

# Repair Manual EuroVan 1992 ≻

Brake System On Board Diagnostic

Edition 07.2002



Service Department. Technical Information



# List of Workshop Manual Repair Groups

**Repair Group** 01 - On Board Diagnostic (OBD)



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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#### On Board Diagnostic (OBD) 01 –

#### **General Information** 1

 $\Rightarrow$  "1.1 ABS with Electronic Differential Lock, Bosch 5.0", page 1

⇒ "1.2 ABS with Electronic Differential Lock, Bosch 5.3", page 3

#### ⇒ "1.3 Glossary", page 7

#### 1.1 ABS with Electronic Differential Lock. Bosch 5.0



Caution

ABS is a vehicle safety system; working on the system requires specific system knowledge.

Before working on the ABS system, check DTC memory to determine existing malfunctions and to perform a guided fault finding.

Make sure ignition is switched off before disconnecting harness connectors.

Observe the appropriate safety precautions when working with brake fluid.

Malfunctions in the ABS system are indicated by illumination of the ABS Warning Light -K47- . Certain malfunctions cannot be recognized until after the minimum speed of 20 mph (30 km/ h) has been reached (road test vehicle).

If the ABS Warning Light -K47- and the brake and parking brake warning light -K7- are not lit, but the brake system is not functioning properly, check for malfunctions in traditional brake system components.

#### **Technical information required**

⇒ Wiring diagrams, Troubleshooting & Component locations

#### Function

The On Board Diagnostic (OBD) function relates to the electrical and electronic parts of the ABS system; i.e. it can only recognize malfunctions (e.g. interruption of a wheel speed sensor) via the electrical connection to the control module.

The 40-pin ABS control module (w/EDL) -J104- forms a compact unit with the hydraulic unit. The unit is located on the left-hand side of the engine compartment. The control module is equipped with DTC memory. The connection for On Board Diagnostic (OBD) is located at left, below the switch for rear window defrost.

When malfunctions occur in monitored sensors or components, a maximum of 3 Diagnostic Trouble Codes (DTCs) can be stored. sometimes with a description of the malfunction type. ABS regulation is then shut off in the control module and the ABS Warning Light -K47- lights up. The traditional brake system remains effective.

Sporadically occurring (periodic) malfunctions are also recog-nized and stored as DTCs. If this malfunction does not occur again within 50 vehicle starts and driving procedures, it will be



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# 1.2

#### Function

The On Board Diagnostic (OBD) function relates to the electrical and electronic parts of the ABS system i.e. it can only recognize malfunctions (e.g. interruption of a wheel speed sensor) via the electrical connection to the control module.

<section-header><section-header><section-header><section-header><section-header><text><text><text><text> The 31-pin ABS control module (w/EDL) 104- forms a compact hydraulic control module with the hydraulic unit. The hydraulic control module is located on the left-hand side of the engine compartment. The control module is equipped with DTC memory. The connection for On Board Diagnostic (OBD) is located under the cover to the right of the instrument cluster.

The control module recognizes malfunctions during vehicle operation and stores them in a DTC memory. This information is retained even if battery voltage fails.

Periodically occurring malfunctions are also recognized and stored as DTCs. If this malfunction does not occur again for 20 vehicle starts or one long trip, the DTC is erased from DTC memory.

After ignition is switched on and/or the engine is started, the ABS Warning Light -K47- and the red brake and parking brake warning light -K7- light up for approx. 2 seconds.

A test sequence (self-test) is performed in the control module during this time, with the following functions:

- Supply voltage is tested (min. 10.0 volts).
- Control module and valve coils are checked
- An electric test of the wheel speed sensors is performed; this test will not complete successfully unless vehicle is driven for 30 seconds at above 60 km/h.

#### Scan Tool -VAG1551- or tester -VAS5051-

Always initiate On Board Diagnostic (OBD) to start troubleshooting. Électrical malfunctions that affect braking are stored in DTC memory. They can be recognized using the Scan Tool -VAG1551-(ST) or the tester -VAS5051- .



The indicated diagnostic data leads to a DTC table with notes regarding potential malfunction causes and specific repair procedures.

#### **Technical information required**

⇒ Wiring diagrams, Troubleshooting & Component locations

#### ABS/EDL, Bosch 5.3, Application

Brake boost is supported by vacuum pressure.

#### Characteristics:

#### ABS/EDL - Bosch 5.3 / Left Hand Drive (LHD) vehicles

- Brake booster 9"/ 8" 1 -
- 2 -Hydraulic unit
- Control module, 31-pin (bolted to hydraulic unit) 3 -

7D0 614 111 B	ABS + EDL
7D0 614 111 C	ABS + EDL (part no.)





