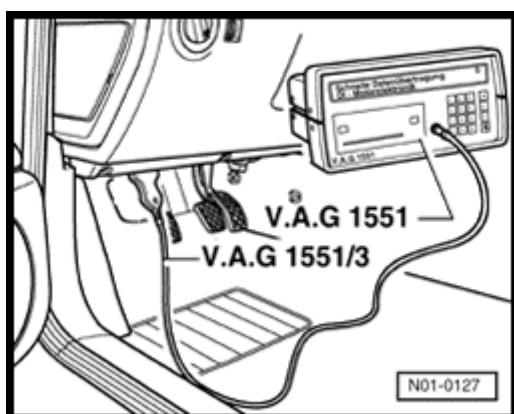
Notes:

- ◆ Display fields in functions 04 (Basic setting) and 08 (Read Measuring Value Block) are listed from top to bottom.
- ◆ The following test sequences are described for the VAG 1551 Scan Tool (ST).

VAG 1551, connecting

Test requirements:

- ◆ All fuses OK according to wiring diagram.
- ◆ Battery voltage must be at least 11.5 volts.



- Connect VAG 1551 Scan Tool (ST) with VAG 1551/3C cable to Data Link Connector (DLC).

Notes:

- ◆ If nothing is indicated on display, check voltage supply for VAG 1551 scan tool according to wiring diagram.

⇒ Electrical Wiring Diagrams, Troubleshooting & Component Locations

- ◆ Depending on the program, additional operating information can be printed out by pressing the HELP button of the VAG 1551 scan tool.
- ◆ Function 00 "Automatic test sequence" can be performed in operating mode 1 "Rapid data transfer". This automatically checks all control modules installed in the vehicle.
- ◆ The → button is used for advancing through the program sequence.
- ◆ The PRINT button is used for switching on the printer (lamp in button lights up).

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VAG- On Board Diagnostic

HELP



Indicated on display (* is displayed alternately):

- 1 - Rapid data transfer*
- 2 - Blink code output*

- Press button 1 for "Rapid data transfer".
- Continue On Board Diagnostic (OBD) of vehicle system to be tested as described under "performing On Board Diagnostic (OBD) ⇒ table of contents



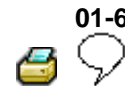
On Board Diagnostic (OBD) from m.y. 2002

General information

OBD program text/data generated by control modules installed on vehicles from m.y. 2002 may not be recognized by VAG 1551/1552 Scan Tools (ST) with the latest program card. For example: scan tool display shows "text 799", "01529 /references" or similar.

Only the VAS 5051 Vehicle Diagnostic Testing and Information System is capable of processing all display text/data on these vehicles.

All OBD program functions on vehicles from m.y. 2002 should be performed using the VAS 5051 Vehicle Diagnostic Testing and Information System in operating mode "Guided Fault Finding" or "Vehicle Self-Diagnosis".



Instrument cluster through m.y. 1999, On Board Diagnostic (OBD)

General information

The instrument cluster contains an electronic speedometer, tachometer, liquid crystal (LCD) displays for odometer, trip odometer/clock, as well as analog coolant temperature and fuel level gauges. Control and warning lamps are situated within and between the speedometer and tachometer. Automatic transmission models also contain an LCD gear indicator display.

Where available, an LCD multi-function trip computer (MFI) with two operating modes is located in the tachometer display. The MFI includes selectable displays for trip time/mileage, average trip speed, average trip fuel consumption and outside temperature.

The instrument cluster is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored sensors and components, Diagnostic Trouble Codes (DTC) will be stored in memory together with an indication of malfunction type. A maximum of 4 DTCs can be stored simultaneously.

Sporadic malfunctions (indicated in the readout by "SP") are automatically cancelled if not repeated in the next 50 engine starts.

Before performing any troubleshooting or inspection, always begin by checking for DTCs using the OBD program. DTCs stored in memory are retrieved/checked with either the VAG 1551/1552 Scan Tool (ST) or VAS 5051 Vehicle Diagnostic Testing and Information System.



Notes on exchanging instrument cluster

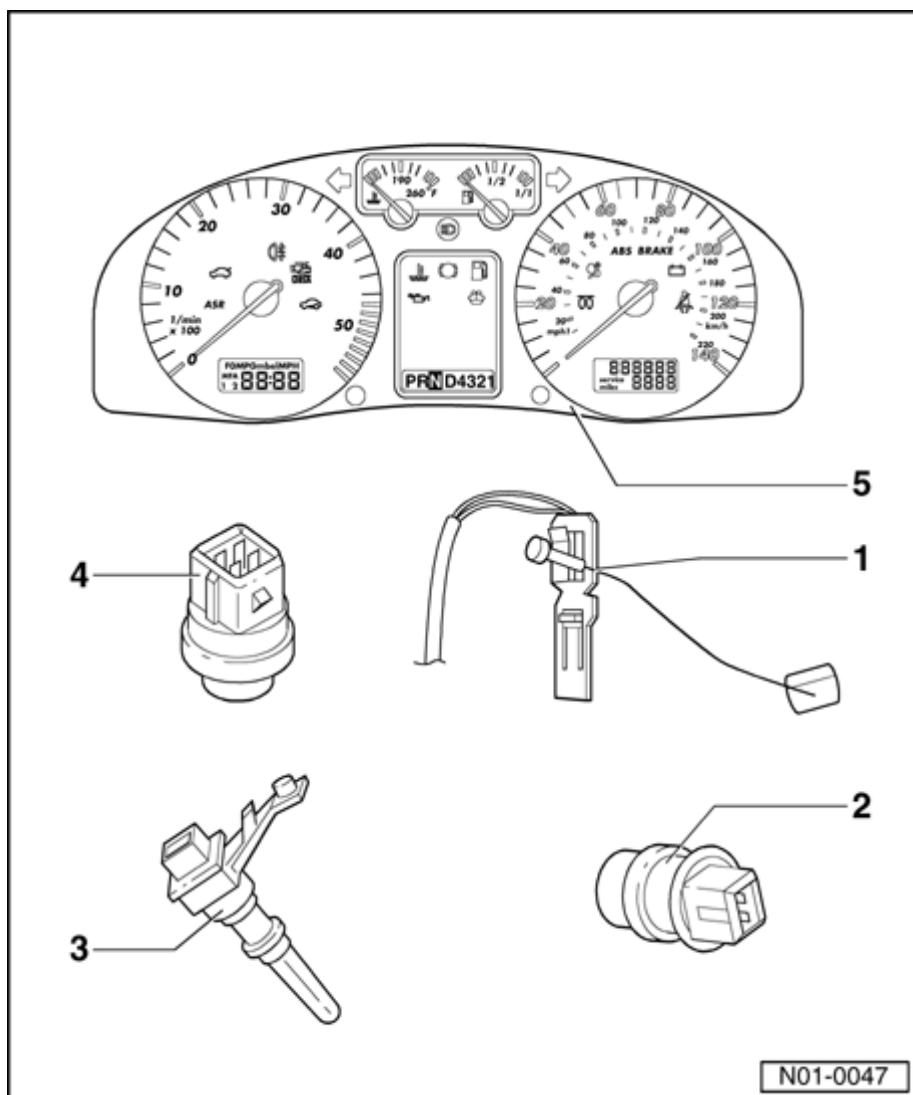
- ◆ Do not disassemble instrument cluster.
- ◆ Instrument clusters contain no field serviceable components. All malfunctions require replacement of instrument cluster.
- ◆ When the replacement of a malfunctioning instrument cluster is necessary, follow exchange part procedures.
- ◆ Complete the report form and return together with instrument cluster.
- ◆ Use the original packaging from the new cluster when returning modules.
- ◆ Replacement instrument clusters must be coded according to vehicle market version and equipment level variables using the OBD program ⇒ [Page 01-29](#) .
- ◆ Odometer reading must be adapted to the new/exchange instrument cluster using the OBD program ⇒ [Page 01-45](#) .

Additional information:

- ◆ Complaint/symptom based Technical Bulletins ("Service Fixes"):

⇒ *Technical Bulletins*

- ◆ Instrument cluster ⇒ [Repair Manual, Electrical Equipment, Repair Group 90](#) .



Electrical and electronic components, locations

CAUTION!

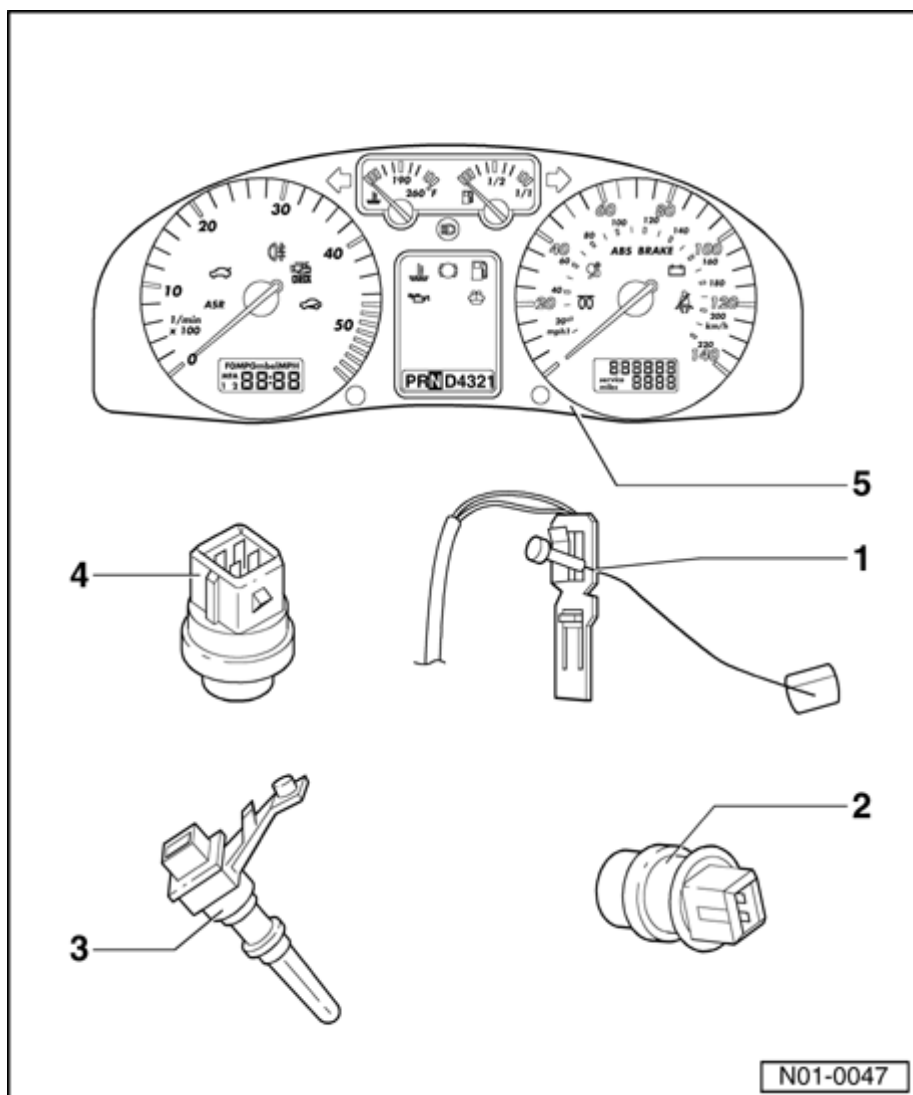
Before beginning repairs on the electrical system:

- ◆ **Obtain the anti-theft radio security code.**
- ◆ **Switch off all electrical consumers.**
- ◆ **Switch ignition off and remove ignition key.**
- ◆ **Disconnect negative (-) battery terminal.**
- ◆ **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified in Repair Manual, Electrical Equipment, Repair Group 27**

1 - Sender for fuel gauge -G-

- ◆ Location ⇒ [Fig. 1](#)

◆ Monitored by
OBD



2 - Outside Air Temperature Sensor -G17- (where applicable)

◆ Location ⇒ [Fig. 2](#)

◆ Monitored by OBD

3 - Speedometer Vehicle Speed Sensor (VSS) -G22-

◆ Location ⇒ [Fig. 3](#)

◆ Monitored by OBD

4 - Engine Coolant Temperature (ECT) Sensor -G2-

◆ Location depends on type of engine

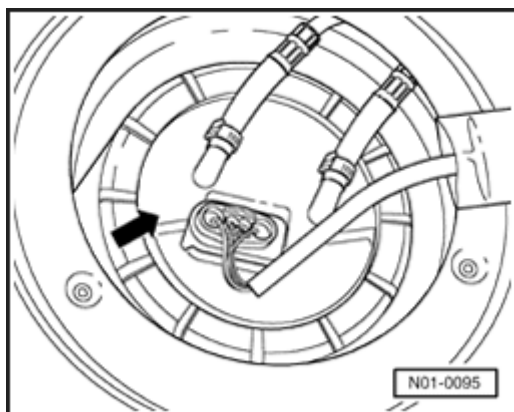
⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

◆ Monitored by On Board Diagnostic (OBD)

5 - Instrument Cluster -K-

◆ Monitored by OBD

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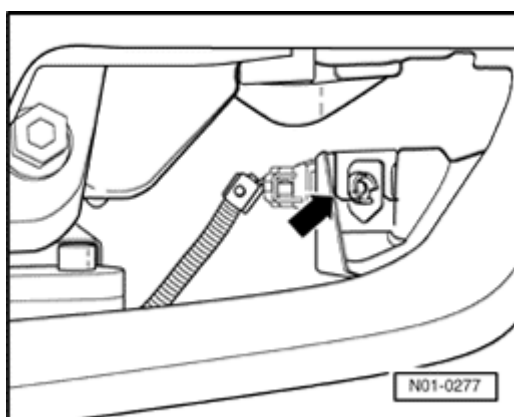


✦ **Fig. 1 Sender for fuel gauge -G-**

Located in fuel tank on fuel delivery unit - arrow-.

Removing and installing

⇒ *Repair Manual, Engine Mechanical, Repair Group 20*



✦ **Fig. 2 Outside Air Temperature Sensor -G17- (where applicable)**

Sensor - arrow- located on left of front bumper behind outer air grill.

Unclip air grill to remove sender.

⇒ *Repair Manual, Body Exterior, Repair Group 63*

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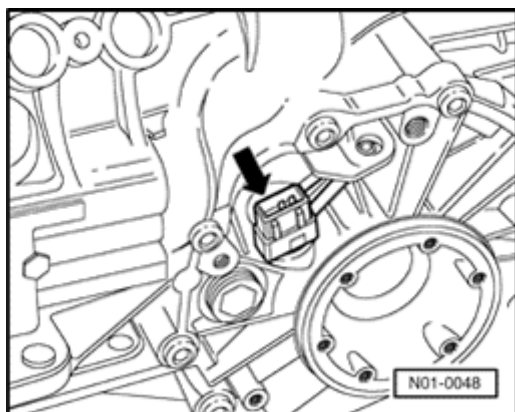


Fig. 3 Speedometer Vehicle Speed Sensor (VSS) -G22-

Sensor -arrow- located near left-hand drive shaft flange on manual and automatic transmission vehicles.



Instrument cluster On Board Diagnostic (OBD), initiating & checking control module versions

Test requirements:

- ◆ All fuses OK according to wiring diagram
- ◆ Voltage supply OK (at least 11.5 V).
- ◆ Scan Tool VAG 1551 or VAG 1552 connected.

Notes:

- ◆ *Connecting Scan Tool* ⇒ [Page 01-1](#) .
- ◆ *The following description applies only to Scan Tool VAG 1551.*
- Switch on ignition.
- Switch on printer with the PRINT button (indicator lamp in button lights up).
- Press button -1- to select operating mode 1, "Rapid data transfer" .

Rapid data transfer
Input address word XX

HELP



Indicated on display:

- Press buttons -1- and -7- to input address word 17, "Instrument cluster".

Rapid data transfer
17 Instrument cluster

Q



Indicated on display:

- Press -Q- button to confirm input.

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Rapid data transfer Q
 Tester sends address word 17



Indicated on display:

1J0919860D A4-KOMBI INSTR VDO V04 →
 Coding 00042 WSC 00000



Indicated on display (example only):

Top line: Part No. of control module
 System designation (Combi
 instrument)
 Manufacturer's code:
 MMO = Motometer
 VDO = VDO
 Software level

Bottom line: Coding¹⁾

 Workshop number²⁾

1 - Dependent on engine, transmission and additional equipment

2 - Automatically stored in the control module upon entry into the installed system. But not for coding of control modules that have already been used.

Control module does not answer! HELP



If this appears on display:

- Press "HELP" button and a list of possible causes is printed out.
- After repairing malfunctions, again enter address word 17 for instrument cluster and confirm with Q.
- Press → button.



Rapid data transfer

HELP



Indicated on display:

Select function XX

List of available functions

Function		page
01 -	Check Control Module version	⇒ Page 01-12
02 -	Check DTC memory	⇒ Page 01-15
03 -	Output Diagnostic Test Mode	⇒ Page 01-20
05 -	Erase DTC memory	⇒ Page 01-26
06 -	End Output	⇒ Page 01-28
07 -	Code Control Module	⇒ Page 01-29
08 -	Read Measuring Value Block	⇒ Page 01-33
10 -	Adaptation	⇒ Page 01-43
12 -	Digital clock (Motometer, where applicable), correction	⇒ Page 01-61

Notes:

- ◆ *Press **HELP** button to print out a complete list of available functions. This list indicates function capability of VAG 1551 Scan Tool (ST) only, and does not necessarily reflect function capability of vehicle systems equipped with OBD. For instrument cluster address word 17, do not attempt to select functions other than those listed above.*
- ◆ *After function is completed and forwarded with **→** button, VAG 1551 Scan Tool (ST) returns to following start position:*

Rapid data transfer

HELP



Indicated on display (select function):

Select function XX



Diagnostic Trouble Code (DTC) memory, checking (function 02)

Note:

DTCs stored in memory along with corresponding malfunction descriptions can only be displayed by initiating the On Board Diagnostic program and checking DTC memory (function 02).

- Connect VAG 1551 Scan Tool, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17, "Instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.
- Switch on printer with the PRINT button (indicator lamp in button lights up).

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -2- to select "Check DTC memory" function 02.

Rapid data transfer
02 - Check DTC memory

Q



Indicated on display:

- Press -Q- button to confirm input.

X DTC's recognized!



The number of stored DTCs appears in the display.

Stored DTCs are displayed and printed out one after another.



- Check print-out against DTC table and repair all malfunctions as necessary ⇒ [Page 01-17](#) .

No DTC recognized!



If "No DTC recognized" is displayed the program will return to the initial position after pressing → button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

If something else is displayed:

⇒ *Scan tool operating instructions*

- End Output (function 06) ⇒ [Page 01-28](#) .
- Switch ignition off
- Disconnect VAG 1551 from Data Link Connector (DLC).



Diagnostic Trouble Code (DTC) table

Notes:

- ◆ The following table lists all malfunctions, with the corresponding 5 digit code numbers, that can be recognized by control module with indicator unit in instrument cluster insert -J285- and printed out by the VAG 1551 Scan Tool (ST).
- ◆ If malfunctions do not occur regularly, these are displayed as occurring sporadically ("SP").
- ◆ DTC codes appear only on print-out.
- ◆ Before replacing components, check the wiring and connections to these components as well as ground connections, according to wiring diagram.
- ◆ When repair has been carried out, the Diagnostic Trouble Code (DTC) memory must always be erased and checked again with VAG 1551 Scan Tool (ST).
- ◆ If there is a specific complaint and no malfunctions are recognized after checking Diagnostic Trouble Code (DTC) memory, carry out function 03, "Output Diagnostic Test Mode (DTM)" ⇒ [Page 01-20](#) or function 08, "Read measuring value block" ⇒ [Page 01-33](#).

VAG 1551 print out	Possible cause	Possible effects	Corrective actions
00667* Ambient-Temperature Signal Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open/short circuit in wiring between Outside Air Temperature Sensor -G17- and instrument cluster. ◆ -G17- malfunctioning 	<ul style="list-style-type: none"> ◆ Dashes (- - -) appear on display in instrument cluster 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-33 - Check for open or short circuit in wiring using wiring diagram. - Replace -G17-

*Not for vehicles with Climatronic: A DTC entry is made when the malfunction has been registered continuously for at least 60 seconds.



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
00771* Fuel Level Sensor -G- Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open or short circuit in wiring between Fuel Level Sensor -G- and instrument cluster ◆ -G- malfunctioning 	<ul style="list-style-type: none"> ◆ Fuel reserve displayed value 0 ("empty") 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-33 - Check for open or short circuit in wiring using wiring diagram. - Replace -G-
00779** Outside Air Temperature Sensor -G17- Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open or short circuit in wiring between Outside Air Temperature Sensor -G17- and instrument cluster ◆ -G17- malfunctioning 	<ul style="list-style-type: none"> ◆ Dashes (- - -) appear on display in instrument cluster 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-33 - Check for open or short circuit in wiring using wiring diagram. - Replace -G17-

* A DTC entry is made when the malfunction has been registered continuously for at least 20 seconds.

**For vehicles with multi-function indicator (MFA) but not with Climatronic



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
01039* ECT Sensor - G2- Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open or short circuit in wiring between ECT Sensor -G2- and instrument cluster ◆ -G2- malfunctioning 	<ul style="list-style-type: none"> ◆ Engine coolant temperature (ECT) gauge needle on left stop 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-33 - Check for open or short circuit in wiring using wiring diagram. - Replace -G2-
65535 Control module - Faulty	<ul style="list-style-type: none"> ◆ Control unit with display in instrument cluster -J285- malfunctioning 	<ul style="list-style-type: none"> ◆ No display ◆ Malfunction of display and warning lamps 	<ul style="list-style-type: none"> - Replace instrument cluster
Other DTC's	If other DTC's are displayed that are not shown in this DTC table, perform On Board Diagnostic (OBD) of anti-theft immobilizer system using VAS 5051 Vehicle Diagnostic Testing and Information System.		

* A DTC entry "Open circuit/short to positive" is made after the engine has been running for 30 minutes and the DTC is recognized.



Output Diagnostic Test Mode (DTM) (function 03)

The Output Diagnostic Test Mode (DTM) is part of the electrical check. The following components and systems are checked via Output DTM:

- ◆ Speedometer
- ◆ Tachometer
- ◆ Engine Coolant Temperature (ECT) gauge
- ◆ Fuel gauge
- ◆ Brake system warning lamp
- ◆ Seat belt warning lamp
- ◆ Buzzer
- ◆ All liquid quartz displays (LCD): odometer, multi-function indicator (MFI) or digital clock & selector lever position display (automatic transmission)
- ◆ Engine Coolant Temperature (ECT) & low coolant indicator warning lamp
- ◆ Brake pad wear warning lamp (where applicable)
- ◆ Fuel reserve warning lamp
- ◆ Oil pressure warning lamp

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- If a malfunction is determined when performing Output DTM, exchange instrument cluster.
- If no malfunction is determined when performing Output DTM, check wiring and connections to instrument cluster using wiring diagram.

Output Diagnostic Test Mode (DTM), initiating

Notes:

- ◆ *Output Diagnostic Test Mode (DTM) cannot be initiated, or will be interrupted if engine is running or vehicle is moving.*
- ◆ *Use the -C- button to exit the test sequence at any time.*
- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is shown in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -3- to select "Output Diagnostic Test Mode" function 03.

Rapid data transfer

Q



Indicated on display

03 - Output Diagnostic Test Mode

01-22



Rapid data transfer



Analog display

- Press -Q- button to confirm input.

Indicated on display

After pressing the -Q- button, the following instrument functional checks are carried out simultaneously on VDO instrument clusters and sequentially on Motometer instrument clusters (press → button to advance through test sequence):

- ◆ coolant temperature needle moves over complete display range
- ◆ tachometer needle moves over complete display range
- ◆ speedometer needle moves over complete display range
- ◆ fuel gauge needle moves over complete display range

After sweep of display ranges, the following fixed values are displayed:

Coolant temperature gauge:	90 °C
Tachometer:	3000 rpm
Speedometer:	100 km/h (62mph)
Fuel gauge:	1/2

- Press → button.

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Output Diagnostic Test Mode →

Combi instrument warning lamp test



Indicated on display:

The warning lamps for

- ◆ Brake system (low brake fluid level, ABS inoperative)
- ◆ Coolant temperature/low coolant level indicator
- ◆ Brake pad wear (where applicable)
- ◆ Fuel reserve
- ◆ Oil pressure

are activated and remain constantly lit.

- Press → button.

Output Diagnostic Test Mode →

Seat belt warning lamp - K19



Indicated on display:

The Seat Belt Warning Light -K19- lights up.

- Press → button.

Output Diagnostic Test Mode →

Signal



Indicated on display:

The buzzer/chime is activated: a warning tone sounds in intervals.

- Press → button.

Output Diagnostic Test Mode →

Segment test



Indicated on display:

All segments of LCD display in speedometer and tachometer are activated and become visible.

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<p>Output Diagnostic Test Mode → Coolant, excessive temp test</p>	<p>← Indicated on display:</p> <p>Instrument cluster VDO:</p> <p>Safety cut-off (A/C compressor cut-off- is activated approx. 5 seconds later (vehicles with A/C only)</p> <p>No indication is given in instrument cluster!</p> <p>Instrument cluster MMO:</p> <p>Engine Coolant Temperature (ECT) warning lamp lights and warning sound is given.</p> <p>Safety cut-off (A/C compressor cut-off- is activated approx. 5 seconds later (vehicles with A/C only)</p>
<p>Output Diagnostic Test Mode → END</p>	<p>← Indicated on display:</p> <p>- Press → button.</p>
<p>Output Diagnostic Test Mode → END</p>	<p>← Indicated on display, instrument cluster MMO:</p>
<p>Function is unknown or → cannot be carried out at the moment</p>	<p>← <i>Indicated on display, instrument cluster VDO:</i></p> <p>End Output Diagnostic Test Mode for VDO instrument clusters by pressing → button.</p>

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All actual values are displayed again.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer
06 - End Output

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
Enter address word XX

Help



Indicated on display:

The tester is now in basic function again.



Diagnostic Trouble Code (DTC) memory, erasing (function 05)

Note:

After DTC memory is erased, its contents are automatically output. If DTC memory cannot be erased, check DTC memory again and repair malfunction.

Prerequisites

- ◆ DTC memory checked ⇒ [Page 01-15](#) .
- ◆ All malfunctions repaired.

After successful DTC memory check:

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -5- to select "Erase DTC memory" function 05.

Rapid data transfer
05 Erase DTC memory

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
DTC memory is erased!

→



Indicated on display:

DTC memory is erased.

- Press → button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

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**Notes:****WARNING!**

DTC memory was not checked



◆ *If this appears in the display, the test sequence is faulty.*

Rapid data transfer



DTC memory was not checked



◆ *If this appears in the display, the test sequence is faulty.*

◆ *Follow test sequence exactly: first check DTC memory, repair malfunction(s) if necessary, then erase.*

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End Output (function 06)

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

HELP



Indicated on display:

Enter address word XX

- Switch off ignition.
- Disconnect VAG 1551 from Data Link Connector (DLC).

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Instrument cluster, coding (function 07)

Using this function the instrument cluster can be coded as follows:

- ◆ Available equipment activation
- ◆ Market versions
- ◆ Cylinders (engine)
- ◆ Distance impulse number (K-number)

Note:

The code table lists only those combinations applicable to Golf/Jetta through m.y. 1999.

Initiating coding

- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed..

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -7- to select "Code control module" function 07.

Rapid data transfer
07 - Code control module

Q



Indicated on display:

**Code Control Module**

Enter code number XXXXX (0-32000)



- Press -Q- button to confirm input.

Indicated on display:

- Determine vehicle particulars and input code number using coding table ⇒ [Page 01-32](#) .

Example:**Note:***Values shown below are examples only!!*

02	Available equipment: seatbelt warning active
2	Market version: USA
4	4-cylinders
2	Distance impulse number

Code Control Module

Q

Enter code number 02242 (0-32000)



Indicated on display (example only):

- Press -Q- button to confirm input.

1J0919860D A4 COMBI INSTR VDO V04 →

Coding 02242 WSC 00000



Indicated on display (example only):

- Press → button.

Rapid data transfer

HELP

Select function XX



Indicated on display:

End function:

- Press buttons -0- and -6- to select function 06, "End Output".

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Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display

Enter address word XX

The tester is now in basic function again.

**Code table:**

Code assembly				Designations
1+2	3	4	5	Position
00				Available equipment¹⁾ None
01				Brake pad wear warning*
02				Seatbelt warning
04				Washer fluid level warning*, *where applicable
	2			Market version USA (US)
	3			Canada (CDN)
		4		Cylinders 4-cylinders
		6		6-cylinders
			2	Distance impulse number (K number)²⁾ 3538

1) To determine code number for first two positions, add applicable available equipment code numbers together. For example, to activate brake wear indicator and seatbelt warning: 01 + 02 = 03 (in positions 1+2).

2) Distance impulse number is a constant used to calculate speed indication and distance travelled. Code for USA/CDN Golf/Jetta is always 2. Distance impulse number can only be read/confirmed using function 10, "Adaptation" ⇒ [Page 01-43](#) .



Read Measuring Value Block (function 08)

Use this function to observe various instrument cluster inputs.

The measuring value block is divided into 4 display groups, each containing 4 display fields.

- Connect VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed.

Rapid data transfer

HELP



Indicated on display:

Select function XX

- Press buttons -0- and -8- to select "Read Measuring Value Block" function 08.

Rapid data transfer Q



Indicated on display:

08 - Read Measuring Value Block

- Press -Q- button to confirm input.

Read Measuring Value Block HELP



Indicated on display:

Enter display group number XXX

- Using the Scan Tool (ST) button pad, enter the required display group number (following example shows display group 001).
- Press -Q- button to confirm input.

Read Measuring Value Block 1



Indicated on display: (1...4 = Display fields)

1 2 3 4

**Notes:**

- ◆ *Interpreting display groups and evaluating measured values in individual display fields
⇒ tables beginning ⇒ [Page 01-35](#) .*
- ◆ *With the printer switched on, the information on the display is printed out.*
- ◆ *To easily change between display groups, proceed as follows:*

Display group	VAG 1551	VAG 1552
Higher	Press button 3	Press ↑ button
Lower	Press button 1	Press ↓ button
Skip	Press button C	Press button C

- Displayed after pressing C button.

Read Measuring Value Block HELP

Enter display group number XXX



Indicated on display:

- Enter alternate display group number as needed
⇒ tables beginning ⇒ [Page 01-35](#) .

Notes:

- ◆ *Display fields always show actual values transmitted from senders and sensors. However, instrument cluster display values can differ from those in the display fields due to internal filtering.*
- ◆ *Other display groups are possible, but are not required for On Board Diagnostic program!*



Display groups, interpreting

Display group 001						
Read Measuring Value Block 1				→ ◀ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Time	Clock time in hours and minutes	⇒ Page 01-36
				Oil pressure switch 0.9 bar	Oilp2<min Oilp2 OK.	
				Engine speed (RPM)	Engine speed in rpm	
Speed					Speed in km/h	

01-36



Evaluating display group 001

Display field	Description	Display	Corrective actions
1	Speed	Speed in km/h	<ul style="list-style-type: none"> - Visually check wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction or replace the relevant component - Erase DTC memory - Perform functional check - Check DTC memory again
2	Engine speed (RPM)	Engine speed in rpm	
3	Oil pressure switch 0.9 bar	Oilp2<min Oilp2 OK.	
4	Time	Clock time in hours and minutes	



Display group 002						
Read Measuring Value Block 2				◀ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Ambient temperature 1)	Ambient temperature in °C	⇒ Page 01-38
				Ω value of sender for fuel gauge -G-	Resistance in Ω	
Fuel level				Fuel level in liters		
Distance travelled (odometer)				Distance in km		

1) For instrument clusters with Multi Function Indicator (MFI) or Climatronic

01-38



Evaluating display group 002

Display field	Description	Display	Corrective actions
1	Distance travelled (odometer)	Distance in km	<ul style="list-style-type: none"> - Visually check wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction or replace the relevant component - Erase DTC memory - Perform functional check - Check DTC memory again
2	Fuel level ¹⁾	Fuel level in liters	
3	Ω value of sender for fuel gauge -G-	Resistance in Ω	
4	Ambient temperature	Ambient temperature in $^{\circ}\text{C}$	

¹⁾ On vehicles with a VDO instrument cluster "0 L" is displayed in field 2 when fuel level sender has an open/short circuit and display field 3 remains blank.

01-39



Display group 003						
Read Measuring Value Block 3				◀ Indicated on display		
xxx	xxx	xxx	xxx	◀ Display fields		Evaluating display fields
1	2	3	4	Empty		
Empty			Empty			
Empty			Empty			
Engine Coolant Temperature (ECT)				Engine coolant temperature in °C		⇒ Page 01-40

01-40

**Evaluating display group 003**

Display field	Description	Display	Corrective actions
1	Engine Coolant Temperature (ECT) ¹⁾	Engine coolant temperature in °C	<ul style="list-style-type: none">- Visually check wire routing- Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display- If the display content does not change during operation, repair malfunction or replace the relevant component- Erase DTC memory- Perform functional check- Check DTC memory again

¹⁾ If the actual coolant temperature value lies between approx. 75 °C and 107 °C, the instrument cluster will always display 90 °C!



Display group 050						
Read Measuring Value Block 50				→	◀ Indicated on display	
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Engine Coolant Temperature (ECT)	Engine coolant temperature in °C	⇒ Page 01-42
				Engine Oil Temperature	Oil temperature in °C	
				Engine speed (RPM)	Engine speed in rpm	
				Distance travelled (odometer)	Distance travelled in km	

01-42



Evaluating display group 050

Display field	Description	Display	Corrective actions
1	Distance travelled	Distance travelled in km	<ul style="list-style-type: none"> - Visually check wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction or replace the relevant component - Erase DTC memory - Perform functional check - Check DTC memory again
2	Engine speed (RPM)	Engine speed in rpm	
3	Engine Oil temperature	Engine oil temperature in °C	
4	Engine Coolant Temperature (ECT)	Engine coolant temperature in °C	



Adaptation (function 10)

Use this function to initiate and store the following changes:

- ◆ Adaptation of odometer reading when replacing/exchanging instrument cluster.

- ◆ Adaptation of fuel gauge reading.

- ◆ Adaptation of Multi-function Indicator (MFA) fuel consumption indicator (where applicable).

Individual functions are called up using the appropriate channel number from adaptation table ⇒ [Page 01-44](#) .



Adaptation table

Adaptation channel	Adaptation functions
03	Multi-function Indicator (MFA) fuel consumption indicator (where applicable), adaptation ⇒ Page 01-58
09	Odometer, adaptation ⇒ Page 01-45
16	Distance impulse number (K-number), reading/confirming ⇒ Page 01-50
30	Fuel gauge, checking/adapation ⇒ Page 01-53

Note:

After changing an adaption value or ending an adaption channel the function "10 - Adaption" must be performed to select another adaption channel!



Odometer, adaptation

Notes:

- ◆ *Market and equipment appropriate coding of instrument cluster must be performed before adaptation of odometer reading ⇒ [Page 01-29](#) .*
- ◆ *The total distance travelled by the vehicle can be read from the malfunctioning instrument cluster or determined by the vehicle service history.*
- ◆ *The total distance travelled display of new instrument cluster must not be more than 100 km (62 mi) before adaptation.*
- ◆ *The total distance travelled to be transferred to the new instrument cluster must exceed 100 km (62 mi).*
- ◆ *Adapting the total distance travelled is only possible once and only in a positive (upwards) direction.*
- ◆ *Adaptation can be interrupted with the "C" button of the VAG 1551*
- ◆ *Correcting a false entry which has been confirmed is not possible. The instrument cluster must be exchanged for a new one.*
- ◆ *Adaptation value must be entered in kilometers. For US models, adaptation value must be converted from miles to kilometers first (miles x 1.609 = kilometers).*

01-46



Adaptation, example

The malfunctioning instrument cluster has an odometer reading of 89627 km. This reading is transferred to the new instrument cluster as follows:

- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed.

Rapid data transfer

HELP



Indicated on display:

Select function XX

- Press button -1- twice to select "Login" function 11.
- Press -Q- button to confirm input.

Rapid data transfer

Q



Indicated on display:

11 - Login procedure

- Press -Q- button to confirm input.

Login procedure

Q



Indicated on display:

Enter code number XXXXX

- Enter code number 13861.

Login procedure

Q



Indicated on display:

Enter code number 13861

01-47



"FAIL" appears in odometer if a false code or secret number is entered 3 times.

In this case terminal 30 (battery) must be disconnected and reconnected again and the Login procedure repeated using the correct code number.

- Press -Q- button to confirm input.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

Rapid data transfer
10 - Adaptation

Q



Indicated on display:

- Press -Q- button to confirm input.

Adaptation
Enter channel number XX



Indicated on display:

- Press buttons -0- and -9- to select adaptation "channel 09".

- Press -Q- button to confirm input.

Channel 9 Adaptation 0

→



- Indicated on display:

<-1 3->

- Press → button to advance program sequence.

Channel 9 Adaptation 0
Enter adaptation value XXXXX



Indicated on display:

01-48



- Enter adaptation value using VAG 1551 button pad.

The last position of the kilometer reading must be rounded off to the nearest 10 kms. Therefore, a kilometer reading of 89627 produces an adaptation value of:

0 8 9 6 3

X					Hundred thou.: 100000 ... 655350 km
	X				Ten thousands: 10000 ... 90000 km
		X			Thousands: 1000 ... 9000 km
			X		Hundreds: 100 ... 900 km
				X	Tens: 10 ... 90 km
					Units: round up to next ten

- After entering adaptation value using VAG 1551 button pad,

Channel 9 Adaptation 0 q
Enter adaptation value 08963



Indicated on display (example only):

- Press -Q- button to confirm input.

Channel 9 Adaptation 8963 q
<-1 3->



Indicated on display:

The kilometer reading entered now appears in the display of the instrument cluster. If the displayed kilometer reading is not OK, e.g. false entry:

- Press -C- button and enter correct adaptation value again.

01-49



If the displayed kilometer reading in instrument cluster is OK:

- Press -Q- button to confirm input.

Channel 9 Adaptation 8963
Store changed value?

Q



Indicated on display:

- Press -Q- button to confirm input.

Channel 9 Adaptation 8963
Changed value is stored

→



Indicated on display:

- End odometer adaptation by pressing → button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer
06 End Output

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
Enter address word XX

Help



Indicated on display:

The tester is now in basic function again.



Distance impulse number (K-number), reading/confirming

Distance impulse number can only be read/confirmed on VDO instrument clusters.

Distance impulse number for MMO instrument clusters \Rightarrow Code control module, \Rightarrow [Page 01-29](#) .

Notes:

- ◆ *The distance impulse number is a constant used to calculate the speed indication and distance travelled.*
- ◆ *The distance impulse number (K number) cannot be changed using the "Adaptation" function!*
- ◆ *For instrument clusters with mile indicators, the distance impulse number is shown in kilometers. The trip impulse number for mile values can be calculated as follows: Trip impulse number for kilometer values $\times 1.609 =$ trip impulse number for mile values.*
- ◆ *Press the -C- button on the VAG 1551 to abort the "Read distance impulse number" function.*

01-51



- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".

- Press -Q- button to confirm input.

- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

Rapid data transfer
10 - Adaptation

Q



Indicated on display:

- Press -Q- button to confirm input.

Adaptation

Enter channel number XX



Indicated on display:

- Press buttons -1- and -6- to select adaptation "channel 16".

- Press -Q- button to confirm input.

Channel 16 Adaptation 3538

→



Indicated on display (example only):

<- 1 3 ->

Read/confirm distance impulse number, ⇒ code table, ⇒ [Page 01-32](#) .

01-52



- Interrupt "Reading distance impulse number" with "C" button.

Adaptation



Indicated on display:

Enter channel number XX

- Press "C" button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display:

Enter address word XX

The tester is now in basic function again.



Fuel gauge, checking

If the fuel gauge displays the contents of the fuel tanks as being too high or too low, the fuel gauge needle position can be corrected (adapted).

First perform the following procedures:

- Perform Output Diagnostic Test Mode (DTM) for instrument cluster ⇒ [Page 01-20](#) .

If Output Diagnostic Test Mode (DTM) does not recognize a malfunction, check function of sender for fuel gauge -G-:

- Check resistance value of sender for fuel gauge in read measuring value block, display group 002 ⇒ [Page 01-33](#) .

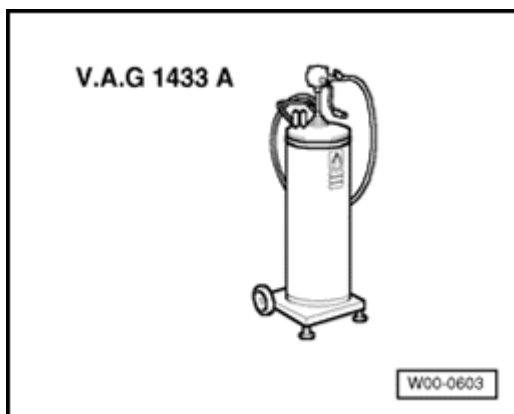
If Read Measuring Value Block does not indicate a short or open circuit in the wiring or the fuel gauge sender, continue with adaptation ⇒ [Page 01-54](#) .

01-54



Fuel gauge, adaptation

Special tools, testers, and auxiliary items required



- ◆ Fuel extraction unit VAG 1433 A (or equivalent, approved fuel cart)
- Switch off ignition.
- Drain fuel tank completely using fuel extraction unit, then fill with 7 liters (1.85 gallons) of fuel.

WARNING!

- ◆ **Fire hazard. DO NOT smoke or work near heaters or have anything in the area that can ignite fuel.**
- ◆ **Always drain fuel from fuel tank using an approved fuel cart.**
- ◆ **Wear fuel-resistant gloves whenever working with open parts of the fuel system.**
- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

01-55



Rapid data transfer Q
10 - Adaptation



Indicated on display:

- Press -Q- button to confirm input.

Adaptation
Enter channel number XX



Indicated on display:

- Press buttons -3- and -0- to select adaptation "channel 30".
- Press -Q- button to confirm input.