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Α	В	С	D
	↓	↓ ↓	↓
	<ul> <li>Connect Scan Tool -VAG15</li> <li>Erase DTC Memory, functio</li> <li>Road test vehicle at above 6</li> <li>Check DTC memory again a recognized" after repair world</li> </ul>	51- (ST) or tester -VAS5051- and check DTC memory agai n 05 30 Km/h for 30 seconds, carry out an ABS-controlled brakin after road test. If Scan Tool -VAG1551- (ST) display or tester and road test are completed, then On Board Diagnostic ((	n, function 02. g: <sup>agen</sup> AG. Volkswagen AG does not er -VAS5051- display indicates No malfunction OBD) is finished.
		intege	BIOMON DA MODERNENIO V CUTION OCO INTERNO BIOMON DA MODERNENIO V CUTION OCO INTERNO DA MODERNENIO V CUTIONO V C

#### 1.3 Glossary

These definitions are relevant only to the structural unit: On Board Diagnostic (OBD) for ABS. They are not intended to be generally norisedbyV not guarantee applicable.

#### ABS

Anti-lock Brake System (ABS). More information on this can be found in the appropriate self-study programs.

Display group number ⇒ read measuring value block.

#### ASR

Anti-Slip Regulation.

#### Data-BUS

Data transmission. Electric signals are converted in to specific forms for this (BUS). More information on this can be found in selfstudy programs no. 180 and no. 186.

#### Data-BUS low (high)

with respect to the correctness of information The voltage used to transmit data is low (high). More information on this can be found in self-study program no. 186.

#### ABS wheel speed sensor

Transmit speed signals to the control module.

# EBD

or commercial purposes, in part or in whole

**Electronic Brake Distribution** 

1<sub>000</sub> EDL

Electronic Differential Lock

#### On Board Diagnostic (OBD)

Capabilities of control module:

- Recognize malfunctions,
- React to malfunctions,
- Store DTCs,

Calculate measured values and display them in measuring value blocks. More information on this can be found in self-study programs no. 180 and in the Scan Tool (ST) operating instructions.

#### On Board Diagnostic (OBD), performing

Connect Scan Tool (ST) to check DTC memory. More information on this can be found in self-study programs no. 180 and in the Scan Tool (ST) operating instructions.

#### Performing electrical test

Targeted test of electronic components via measurements.

#### ESP

Electronic Stabilization Program.

#### Traction control

Driving dynamics regulation

#### no communication

There is no connection for data transmission between control modules. More information on this can be found in self-study program no. 180.





#### Sender for rotation rate -G202-

on around the volume Magen AG. Volkswagen AG does not guara Calculates vehicle rotation around the vertical axis relative to vehicle speed.

### Steering Angle Sensor -G85-

Required for determining driver's intention and direction. Data transfer to control module occurs via databus wires.

#### Short circuit to Ground (GND)

A current is -inappropriately- flowing to Ground (GND) without consumer.

### Short circuit to B+

A current is -inappropriately- flowing to a voltage carrying component without consumer.

with respect to the correctness of

<sup>,f</sup> informatior

#### Read measuring value block

The control module can transmit numerous measured values. These measured values provide information about the operational status of the system and the sensors connected to it. In many cases the data supplied can be used to troubleshoot and repair malfunctions. Because these measured values cannot all be evaluated simultaneously, they are organized into individual display groups that can be selected via display group numbers.

#### MSR

#### Engine drag-torque regulation

#### Sensor for transverse acceleration -G200-

Recognizes the curve speed and helps determine where braking . DA nagewaylov yothe should occur via ESP.

### Sender 1 for brake booster -G201

Communicates the driver's braking intention and is necessary for pressure regulation of booster.

#### Program card version

Always use the most current program card version. More information on this can be found in the users manual for your tester.

#### Sporadic

Occasionally occurring

#### InfiniteΩ

Resistance is infinitely large, open circuit.

 $\Omega = Ohm$ 

### 2 Description and Operation

 $\Rightarrow$  "2.1 ABS/EDL Electrical/Electronic Components, Bosch 5.0", page 9

 $\Rightarrow$  "2.2 ABS/EDL/ASR/ESP Electrical/Electronic Components, Bosch 5.3", page 10

 $\Rightarrow$  "2.3 ABS/EDL Electrical/Electronic Components, Bosch 5.3", page 12