Channel 30 Adaptation 128 →
< - 1 3- >



Indicated on display:

Notes:

- ◆ *At least 60 seconds must pass between adding fuel and reading fuel gauge.*
- ◆ *Before this time passes, the fuel gauge reading is unreliable due to the movement of the added fuel.*

01-56



- Using button -1-, the adaptation value can be decreased as low as 120, using button -3-, the value can be increased as high as 136, e.g. 130

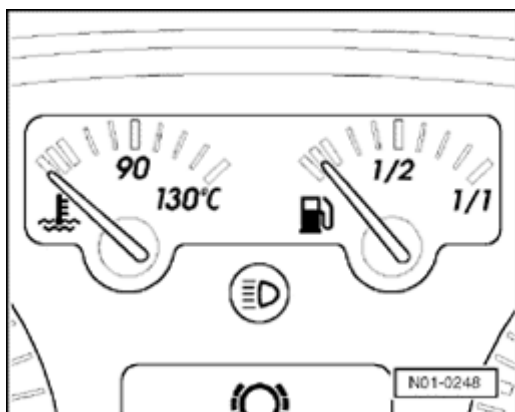
Channel 30 Adaptation 130

Q



- Indicated on display:

< - 1 3- >



The fuel gauge is adapted correctly when the needle rests on the center red demarcation (reserve)!

When indication is OK:

- Press -Q- button to confirm input.

Channel 30 Adaptation 130

Q



- Indicated on display:

Save modified value?

- Press -Q- button to confirm input.

Channel 30 Adaptation 130

→



- Indicated on display:

Modified value is saved

- End adaptation of fuel gauge with → button.

Rapid data transfer

Help



Indicated on display:

Enter address word XX

01-57

**Note:**

Replace fuel gauge sender only if fuel gauge cannot be matched correctly.

- Press buttons -0- and -6- to select function 06, "End Output".

Rapid data transfer

Q



Indicated on display:

06 End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display:

Enter address word XX

The tester is now in basic function again.

01-58



Multi-function Indicator (MFI) fuel consumption indicator, adaptation

Notes:

- ◆ *Consumption indicator can only be adapted once between 85% and 115%.*
- ◆ *Value must be entered in steps of 5%.*
- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

Rapid data transfer
10 - Adaptation

Q



Indicated on display:

- Press -Q- button to confirm input.

Adaptation

Enter channel number XX



Indicated on display:

- Press buttons -0- and -3- to select adaptation "channel 03".
- Press -Q- button to confirm input.

01-59



Channel 03 Adaptation 100



Indicated on display:

< - 1 3- >

- Press → button to continue.

Note:

Correction of fuel consumption display is only possible via direct input.

Channel 03 Adaptation 100

Enter adaptation value XXXXX



Indicated on display:

- Input desired correction value using scan tool button pad, filling initial positions with "0".

Example:

Desired input value: 90% = button pad entry: 00090

Channel 03 Adaptation 100

Q



Indicated on display:

Enter adaptation value 00090

- Press -Q- button to confirm input.

Channel 03 Adaptation 90

Q



Indicated on display:

< - 1 3- >

- Press -Q- button to confirm input.

Channel 03 Adaptation 90

Q



Indicated on display:

Store changed value?

- Press -Q- button to confirm input.

01-60



Channel 03 Adaptation 90



Indicated on display:

Changed value is stored

- End consumption indicator adaptation with → button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

Note:

A false entry switches the tester to "Select function" mode.

Function is unknown or



If the following display appears:

cannot be carried out at the moment

- Press → button.
- Select function "10 - Adaptation" and adaptation channel 03 again.
- Carry out corrections to consumption indicator and confirm with Q button.



Digital clock (Motometer - where applicable), correction

Notes:

- ◆ *Correction of the clock is only possible with Motometer instrument clusters from a limited manufacturing period.*
- ◆ *Scan tool VAG 1551 with a program card version /8.0 is required for clock correction.*

The digital clock in the instrument cluster may deviate from the correct time by a maximum of 5 seconds within 24 hours

If the deviation is greater than 5 seconds:

- Check control module version ⇒ [Page 01-12](#) .

1J0919861D A4 KOMBIINSTR. VDO V02 →
Coding 00042 WSC 00000



If indicated on display (example only): VDO instrument cluster - replace instrument cluster (digital clock cannot be corrected).

1J0919861D KOMBI + WEGFAHRSP. MMO V02 →
Coding 00042 WSC 00000



If indicated on display (example only): Motometer instrument cluster.

- First check VAG program card version, then check if the digital clock can be corrected:

01-62



VAG 1551 program card version, checking

- Press → button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -6- to select function 06, "End Output".

Rapid data transfer
06 - End Output

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
Enter address word XX

HELP



Indicated on display:

- Switch off ignition.
- Disconnect VAG 1551 scan tool from Data Link Connector (DLC).

After approx. 5 seconds:

- Connect cable VAG 1551/3C to DLC again.

VAG 1551 -D / 8.0- 1.10.1998



The VAG 1551 display will show program card version , language and edition date for approx. 3 seconds:

If the display of the VAG 1551 does not indicate program card version /8.0:

- Obtain program card version / 9.0 and insert into VAG 1551.

If the display of the VAG 1551 indicates program card version /8.0 or /9.0, proceed as follows:

01-63



Digital clock, initiate correction

Notes:

- ◆ *The digital clock accuracy can only be adapted with a VAG 1551 in conjunction with program card /8.0 or /9.0.*
- ◆ *The VAG 1551 recognizes instrument cluster versions where clock correction is possible.*
- Select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "Instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -2- to select function 12 "Clock correction".

When the VAG 1551 recognizes a instrument cluster without digital clock correction capabilities, "function 12" cannot be selected. In these cases, replace instrument cluster.

Rapid data transfer
12 - Clock correction

Q



Indicated on display:

- Press -Q- button to confirm input.

The VAG 1551 initiates an automatic sequence after pressing the -Q- button.

Rapid data transfer
Clock correction



Indicated on display during automatic sequence.



Rapid data transfer
Select function XX

HELP



Indicated on display after completion of automatic sequence:

- Press buttons -0- and -6- to select function 06, "End Output".

Rapid data transfer
06 - End Output

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
Enter address word XX

Help



Indicated on display:

- Switch off ignition.
- Disconnect VAG 1551 scan tool from Data Link Connector (DLC).

Note:

After completion of the automatic sequence, the instrument cluster must be briefly disconnected from voltage supply terminal 30 to allow the clock correction to take effect.

- Switch off ignition.
- Remove Fuse No. 15 (5 A) from fuse holder, wait at least 10 seconds, and reinsert fuse.

The clock correction takes effect after reconnecting the instrument cluster to voltage supply terminal 30.

The digital clock accuracy is now corrected.

01-65



Instrument cluster m.y. 2000 through m.y. 2001, On Board Diagnostic (OBD)

General information

The instrument cluster contains an electronic speedometer, tachometer, liquid crystal (LCD) displays for odometer, trip odometer/clock, as well as analog coolant temperature and fuel level gauges. Control and warning lamps are situated within and between the speedometer and tachometer. Automatic transmission models also contain an LCD gear indicator display.

Where available, an LCD multi-function trip computer (MFI) with two operating modes is located in the tachometer display. The MFI includes selectable displays for trip time/mileage, average trip speed, average trip fuel consumption and outside temperature.

The instrument cluster is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored sensors and components, Diagnostic Trouble Codes (DTC) will be stored in memory together with an indication of malfunction type. A maximum of 4 DTCs can be stored simultaneously.

Sporadic malfunctions (indicated in the readout by "SP") are automatically cancelled if not repeated in the next 50 engine starts.

Instrument clusters from m.y. 2000 ➤ are integrated into the "Powertrain" CAN Data Bus network (may also be known as "CAN-Bus" or "Data-Bus").

01-66



The Data Bus On Board Diagnostic Interface - J533- (which is integrated into the instrument cluster) enables data to be exchanged between the "Powertrain" CAN Data-Bus network and the Data Link Connector (DLC) "K-wire".

The Data Bus On Board Diagnostic Interface - J533- has specific On Board Diagnostic (OBD) capabilities.

Before performing any troubleshooting or inspection, always begin by checking for DTCs using the OBD program. DTCs stored in memory are retrieved/checked with either the VAG 1551/1552 Scan Tool (ST) or VAS 5051 Vehicle Diagnostic Tester.

Notes on exchanging instrument cluster

- ◆ Do not disassemble instrument cluster.

- ◆ Instrument clusters contain no field serviceable components. All malfunctions require replacement of instrument cluster.

- ◆ When the replacement of a malfunctioning instrument cluster is necessary, follow exchange part procedures.

- ◆ Complete the report form and return together with instrument cluster.

- ◆ Use the original packaging from the new cluster when returning modules.



- ◆ Replacement instrument clusters must be coded according to vehicle market version and equipment level variables using the OBD program

Vehicles 05.99 ➤ 05.00 ⇒ [Page 01-95](#)

Vehicles 05.00 ➤ ⇒ [Page 01-99](#)

- ◆ Replacement instrument clusters must be adapted for anti-theft immobilizer function ⇒ table of contents for specific applications.
- ◆ The Data Bus On Board Diagnostic Interface - J533- must be coded depending on the vehicle equipment when replacing the instrument cluster ⇒ [Page 01-136](#) .

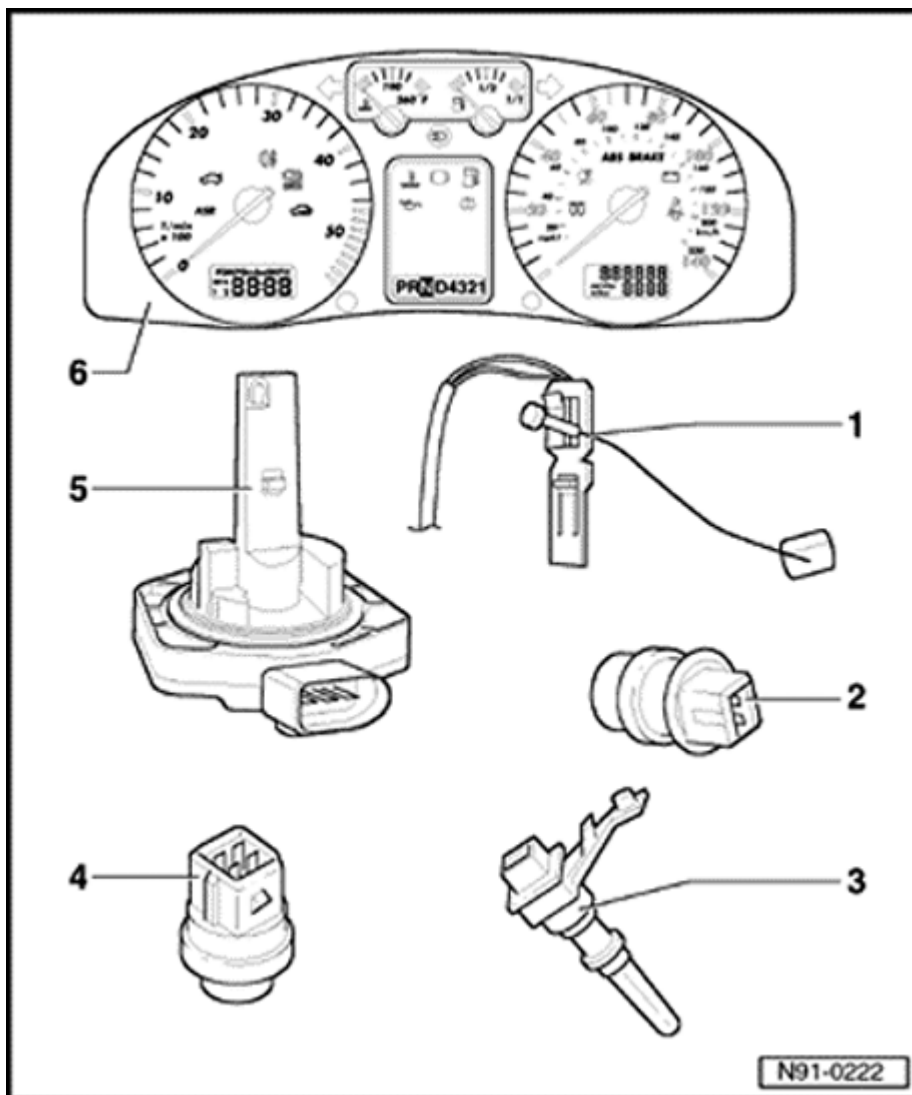
Additional information:

- ◆ Complaint/symptom based Technical Bulletins ("Service Fixes"):

⇒ *Technical Bulletins*

- ◆ Instrument cluster ⇒ [Repair Manual, Electrical Equipment, Repair Group 90](#) .

01-68



Electrical and electronic components, locations

CAUTION!

Before beginning repairs on the electrical system:

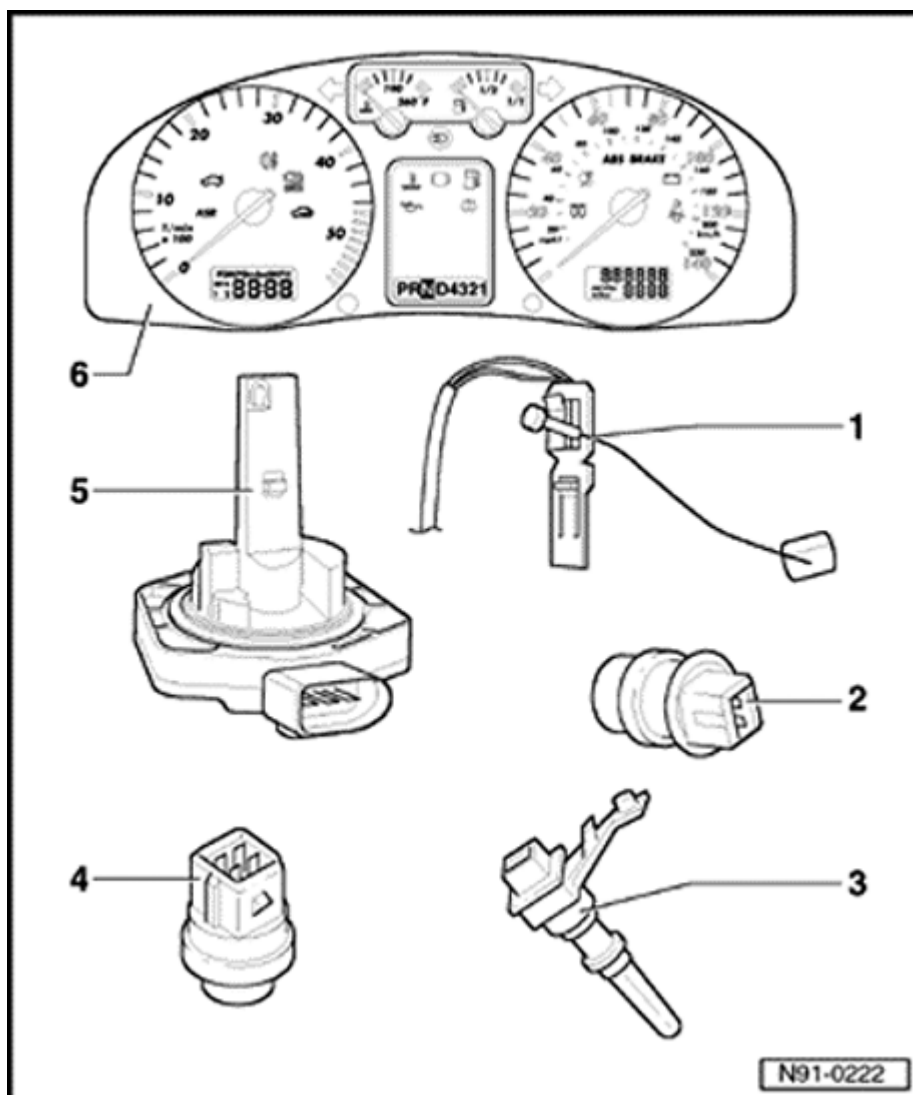
- ◆ **Obtain the anti-theft radio security code.**
- ◆ **Switch off all electrical consumers.**
- ◆ **Switch ignition off and remove ignition key.**
- ◆ **Disconnect negative (-) battery terminal.**
- ◆ **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified in Repair Manual, Electrical Equipment, Repair Group 27**

1 - Sender for gauge sender -G-

◆ Location ⇒

[Fig. 1](#)

◆ Monitored by
OBD



2 - Outside Air Temperature Sensor -G17- (where applicable)

◆ Location
⇒ Fig. 2

◆ Monitored by
OBD

3 - Speedometer Vehicle Speed Sensor (VSS) -G22-

◆ Location
⇒ Fig. 3

4 - Engine Coolant Temperature (ECT) Sensor -G2-

◆ Location

⇒ *Repair Manual, Fuel Injection & Glow Plug, Repair Group 23* ⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

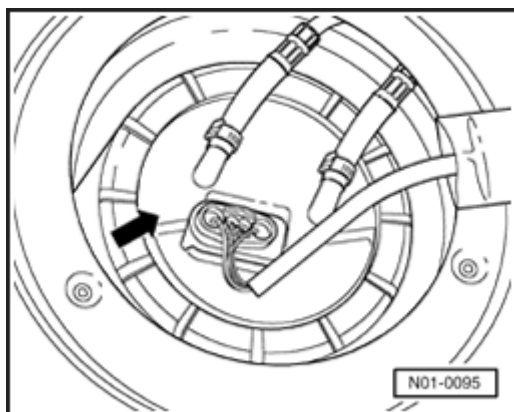
◆ Monitored by
OBD

5 - Not applicable

6 - Instrument Cluster -K

◆ Monitored by
OBD

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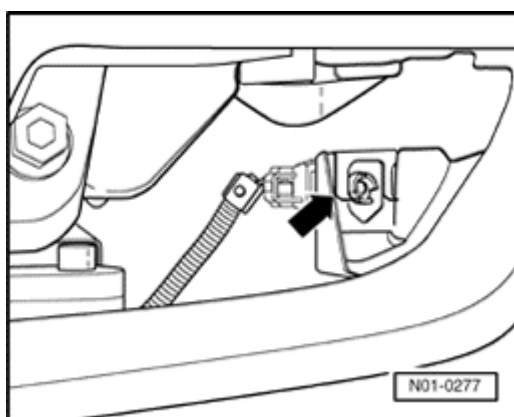


✦ **Fig. 1 Sender for fuel gauge -G-**

Located in fuel tank on fuel delivery unit - arrow-.

Removing and installing

⇒ *Repair Manual, Engine Mechanical, Repair Group 20*



✦ **Fig. 2 Outside Air Temperature Sensor -G17- (where applicable)**

Sensor -arrow- located on left of front bumper behind outer air grill.

Unclip air grill to remove sender.

⇒ *Repair Manual, Body Exterior, Repair Group 63*

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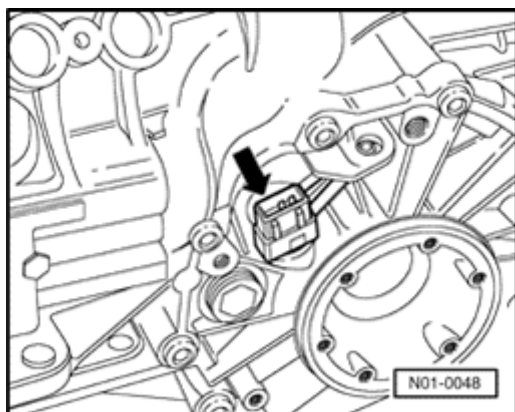


Fig. 3 Speedometer Vehicle Speed Sensor -G22-

Sensor -arrow- located near left-hand drive shaft flange on manual and automatic transmission vehicles.



Instrument cluster On Board Diagnostic (OBD), initiating & checking control module versions

Test requirements:

- ◆ All fuses OK according to wiring diagram
- ◆ Voltage supply OK (at least 11.5 V).
- ◆ Scan Tool VAG 1551 or VAG 1552 connected.

Notes:

- ◆ *Connecting Scan Tool* ⇒ [Page 01-1](#) .
- ◆ *The following description applies only to Scan Tool VAG 1551.*
- Switch on ignition.
- Switch on printer with the PRINT button (indicator lamp in button lights up).
- Press button -1- to select operating mode 1 "Rapid data transfer".

Rapid data transfer
Input address word XX

HELP



Indicated on display:

- Press buttons -1- and -7- to input address word 17, "Instrument cluster".

Rapid data transfer
17 Instrument cluster

Q



Indicated on display:

- Press -Q- button to confirm input.

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Rapid data transfer Q

Tester sends address word 17



Indicated on display:

1J0919860D A4-KOMBI INSTR VDO V04 →

Coding 00042

WSC 00000



Indicated on display (example only):

Top line: Part No. of control module
 System designation (Combi instrument)
 Manufacturer's code³⁾:
 MMO = Motometer
 VDO = VDO
 Software level

Bottom line: Coding¹⁾

Workshop number²⁾

1 - Dependent on engine, transmission and additional equipment

2 - Automatically stored in the control module upon entry into the installed system. But not for coding of control modules that have already been used.

3 - On new instrument clusters the manufacturer code BOO may also appear instead of MMO.

Control module does not answer! HELP

*If this appears on display:*

- Press "HELP" button and a list of possible causes is printed out.
- After repairing malfunctions again enter address word 17 for instrument cluster and confirm with Q.

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IMMO-IDENT No.: VWZ7Z0V0066808 →

- Press → button.