⇒ "2.4 Suspension and Brake Application", page 13

### 2.1 ABS/EDL Electrical/Electronic Components, Bosch 5.0

#### 1 - ABS hydraulic unit -N55with ABS control module (w/ EDL) -J104-

- Installation location: At left in engine compartment
- ABS return flow pump -V39-, ABS hydraulic unit -N55- and ABS control trol module (w/EDL) -J104- must not be seperated from each other.
- When replacing the hydraulic unit, always close old unit with plugs from repair set 1H0 698 311 A.
- □ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
- Multi-pin harness connector for hydraulic unit

#### 2 - Brake light switch -F-

- Brake light switch is open in rest position
- $\Box \quad \text{Adjusting} \Rightarrow \underline{\text{page 31}}$
- ❑ Can be checked in measuring value block ⇒ page 145

### 3 - ABS Warning Light -K47-

Installation location: In instrument cluster

Function: <u>⇒ page 15</u>

### 4 - Right and left rear ABS wheel speed sensors -G44- / -G46-

- Checked electrically via On Board Diagnostic (OBD)
- Before inserting sensor, clean inner surface of sensor mount and coat with securing grease G 000 650.
- □ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
- □ Tightening torque of bolt 10 Nm





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### 5 - Right and left front ABS wheel speed sensors -G45- / -G47-

- Checked electrically via On Board Diagnostic (OBD)
- Before inserting sensor, clean inner surface of sensor mount and coat with securing grease G 000 650.
- □ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
- Tightening torque of bolt 10 Nm

#### 2.2 ABS/EDL/ASR/ESP Electrical/Electronic Components, Bosch 5.3

#### 1 - Hydraulic unit for ABS/EDL/ ASR/ESP -N55- with ABS return flow pump -V39-

- Installation location: At left in engine comparted ment
- The ABS return flow pump -V39- and the inlet/outlet valves are checked in the hydraulic unit via On Board Diagnostic (OBD)
- ABS return flow pump -V39 and ABS hydraulic unit-N55- must not be separated from each other. ⇒ Brake Systems from MY 1997; Rep. Gr. 45 Removal and Installation or  $\Rightarrow$  Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
- When replacing the hydraulic unit, always close old unit with pluas from repair set part no. 1H0 698 311 A.

#### 2 - Hydraulic pump for traction control -V156- with Sender 1 for brake booster -G201-

- Installation location: At hydraulic unit on left side of engine compartment.
- Hydraulic pump for traction control -V156- and



Sender 1 for brake booster -G201- must not be separated from each other. ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

### 3 - Control module for ABS/EDL/ASR and ESP -J104-

- □ Installation location: On right side behind instrument panel at heating / A/C housing
- Checked electrically via On Board Diagnostic (OBD)
- Test of multi-pin connector to control module.
- Do not disconnect multi-pin harness connector until after successful On Board Diagnostic (OBD). Switch ignition off before disconnecting harness connector
- □ When replacing ABS control module (w/EDL) -J104-, code control module and perform zeroing.
- $\Box$  Code control module  $\Rightarrow$  page 133



□ Initiate basic setting <u>⇒ page 164</u> Display group number 001

#### 4 - Steering Angle Sensor -G85-

- □ Installation location: On steering column between steering wheel and steering column switch.
- Checked electrically via On Board Diagnostic (OBD)
- □ Can be checked in measuring value block. Refer to  $\Rightarrow$  page 145
- □ Observe installation procedure ⇒ Brake Systems from MY 1997; Rep. Gr. 48; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 48; Removal and Installation
- □ When replacing Steering Angle Sensor -G85- , code control module and perform zeroing.
- □ Code control module  $\Rightarrow$  page 133
- □ Initiate basic setting <u>⇒ page 164</u> Display group number 001

#### 5 - Sensor for transverse acceleration -G200- and sender for rotation rate -G202-

- Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are contained together in one housing
- □ Installation location: Inside on the right wheel housing at the A-pillar
- □ Checked electrically via On Board Diagnostic (OBD)
- □ Can be checked in measuring value block <u>⇒ page 145</u>
- Observe installation procedure
- □ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 48; Removal and Installation

#### 6 - Data Link Connector (DLC)

□ Installation location: In steering column trim

#### 7 - ABS Warning Light -K47-

□ Installation location: In instrument cluster

#### Function: <u>⇒ page 15</u>

#### 8 - Warning light for brake system -K118-

□ Installation location: In instrument cluster

Function: <u>⇒ page 15</u>

A mod 2

- 9 ESP Control Lamp 4K155-
  - Installation location: In instrument cluster

Function: <u>> page 15</u>

#### 10 - Rotor for left front and right front wheel speed sensors

- □ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒
- Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 48; Removal and Installation

#### 11 - Right and left front ABS wheel speed sensors -G45- / -G47-

- □ Checked electrically via On Board Diagnostic (OBD)
- Before inserting sensor, clean inner surface of sensor mount and coat with securing grease G 000 650.
- Be sure not to twist wheel speed sensor wire in wheel housing when installing wheel speed sensor.
- □ Tightening torque of bolt 10 Nm

#### 12 - Rotor for left rear and right rear wheel speed sensors

□ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr<sup>o</sup>/<sub>2</sub> 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

### 13 - Right and left rear ABS wheel speed sensors -G44- / -G46-

- Checked electrically via On Board Diagnostic (OBD)
- Before inserting sensor, clean inner surface of sensor mount and coat with securing grease G 000 650.

MOV Variety Volk

- Be sure not to twist wheel speed sensor wire in wheel housing when installing wheel speed sensor.
- Tightening torque of bolt 10 Nm

#### 14 - Brake light switch -F-

Brake light switch is open in rest position



- □ Adjusting  $\Rightarrow$  page 31
- □ Can be checked in measuring value block  $\Rightarrow$  page 145

### 2.3 ABS/EDL Electrical/Electronic Components, Bosch 5.3

#### 1 - Hydraulic unit for ABS/EDL -N55-

- Installation location: At left in engine compartment
- The ABS return flow pump -V39- and the inlet/outlet valves are checked in the hydraulic unit via On Board Diagnostic (OBD)
- ABS return flow pump -V39-, ABS hydraulic unit -N55- and ABS control module (w/EDL) -J104- must not be sep arated from each other.
   ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Description and Operation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
- When replacing the hydraulic unit, always close old unit with plugs from repair set 1H0 698 311 A.

#### 2 - ABS control module (w/ EDL) -J104-

- Installation location: At hydraulic unit on left side of engine compart ment.
- Checked electrically via On Board Diagnostic (OBD)
- ABS return flow pump -V39- , ABS hydraulic unit -N55- and ABS control module (w/EDL) -J104- must not be separated from each other.
- Do not disconnect multi-pin harness connector until after successful On Board Diagnostic (OBD). Switch ignition off before disconnecting harness connector
- □ Test of multi-pin connector to control module.

#### 3 - Brake and parking brake warning light -K7-

Installation location: In instrument cluster

#### Function: $\Rightarrow$ page 15

#### 4 - ABS Warning Light -K47-

□ Installation location: In center of instrument panel

#### Function: <u>⇒ page 15</u>

#### 5 - Data Link Connector (DLC)

□ Installation location: Below cover in front of instrument cluster at right



#### 6 - Brake light switch -F-

- D Brake light switch is open in rest position
- $\Box$  Adjusting  $\Rightarrow$  page 31
- Can be checked in measuring value block

#### 7 - Rotor for left front and right front wheel speed sensors

□ Removing and installing ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

#### 8 - Right and left front ABS wheel speed sensors -G45- / -G47-

- □ Checked electrically via On Board Diagnostic (OBD)
- Removing and installing
- Tightening torque of bolt 10 Nm

#### 9 - Rotor for left rear and right rear wheel speed sensors

□ Removing and installing  $\Rightarrow$  Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or  $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

#### 10 - Right and left rear ABS wheel speed sensors -G44- / -G46-

- □ Checked electrically via On Board Diagnostic (OBD)
- Removing and installing

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Tightening torque of bolt - 10 Nm

#### 2.4 Suspension and Brake Application

#### Installation position of the vehicle data plate -arrow-

On left A-pillar, next to central electronics

For vehicles with knee bar (USA) or with V6 engine, the vehicle data plate is located beneath the cover for central electronics. Lee 94arante





#### Location of PR no. on vehicle data plate -arrow-

The brake caliper PR no. abbreviation may be located elsewhere on the vehicle data plate, depending on the amount of equipment installed.

#### Overview and use of PR numbers

#### Wheelbase:

PR number	Wheelbase
0E1	Short wheel base
0E2	Long wheel base



#### Suspension:

Standard, lowered or sport suspension is identified via the PR no. of the spring.

PR number	Suspension
1P0 or "-"	Standard spring system <sup>1)</sup>
1P4	Lowered suspension
1P9	Sport spring system

1) Instead of the identification 1P0 on the data plate, there may just be a dash "-".

#### Note Ť

Application of the suspension, "15 or 16", continues via the brakes because the PR numbers for 15" suspension (2E2) and 16" suspension (2E3) are not located on vehicle data plate. The result of this is, if a " brake is installed, a 15" suspension is also installed and with a 16" brake, a 16" suspension is also installed.