← Indicated on display (example only, only vehicles with anti-theft immobilizer):

Where applicable, Motometer instrument clusters are identified by IMMO-IDENTNO: VWZ6

Where applicable, VDO instrument clusters are identified by IMMO-IDENTNO: VWZ7

- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP

← Indicated on display:



List of available functions

Function		page
01 -	Check Control Module version	⇒ Page 01-72
02 -	Check DTC memory	⇒ Page 01-76
03 -	Output Diagnostic Test Mode	⇒ Page 01-86
05 -	Erase DTC memory	⇒ Page 01-92
06 -	End Output	⇒ Page 01-94
07 -	Code control module 05.99 ➤05.00	⇒ Page 01-95
07	Code control module 05.00 ➤	⇒ Page 01-99
08 -	Read Measuring Value Block	⇒ Page 01-104
10 -	Adaptation	⇒ Page 01-118

Notes:

- ◆ Press **HELP** button to print out a complete list of available functions. This list indicates function capability of VAG 1551 Scan Tool (ST) only, and does not necessarily reflect function capability of vehicle systems equipped with OBD. For instrument cluster address word 17, do not attempt to select functions other than those listed above.
- ◆ After function is completed and forwarded with → button, VAG 1551 Scan Tool (ST) returns to following start position:

Rapid data transfer
Select function XX

HELP



Indicated on display:

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Diagnostic Trouble Code (DTC) memory, checking (function 02)

Note:

DTCs stored in memory along with corresponding malfunction descriptions can only be displayed by initiating the On Board Diagnostic program and checking DTC memory (function 02).

- Connect VAG 1551 Scan Tool, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17, "Instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.
- Switch on printer with the PRINT button (indicator lamp in button lights up).

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -2- to select "Check DTC memory" function 02.

Rapid data transfer
02 - Check DTC memory

Q



Indicated on display:

- Press -Q- button to confirm input.

X DTC's recognized!



The number of stored DTCs appears in the display.

Stored DTCs are displayed and printed out one after another.

01-77



- Check print-out against DTC table and repair all malfunctions as necessary ⇒ [Page 01-78](#) .

No DTC recognized!



If "No DTC recognized" is displayed the program will return to the initial position after pressing → button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

If something else is displayed:

⇒ *Scan tool operating instructions*

- End Output (function 06) ⇒ [Page 01-94](#) .
- Switch ignition off
- Disconnect VAG 1551 from Data Link Connector (DLC).



Diagnostic Trouble Code (DTC) table

Notes:

- ◆ *The following table lists all malfunctions, with the corresponding 5 digit code numbers, that can be recognized by control module with indicator unit in instrument cluster insert -J285- and printed out by the VAG 1551 Scan Tool (ST).*
- ◆ *If malfunctions do not occur regularly, these are displayed as occurring sporadically ("SP").*
- ◆ *DTC codes appear only on print-out.*
- ◆ *Before replacing components, check the wiring and connections to these components as well as ground connections, according to wiring diagram.*
- ◆ *When repair has been carried out, the Diagnostic Trouble Code (DTC) memory must always be erased and checked again with VAG 1551 Scan Tool (ST).*
- ◆ *If there is a specific complaint and no malfunctions are recognized after checking Diagnostic Trouble Code (DTC) memory, carry out function 03, "Output Diagnostic Test Mode (DTM)" ⇒ [Page 01-86](#) or function 08, "Read measuring value block" ⇒ [Page 01-104](#).*

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VAG 1551 print out	Possible cause	Possible effects	Corrective actions
00562 ¹⁾ Oil level thermal sensor -G266- ¹⁾ - Open circuit/short circuit to B+ - Short circuit to Ground - implausible signal	<ul style="list-style-type: none"> ◆ Open/short circuit in wiring between Oil level thermal sensor -G266- and instrument cluster ◆ -G266- malfunctioning 	<ul style="list-style-type: none"> ◆ The oil level control lamp blinks for approx. 5 seconds after ignition is switched on. ◆ An oil temperature of 155 ° C is displayed in measuring value block and the engine oil level is displayed as not OK. 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-104 - Check for open or short circuit in wiring using wiring diagram. - Replace - G266-

¹⁾ Where applicable.



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
00667* Ambient-Temperature Signal Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open/short circuit in wiring between Outside Air Temperature Sensor -G17- and instrument cluster. ◆ -G17- malfunctioning 	<ul style="list-style-type: none"> ◆ Dashes (- - -) appear on display in instrument cluster 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-104 - Check for open or short circuit in wiring using wiring diagram. - Replace -G17-
00771** Fuel Level Sensor -G- Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open or short circuit in wiring between Fuel Level Sensor -G- and instrument cluster ◆ -G- malfunctioning 	<ul style="list-style-type: none"> ◆ Fuel reserve displayed value 0 ("empty") 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-104 - Check for open or short circuit in wiring using wiring diagram. - Replace -G-

**Only for vehicles with Climatronic: A DTC entry is made when the malfunction has been registered continuously for at least 60 seconds.*

*** A DTC entry is made when the malfunction has been registered continuously for at least 20 seconds.*



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
00779** Outside Air Temperature Sensor -G17- Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open or short circuit in wiring between Outside Air Temperature Sensor -G17- and instrument cluster ◆ -G17- malfunctioning 	<ul style="list-style-type: none"> ◆ Dashes (- - -) appear on display in instrument cluster 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-104 - Check for open or short circuit in wiring using wiring diagram. - Replace -G17-
01039* ECT Sensor -G2- Open/Short circuit to B+ Short to Ground (GND)	<ul style="list-style-type: none"> ◆ Open or short circuit in wiring between ECT Sensor -G2- and instrument cluster ◆ -G2- malfunctioning 	<ul style="list-style-type: none"> ◆ Engine coolant temperature (ECT) gauge needle on left stop 	<ul style="list-style-type: none"> - Read Measuring Value Block ⇒ Page 01-104 - Check for open or short circuit in wiring using wiring diagram. - Replace -G2-

****For vehicles with multi-function indicator (MFA) but not with Climatronic**



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
01044 Control Module incorrectly coded	<ul style="list-style-type: none"> ◆ A control module connected to the power-train CAN Bus (Data Bus) is incorrectly coded ◆ A control module connected to the power-train CAN Bus (Data Bus) is malfunctioning 	<ul style="list-style-type: none"> ◆ Functions of systems connected to CAN-Bus not OK 	<ul style="list-style-type: none"> - Check DTC memory of all control modules connected to CAN-Bus and repair malfunctions if necessary - Check control module coding, correct if necessary - Replace control module if necessary
01312 Data Bus Drive - malfunctioning	<ul style="list-style-type: none"> ◆ Malfunction in data wires ◆ CAN Bus in "bus-off" condition 	<ul style="list-style-type: none"> ◆ Functions of systems connected to CAN-Bus not OK 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-104 - Check control module coding - Check DTC memory of all control modules connected to CAN Bus and repair malfunctions if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
01314 Engine Control Module (ECM) - No communication	♦ Data reception by Engine Control Module (ECM) via CAN Bus is not OK.	♦ Functions of systems connected to CAN-Bus not OK	- Read measuring value block ⇒ Page 01-104 - Check DTC memory of Engine Control Module (ECM) and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.
01315 Transmission Control Module (TCM) - No communication	♦ Data reception by Transmission Control Module (TCM) via CAN Bus is not OK.	♦ Functions of systems connected to CAN-Bus not OK	- Read measuring value block ⇒ Page 01-104 - Check DTC memory of Transmission Control Module (TCM) and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.

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VAG 1551 print out	Possible cause	Possible effects	Corrective actions
01316 Brake control module - No communication	◆ Data reception by ABS control module via CAN Bus not OK	◆ Functions of systems connected to CAN-Bus not OK	- Read measuring value block ⇒ Page 01-104 - Check DTC memory of ABS control module and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.
01317 Control module with indicator unit in instrument cluster insert -J 285- - No communication	◆ Malfunction in data wires ◆ Control module malfunctioning	◆ No indication or malfunctioning indication for indicator instruments and control lamps	- Check DTC memory of all control modules connected to CAN Bus and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.



VAG 1551 print out	Possible cause	Possible effects	Corrective actions
01321 Airbag Control Module- -J234- no communication	<ul style="list-style-type: none"> ◆ Data reception by airbag control module via CAN Bus not OK 	<ul style="list-style-type: none"> ◆ Airbag indicator lamp is lit 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-104 - Check DTC memory of airbag control module and eliminate malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.
65535 Control module - Faulty	<ul style="list-style-type: none"> ◆ Control unit with display in instrument cluster - J285- malfunctioning 	<ul style="list-style-type: none"> ◆ No display ◆ Malfunction of display and warning lamps 	<ul style="list-style-type: none"> - Replace instrument cluster
Other DTC's	If other DTC's are displayed that are not shown in this DTC table, perform On Board Diagnostic (OBD) of anti-theft immobilizer system using VAS 5051 Vehicle Diagnostic Testing and Information System.		



Output Diagnostic Test Mode (DTM) (function 03)

The Output Diagnostic Test Mode (DTM) is part of the electrical check. The following components and systems are checked via Output DTM:

- ◆ Speedometer
- ◆ Tachometer
- ◆ Engine Coolant Temperature (ECT) gauge
- ◆ Fuel gauge
- ◆ Brake system warning lamp
- ◆ Seat belt warning lamp
- ◆ Buzzer
- ◆ All liquid quartz displays (LCD): odometer, multi-function indicator (MFI) or digital clock & selector lever position display (automatic transmission)
- ◆ Engine Coolant Temperature (ECT) & low coolant indicator warning lamp
- ◆ Brake pad wear warning lamp (where applicable)
- ◆ Fuel reserve warning lamp
- ◆ Oil pressure warning lamp

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- If a malfunction is determined when performing Output DTM, exchange instrument cluster.
- If no malfunction is determined when performing Output DTM, check wiring and connections to instrument cluster using wiring diagram.

Output Diagnostic Test Mode (DTM), initiating

Notes:

- ◆ *Output Diagnostic Test Mode (DTM) cannot be initiated, or will be interrupted if engine is running or vehicle is moving.*
- ◆ *Use the -C- button to exit the test sequence at any time.*
- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is shown in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -3- to select "Output Diagnostic Test Mode" function 03.

Rapid data transfer

Q



Indicated on display

03 - Output Diagnostic Test Mode

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Rapid data transfer



Analog display

- Press -Q- button to confirm input.

Indicated on display

After pressing the -Q- button, the following instrument functional checks are carried out simultaneously on VDO instrument clusters and sequentially on Motometer instrument clusters (press → button to advance through test sequence):

- ◆ Engine Coolant Temperature (ECT)
Gauge needle moves over complete display range
- ◆ Tachometer needle moves over complete display range
- ◆ Speedometer needle moves over complete display range
- ◆ Fuel gauge needle moves over complete display range

After sweep of display ranges, the following fixed values are displayed:

Coolant temperature gauge:	90 °C
Tachometer:	3000 rpm
Speedometer:	100 km/h (62mph)
Fuel gauge:	1/2

- Press → button.



Output Diagnostic Test Mode →

Combi instrument warning lamp test



Indicated on display:

The warning lamps for

- ◆ Brake system (low brake fluid level, ABS inoperative)
- ◆ Coolant temperature/low coolant level indicator
- ◆ Brake pad wear (where applicable)¹⁾
- ◆ Fuel reserve
- ◆ Oil pressure
- ◆ Low washer fluid level (where applicable)¹⁾

are activated and remain constantly lit.

- Press → button.

Output Diagnostic Test Mode →

Seat belt warning lamp - K19



Indicated on display:

The Seat Belt Warning Light -K19-¹⁾ lights up.

¹⁾ Instrument cluster must be coded accordingly in order for these warning/indicator lights to function.

Applications: vehicles 05.99 ➤ 05.00 ⇒ [Page 01-95](#) , vehicles 05.00 ➤ ⇒ [Page 01-99](#) .

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<p>Output Diagnostic Test Mode Signal</p>	→	←	<p>- Press → button.</p> <p>Indicated on display:</p> <p>The buzzer/chime is activated: a warning tone sounds in intervals.</p> <p>- Press → button.</p>
<p>Output Diagnostic Test Mode Segment test</p>	→	←	<p>Indicated on display:</p> <p>All segments of LCD display in speedometer and tachometer are activated and become visible.</p> <p>- Press → button.</p>
<p>Output Diagnostic Test Mode Coolant, excessive temp test</p>	→	←	<p>Indicated on display:</p> <p>Instrument cluster VDO:</p> <p>Safety cut-off (A/C compressor cut-off- is activated approx. 5 seconds later (vehicles with A/C only)</p> <p>No indication is given in instrument cluster!</p> <p>Instrument cluster MMO:</p> <p>Engine Coolant Temperature (ECT) warning lamp lights and warning sound is given.</p> <p>Safety cut-off (A/C compressor cut-off- is activated approx. 5 seconds later (vehicles with A/C only)</p> <p>- Press → button.</p>

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Output Diagnostic Test Mode →
END

← Indicated on display:

- Press → button.

Output Diagnostic Test Mode →
END

← Indicated on display, instrument cluster MMO:

Function is unknown or →
cannot be carried out at the moment

← *Indicated on display, instrument cluster VDO:*

End Output Diagnostic Test Mode for VDO instrument clusters by pressing → button.

All actual values are displayed again.

Rapid data transfer HELP
Select function XX

← Indicated on display:

- Press buttons -0- and -6- to select function 06, "End Output".

Rapid data transfer Q
06 - End Output

← Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer Help
Enter address word XX

← Indicated on display:

The tester is now in basic function again.



Diagnostic Trouble Code (DTC) memory, erasing (function 05)

Note:

After DTC memory is erased, its contents are automatically output. If DTC memory cannot be erased, check DTC memory again and repair malfunction.

Prerequisites

- ◆ DTC memory checked ⇒ [Page 01-76](#) .
- ◆ All malfunctions repaired.

After successful DTC memory check:

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -5- to select "Erase DTC memory" function 05.

Rapid data transfer
05 Erase DTC memory

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
DTC memory is erased!

→



Indicated on display:

DTC memory is erased.

- Press → button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

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**WARNING!**

DTC memory was not checked



◆ *If this appears in the display, the test sequence is faulty.*

Rapid data transfer



DTC memory was not checked



◆ *If this appears in the display, the test sequence is faulty.*

◆ *Follow test sequence exactly: first check DTC memory, repair malfunction(s) if necessary, then erase.*

Note:

After erasing the DTC memory its contents will automatically be indicated. If the DTC memory cannot be erased, again check DTC memory and repair malfunctions.

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End Output (function 06)

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

HELP



Indicated on display:

Enter address word XX

- Switch off ignition.
- Disconnect VAG 1551 from Data Link Connector (DLC).



Instrument cluster 05.99 ➤ 05.00, coding (function 07)

Using this function the instrument cluster can be coded as follows:

- ◆ Available equipment activation
- ◆ Market versions
- ◆ Cylinders (engine)
- ◆ Distance impulse number (K-number)

Note:

The code table lists only those combinations applicable to Golf/Jetta from 05.99 ➤ 05.00.

Initiating coding

- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed..

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -7- to select "Code Control Module" function 07.



Rapid data transfer Q
07 - Code control module



Indicated on display:

- Press -Q- button to confirm input.

Code Control Module
Enter code number XXXXX (0-32000)



Indicated on display:

- Determine vehicle particulars and input code number using coding table ⇒ [Page 01-98](#) .

Example:

Note:

Values shown below are examples only!!

02	Available equipment: seatbelt warning active
2	Market version: USA
4	4-cylinders
2	Distance impulse number

Code Control Module Q
Enter code number 02242 (0-32000)



Indicated on display (example only):

- Press -Q- button to confirm input.

1J0919860D A4 COMBI INSTR VDO V04 →
Coding 02242 WSC 00000



Indicated on display (example only):

- Press → button.

Rapid data transfer HELP
Select function XX



Indicated on display:

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End function:

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display

Enter address word XX

The tester is now in basic function again.

**Code table:**

Code assembly				Designations
1+2	3	4	5	Position
00				Available equipment¹⁾ None
01				Brake pad wear warning
02				Seatbelt warning
04				Washer fluid level warning
	2			Market version USA (US)
	3			Canada (CDN)
		4		Cylinders 4-cylinders
		6		6-cylinders
			2	Distance impulse number (K number)²⁾ 3538

¹⁾ To determine code number for first two positions, add applicable available equipment code numbers together. For example, to activate brake wear indicator and seatbelt warning: 01 + 02 = 03 (in positions 1+2).

2) Distance impulse number is a constant used to calculate speed indication and distance travelled. Code for USA/CDN Golf/Jetta is always 2. Distance impulse number can only be read/confirmed using function 10, "Adaptation" ⇒ [Page 01-125](#) .

01-99



Instrument cluster 05.00 ➤, coding (function 07)

Using this function the instrument cluster can be coded as follows:

- ◆ Available equipment activation
- ◆ Market versions
- ◆ Service Intervals
- ◆ Distance impulse number (K-number)

Note:

The code table lists only those combinations applicable to Golf/Jetta through from 05.00 ➤.

Initiating coding

- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed..

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -7- to select "Code control module" function 07.



Rapid data transfer Q
07 - Code control module



Indicated on display:

- Press -Q- button to confirm input.

Code Control Module
Enter code number XXXXX (0-32000)



Indicated on display:

- Determine vehicle particulars and input code number using coding table ⇒ [Page 01-102](#) .

Example:

Note:

Values shown below are examples only!!

- | | |
|----|---|
| 02 | Available equipment:
seatbelt warning active |
| 2 | Market version: USA |
| 3 | Service Interval |
| 2 | Distance impulse number |

Code Control Module Q
Enter code number 02232 (0-32000)



Indicated on display (example only):

- Press -Q- button to confirm input.

1J0919860D A4 COMBI INSTR VDO V04 →
Coding 02232 WSC 00000



Indicated on display (example only):

- Press → button.

Rapid data transfer HELP
Select function XX



Indicated on display:

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End function:

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display

Enter address word XX

The tester is now in basic function again.

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**Code table:**

Code assembly				Designations
1+2	3	4	5	Position
00				Available equipment¹⁾ None Brake pad wear warning Seatbelt warning Washer fluid level warning
01				
02				
04				
	2			Market version USA (US) Canada (CDN)
	3			
		3		Service interval USA/CDN models without Service Interval display
			2	Distance impulse number (K number)²⁾ 3538 3648
			4	

1) To determine code number for first two positions, add applicable available equipment code numbers together. For example, to activate brake wear indicator and seatbelt warning: 01 + 02 = 03 (in positions 1+2).

2) Distance impulse number is a constant used to calculate speed indication and distance travelled and is dependent on engine/transmission combination ⇒ [Page 01-103](#) . Distance impulse number can only be read/confirmed using function 10, "Adaptation" ⇒ [Page 01-125](#) .

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**Distance impulse number, determining**

Engine/Transmission combinations:	Code:
all engines with 5-speed automatic transmission	4
all other engine/transmission combinations	2

01-104



Read Measuring Value Block (function 08)

Use this function to observe various instrument cluster inputs.

The measuring value block is divided into 6 display groups, each containing 4 display fields.

- Connect VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed.

Rapid data transfer

HELP



Indicated on display:

Select function XX

- Press buttons -0- and -8- to select "Read Measuring Value Block" function 08.

Rapid data transfer Q



Indicated on display:

08 - Read Measuring Value Block

- Press -Q- button to confirm input.

Read Measuring Value Block HELP



Indicated on display:

Enter display group number XXX

- Using the Scan Tool (ST) button pad, enter the required display group number (following example shows display group 001).
- Press -Q- button to confirm input.

Read Measuring Value Block 1



Indicated on display: (1...4 = Display fields)

1 2 3 4

**Notes:**

- ◆ *Interpreting display groups and evaluating measured values in individual display fields
⇒ tables beginning ⇒ [Page 01-106](#) .*
- ◆ *With the printer switched on, the information on the display is printed out.*
- ◆ *To easily change between display groups, proceed as follows:*

Display group	VAG 1551	VAG 1552
Higher	Press button 3	Press ↑ button
Lower	Press button 1	Press ↓ button
Skip	Press button C	Press button C

- Displayed after pressing C button.

Read Measuring Value Block HELP

Enter display group number XXX



Indicated on display:

- Enter alternate display group number as needed
⇒ tables beginning ⇒ [Page 01-106](#) .

Notes:

- ◆ *Display fields always show actual values transmitted from senders and sensors. However, instrument cluster display values can differ from those in the display fields due to internal filtering.*
- ◆ *Other display groups are possible, but are not required for On Board Diagnostic program!*



Display groups, interpreting

Display group 001						
Read Measuring Value Block 1				Indicated on display		
xxx	xxx	xxx	xxx	Display fields		Evaluating display fields
1	2	3	4	Designation		⇒ Page 01-107
			Time	Clock time in hours and minutes		
		Oil pressure switch 0.9 bar		Oilp2<min Oilp2 OK.		
	Engine speed (RPM)			Engine speed in rpm		
Speed				Speed in km/h		

01-107



Evaluating display group 001

Display field	Description	Display	Corrective actions
1	Speed	Speed in km/h	<ul style="list-style-type: none"> - Visually check wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction or replace the relevant component - Erase DTC memory - Perform functional check - Check DTC memory again
2	Engine speed (RPM)	Engine speed in rpm	
3	Oil pressure switch 0.9 bar	Oilp2<min Oilp2 OK.	
4	Time	Clock time in hours and minutes	



Display group 002						
Read Measuring Value Block 2 xxx xxx xxx xxx				◀ Indicated on display		
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Ambient temperature 1)	Ambient temperature in °C	⇒ Page 01-109
				Ω value of sender for fuel gauge -G-	Resistance in Ω	
Fuel level				Fuel level in liters		
Distance travelled (odometer)				Distance in km		

1) For instrument clusters with Multi Function Indicator (MFI) or Climatronic

01-109



Evaluating display group 002

Display field	Description	Display	Corrective actions
1	Distance travelled (odometer)	Distance in km	<ul style="list-style-type: none"> - Visually check wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction or replace the relevant component - Erase DTC memory - Perform functional check - Check DTC memory again
2	Fuel level ¹⁾	Fuel level in liters	
3	Ω value of sender for fuel gauge -G-	Resistance in Ω	
4	Ambient temperature	Ambient temperature in $^{\circ}\text{C}$	

¹⁾ When the fuel level sender has an open circuit, "OL " is displayed in display field 2, and 510 Ω is displayed in field 3. When the fuel level sender has a short circuit, "0L " is displayed in display field 2, and 0 Ω is displayed in field 3.