# Bised because is ion (2E3) are not bake is installed, a Image: Action of the second Brake: PR number Brake 1LU 15" floating caliper FN3/57 1LP 15" Lucas floating caliper C54 1LE 15 Lucas frame caliper RC 54 16" floating caliper FN3/57 1LB Protected by copyrights contrasted commercial purposes, in part or in who 16" floating caliper FNR/57

#### 3 **Diagnosis and Testing**

⇒ "3.1 Malfunction Indication", page 15

⇒ "3.2 ABS/EDL, Bosch 5.0, Electrical Tests", page 18

⇒ "3.3 ABS/EDL, Bosch 5.3, Electrical Tests", page 32

⇒ "3.4 ABS/EDL/ASR/ESP, Bosch 5.3, Electrical Tests", page 44

⇒ "3.5 ABS/EDL/ASR/ESP, Bosch 5.3, On Board Diagnostic", page 71

### ⇒ "3.6 On Board Diagnostic, Initiating", page 76

#### 3.1 Malfunction Indication

#### Warning lamps

Item no.	Description					-
1	ABS Warning Light -K47-			(III)		-
2	Brake and parking brake warning light -K7-					_
ABS Warning Light -K47-			ſ			-1

- If the ABS Warning Light -K47- ( ⇒ page 15) does not go out after the ignition is switched on and the test sequence is complete, it could be caused by the following errors:
- -a- voltage supply is under 10 volts.

-b- there is a malfunction in the hydraulic control module; ABS system is therefore not operating.

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therefore not open and the ABS system remains switched off during and the traditional brake system remains fully functional. -c-there was a periodic wheel speed sensor malfunction since the last veen AG does not guarantee bicle start.

-e- ABS Warning Light -K47- is malfunctioning

ABS Warning Light -K47- and brake and parking brake warning light -K7-

 If the ABS Warning Light -K47- ( ⇒ page 15 ) goes out, but the t brake and parking brake warning ligh -K7- ( ⇒ page 15 ) remains lit, the malfunction causes could include:

-a- brake fluid level is too low

-b- parking brake is engaged.

-c- there is a malfunction in the activation of the brake and parking brake warning light -K7- .

⇒ Wiring diagrams, Troubleshooting & Component locations



(ABS)

N01-0182



If the ABS Warning Light -K47- ( $\Rightarrow$  page 15) and the brake and parking brake warning light -K7- ( $\Rightarrow$  page 15) light up, the ABS system is malfunctioning. Account for differences in braking behavior.



### WARNING

When the ABS Warning Light -K47- and the brake and parking brake warning light -K7- are lit, the rear wheels can lock early during braking.

### Warning lamps

Item no.	Description	_	
1	Brake pad wear indicator light -K32-	/	-
2	ABS Warning Light -K47-	1	Can and the second
3	Warning light for brake system -K118-		
4	ESP Control Lamp -K155-		EN DEN

Brake pad wear indicator light -K32-





If the brake pad wear indicator light -K32- does not go out after the ignition is switched on, it could be caused by the following errors:

-a- brake pads may be worn.

Check the brake pads at front and rear axles. Replace brake pads if worn.

⇒ Brake Systems from MY 1997; Rep. Gr. 46 ; Removal and Installation or  $\Rightarrow$  Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation

-b- there is a malfunction in the wire routing.

⇒ Wiring diagrams, Troubleshooting & Component locations D. OS. Costilities in part or in marcial purposes, in part or in who.

### ABS Warning Light -K47-



1

2

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3 ABS

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- If the ABS Warning Light -K47- ( <u>⇒ page 16</u> ) does not go out after the ignition is switched on and the test sequence is complete, it could be caused by the following errors:
- -a- voltage supply is under 10 volts.

-b- there is an ABS malfunction.

The ABS system remains switched off during an ABS malfunction b-, but the traditional brake system remains fully functional.

-c- there was a periodic wheel speed sensor malfunction since the last vehicle start.

If this is the case, the ABS warning lamp will go out automatically after vehicle is started again and a speed of 2.75 km/h has been exceeded.

-d-- there is an open circuit in the connection from instrument cluster to ABS control module (w/EDL) -J104- .

⇒ Wiring diagrams, Troubleshooting & Component locations

-e- the instrument cluster is manufactor and AG. Volkswagen AG. Vo

- If the ABS Warning Light -K47- ( $\Rightarrow$  page 16) goes out, but the warning light for brake system -K118- remains lit, the malfunction causes could include:
- -a- brake fluid level is too low

-b- there is a malfunction in the activation of the warning light for brake system -K118-

- ⇒ Wiring diagrams, Troubleshooting & Component locations
- If the ABS Warning Light -K47- (  $\Rightarrow$  page 16) and the warning light för brake system -K118- ( ⇒ page 16 ) both light up, ABS is malfunctioning and EBD (Electronic Brake Distribution) has ceased functioning.