01-110



Display group 003						
Read Measuring Value Block 3				◀ Indicated on display		
xxx	xxx	xxx	xxx	◀ Display fields		Evaluating display fields
1	2	3	4	Empty		
Empty			Empty			
Empty			Empty			
Engine Coolant Temperature (ECT)				Engine coolant temperature in °C		⇒ Page 01-111

01-111

**Evaluating display group 003**

Display field	Description	Display	Corrective actions
1	Engine Coolant Temperature (ECT) ¹⁾	Engine coolant temperature in °C	<ul style="list-style-type: none">- Visually check wire routing- Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display- If the display content does not change during operation, repair malfunction or replace the relevant component- Erase DTC memory- Perform functional check- Check DTC memory again

¹⁾ If the actual coolant temperature value lies between approx. 75 °C and 107 °C, the instrument cluster will always display 90 °C!

01-112



Display group 050						
Read Measuring Value Block 50 xxx xxx xxx xxx				→	◀ Indicated on display	
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Engine Coolant Temperature (ECT)	Engine coolant temperature in °C	⇒ Page 01-113
				Engine Oil Temperature ¹⁾	Oil temperature in °C	
				Engine speed (RPM)	Engine speed in rpm	
				Distance travelled (odometer)	Distance travelled in km	

¹⁾ Where applicable

01-113



Evaluating display group 050

Display field	Description	Display	Corrective actions
1	Distance travelled	Distance travelled in km	<ul style="list-style-type: none"> - Visually check wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction or replace the relevant component - Erase DTC memory - Perform functional check - Check DTC memory again
2	Engine speed (RPM)	Engine speed in rpm	
3	Engine Oil temperature ¹⁾	Engine oil temperature in °C	
4	Engine Coolant Temperature (ECT)	Engine coolant temperature in °C	

¹⁾ Where applicable

**Notes:**

- ◆ *Display fields in display groups 125 and 126 provides the CAN-Bus function status codes of various control modules connected to the "Powertrain" CAN-Bus network.*
- ◆ *If a vehicle is not equipped with control module (s) listed in the following display groups, the applicable display field remains blank. Check correct coding of CAN-Bus On Board Diagnostic (OBD) interface -J533- ⇒ [Page 01-149](#).*
- ◆ *Display field content differs between VDO and MMO instrument clusters!*

Display group 125						
Read Measuring Value Block 125				→ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Airbag Control Module ¹⁾	Airbag 1 ¹⁾	⇒ Page 01-115
				ABS Control Module	ABS 1	
				Automatic Transmission Control Module (TCM)	Transm. 1	
				Engine Control Module (ECM)	Engine 1	

¹⁾ Only for VDO. Motometer ⇒ Display group 126, display field 2.

01-115



Evaluating display group 125

Display field	Description	Display	Corrective actions
1	Engine Control Module (ECM)	<p>Engine 1 = OK, Data recieved from ECM</p> <p>Engine 0 = not OK, No data recieved from ECM</p>	<ul style="list-style-type: none"> - Visually check CAN Bus wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction - Erase DTC memory - Perform functional check - Check DTC memory again
2	Transmission Control Module (TCM)	<p>Transm. 1 = OK Data recieved from TCM</p> <p>Transm. 0 = not OK No data recieved from TCM</p>	
3	ABS-control module	<p>ABS 1 = OK, Data recieved from ABS control module</p> <p>ABS 0 = not OK, No data recieved from ABS control module</p>	
4	Airbag-control module (VDO only)	<p>Airbag 1 = OK, Data received from Airbag</p>	

		control module	
		Airbag 0 = not OK,	
		No data recieved from Airbag control module	

01-116



Display group 126						
Read Measuring Value Block 126 →				◀ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Empty		
				Empty		
				Airbag control module ¹⁾	Airbag 1	⇒ Page 01-117
Empty						

¹⁾ Only for Motometer, VDO ⇒ Display group 125, display field 4.

01-117



Evaluating display group 126

Display field	Description	Display	Corrective actions
2	Airbag control module (Motometer only)	<p>Airbag 1 = OK, Data recieved from Airbag control module</p> <p>Airbag 0 = not OK, No data recieved from Airbag control module</p>	<ul style="list-style-type: none"> - Visually check CAN Bus wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction - Erase DTC memory - Perform functional check - Check DTC memory again



Adaptation (function 10)

Use this function to initiate and store the following changes:

- ◆ Adaptation of odometer reading when replacing/exchanging instrument cluster.
- ◆ Adaptation of fuel gauge reading.
- ◆ Adaptation of Multi-function Indicator (MFA) fuel consumption indicator (where applicable).

Individual functions are called up using the appropriate channel number from adaptation table ⇒ [Page 01-119](#) .

01-119

**Adaptation table:**

Adaptation channel	Adaptation functions
03	Multi-function Indicator (MFI) fuel consumption indicator (where applicable), adaptation ⇒ Page 01-133
09	Odometer, adaptation ⇒ Page 01-120
16	Distance impulse number (K number), reading/confirming ⇒ Page 01-125
30	Fuel gauge, checking/adaptation ⇒ Page 01-128

Note:

After changing an adaptation value or ending an adaptation channel the function "10 - Adaptation" must be performed to select another adaptation channel!



Odometer, adaptation

Notes:

- ◆ *Market and equipment appropriate coding of instrument cluster must be performed before adaptation of odometer reading. Vehicles. 05.99 ➤ 05.00 ⇒ [Page 01-95](#) , vehicles 05.00 ➤ ⇒ [Page 01-99](#) .*
- ◆ *The total distance travelled by the vehicle can be read from the malfunctioning instrument cluster or determined by the vehicle service history.*
- ◆ *The total distance travelled display of new instrument cluster must not be more than 100 km (62 mi) before adaptation.*
- ◆ *The total distance travelled to be transferred to the new instrument cluster must exceed 100 km (62 mi).*
- ◆ *Adapting the total distance travelled is only possible once and only in a positive (upwards) direction.*
- ◆ *Adaptation can be interrupted with the "C" button of the VAG 1551*
- ◆ *Correcting a false entry which has been confirmed is not possible. The instrument cluster must be exchanged for a new one.*
- ◆ *Adaptation value must be entered in kilometers. For US models, adaptation value must be converted from miles to kilometers first (miles x 1.609 = kilometers).*

01-121



Adaptation, example

The malfunctioning instrument cluster has an odometer reading of 89627 km. This reading is transferred to the new instrument cluster as follows:

- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed..

Note:

Login procedure is only needed for VDO instrument clusters. On Motometer instrument clusters, adaptation functions can be selected immediately.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press button -1- twice to select "Login" function 11.
- Press -Q- button to confirm input.

Rapid data transfer
11 - Login procedure

Q



Indicated on display:

- Press -Q- button to confirm input.

Login procedure
Enter code number XXXXX

Q



Indicated on display:

- Enter code number 13861.

01-122



<p>Login procedure Enter code number 13861</p>	Q	◀	<p>Indicated on display:</p> <p>"FAIL" appears in odometer if a false code or secret number is entered 3 times.</p> <p>In this case terminal 30 (battery) must be disconnected and reconnected again and the Login procedure repeated using the correct code number.</p> <ul style="list-style-type: none"> - Press -Q- button to confirm input.
<p>Rapid data transfer Select function XX</p>	HELP	◀	<p>Indicated on display:</p> <ul style="list-style-type: none"> - Press buttons -1- and -0- to select "Adaptation" function 10.
<p>Rapid data transfer 10 - Adaptation</p>	Q	◀	<p>Indicated on display:</p> <ul style="list-style-type: none"> - Press -Q- button to confirm input.
<p>Adaptation Enter channel number XX</p>		◀	<p>Indicated on display:</p> <ul style="list-style-type: none"> - Press buttons -0- and -9- to select adaptation "channel 09". - Press -Q- button to confirm input.
<p>Channel 9 Adaptation 0</p>	<p style="text-align: center;">→</p> <p style="text-align: center;"><-1 3-></p>	◀	<p>Indicated on display:</p> <ul style="list-style-type: none"> - Press → button to advance program sequence.
<p>Channel 9 Adaptation 0 Enter adaptation value XXXXX</p>		◀	<p>Indicated on display:</p>

01-123



- Enter adaptation value using VAG 1551 button pad.

The last position of the kilometer reading must be rounded off to the nearest 10 kms. Therefore, a kilometer reading of 89627 produces an adaptation value of:

0 8 9 6 3

X					Hundred thou.: 100000 ... 655350 km
	X				Ten thousands: 10000 ... 90000 km
		X			Thousands: 1000 ... 9000 km
			X		Hundreds: 100 ... 900 km
				X	Tens: 10 ... 90 km
					Units: round up to next ten

- After entering adaptation value using VAG 1551 button pad,

Channel 9 Adaptation 0 q
Enter adaptation value 08963



Indicated on display (example only):

- Press -Q- button to confirm input.

Channel 9 Adaptation 8963 q
<-1 3->



Indicated on display:

The kilometer reading entered now appears in the display of the instrument cluster. If the displayed kilometer reading is not OK, e.g. false entry:

- Press -C- button and enter correct adaptation value again.

01-124



If the displayed kilometer reading in instrument cluster is OK:

- Press -Q- button to confirm input.

Channel 9 Adaptation 8963
Store changed value?

Q



Indicated on display:

- Press -Q- button to confirm input.

Channel 9 Adaptation 8963
Changed value is stored

→



Indicated on display:

- End odometer adaptation by pressing → button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer
06 End Output

Q



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer
Enter address word XX

Help



Indicated on display:

The tester is now in basic function again.



Distance impulse number (K number), reading/confirming

Distance impulse number can only be read/confirmed on VDO instrument clusters.

Notes:

- ◆ *The distance impulse number is a constant used to calculate the speed indication and distance travelled.*
- ◆ *The distance impulse number (K number) cannot be changed using the "Adaptation" function. To change the distance impulse number, a code that corresponds to the vehicle engine/gearbox combination must be entered using "Code Control Module" function 07. Vehicles. 05.99 ➤ 05.00 ⇒ [Page 01-95](#) , vehicles 05.00 ➤ ⇒ [Page 01-99](#) .*
- ◆ *For instrument clusters with mile indicators, the distance impulse number is shown in kilometers. The trip impulse number for mile values can be calculated as follows: Trip impulse number for kilometer values x 1.609 = trip impulse number for mile values.*
- ◆ *Press the -C- button on the VAG 1551 to abort the "Read distance impulse number" function.*

01-126



- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".

- Press -Q- button to confirm input.

- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

Rapid data transfer
10 - Adaptation

Q



Indicated on display:

- Press -Q- button to confirm input.

Adaptation

Enter channel number XX



Indicated on display:

- Press buttons -1- and -6- to select adaptation "channel 16".
- Press -Q- button to confirm input.

Channel 16 Adaptation 3538

→



Indicated on display (example only):

<- 1 3 ->

- Read/confirm distance impulse number in accordance with production date and/or vehicle engine/gearbox combinations ⇒ code tables:vehicles 05.99 ➤ 05.00 ⇒ [Page 01-95](#) , vehicles 05.00 ➤ ⇒ [Page 01-99](#) .

01-127



- Interrupt "Reading distance impulse number" with "C" button.

Adaptation



Indicated on display:

Enter channel number XX

- Press "C" button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display:

Enter address word XX

The tester is now in basic function again.



Fuel gauge, checking

If the fuel gauge displays the contents of the fuel tanks as being too high or too low, the fuel gauge needle position can be corrected (adapted).

First perform the following procedures:

- Perform Output Diagnostic Test Mode (DTM) for instrument cluster ⇒ [Page 01-86](#) .

If Output Diagnostic Test Mode (DTM) does not recognize a malfunction, check function of sender for fuel gauge -G-:

- Check resistance value of sender for fuel gauge in read measuring value block, display group 002 ⇒ [Page 01-104](#) .

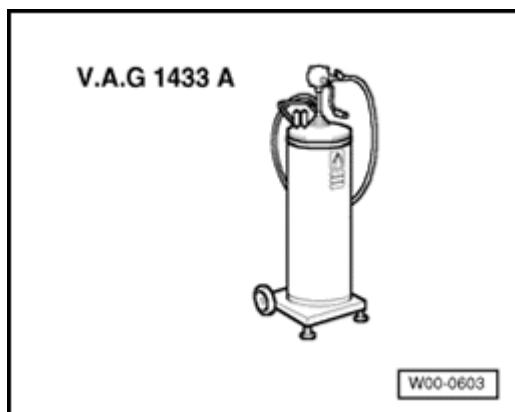
If Read Measuring Value Block does not indicate a short or open circuit in the wiring or the fuel gauge sender, continue with adaptation ⇒ [Page 01-129](#) .

01-129



Fuel gauge, adaptation

Special tools, testers, and auxiliary items required



- ◆ Fuel extraction unit VAG 1433 A (or equivalent, approved fuel cart)
- Switch off ignition.
- Drain fuel tank completely using fuel extraction unit, then fill with 7 liters (1.85 gallons) of fuel.

WARNING!

- ◆ **Fire hazard. DO NOT smoke or work near heaters or have anything in the area that can ignite fuel.**
- ◆ **Always drain fuel from fuel tank using an approved fuel cart.**
- ◆ **Wear fuel-resistant gloves whenever working with open parts of the fuel system.**
- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

01-130



Rapid data transfer

Q



Indicated on display:

10 - Adaptation

- Press -Q- button to confirm input.

Adaptation



Indicated on display:

Enter channel number XX

- Press buttons -3- and -0- to select adaptation "channel 30".
- Press -Q- button to confirm input.

Channel 30 Adaptation 128

→



Indicated on display:

< - 1 3- >

Notes:

- ◆ *At least 60 seconds must pass between adding fuel and reading fuel gauge.*
- ◆ *Before this time passes, the fuel gauge reading is unreliable due to the movement of the added fuel.*

01-131



- Using button -1-, the adaptation value can be decreased as low as 120, using button -3-, the value can be increased as high as 136, e.g. 130

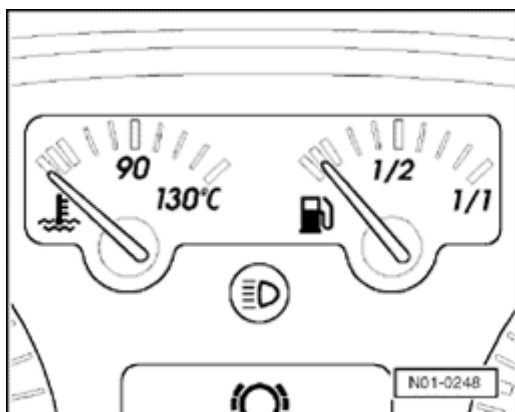
Channel 30 Adaptation 130

Q



- Indicated on display:

< - 1 3- >



The fuel gauge is adapted correctly when the needle rests on the center red demarcation (reserve)!

When indication is OK:

- Press -Q- button to confirm input.

Channel 30 Adaptation 130

Q



- Indicated on display:

Save modified value?

- Press -Q- button to confirm input.

Channel 30 Adaptation 130

→



- Indicated on display:

Modified value is saved

- End adaptation of fuel gauge with → button.

Rapid data transfer

Help



Indicated on display:

Enter address word XX

01-132

**Note:**

Replace fuel gauge sender only if fuel gauge cannot be matched correctly.

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 End Output

- Press -Q- button to confirm input.

Rapid data transfer

Help



Indicated on display:

Enter address word XX

The tester is now in basic function again.

01-133



Multi-function Indicator (MFI) fuel consumption indicator, adaptation

Notes:

- ◆ *Consumption indicator can only be adapted once between 85% and 115%.*
- ◆ *Value must be entered in steps of 5%.*
- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -1- and -0- to select "Adaptation" function 10.

Rapid data transfer
10 - Adaptation

Q



Indicated on display:

- Press -Q- button to confirm input.

Adaptation

Enter channel number XX



Indicated on display:

- Press buttons -0- and -3- to select adaptation "channel 03".
- Press -Q- button to confirm input.

01-134



Channel 03 Adaptation 100



Indicated on display:

< - 1 3- >

- Press → button to continue.

Note:

Correction of fuel consumption display is only possible via direct input.

Channel 03 Adaptation 100

Enter adaptation value XXXXX



Indicated on display:

- Input desired correction value using scan tool button pad, filling initial positions with "0".

Example:

Desired input value: 90% = button pad entry: 00090

Channel 03 Adaptation 100

Q



Indicated on display:

Enter adaptation value 00090

- Press -Q- button to confirm input.

Channel 03 Adaptation 90

Q



Indicated on display:

< - 1 3- >

- Press -Q- button to confirm input.

Channel 03 Adaptation 90

Q



Indicated on display:

Store changed value?

- Press -Q- button to confirm input.

01-135



Channel 03 Adaptation 90



Indicated on display:

Changed value is stored

- End consumption indicator adaptation with → button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

Note:

A false entry switches the tester to "Select function" mode.

Function is unknown or

*If the following display appears:*

cannot be carried out at the moment

- Press → button.
- Select function "10 - Adaptation" and adaptation channel 03 again.
- Carry out corrections to consumption indicator and confirm with Q button.



Data Bus On Board Diagnostic Interface -J533- ("Gateway") m.y. 2000 through m.y. 2001, On Board Diagnostic (OBD)

General information

Instrument clusters from m.y. 2000 are integrated into the "Powertrain" CAN Data Bus network (may also be know as "CAN-Bus" or "Data-Bus").

The Data Bus On Board Diagnostic (OBD) interface -J533- (which is integrated into the instrument cluster) enables data to be exchanged between the various CAN-Bus networks and the Data Link Connector (DLC) "K-wire".

The Data Bus On Board Diagnostic (OBD) interface -J533- has specific On Board Diagnostic (OBD) capabilities via address word 19 "Gateway", and must always be coded separately from the instrument cluster ⇒ [Page 01-149](#) .



Data Bus On Board Diagnostic Interface, On Board Diagnostic (OBD), initiating & checking control module versions

Test requirements:

- ◆ All fuses OK according to wiring diagram
- ◆ Voltage supply OK (at least 11.5 V).
- ◆ Scan Tool VAG 1551 or VAG 1552 connected.

Notes:

- ◆ *Connecting Scan Tool* ⇒ [Page 01-1](#) .
- ◆ *The following description applies only to Scan Tool VAG 1551.*
- Switch on ignition.
- Switch on printer with the PRINT button (indicator lamp in button lights up).
- Press button -1- to select operating mode 1 "Rapid data transfer".

Rapid data transfer
Input address word XX

HELP



Indicated on display:

- Press buttons -1- and -9- to input "Gateway" address word 19.

Rapid data transfer

Q



Indicated on display:

- Press -Q- button to confirm input.

19 - Diagnostic Interface for Data Bus



Rapid data transfer Q
 Tester sends address word 19



Indicated on display:

6N0909901 Gateway K <-> CAN 0001
 Coding 00007 WSC 00000



Indicated on display (example only):

Top line: Part No. of control module
 System designation

(Gateway K <-> CAN)¹⁾

Software level

Bottom line: Coding²⁾

Workshop number

¹⁾ The Data Bus On Board Diagnostic Interface -J533- in instrument cluster is referred to in the OBD program as "Gateway".

²⁾ Dependant on the control modules connected to the CAN Bus network.

- Press → button.

Rapid data transfer HELP
 Select function XX



Indicated on display:

- After the HELP button is pressed, a list of the possible functions is printed out.



List of available functions

Function		page
01 -	Check Control Module Versions	⇒ Page 01-137
02 -	Check DTC memory	⇒ Page 01-140
05 -	Erase DTC memory	⇒ Page 01-146
06 -	End Output	⇒ Page 01-148
07 -	Code Control Module	⇒ Page 01-149
08 -	Read Measuring Value Block	⇒ Page 01-151

Notes:

- ◆ *Press HELP button to print out a complete list of available functions. This list indicates function capability of VAG 1551 Scan Tool (ST) only, and does not necessarily reflect function capability of vehicle systems equipped with OBD. For "Gateway" address word 19, do not attempt to select functions other than those listed above.*
- ◆ *After function is completed and forwarded with → button, VAG 1551 Scan Tool (ST) returns to following start position:*

Rapid data transfer
Select function XX

HELP



Indicated on display:



Diagnostic Trouble Code (DTC) memory, checking (function 02)

Note:

DTCs stored in memory along with corresponding malfunction descriptions can only be displayed by initiating the On Board Diagnostic program and checking DTC memory (function 02).

- Connect VAG 1551 Scan Tool, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 19, "Gateway".
- Press -Q- button to confirm input.
- Press → button until "Select function" appears in display.
- Switch on printer with the PRINT button (indicator lamp in button lights up).

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -2- to select "Check DTC memory" function 02.

Rapid data transfer
02 - Check DTC memory

Q



Indicated on display:

- Press -Q- button to confirm input.

X DTC's recognized!



The number of stored DTCs appears in the display.

Stored DTCs are displayed and printed out one after another.



- Check print-out against DTC table and repair all malfunctions as necessary ⇒ [Page 01-142](#) .

No DTC recognized!