WARNING

When the ABS Warning Light -K47- and the warning light for brake system -K118- are lit, the rear wheels can lock early during braking.

ESP Control Lamp -K155-Protected by copyright, Copying





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If the ESP Control Lamp -K155- ( ⇒ page 16 ) does not go out after the ignition is switched on and the test sequence is complete, it could be caused by the following malfunctions:

-a- short circuit to B+ in the ASR/ESP button -E256- .

-b- there is a malfunction in the activation of the ESP Control Lamp  $^{\rm K155-}$  .

⇒ Wiring diagrams, Troubleshooting & Component locations

-c-the ASR/ESP system was switched of via the ASR/ESP button -E256-.

There is a malfunction that only affects the ASR/ESP traction control system. The ABS/EDL and EBD safety systems are still completely functional though.

If the ESP Control Lamp -K155- blinks while driving, the ASR or ESP system is in regulating mode.

3.2 ABS/EDL, Bosch 5.0, Electrical Tests

⇒ "3.2.1 Multi-Pin Connector Terminal Assignments", page 19

- <u>⇒ "3.2.2 Test Table", page 23</u>
- ⇒ "3.2.3 Brake Light Switch, Adjusting", page 31

# Special tools and workshop equipment required

- ♦ Multimeter -VAG1526A
- Connector test kit -VAG1594A-
- Test box -VAG1598/14-(basic tool)
- Adapter -VAG1598/24-





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#### Test steps page $\Rightarrow$ page 23 are valid for:

- Vehicles for which On Board Diagnostic (OBD) does not result in suggestions regarding the malfunction cause. In this case, the electrical test should be performed in its entirety.
- Vehicles for which On Board Diagnostic (OBD) results in direct suggestions regarding the malfunction cause. In this case, only perform test steps recommended in the DTC table (selective troubleshooting).

An overview of all test steps in the electrical test is located on page  $\Rightarrow$  page 21.

#### **Test requirements**

- Before beginning the test, switch off ignition and electrical consumers (headlights, lighting, fans...).
- All fuses must be OK (remove fuses from fuse holder for test).
   ⇒ Wiring diagrams, Troubleshooting & Component locations
- Disconnect multi-pin connector from ABS control module (w/ EDL) -J104- and connect test box -VAG1598- to connector of wiring harness using adapter -VAG1598/24-.

Specified values refer to readings on the VAG1526 and are not necessarily applicable for other test units.



All terminals omitted here are not occupied at the moment and must not be connected to other components under any circumstance.

Terminal assignment of harness connectors for voltage supply and On Board Diagnostic (OBD) with Scan Tool

Ground (GND) (terminal 31) Terminal 4 = Terminal 16 B+ (terminal 30) = C control Terminal 7 K-wire to terminal 29 of multi-pin connector control -T40- for (w/EDL = Profected by copyright, Copyr .DAnageweylovydhighngoo J104-16 g N29-0001 Terminal assignment of harness connector -T40- for wiring harness / ABS control module (w/EDL) -J104-15





Terminal	Wi	re connection to component	
1	⇒ Ground (GND) point at left in engine compartment		
2	$\Rightarrow$ V $\Rightarrow$ oltage supply from battery +		
3	$\Rightarrow$ Voltage supply from battery +		
4	$\Rightarrow$ Voltage supply, terminal X		
5	⇒ Not assigned	Lokswagen AG. Volkswa	agen AG does n
6	⇒ Not assigned	ised by VO.	HOT GUARA.
7	⇒ Not assigned	authon	Alter Of
8	⇒ Not assigned	11855	Store Dr.
9	⇒ Not assigned	in the second se	PAT A
10	⇒ Not assigned	30 <sup>11</sup>	18011
11	$\Rightarrow$ Not assigned	Loc	Y Nit
12	⇒ Not assigned	)(e, is	A res
13	⇒ Not assigned	nhhc	pec
14	$\Rightarrow$ Not assigned	or ir	toth
		i, in part	e corre
Terminal	Wi	re connection to component	ctne
15	⇒ Not assigned	burk	S Of
16	$\Rightarrow$ Left front ABS wheel speed sensor -G47-	rcial	infor
17	$\Rightarrow$ Left front ABS wheel speed sensor -G47-	amm	mat
18	$\Rightarrow$ Left rear ABS wheel speed sensor -G46-	o, co	nin
19	$\Rightarrow$ Left rear ABS wheel speed sensor -G46-	Plan	this co
20	$\Rightarrow$ Right rear ABS wheel speed sensor -G44-	14 pt	ur <sup>so</sup> t
21	⇒ Right rear ABS wheel speed sensor -G44-	*Build	.1100
22	$\Rightarrow$ Right front ABS wheel speed sensor -G45-	33:46	Sundo's
23	⇒ Not assigned	"Indoo Japa	Le will Martin
24	⇒ Right front ABS wheel speed sensor -G45-	Protected	. DA nageway
25	⇒ Not assigned		
26	⇒ Not assigned		
27	⇒ Not assigned		