If "No DTC recognized" is displayed the program will return to the initial position after pressing → button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

If something else is displayed:

⇒ *Scan tool operating instructions*

- End Output (function 06) ⇒ [Page 01-148](#) .
- Switch ignition off
- Disconnect VAG 1551 from Data Link Connector (DLC).



Diagnostic Trouble Code (DTC) table

Notes:

- ◆ *The following table lists all malfunctions, with the corresponding 5 digit code numbers, that can be recognized by the Data Bus On Board Diagnostic Interface -J533- and printed out by the VAG 1551 Scan Tool (ST).*
- ◆ *If malfunctions do not occur regularly, these are displayed as occurring sporadically ("SP").*
- ◆ *DTC codes appear only on print-out.*
- ◆ *Before replacing components, check the wiring and connections to these components as well as ground connections, according to wiring diagram.*
- ◆ *When repair has been carried out, the Diagnostic Trouble Code (DTC) memory must always be erased and checked again with VAG 1551 Scan Tool (ST).*
- ◆ *If there is a specific complaint and no malfunctions are recognized after checking Diagnostic Trouble Code (DTC) memory, carry out "Read measuring value block" ⇒ [Page 01-151](#) .*

VAG 1551 print out	Possible cause	Possible effects	Corrective action
01044 Control Module incorrectly coded	<ul style="list-style-type: none"> ◆ A control module connected to the power-train CAN Bus (Data Bus) is incorrectly coded ◆ A control module connected to the power-train CAN Bus (Data Bus) is malfunctioning 	Functions of systems connected to CAN-Bus not OK	<ul style="list-style-type: none"> - Check DTC memory of all control modules connected to CAN-Bus and repair malfunctions if necessary - Check control module coding, correct if necessary - Replace control module if necessary



VAG 1551 print out	Possible cause	Possible effects	Corrective action
01312 Data Bus Drive malfunctioning	<ul style="list-style-type: none"> ◆ Malfunction in data wires ◆ CAN Bus in "bus-off" condition 	<ul style="list-style-type: none"> ◆ Functions of systems connected to CAN-Bus not OK 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-151 - Check control module coding - Check DTC memory of all control modules connected to CAN Bus and repair malfunctions if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.
01314 Engine Control Module (ECM) No communication	<ul style="list-style-type: none"> ◆ Data reception from Engine Control Module (ECM) via CAN Bus is not OK. 	<ul style="list-style-type: none"> ◆ Functions of systems connected to CAN-Bus not OK 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-151 - Check DTC memory of Engine Control Module (ECM) and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.



VAG 1551 print out	Possible cause	Possible effects	Corrective action
01315 Transmission Control Module (TCM) No communication	<ul style="list-style-type: none"> ◆ Data reception from Transmission Control Module (TCM) via CAN Bus is not OK. 	<ul style="list-style-type: none"> ◆ Functions of systems connected to CAN-Bus not OK 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-151 - Check DTC memory of Transmission Control Module (TCM) and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.
01316 Brake control module No communication	<ul style="list-style-type: none"> ◆ Data reception from ABS control module via CAN Bus not OK 	<ul style="list-style-type: none"> ◆ Functions of systems connected to CAN-Bus not OK 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-151 - Check DTC memory of ABS control module and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.



VAG 1551 print out	Possible cause	Possible effects	Corrective action
01317 Control module with indicator module in instrument cluster insert -J285- No communication	<ul style="list-style-type: none"> ◆ Malfunction in data wires ◆ Control module malfunctioning 	<ul style="list-style-type: none"> ◆ No indication or malfunctioning indication for indicator instruments and control lamps 	<ul style="list-style-type: none"> - Check DTC memory of all control modules connected to CAN Bus and repair malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.
01321 Airbag Control Module- -J234- No communication	<ul style="list-style-type: none"> ◆ Data reception by airbag control module via CAN Bus not OK 	<ul style="list-style-type: none"> ◆ Airbag indicator lamp is lit 	<ul style="list-style-type: none"> - Read measuring value block ⇒ Page 01-151 - Check DTC memory of airbag control module and eliminate malfunction if necessary - Check for open or short circuit in CAN Bus wiring using wiring diagram.



Diagnostic Trouble Code (DTC) memory, erasing (function 05)

Note:

After DTC memory is erased, its contents are automatically output. If DTC memory cannot be erased, check DTC memory again and repair malfunction.

Prerequisites

- ◆ DTC memory checked ⇒ [Page 01-140](#) .
- ◆ All malfunctions repaired.

After successful DTC memory check:

Rapid data transfer HELP
Select function XX



Indicated on display:

- Press buttons -0- and -5- to select "Erase DTC memory" function 05.

Rapid data transfer Q
05 Erase DTC memory



Indicated on display:

- Press -Q- button to confirm input.

Rapid data transfer →
DTC memory is erased!



Indicated on display:

DTC memory is erased.

- Press → button.

Rapid data transfer HELP
Select function XX



Indicated on display:



Notes:

WARNING!

DTC memory was not checked



◆ *If this appears in the display, the test sequence is faulty.*

Rapid data transfer



◆ *If this appears in the display, the test sequence is faulty.*

DTC memory was not checked

◆ *Follow test sequence exactly: first check DTC memory, repair malfunction(s) if necessary, then erase.*



End Output (function 06)

- Press buttons -0- and -6- to select "End Output" function 06.

Rapid data transfer

Q



Indicated on display:

06 - End Output

- Press -Q- button to confirm input.

Rapid data transfer

HELP



Indicated on display:

Enter address word XX

- Switch off ignition.
- Disconnect VAG 1551 from Data Link Connector (DLC).



Gateway, coding (function 07)

When replacing the instrument cluster, the Data Bus On Board Diagnostic Interface -J533- must be coded according to vehicle equipment.

Note:

Coding must be performed regardless if the instrument cluster is new or has been previously coded (installed in a vehicle).

Initiating coding

- Press buttons -0- and -7- to select "Code Control Module". function 07.

Rapid data transfer
07 - Code control module

Q



Indicated on display:

- Press -Q- button to confirm input.

Code Control Module
Enter code number XXXXX (0-32000)



Indicated on display:



- Determine code number using code table below:

Control Modules on "Powertrain" CAN Bus	Code:
Automatic transmission	00001
Anti-lock brake system (ABS)	00002
Airbag	00004

Code numbers for all control modules connected to the CAN-Bus must be added.

Example:

Airbag + ABS + Autom. transmission: 00004 + 00002 + 00001 = 00007

- Use scan tool button pad to enter code number.

6N0909901 Gateway K <-> CAN 0001
Coding 00007 WSC 00000



Indicated on display (example only):

- Press -Q- button to confirm input.

Rapid data transfer HELP
Select function XX



Indicated on display:

- Press buttons -0- and -6- to select "End Output" function 06.

The tester is again in basic function.



Read Measuring Value Block (function 08)

Use this function to observe status of communication between control modules via the Powertrain CAN Bus..

The measuring value block is divided into 2 display groups, each containing 4 display fields.

- Connect VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "instrument cluster".
- Press -Q- button to confirm input.
- Press → button until "Select function" is displayed.

Rapid data transfer HELP
Select function XX



Indicated on display:

- Press buttons -0- and -8- to select "Read Measuring Value Block" function 08.

Rapid data transfer Q
08 - Read Measuring Value Block



Indicated on display:

- Press -Q- button to confirm input.

Read Measuring Value Block HELP
Enter display group number XXX



Indicated on display:

- Using the Scan Tool (ST) button pad, enter the required display group number (following example shows display group 001).
- Press -Q- button to confirm input.

Read Measuring Value Block 1 →
1 2 3 4



Indicated on display: (1...4 = Display fields)

**Notes:**

- ◆ *Interpreting display groups and evaluating measured values in individual display fields
⇒ tables beginning ⇒ [Page 01-153](#) .*
- ◆ *With the printer switched on, the information on the display is printed out.*
- ◆ *To easily change between display groups, proceed as follows:*

Display group	VAG 1551	VAG 1552
Higher	Press button 3	Press ↑ button
Lower	Press button 1	Press ↓ button
Skip	Press button C	Press button C

- Displayed after pressing C button.

Read Measuring Value Block HELP

Enter display group number XXX



Indicated on display:

- Enter alternate display group number as needed
⇒ tables beginning ⇒ [Page 01-153](#) .

Notes:

- ◆ *Display fields always show actual values transmitted from senders and sensors. However, instrument cluster display values can differ from those in the display fields due to internal filtering.*
- ◆ *Other display groups are possible, but are not required for On Board Diagnostic program!*

**Notes:**

- ◆ *Display fields in display groups 125 and 126 provides the CAN-Bus function status codes of various control modules connected to the "Powertrain" CAN-Bus network.*
- ◆ *If a vehicle is not equipped with control module (s) listed in the following display groups, the applicable display field remains blank. Check correct coding of CAN-Bus On Board Diagnostic (OBD) interface -J533- ⇒ [Page 01-149](#).*
- ◆ *Display field content differs between VDO and MMO instrument clusters!*

Display groups, interpreting

Display group 125						
Read Measuring Value Block 125 →				◀ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
				Airbag-control module ¹⁾	Airbag 1 ¹⁾	⇒ Page 01-154
				ABS control module	ABS 1	
				Autom. transmission control module	Transm. 1	
Engine					Engine 1	

¹⁾ Only for VDO. Motometer ⇒ Display group 126, display field 2.



Evaluating display group 125

Display field	Description	Display	Corrective action
1	Engine Control Module (ECM)	Engine 1 = OK, Data reception via CAN Bus OK Engine 0 = not OK, Data reception via CAN Bus not OK	<ul style="list-style-type: none"> - Visually check CAN Bus wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction - Erase DTC memory - Perform functional check - Check DTC memory again
2	Transmission Control Module (TCM)	Transm. 1 = OK, Data reception via CAN Bus OK Transm. 0 = not OK, Data reception via CAN Bus not OK	
3	ABS-control module	ABS 1 = OK, Data reception via CAN Bus is OK ABS 0 = not OK, Data reception via CAN Bus not OK	
4	Airbag-control module	Airbag 1 = OK, Data reception via CAN Bus is	

		OK Airbag 0 = not OK, Data reception via CAN Bus not OK	
--	--	--	--



Display group 126						
Read Measuring Value Block 126 →				◀ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display fields	Designation	Evaluating display fields
Empty						⇒ below
Empty						
Airbag control module					Airbag 1	
Empty						

Evaluating display group 126

Display field	Description	Display	Corrective action
2	Airbag control module	Airbag 1 = OK, Data reception via CAN Bus is OK Airbag 0 = not OK, Data reception via CAN Bus not OK	<ul style="list-style-type: none"> - Visually check CAN Bus wire routing - Check harness connectors of the appropriate electrical circuit for proper and secure seating and simultaneously observe display - If the display content does not change during operation, repair malfunction - Erase DTC memory - Perform functional check - Check DTC memory again

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Anti-theft immobilizer, On Board Diagnostic (OBD)

General information

All anti-theft immobilizer OBD program functions must be performed using the VAS 5051 Vehicle Diagnostic Testing and Information System in operating mode "Guided Fault Finding" or "Vehicle Self-Diagnosis".

Anti-theft immobilizer system/component description and repairs ⇒ [Repair Manual, Electrical Equipment, Repair Group 96](#) .



Airbag system, On Board Diagnostic (OBD)

Function

The Airbag Control Module -J234- is located behind the console on the tunnel. It is equipped with a DTC memory. The On Board Diagnostic (OBD) connection is located under the driver's knee bar to left of the steering wheel.

The control module detects malfunctions in the airbag system and stores them in a permanent memory.

Malfunctions which can be attributed to a temporary open circuit in the wiring or a loose contact, will also be stored. These malfunctions will be displayed as sporadic DTCs "SP".

After the ignition is switched on, the Airbag Malfunction Indicator Lamp (MIL) -K75- comes on for about 4 seconds and then goes out again. If the lamp then flashes for a further 15 seconds this signals that the airbags or the belt tensioners are electronically blocked.



- ◆ If the warning lamp -K75- does not go out again after about 4 seconds, then the voltage supply to the Airbag Control Module -J234- is malfunctioning. Check DTC memory ⇒ ⇒ [Page 01-30](#) .
- ◆ A malfunction is present if the warning lamp -K75- lights up again. Check DTC memory ⇒ ⇒ [Page 01-30](#) .
- ◆ If the warning lamp -K75- flashes continuously then the control module -J234- must be replaced.

To commence troubleshooting, initiate self-diagnosis and retrieve the stored information with the V.A.G 1551 scan tool.

The malfunction information displayed is used to refer to a DTC table with notes on the possible causes for directed repair measures.

WARNING!

- ◆ **Only visual check of wiring!**
- ◆ **Do not carry out electrical continuity tests or measurements to igniter circuits!**
- ◆ **Only check wiring with ignition switched off!**



Introducing On Board Diagnostic (OBD) for airbag

- Connecting scan tool ⇒ ⇒ [Page 01-3](#) .
- Switch on printer with Print button (warning lamp in button lights up).
- Switch on ignition.

Rapid data transfer
Enter address word XX

HELP



Indicated on display:

- Press buttons -1- and -5- (the address word of the vehicle system to be tested "Airbag" is entered with 15).

Rapid data transfer
15 Airbag

Q



Indicated on display:

- Confirm entry with the -Q- button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

Note:

Rapid data transfer
control module does not answer!

HELP



- ◆ *If one of the malfunction messages opposite appears in the display, the possible causes of the malfunction can be printed out with the HELP button.*

Rapid data transfer
K wire not switching to B+!

HELP



- ◆ *Ignition must be switched on.*

Rapid data transfer
No signal from control module!

→



- ◆ *Malfunctions have occurred at the start of or during the program (external interference?).*

01-8



Rapid data transfer →

Fault in communication build up

**Note:**

◆ *Check diagnosis wires as well as voltage supply and Ground connection.*

- After repairing the possible causes of the fault, once again enter the address word 15 for "Airbag" by pressing -1- and -5- buttons and confirm with the -Q- button.

Rapid data transfer

Tester sends the address word 15



Indicated in display after entering the address word 15:

and then the following appears in the display:

1J0 909 608 D AIRBAG VW 3-S V03 →

Coding 00068

WSC12345



Indicated on display (see parts catalog for latest control module version).

- Press → button.

Rapid data transfer

HELP

Select function XX



Indicated on display:



List of selectable functions

	page
01 - Check Control Module Version	⇒ Page 01-10
02 - Check DTC Memory	⇒ Page 01-30
03 - Output Diagnostic Test Mode	⇒ Page 01-87
05 - Erase DTC memory	⇒ Page 01-32
06 - End Output	⇒ Page 01-33
07 - Code Control Module	⇒ Page 01-13
08 - Read Measuring Value Block	⇒ Page 01-69

Note:

- ◆ *A list of possible functions is printed out after pressing the HELP button.*
- ◆ *Do not select further functions, which can be printed out after pressing the HELP button.*
- ◆ *After the function is completed the V.A.G 1551 returns to the following start position:*

Rapid data transfer
Select function XX

HELP



Indicated on display:

01-10



Control Module Version, checking

- Connecting scan tool ⇒ ⇒ [Page 01-3](#) , initiating On Board Diagnostic (OBD) ⇒ ⇒ [Page 01-7](#) .
- Switch on printer with Print button (warning lamp in button lights up).
- Press buttons -0- and -1-.

Rapid data transfer

Q



Indicated on display:

01-Check Control Module Version

- Confirm entry with the -Q- button.

01-11



1J0 909 609 A AIRBAG VW 3 SG V03 →
Coding 00068 WSC12345

Control module VW3 (example)



Indicated on display (see parts catalog for latest control module version).

Top line

- ◆ 1J0 909 609 A = Control module Part No.
- ◆ Airbag VW3 = System designation
- ◆ S = Side airbag, G = Elect. belt tensioner
- ◆ V03 = software version number

Lower line

- ◆ Coding XXXXX = Coding variants
- ◆ WSC XXXXX = Dealership number (Will be automatically stored in the control module when entering the system)

- Press → button.

Rapid data transfer HELP
Enter address word XX



Indicated on display:

01-12



6Q0909605 A 0F AIRBAG VW5 02 0004 →

Coding 12358

WSC12345

**Control module VW5 (example)**

Indicated on display (see parts catalog for latest control module version).

Top line

- ◆ 6Q0909605 A = Control module Part No.
- ◆ 0F = Index
- ◆ Airbag VW5 = System designation
- ◆ 02 = version number crash sensor
- ◆ 0004 = software version number

Lower line

- ◆ Coding XXXXX = Coding variants
- ◆ WSC XXXXX = Dealership number (Will be automatically stored in the control module when entering the system)

- Press → button.

Rapid data transfer

HELP

Enter address word XX



Indicated on display:



Airbag Control Module, coding using V.A.G 1551 scan tool

Coding is only possible when a new control module is used.

- Connecting scan tool ⇒ ⇒ [Page 01-3](#) , initiating On Board Diagnostic (OBD) ⇒ ⇒ [Page 01-7](#) .
- Switch on printer with Print button (warning lamp in button lights up).

The Airbag Malfunction Indicator Lamp (MIL) - K75- lights up continuously.

- Press buttons -1- and -5- (the address word of the vehicle system to be tested "Airbag" is entered with 15).

Rapid data transfer q ↵
15 Airbag

Indicated on display:

- Confirm entry with the -Q- button.

6Q0 909 605 A AIRBAG VW 3-OM V03 →
Coding 00000 WSC 00066

Indicated on display (see parts catalog for latest control module version):

- Press → button.

Rapid data transfer HELP ↵
Select function XX

Indicated on display:

- Press buttons -0- and -7- (with 07 the function "Code control module" is selected).

Rapid data transfer q ↵
07 Code control module

Indicated on display:

- Confirm entry with the -Q- button.

01-14



Code control module

Enter code number XXXXX (0-32000)



Indicated on display:

- Enter code number according to table:

Vehicle equipment	Part No.	Index	Code number
Only driver's airbag	1J0 909 603	AP	16720
Only driver's airbag	6Q0 909 601	0B	12354
Driver's/passenger's airbag	1J0 909 603	AN	16718
Driver's/passenger's airbag	6Q0 909 601	0C	12355
Driver's/passenger's airbag	6Q0 909 601	12	12594
Driver's/passenger's airbag USA	6Q0 909 601	0D	12356
Driver's/passenger's airbag USA	1J0 909 603	J	00074
Driver's/passenger's airbag USA (Mexico production)	6Q0 909 601	0M	12365
Driver's/passenger's airbag	6Q0 909 601	1F	12614
Driver's/passenger's airbag USA	6Q0 909 601	1G	12615
Driver's/passenger's airbag USA (Brazil production)	6Q0 909 601	1H	12616
Driver's/passenger's airbag with seat belt detection for switch-over activation limit	6Q0 909 601	1J	12618

01-15



Vehicle equipment	Part No.	Index	Code number
Driver's/passenger's airbag USA	6Q0 909 601	1K	12619
Driver's/passenger's airbag with seat belt detection for switch-over activation limit USA (Brazil production)	6Q0 909 601	1L	12620
Driver's/passenger's airbag	6Q0 909 601	21	12849
Driver's/passenger's airbag USA	6Q0 909 601	22	12850
Driver's/passenger's airbag USA	6Q0 909 601	23	12851
Driver's/passenger's airbag USA (Brazil production)	6Q0 909 601	13	12595
Driver's/ and side airbags	1J0 909 608	AS	16723
Driver's/passenger's and side airbags	1J0 909 608	AR	16722
Driver's/ and side airbags + electr. belt tensioner	1J0 909 609	B	00066
Driver's/ and side airbags + electr. belt tensioner USA	1J0 909 609	C	00067
Driver's/ and side airbags + electr. belt tensioner	6Q0 909 605 A	01	12337

01-16



Vehicle equipment	Part No.	Index	Code number
Driver's/passenger's and side airbags + electr. belt tensioner	6Q0 909 605 A	2B	12866
Driver's/ and side airbags + electr. belt tensioner	6Q0 909 605 A	0E	12357
Driver's/ and side airbags + electr. belt tensioner (Brazil production)	6Q0 909 605 A	2D	12868
Driver's/ passenger's/ and side airbags + electr. belt tensioner	6Q0 909 605 A	2E	12869
Driver's/ passenger's/ and side airbags + electr. belt tensioner	1J0 909 609	A	00065
Driver's/ passenger's/ and side airbags + electr. belt tensioner	6Q0 909 605 A	02	12338
Driver's/ passenger's/ and side airbags + electr. belt tensioner	6Q0 909 605 A	0F	12358
Driver's/ passenger's airbag, side airbags + electr. belt tensioner with seat belt detection for switch-over activation limit	6Q0 909 605 A	0G	12359

01-17



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's/ and side airbags + electr. belt tensioner	6Q0 909 605 A	0T	12372
Driver's/ passenger's/ and side airbags + electr. belt tensioner (Brazil production)	6Q0 909 605 A	13	12595
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA	6Q0 909 605 A	03	12339
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Mexico production)	6Q0 909 605 A	09	12345
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Brazil production)	6Q0 909 605 A	11	12593
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA	6Q0 909 605 A	12	12594

01-18



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Brazil production)	6Q0 909 605 A	14	12596
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA	6Q0 909 605 A	21	12849
Driver's/ passenger's airbag, side airbags + electr. belt tensioner (Brazil production)	6Q0 909 605 A	22	12850
Driver's/ passenger's airbag, side airbags + electr. belt tensioner	6Q0 909 605 A	23	12851
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Mexico production)	6Q0 909 605 A	15	12597
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Brazil production) with seat belt detection for switch-over activation limit	6Q0 909 605 A	UM	21837

01-19



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Mexico production) with seat belt detection for switch-over activation limit	6Q0 909 605 A	UN	21838
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Mexico production) with seat belt detection for switch-over activation limit	6Q0 909 605 A	1N	12622
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA	6Q0 909 605 A	0M	12345
Driver's/ passenger's airbag, side airbags + electr. belt tensioner USA (Brazil production) with seat belt detection for switch-over activation limit	6Q0 909 605 A	1M	12621
Driver's/ side / side curtain airbags + electr. belt tensioner	6Q0 909 605 F	01	12337

01-20



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	6Q0 909 605 F	02	12338
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	6Q0 909 605 F	X1	12337
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner USA	6Q0 909 605 F	X4	22580
Driver's/ passenger's airbag, side and side curtain airbags + electr. belt tensioner USA with seat belt detection for switch-over activation limit	6Q0 909 605 F	Y3	22835
Driver's/ passenger's airbag, side and side curtain airbags + electr. belt tensioner USA with seat belt detection for switch-over activation limit	6Q0 909 605 F	Y4	22836

01-21



Vehicle equipment	Part No.	Index	Code number
Driver's/passenger's airbag, side and side curtain airbags	6Q0 909 608	AT	16724
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	6Q0 909 605 F	02	12338
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner USA	6Q0 909 605 F	03	12339
Driver's/passenger's airbag, side and side curtain airbags + electr. belt tensioner USA with seat belt detection for switch-over activation limit (Mexico production)	6Q0 909 605 F	04	12340
Driver's/passenger's airbag, side and side curtain airbags + electr. belt tensioner USA (Mexico production)	6Q0 909 605 F	05	12341
Driver's/passenger's airbag, side and side curtain airbags + electr. belt tensioner USA	6Q0 909 605 F	06	12342

01-22



Vehicle equipment	Part No.	Index	Code number
Driver's/passenger's airbag, side and side curtain airbags + electr. belt tensioner USA (Brazil production)	6Q0 909 605 F	07	12343
Driver's/ passenger's airbag, side and side curtain airbags + electr. belt tensioner with seat belt detection for switch-over activation limit USA (Brazil production)	6Q0 909 605 F	08	12344
Driver's/ passenger's airbag, side and side curtain airbags + electr. belt tensioner USA (Mexico production)	6Q0 909 605 F	09	12345
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	6Q0 909 605 F	0A	12353
Driver's/passenger's airbag, side and side curtain airbags + electr. belt tensioner USA (Brazil production)	6Q0 909 605 F	0B	12354
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	6Q0 909 605 F	21	12849

01-23



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's airbag, side airbags + electr. belt tensioner (Brazil production)	6Q0 909 605 A	22	12850
Driver's/ passenger's airbag, side airbags + electr. belt tensioner	6Q0 909 605 A	23	12851
Driver's/passenger's airbag	1C0 909 601	1F	12614
Driver's/passenger's airbag (Mexico production)	1C0 909 601	1G	12615
Driver's/passenger's airbag (Brazil production)	1C0 909 601	1H	12616
Driver's/passenger's airbag	1C0 909 601	1J	12618
Driver's/passenger's airbag with seat belt detection for switch-over activation limit USA (Mexico production)	1C0 909 601	1K	12619
Driver's/passenger's airbag with seat belt detection for switch-over activation limit USA (Brazil production)	1C0 909 601	1L	12620
Driver's/passenger's airbag	1C0 909 601	21	12849

01-24



Vehicle equipment	Part No.	Index	Code number
Driver's/passenger's airbag (Brazil production)	1C0 909 601	22	12850
Driver's/passenger's airbag	1C0 909 601	23	12851
Driver's/ passenger's/ side airbags + electr. belt tensioner	1C0 909 605 A	12	12549
Driver's/ passenger's/ side airbags + electr. belt tensioner (Brazil production)	1C0 909 605 A	14	12596
Driver's/ passenger's/ side airbags + electr. belt tensioner (Mexico production)	1C0 909 605 A	15	12597
Driver's/ passenger's/ side airbags + electr. belt tensioner with seat belt detection for switch-over activation limit USA (Brazil production)	1C0 909 605 A	1M	12621

01-25



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's/ side airbags + electr. belt tensioner with seat belt detection for switch-over activation limit USA (Mexico production)	1C0 909 605 A	1N	12622
Driver's/ passenger's/ side airbags + electr. belt tensioner with seat belt detection for switch-over activation limit	1C0 909 605 A	0G	12359
Driver's/ passenger's/ side airbags + electr. belt tensioner	1C0 909 605 A	21	12849
Driver's/ passenger's/ side airbags + electr. belt tensioner (Brazil production)	1C0 909 605 A	22	12850
Driver's/ passenger's/ side airbags + electr. belt tensioner (Mexico production)	1C0 909 605 A	23	12851

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Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's/ side airbags + electr. belt tensioner	1C0 909 605 A	2B	12866
Driver's/ passenger's/ side airbags + electr. belt tensioner (Brazil production)	1C0 909 605 A	2D	12868
Driver's/ passenger's/ side airbags + electr. belt tensioner (Mexico production)	1C0 909 605 A	2E	12869
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	1C0 909 605 F	0A	12353
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner (Brazil production)	1C0 909 605 F	0B	12354
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner with seat belt detection for switch-over activation limit	1C0 909 605 F	03	12339

01-27



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner with seat belt detection for switch- over activation limit (Mexico production)	1C0 909 605 F	04	12340
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner (Mexico production)	1C0 909 605 F	05	12341
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner	1C0 909 605 F	06	12342
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner (Brazil production)	1C0 909 605 F	07	12343

01-28



Vehicle equipment	Part No.	Index	Code number
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner with seat belt detection for switch-over activation limit (Brazil production)	1C0 909 605 F	08	12344
Driver's/ passenger's/ side and side curtain airbags + electr. belt tensioner (Mexico production)	1C0 909 605 F	09	12345

- Confirm entry with the -Q- button.

6Q0 909 605 A AIRBAG VW 3-OM V03 →
Coding 12345 WSC 00066



The control module identification number with the relevant letter index, code number and workshop code is displayed.

If the contents of the display are as shown then the coding is successful.

01-29



If the control module code number entered is not accepted, then the "FAULT" and the "code xxxxx not accepted" will be displayed, e.g. 00200:

FAULT



Coding 00200 not accepted

Indicated on display:

In this case the control module has not been programmed with the relevant data for the vehicle. Coding is then not possible. The Airbag Malfunction Indicator Lamp (MIL) -K75- will not extinguish and lights up continuously. A check must then be completed to see if the correct control module for the vehicle has been installed (compare Part No. and letter index), or whether an incorrect code number has been entered.

End output:

- Press → button.

Rapid data transfer

HELP



Select function XX

Indicated on display:

- Press buttons -0- and -6- to end the output.
- Confirm entry with the -Q- button.

Rapid data transfer

Q



06 End output

Indicated on display:

Airbag Malfunction Indicator Lamp (MIL) - K75- must go out after approx. 4 seconds.



Check DTC Memory

- Connecting scan tool ⇒ ⇒ [Page 01-3](#) , initiating On Board Diagnostic (OBD) ⇒ ⇒ [Page 01-7](#) .
- Switch on printer with Print button (warning lamp in button lights up).
- Press buttons -0- and -2- (the function "Check DTC memory" is entered with 02).

Rapid data transfer
02 - Check DTC memory

Q



Indicated on display:

- Press "Print" button.
- Confirm entry with the -Q- button.

X DTCs recognized!



The number of stored malfunctions appears in the display.

The stored malfunctions are displayed and printed out one after the other.

- Enter DTC table at malfunction printed out and repair.

No DTC recognized!

→



If "No DTC recognized" is displayed, the program will return to the initial position after pressing the → button.



Rapid data transfer

HELP



Indicated on display:

Select function XX

If something else is displayed:

Scan tool operating instructions

- End output (function 06) ⇒ ⇒ [Page 01-33](#) .
- Switch off ignition and separate diagnostic connections.

Note:

If a DTC is recognized:

- ◆ 1 . **Repair malfunction**
- ◆ 2. *Erase DTC memory (function 05).*
- ◆ 3. *Check DTC memory again (function 02).*



Erase DTC memory

- Connecting scan tool ⇒ ⇒ [Page 01-3](#) , initiating On Board Diagnostic (OBD) ⇒ ⇒ [Page 01-7](#) .
- Switch on printer with Print button (warning lamp in button lights up).

Prerequisites:

- ◆ DTCs are repaired
- ◆ DTC memory checked again
- Press buttons -0- and -5- (the function "Erase DTC memory" is entered with 05).

Rapid data transfer
05 Erase DTC memory

Q



Indicated on display:

- Confirm entry with the -Q- button.

Rapid data transfer
DTC memory is erased!

→



Indicated on display:

- Press → button.

Rapid data transfer
Select function XX

HELP



Indicated on display:

Note:

WARNING!
DTC memory was checked not



- ◆ *If this appears in the display, the test sequence is faulty.*
- ◆ *Adhere strictly to test sequence; first of all check DTC memory, then erase memory.*

01-33



End output

- Press buttons -0- and -6- to end the output.

Rapid data transfer Q
06 End output



Indicated on display:

- Confirm entry with the -Q- button.

Rapid data transfer HELP
Enter address word XX



Indicated on display:

- Switch off ignition.
- Disconnect connector to V.A.G 1551 scan tool.



Diagnostic Trouble Code (DTC) table

Note:

- ◆ *The following table lists all the malfunctions, with the corresponding 5-digit code numbers, that can be recognized by the Airbag Control Module -J234- and printed out by the V.A.G 1551 .*
- ◆ *The most current coding for airbags can only be found using the VAS 5051. To get the control module coding list through Guided Fault Finding press the "Go to" button, and select "Function/Component selection". Follow the prompts through to Functions - Code Airbag Control Module..*
- ◆ *DTC's appear only on print-out.*
- ◆ *Some of the mentioned DTC texts are only displayed on the VAS 5051. On the V.A.G 1551 , only the DTC will be printed in this case.*
- ◆ *The possible malfunctions are dependant on the respective vehicle equipment.*
- ◆ *Before replacing a component shown as malfunctioning, check wiring and connections to the component as well as Ground connections according to wiring diagram.*
- ◆ *Check all relay plate connections are seated securely.*
- ◆ *After completing repairs, the DTC memory must always be re-checked and erased using the V.A.G 1551 scan tool.*
- ◆ *In addition, the malfunction type may also appear in the DTC table.*

V.A.G 1551 display	Possible cause	Corrective action
00000 No DTC recognized	If "No DTC recognized" appears after performing repairs, the On Board Diagnostic (OBD) is ended.	

01-35



V.A.G 1551 display	Possible cause	Corrective action
00532 Supply voltage Signal too large Signal too small	Alternator malfunctioning Wiring or connections to Airbag Control Module -J234- Battery discharged or malfunctioning	- Test alternator Electrical Wiring Diagrams, Troubleshooting & Component Locations - Test wiring and connections to control module using wiring diagram - Charge or replace battery

01-36



V.A.G 1551 display	Possible cause	Corrective action
00588 Airbag igniter - driver's side -N95- Resistance too high Resistance too low Short to B+ Short to Ground	Faulty wiring or connections Driver's airbag -N95- malfunctioning Coil connector with slip ring - F138- malfunctioning	- Replace faulty wiring or connections - Replace driver's airbag -N95- - Replace coil connector with slip ring - Read Measuring Value Block ⇒ ⇒ Page 01-69

01-37



V.A.G 1551 display	Possible cause	Corrective action
<p>00589</p> <p>Airbag igniter 1 - passenger's side -N131-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Front passenger's airbag igniter - N131- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace front passenger's airbag unit -N131-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-38



V.A.G 1551 display	Possible cause	Corrective action
<p>00591</p> <p>Left Seat Belt Switch -E24-</p> <p>undefined switch condition</p> <p>Short circuit to Ground (GND)</p> <p>Open circuit/short circuit to B+</p>	<p>Faulty wiring or connections</p> <p>Left Front Seatbelt Microswitch - F140- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Left Front Seatbelt Microswitch -F140-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69 Display Group 003</p>

01-39



V.A.G 1551 display	Possible cause	Corrective action
<p>00592</p> <p>Right Seat Belt Switch -E25-</p> <p>Undefined switch condition</p> <p>Short circuit to Ground (GND)</p> <p>Open circuit/short circuit to B+</p>	<p>Faulty wiring or connections</p> <p>Right Front Seatbelt Microswitch -F141- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Right Front Seatbelt Microswitch -F141-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69 Display Group 003</p>

01-40



V.A.G 1551 display	Possible cause	Corrective action
00594 Airbag igniter circuit Short circuit	Faulty wiring or connections to airbag units	- Read Measuring Value Block ⇒ ⇒ Page 01-69
00595 Crash data stored		- Replace control module - Replace activated airbag units as well as all damaged components

01-41



V.A.G 1551 display	Possible cause	Corrective action
00654 Belt tensioner igniter - driver's side -N153- ¹⁾ Resistance too high Resistance too low Short to B+ Short to Ground	Faulty wiring or connectors Driver's side belt tensioner igniter -N153- malfunctioning	- Read Measuring Value Block ⇒ ⇒ Page 01-69 - Replace driver's side belt tensioner -N153-

¹⁾ Only valid for vehicles with electric belt tensioners, the display is not relevant for vehicles with mechanical belt tensioners.



V.A.G 1551 display	Possible cause	Corrective action
00655 Belt tensioner igniter - passenger's side - N154- ¹⁾ Resistance too high Resistance too low Short to B+ Short to Ground	Faulty wiring or connectors Passenger's side belt tensioner igniter -N154- malfunctioning	- Read Measuring Value Block ⇒ ⇒ Page 01-69 - Replace passenger's side belt tensioner -N154-
00945 Crash sensor for front airbag -G190- ²⁾ Short to Ground	<ul style="list-style-type: none"> ◆ Faulty wiring or connectors ◆ Faulty airbag control module 	- Check wiring and connectors using wiring diagram - Output can also be checked using Output Diagnostic Test Mode (DTM) ⇒ ⇒ Page 01-87 - Replace airbag control module

¹⁾ Only valid for vehicles with electric belt tensioners, the display is not relevant for vehicles with mechanical belt tensioners.

²⁾ Note: -G190- is internal to airbag control module and cannot be checked separately.

01-43



V.A.G 1551 display	Possible cause	Corrective action
01025 Malfunction warning lamp activation malfunctioning	Malfunction warning lamp malfunctioning Faulty wiring or connections control module malfunctioning	- Replace instrument cluster - Replace faulty wiring or connections control module malfunctioning
01044 Control module incorrectly coded	Control module is not designed for this vehicle	- Install a control module appropriate for the vehicle equipment according to parts catalog

01-44



V.A.G 1551 display	Possible cause	Corrective action
<p>01211</p> <p>Igniter for belt tensioner rear, drivers side -N196-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Igniter for belt tensioner rear, drivers side -N196- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Igniter for belt tensioner rear, drivers side - N196-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-45



V.A.G 1551 display	Possible cause	Corrective action
<p>01212</p> <p>Igniter for belt tensioner rear, passenger side - N197-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Igniter for belt tensioner rear, passenger side -N197- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Igniter for belt tensioner rear, passenger side -N197-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-46



V.A.G 1551 display	Possible cause	Corrective action
01214 Crash data seat belt tensioner stored		<ul style="list-style-type: none">- Erase DTC, if DTC will not erase, replace Airbag Control Module (Side impact data can be cleared up to 2 times, once after each occurrence of crash data stored. In the event of a 3rd occurrence of side impact crash data, the Airbag Control Module must be replaced.)- Replace deployed seat belt tensioners and all damaged components, as applicable.

01-47



V.A.G 1551 display	Possible cause	Corrective action
01217 Driver's, side airbag igniter -N199- Resistance too high Resistance too low Short to B+ Short to Ground	Faulty wiring or connections Driver's side, side airbag igniter - N199- malfunctioning	- Replace faulty wiring or connections - Replace driver's side, side airbag -N199- - Read Measuring Value Block ⇒ ⇒ Page 01-69

01-48



V.A.G 1551 display	Possible cause	Corrective action
01218 Front passenger's, side airbag igniter -N200- Resistance too high Resistance too low Short to B+ Short to Ground	Faulty wiring or connections Passenger's side, side airbag igniter -N200- malfunctioning	- Replace faulty wiring or connections - Replace passenger's side, side airbag -N200- - Read Measuring Value Block ⇒ ⇒ Page 01-69

01-49



V.A.G 1551 display	Possible cause	Corrective action
<p>01219</p> <p>Igniter for side airbag rear, drivers side -N201-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Igniter for side airbag rear, drivers side -N201- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Igniter for side airbag rear, drivers side - N201-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-50



V.A.G 1551 display	Possible cause	Corrective action
<p>01220</p> <p>Igniter for side airbag rear, passenger side - N202-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Igniter for side airbag rear, passenger side -N202- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Igniter for side airbag rear, passenger side - N202-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-51



V.A.G 1551 display	Possible cause	Corrective action
<p>01221</p> <p>Driver's side, side airbag crash sensor -G179-</p> <p>Short to B+</p> <p>Short to Ground</p> <p>malfunctioning</p> <p>No adjustment or incorrect adjustment</p>	<p>Faulty wiring or connections</p> <p>Crash sensor malfunctioning</p> <p>control module malfunctioning</p> <p>Crash sensor not coded or incorrectly coded</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace damaged component</p> <p>- Replace crash sensor</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-52



V.A.G 1551 display	Possible cause	Corrective action
<p>01222</p> <p>Passenger's side, side airbag crash sensor -G180-</p> <p>Short to B+</p> <p>Short to Ground</p> <p>malfunctioning</p> <p>No adjustment or incorrect adjustment</p>	<p>Faulty wiring or connections</p> <p>Crash sensor malfunctioning</p> <p>control module malfunctioning</p> <p>Crash sensor not programmed or incorrectly programmed</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace damaged component</p> <p>- Replace crash sensor</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-53



V.A.G 1551 display	Possible cause	Corrective action
01224 Equipment incorrectly adjusted	Control module does not correspond to the equipment of the vehicle (number of airbags in vehicle)	- Install a control module corresponding to the vehicle equipment according to parts catalog
01226 Crash data side airbag, driver's side stored		- Erase DTC memory or replace control module - In case of side airbag activation, the signal "Crash data side airbag driver's side stored" can be reset twice via erasing DTC memory after the 3. side airbag activation the malfunction "control module malfunctioning" will be set and the control module must be replaced - Replace airbag unit and all damaged components

01-54



V.A.G 1551 display	Possible cause	Corrective action
01227 Crash data side airbag, passenger side stored		<ul style="list-style-type: none">- Erase DTC memory or replace control module- In case of side airbag activation, the signal "Crash data side airbag passenger side stored" can be reset twice via erasing DTC memory after the 3. side airbag activation the malfunction "control module malfunctioning" will be set and the control module must be replaced- Replace airbag unit and all damaged components

01-55



V.A.G 1551 display	Possible cause	Corrective action
<p>01228</p> <p>Key switch for switching off passenger side airbag -E224-</p> <p>Undefined switch condition</p> <p>Short circuit</p> <p>Open circuit</p>	<p>Faulty wiring or connections</p> <p>Key switch for switching off passenger side airbag -E224- malfunctioning</p> <p>Passenger side airbag malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Key switch for switching off passenger side airbag -E224-</p> <p>- Replace passenger side airbag</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-56



V.A.G 1551 display	Possible cause	Corrective action
01280 ¹⁾ Front passenger's airbag is deactivated	Front passenger's airbag not functional	- Control module was matched
01281 ¹⁾ Driver's airbag is deactivated	Driver's airbag not functional	- Control module was matched
01284 ¹⁾ Driver's side airbag is deactivated	Driver's side airbag not functional	- Control module was matched
01285 ¹⁾ Front passenger's side airbag is deactivated	Passenger's side airbag not functional	- Control module was matched
01286 ¹⁾ Driver's belt tensioner is deactivated	Driver's belt tensioner not functional	- Control module was matched
01287 ¹⁾ Front passenger's belt tensioner is deactivated	Front passenger's belt tensioner not functional	- Control module was matched

¹⁾ The DTC message will only be stored in the DTC memory when the matching is activated.