Terminal	Wire connection to component
28	Brake light switch -F-
29	Harness connector -T16/7- , K - wire

Terminal	Wire connection	on to component	agen AG. Volkswagen AG does h	
30	⇒ Not assigned	ised by Von	Holgua,	tan.
31	$\Rightarrow$ (GND) from battery	authori		-nee or
32	⇒ Not assigned	111855		ACC BOT
33	⇒ Not assigned	ilities and a second		iany.
34	⇒ Not assigned	Derry		abilit
35	⇒ Not assigned	104		Ywitt
36	⇒ Not assigned	ole, ii		nres
37	⇒ Not assigned	h who		pect
38	⇒ Not assigned	ori		toth
39	⇒ Not assigned	par		e co
40	$\Rightarrow$ ABS warning light activation	s, in		rrect
Overview of test	steps	rcial purpos		tess of infor
Component to b	e checked	amm		nett
Voltage supply of	of ABS return flow pump -V39- at ABS control module (w/EDL) -J104-	04.00	<ul> <li>Perform step 1.</li> </ul>	nin
Voltage supply of	of valves in ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-	aten.	<ul> <li>Perform step 2.</li> </ul>	his of
Voltage supply (terminal X) to ) ABS control module (w/EDL -J104-			<ul> <li>Perform step 3.</li> </ul>	CUIRO
Function of brake light switch -F-			– Perform step 4.	Ser.
Resistance of rig	ght front ABS wheel speed sensor -G45-	– Perform step 5.	UB!Man	
Resistance of le	ft front ABS wheel speed sensor -G47-	– Perform step 6.	4	
Resistance of right rear ABS wheel speed sensor -G44-			-d Perform step 7.	
Resistance of left rear ABS wheel speed sensor -G46-			<ul> <li>Perform step 8.</li> </ul>	
Voltage signal o	f right front ABS wheel speed sensor -G45-	<ul> <li>Perform step 9.</li> </ul>		



Component to be checked		
Voltage signal of left front ABS wheel speed sensor -G47-		<ul> <li>Perform step 10.</li> </ul>
		NVolkswagen AG. Volkswagen AG does not on
Component to be checked	horisea	Sugrantes
Voltage signal of right rear ABS wheel speed sensor -G44-	255 aut.	– Perform step 11.
Voltage signal of left rear ABS wheel speed sensor -G46-	dunie	– Perform step 12.
Voltage supply for -VAG1551- , harness connector -T16-	Lunit,	<ul> <li>Perform step 13.</li> </ul>
Resistance of the K-wire for On Board Diagnostic (OBD), harness connector -T16-		<ul> <li>Perform step 14.</li> </ul>
Function of ABS Warning Light -K47-	i isn	<ul> <li>Perform step 15.</li> </ul>
	position in part or commercial purposes, in part or	DA nagewayo Wanging

# 3.2.2 Test Table





#### Notes for test table

- The socket designations of the adapter -VAG1598/24- are identical to the terminal designations for the ABS control module (w/EDL) -J104- in the wiring diagram.
   Wiring diagrams, Troubleshooting & Component locations
- ◆ If the measured values do not match the specifications, carry out the corrective actions on the right side of the table. ⇒ Wiring diagrams, Troubleshooting & Component locations
- Use the connector kit -VAG1594A- for continuity tests (bridging leads).
- If measured values differ only slightly from specified values, clean sockets and connectors of the testers and test leads (using G 000 700 04 contact spray) and repeat test. Before replacing the relevant components, check wires and connections and also repeat resistance measurement at component, especially for specified values under 10 Ω.

	Volkswage: Set measurement range: voltage test (20 V =)								
Test step	-VAG1598- sockets	Test of	• Test requirements	Specified value	Corrective actions for deviation from specifi- cation				
	20550		<ul> <li>Additional work steps</li> </ul>						
1	2+1	Voltage supply of ABS return flow pump -V39- at ABS con- trol module (w/EDL) -J104-	Ignition switched off	10.0 - 14.5 V	<ul> <li>Check wire routing according to wiring diagram</li> <li>Wiring diagrams, Troubleshooting &amp; Com-</li> </ul>				
3, is r			Alth re		ponent locations				
in who h	3 + 1	Voltage supply of valves in ABS hydraulic unit -N55-	Ignition switched off	10.0 - 14.5 V	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>				
part or			o the co		⇒ Wiring diagrams, Troubleshooting & Component locations				