01-58



V.A.G 1551 display	Possible cause	Corrective action
01312 Data bus drive malfunctioning	Faulty wires or harness connectors Coding for control modules is not OK Data Bus On Board Diagnostic Interface -J533- malfunctioning	- Repair or replace faulty wires or harness connectors Electrical Wiring Diagrams Troubleshooting & Component Locations - Check coding of the control modules, check DTC memory of all control modules. - Check Data Bus On Board Diagnostic Interface -J533- and replace if necessary (replace instrument cluster) ⇒ Repair Manual, Electrical Equipment On Board Diagnostic (OBD), Repair Group 01; Diagnostic interface for databus

01-59



V.A.G 1551 display	Possible cause	Corrective action
<p>01317</p> <p>Control module in dash panel insert - J285-</p> <p>No communication</p>	<p>Faulty wiring or connections</p> <p>Coding for control modules is not OK</p> <p>Data Bus On Board Diagnostic Interface -J533- malfunctioning</p>	<p>- Replace or repair faulty wiring or connections</p> <p>- Check coding of the control modules, check DTC memory of all control modules</p> <p>- Check Data Bus On Board Diagnostic Interface -J533- and replace if necessary (replace instrument cluster)</p> <p>⇒ Repair Manual, Electrical Equipment On Board Diagnostic (OBD), Repair Group 01; Diagnostic interface for databus</p>

01-60



V.A.G 1551 display	Possible cause	Corrective action
<p>01578</p> <p>Warning light for airbag off, passenger side - K145-</p> <p>Short circuit to B+</p> <p>Open circuit</p>	<p>Faulty wiring or connections</p> <p>Warning light for airbag off, passenger side -K145- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace Warning light for airbag off, passenger side - K145-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-61



V.A.G 1551 display	Possible cause	Corrective action
<p>01588</p> <p>Igniter for driver's side, side curtain protection -N251-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Side curtain protection igniter - N251- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace side curtain protection -N251-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-62



V.A.G 1551 display	Possible cause	Corrective action
<p>01589</p> <p>Igniter for front passenger's airbag -N252-</p> <p>Resistance too high</p> <p>Resistance too low</p> <p>Short to B+</p> <p>Short to Ground</p>	<p>Faulty wiring or connections</p> <p>Side curtain protection igniter - N252- malfunctioning</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace side curtain protection -N252-</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-63



V.A.G 1551 display	Possible cause	Corrective action
01634 ¹⁾ Igniter for battery interruption switched off	Igniter for battery interruption not functioning	Control module was adapted
01635 Crash data for igniter for battery interruption stored		<ul style="list-style-type: none"> - Erase DTC memory or replace control module - In case of battery interruption, the signal "Crash data for igniter for battery interruption" can be reset twice via erasing DTC memory after the 3. battery interruption activation the malfunction "control module malfunctioning" will be set and the control module must be replaced - Replace battery interruption and all damaged components

¹⁾ DTC is only stored in DTC memory during activated adaptation.

01-64



V.A.G 1551 display	Possible cause	Corrective action
<p>01638</p> <p>Rear side airbag crash sensor -G256-, driver's side</p> <p>Short to B+</p> <p>Short to Ground</p> <p>malfunctioning</p> <p>No adjustment or incorrect adjustment</p>	<p>Faulty wiring or connections</p> <p>Crash sensor malfunctioning</p> <p>control module malfunctioning</p> <p>Crash sensor not programmed or incorrectly programmed</p>	<p>- Replace faulty wiring or connections</p> <p>- Replace damaged component</p> <p>- Replace crash sensor</p> <p>- Read Measuring Value Block ⇒ ⇒ Page 01-69</p>

01-66



V.A.G 1551 display	Possible cause	Corrective action
01644 ¹⁾ Driver-side rear airbag is deactivated	Driver-side rear airbag not functioning	Control module was adapted
01645 ¹⁾ Passenger-side rear airbag is deactivated	Passenger-side rear airbag not functioning	Control module was adapted
01646 ¹⁾ Driver-side side curtain airbag is deactivated	Driver-side side curtain airbag not functioning	Control module was adapted
01647 ¹⁾ Passenger-side side curtain airbag is deactivated	Passenger-side side curtain airbag not functioning	Control module was adapted
01648 ¹⁾ Driver-side rear seatbelt tensioner is deactivated	Driver-side rear seatbelt tensioner not functioning	Control module was adapted
01649 ¹⁾ Passenger-side rear seatbelt tensioner is deactivated	Passenger-side rear seatbelt tensioner not functioning	Control module was adapted

¹⁾ DTC is only stored in DTC memory during activated adaptation.

01-67



V.A.G 1551 display	Possible cause	Corrective action
01650 Crash data side airbag, rear, driver-side stored		<ul style="list-style-type: none">- Erase DTC memory or replace control module- In case of side airbag activation, the signal "Crash data side airbag, rear driver's side" can be reset twice via erasing DTC memory- after the 3rd. side airbag activation the malfunction "control module malfunctioning" will be set and the control module must be replaced
01651 Crash data side airbag, rear, passenger-side stored		<ul style="list-style-type: none">- Erase DTC memory or replace control module- In case of side airbag activation, the signal "Crash data side airbag, rear passenger side" can be reset twice via erasing DTC memory after the 3rd. side airbag activation the malfunction "control module malfunctioning" will be set and the control module must be replaced- Replace airbag unit and all damaged components

01-68



V.A.G 1551 display	Possible cause	Corrective action
65535 Control module malfunctioning	Control module malfunctioning	- Replace control module

01-69



Read Measuring Value Block

WARNING!

- ◆ **Only visual check of wiring!**
- ◆ **Do not carry out electrical continuity tests or measurements to ignition circuits!**
- ◆ **Only check wiring with ignition switched off!**

Rapid data transfer
Select function XX

HELP



Indicated on display:

- Press buttons -0- and -8- (08 initiates the "Read Measuring Value Block" function).

Rapid data transfer
08 Read Measuring Value Block

Q



Indicated on display:

- Confirm entry with the -Q- button.

Read Measuring Value Block
Input display group number XXX

HELP



Indicated on display:

- Select relevant display group number and confirm entry with -Q- button.

Read Measuring Value Block 1



Indicated on display: (1 to 4 = Display zones)

1 2 3 4

01-70



The explanation of the individual display zones on the display is found in the evaluation of display group numbers ⇒ ⇒ [Page 01-72](#) .

Note:

Some of the indicated display groups are only meaningful for respective vehicle equipment (e.g. side airbag).

If the displayed values in all display zones are "correct":

- Press → button.

Rapid data transfer

HELP



Indicated on display:

Select function XX

Note:

Check DTC memory after completing the function "Read Measuring Value Block" ⇒ ⇒ [Page 01-30](#) .

01-71



Display group 001

Display group 001						
Read Measuring Value Block 1				→ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	Display zones	Specification	Evaluation
				Igniter, front passenger belt tensioner -N154- ¹⁾	Correct or not installed	⇒ ⇒ Page 01-72
				Igniter, driver's belt tensioner -N153- ¹⁾	Correct or not installed	
				Igniter, front passenger's airbag	Correct or not installed	
				Igniter, driver's airbag	Correct	

¹⁾ Only valid for vehicles with electrical seat belt tensioners, for vehicles with mechanical seat belt tensioners the display indication has no meaning i.e. "not installed" will be displayed.

01-72



Evaluation for display group number 001

Display zone	Designation	Display contents	Corrective action
1	Igniter for airbag (driver's side) - N95-	<p>Correct</p> <p>Trig. Ground</p> <p>Trig. positive</p> <p>Too low</p>	<p>- No DTC's present</p> <p>- Visual check of wiring</p> <p>- Watch display and check connectors of appropriate current circuit for correct engagement and tight fit. If display changes to "correct", erase DTC memory</p> <p>- Pull igniter connector off airbag unit</p> <p>Display changes to "too high"</p> <p>- Replace airbag unit</p> <p>Display remains on "too low"</p> <p>- Separate connector on coil connector with slip ring</p> <p>Display changes to "too high"</p> <p>- Replace coil connector with slip ring</p> <p>Display remains on "too low"</p> <p>- Replace wiring harness</p>
			Continued on next page

01-73



Display zone	Designation	Display contents	Corrective action
1		Too high	<ul style="list-style-type: none"> - Pull igniter connector off airbag unit - Fit igniter connector onto inert igniter on VAS 5056B ⇒ ⇒ Page 01-85 . <p>Display changes to "correct"</p> <ul style="list-style-type: none"> - Replace airbag unit <p>Display remains on "too high"</p> <ul style="list-style-type: none"> - Pull off connector between wiring harness and coil connector with slip ring - Connect test box VAS 5056B to driver's circuit wiring harness instead of coil connector with slip ring ⇒ ⇒ Page 01-85 . <p>Display changes to "correct"</p> <ul style="list-style-type: none"> - Replace coil connector with slip ring <p>Display remains on "too high"</p> <ul style="list-style-type: none"> - Press button on VAS 5056B <p>Display changes to "too high"</p> <ul style="list-style-type: none"> - Replace wiring harness
			Continued on next page

01-74



Display zone	Designation	Display contents	Corrective action
2	Igniter for airbag (front passenger's) - N131-	<p>Correct</p> <p>Trig. Ground</p> <p>Trig. positive</p> <p>Too low</p> <p>Too high</p>	<p>No DTC's present</p> <p>- Visual check of wiring</p> <p>- Watch display and check connectors of appropriate current circuit for correct engagement and tight fit. If display changes to "correct", erase DTC memory</p> <p>- Separate connector between wiring harness and adapter cable to airbag unit</p> <p>Display changes to "too high"</p> <p>- Replace airbag unit</p> <p>Display remains on "too low"</p> <p>- Replace wiring harness</p> <p>- Connect test box VAS 5056B to passenger's circuit wiring harness ⇒ ⇒ Page 01-85 .</p> <p>- Press button on VAS 5056B</p> <p>Display changes to "too low"</p> <p>- Replace airbag unit</p> <p>Display remains on "too high"</p> <p>- Replace wiring harness</p>

01-75



Display zone	Designation	Display contents	Corrective action
3	Igniter driver's belt tensioner -N153- ¹⁾	Correct Too high Too low Trig. Ground Trig. positive not installed	- Visual check of wiring - Watch display and check connectors of appropriate current circuit for correct engagement and tight fit. If the display changes to "correct", erase DTC memory - Replace driver's/front passenger's belt tensioner
4	Igniter front passenger's belt tensioner -N154- ¹⁾	Correct Too high Too low Trig. Ground Trig. positive not installed	

¹⁾ Only valid for vehicles with electrical seat belt tensioners, for vehicles with mechanical seat belt tensioners the display indication has no meaning i.e. "not installed" will be displayed.

01-76



Display group 003

Display group 003						
Read Measuring Value Block 3				→	◀ Indicated on display	
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display zones	Specification	Evaluation
				Right Front Seatbelt Microswitch -F141	not installed or belt: yes belt: no	
				Left Front Seatbelt Microswitch - F140	not installed or belt: yes belt: no	
				Front passenger's seat occupied recognition	not installed	
				Voltage supply	correct	⇒ ⇒ Page 01-77

01-77



Evaluating display group number 003

Display zone	Designation	Display contents	Corrective action
1	Voltage supply	correct too low too high	- Battery voltage min. 9 Volt - Check alternator Electrical Wiring Diagrams, Troubleshooting & Component Locations - Check voltage regulator Electrical wiring diagrams & Component locations - Visual check of wiring
2	Passenger side seat occupant detection	not installed	no malfunction present
			Continued on next page

01-78



Display zone	Designation	Display contents	Corrective action
3	Left Front Seatbelt Microswitch - F140-	not installed belt: yes belt: no too high too low to Ground (GND) to B+ not defined	<ul style="list-style-type: none"> • If the switch is not installed or if "belt yes" is displayed with belt tongue inserted or "belt no" with the belt tongue not inserted, no malfunction is present - Visual check of wiring - Check harness connectors of the respective electrical circuit for proper and secure seating and observe the display at the same time If the display content changes to "correct", erase DTC memory
4	Right Front Seatbelt Microswitch - F141-	not installed belt: yes belt: no too high too low to Ground (GND) to B+ not defined	- Replace faulty wires or harness connectors - Replace driver- or passenger-side belt buckle switch

01-79



Display group 005

Display group 005						
Read Measuring Value Block 5				→	◀ Indicated on display	
xxx	xxx	xxx	xxx			
1	2	3	4	Display zones	Specification	Evaluation
				Rear near side, side airbag igniter -N202-	not installed	
				Rear off side, side airbag igniter - N201-	not installed	
				Front passenger's, side airbag igniter - N200-	correct	⇒ ⇒ Page 01-80
				Driver's, side airbag igniter -N199-	correct	

01-80



Evaluating display group number 005

Display zone	Designation	Display contents	Corrective action
1	Driver's side, side airbag igniter -N199-	correct too high too low Trig. Ground Trig. positive	- Visual check of wiring - Watch display and check connectors of appropriate current circuit for correct engagement and tight fit. If display changes to "correct", erase DTC memory. - Replace faulty wiring or connections
2	Front passenger's side, side airbag igniter -N200-	correct too high too low Trig. Ground Trig. positive	- Replace driver's or front passenger's side, side airbag
3	Igniter for side airbag rear, drivers side - N201-	not installed	no malfunction present
4	Igniter for side airbag rear, passenger side - N202-	not installed	

01-81



Display group 007

Display group 007						
Read Measuring Value Block 7				→ Indicated on display		
xxx	xxx	xxx	xxx	← Display zones		Evaluation
1	2	3	4	empty ¹⁾		
				empty ¹⁾		
Front passenger's side, side curtain protection igniter -N252-				correct or not installed		⇒ ⇒ Page 01-82
Driver's side, side curtain protection igniter -N251-				correct or not installed		

¹⁾ Empty means: empty display field

01-82



Evaluating display group number 007

Display zone	Designation	Display contents	Corrective action
1	Driver's side, side curtain protection igniter -N251-	correct too high too low Trig. Ground Trig. positive	- Visual check of wiring - Watch display and check connectors of appropriate current circuit for correct engagement and tight fit. If display changes to "correct", erase DTC memory. - Replace faulty wiring or connections
2	Front passenger's side, side curtain protection igniter -N252-	correct too high too low Trig. Ground Trig. positive	- Replace driver's or front passenger's side, side curtain protection



Display group 009

Display group 009						
Read Measuring Value Block 9				→ ◀ Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	◀ Display zones	Specification	Evaluation
				Identification Right Rear Side Airbag Crash Sensor -G257-	e.g. 02 or not installed	⇒ ⇒ Page 01-84
				Identification Left Rear Side Airbag Crash Sensor -G256-	e.g. 02 or not installed	
				Identification Crash sensor for side airbag, passenger side -G180-	e.g. 02 or not installed	
				Identification Crash sensor for side airbag, drivers side -G179-	e.g. 02 or not installed	



Evaluating display group number 009

Display zone	Designation	Display contents	Corrective action
1	Identification Crash sensor for side airbag, drivers side -G179-	e.g. 02 or not installed	<ul style="list-style-type: none"> Displayed identification number of crash sensor (for side crash) must match the displayed version number of the crash sensor when control module version is displayed ⇒ ⇒ Page 01-10 - If the identification numbers of the crash sensors and the displayed version number for control module identification do not match, the crash sensors or the control module must be replaced
2	Identification Crash sensor for side airbag, passenger side - G180-	e.g. 02 or not installed	
3	Identification Left Rear Side Airbag Crash Sensor -G256-	e.g. 02 or not installed	
4	Identification Right Rear Side Airbag Crash Sensor -G257-	e.g. 02 or not installed	



VAS 5056B test box

It is possible to check the individual components of the airbag system with test box VAS 5056B and to check which components are actually malfunctioning.

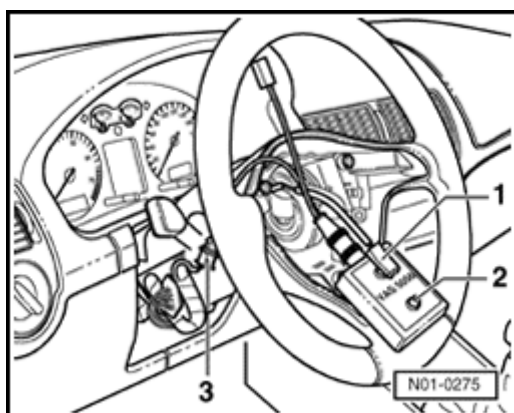
Note:

- ◆ *Observe safety measures when working on airbag.*

⇒ [Repair Manual, Body Interior, Repair Group 69; Airbag; Safety measures when working on airbag](#)

Connecting test box to driver's airbag components

Driver's airbag and steering column switch lower trim removed.



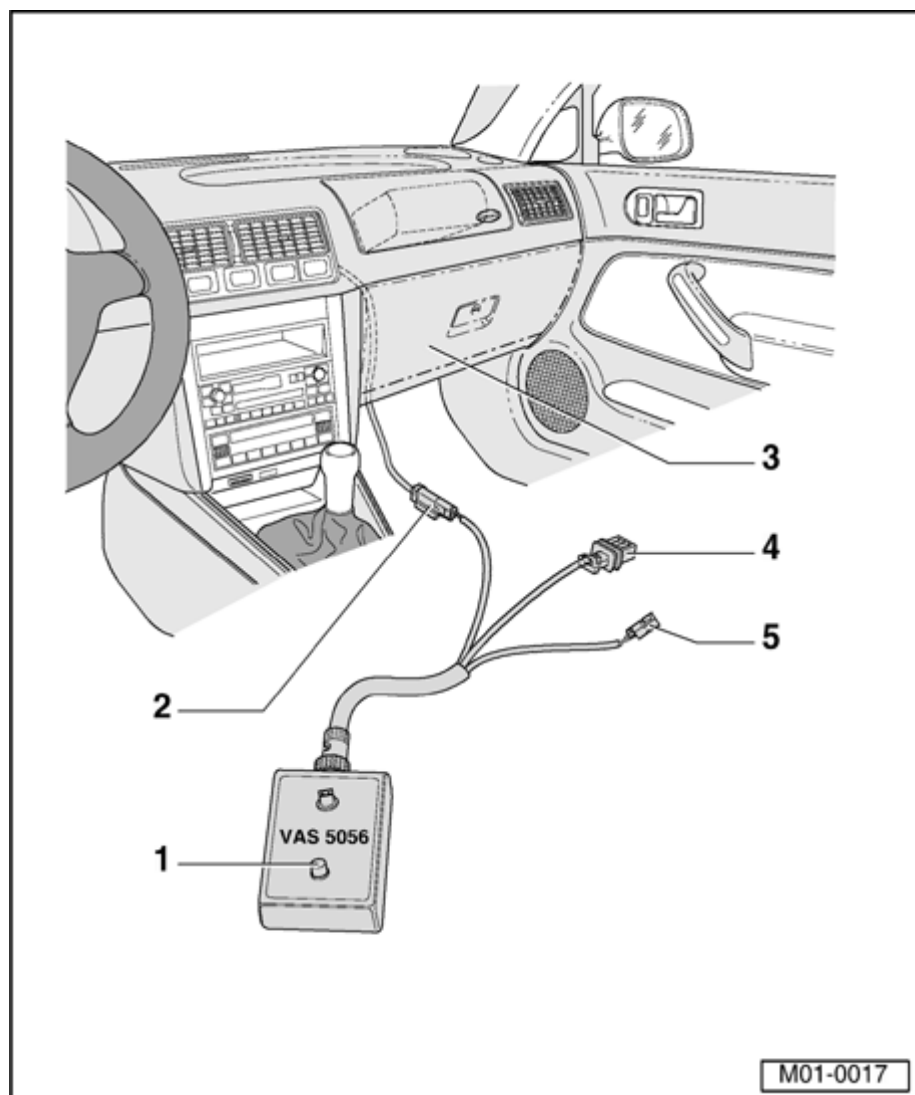
- Connect igniter connector to inert igniter -1- and separate wiring harness to coil connector with slip ring. Connect connector -3- from VAS 5056/3 with airbag wiring harness.

1 - Igniter connector on inert igniter

2 - Key

3 - Coil connector with slip ring connector

01-86



Connecting test box to passenger airbag components

- Remove glove compartment - 10 -

⇒ [Repair Manual, Body Interior, Repair Group. 68; Compartments, covers and trims; removing glove compartment](#)

- Disconnect wiring harness to airbag unit and connect yellow 2-pin connector of VAS 5056/3 with the wiring harness/passenger-side airbag.

1 - Switch

2 Connector for - wiring harness/passenger-side airbag

3 - Glove compartment

4 - Connector (without meaning)

5 - Connector (without meaning)



Output Diagnostic Test Mode (DTM)

The function "Crash output" is checked with Output Diagnostic Test Mode (DTM).

When airbags are ignited the central locking is switched to "unlock", the interior lights are switched "on" and the engine switched off.

Note:

- ◆ *Before performing the Output Diagnostic Test Mode (DTM), switch central locking to "lock" (operate interior lock switch).*
- ◆ *Switch interior light switch to position "door contact".*
- ◆ *Start engine.*
- ◆ *After completing the Output Diagnostic Test Mode (DTM) the central locking controls are not active until the ignition has been switched off and on again.*

- Connecting scan tool ⇒ ⇒ [Page 01-3](#) .

01-88



Perform function "03 Output Diagnostic Test Mode (DTM)"

Rapid data transfer HELP
Select function XX



Indicated on display:

- Press buttons -0- and -3-

Rapid data transfer Q
03 Output Diagnostic Test Mode (DTM)



Indicated on display:

- Confirm entry with the -Q- button.

Output Diagnostic Test Mode (DTM) . →
Crash signal



Indicated on display:

The engine stops, the central locking must switch to "unlock" and the interior lights must switch "on".

Output Diagnostic Test Mode (DTM) . →
END



Indicated on display:

- Press → button.

During test and assembly work malfunctions can be recognized from other control modules like e.g. plug disconnected. Therefore on completion the DTC memories of all control modules must be checked and erased. To do this:

- Press button -0- twice for address word "Automatic test sequence" and confirm entry with -Q- button. The V.A.G 1551 transmits all known address words one after the other.

When a control module answers with its identification the number of stored malfunctions appears on the display or "No DTC recognized".

01-89



Any system malfunctions that are stored will be displayed one after the other and printed out. The V.A.G 1551 will then transmit the next address word.

V.A.G - ON BOARD DIAGNOSTIC HELP

1 - Rapid data transfer

2 - Blink code output



Indicated on display ¹⁾

¹⁾ Operating modes 1 and 2 are displayed alternately

Note:

If a DTC is recognized:

- ◆ 1 . **Repair malfunction**
- ◆ 2. *Erase DTC memory (function 05).*
- ◆ 3. *Check DTC memory again (function 02).*