purp	Set measurement šange: voltage test (20 V =)							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
Step	SOCKETS		<ul> <li>Additional work steps</li> </ul>					
3 0000 A	4 + 1	Voltage supply (terminal X) to ABS control module (w/ EDL) -J104-	Ignition switched on.	10.0 - 14.5 V	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> </ul>			
4	1 + 28	Function of brake light switch	Ignition switched off     Brake pedal not depressed	0.0 -0.5 V	<ul> <li>Check brake light switch -F- and read measuring value block <u>⇒ page 145</u>, dis- play group number 002</li> </ul>			

ectn

r								
	Set measurement range: voltage test (20 Val) AG. Volkswagen AG door							
Test	-VAG1598-	Test of	Test requirements	ov Specified value	Corrective actions for deviation from specifi-			
step	sockets		- Additional work steps	thorise	cation "Antegor			
			Stilled Inters		<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Com-</li> </ul>			
			Operate brake pedal	approx, battery volt	Check brake light switch E → page 31			
				age	- Check brake light switch 4: page 31			
			or in wha		pecto			

	Set measurement range: Resistance measurement (2 kΩ)					
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-	
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation	
5	22 + 24	Resistance of right front ABS wheel speed sensor -G45-	• Ignition switched off	1.2 to 2.0 kΩ	<ul> <li>Disconnect harness connector at ABS wheel speed sensor -G45- 2000</li> </ul>	
			ommer		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>	
			Nate of		⇒ Wiring diagrams, Troubleshooting & Component locations	
					<ul> <li>Move wires during test</li> </ul>	
			* Ound		If no malfunctions are found in wire routing:	
			ight Cor		Replace ABS wheel speed sensor -G45-	
				Profected by	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspen- sion, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and In- stallation	



	Set measurement range: Resistance measurement (2 kΩ)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation		
6	16 + 17	Resistance of left front ABS wheel speed sensor -G47-	Ignition switched off	1.2 to 2.0 kΩ	<ul> <li>Disconnect harness connector at left front ABS wheel speed sensor -G47</li> </ul>		
					<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
			Naden AG. Volkswagen AG. de		⇒ Wiring diagrams, Troubleshooting & Component locations		
			WVOKSWASS GOOES/	ot ou.	<ul> <li>Move wires during test</li> </ul>		
			norised	Suarantes	If no malfunctions are found in wire routing:		
		118558		<sup>2</sup> COr <sup>2</sup> CC <sub>6</sub> Dr	<ul> <li>Replace left front ABS wheel speed sensor -G47-</li> </ul>		
		e, is not permit		ready labolity with t	<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul>		
		Fin who			spect to		

	Set measurement range: Resistance measurement (2 k $\Omega$ )							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	sockets	Ses	<ul> <li>Additional work steps</li> </ul>					
7	20 + 21	Resistance of right rear ABS wheel speed sensor -G44-	Ignition switched off	1.2 to 2.0 kΩ	Disconnect harness connector at right rear ABS wheel speed sensor -G44			
		unnero		Simatio	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>			
		ste of co		n in this	⇒ Wiring diagrams, Troubleshooting & Component locations			
		NH4		1009	<ul> <li>Move wires during test</li> </ul>			
		"Burg		. Holt	If no malfunctions are found in wire routing:			
		1900.	1464A	Call Bull Color	<ul> <li>Replace right rear ABS wheel speed sensor -G44-</li> </ul>			
			Protected by Con	lov lov				

	Set measurement range: Resistance measurement (2 k $\Omega$ )								
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	Specified value	Corrective actions for deviation from specification				
		wagen A	G. Volkswagen AG doos		<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>				
		thorised by Volko	os not guarantee						

	Set measurement range: Resistance measurement (2 kΩ)						
Test step	-VAG1598- sockets	Test of	<ul> <li>Test requirements</li> <li>Additional work steps</li> </ul>	Ptanyiao;	Specified value	Corrective actions for deviation from specification	
8	61 + 19 et al burposes, in part or <i>in whole, is</i>	Resistance of left rear ABS wheel speed sensor -G46-	Ignition switched off	Ny with respect to the correctness of information in this	1.2 to 2.0 kΩ	<ul> <li>Disconnect harness connector at left rear ABS wheel speed sensor -G46</li> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>Move wires during test</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace left rear ABS wheel speed sensor -G46-</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and In- stallation</li> </ul>	
		Profected by copyright Copyright Day	. ĐA nagewayo V vali ngi vqo) th	auro			



			Set measurement range: Voltage test	(2 V = ≈)				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	sockets	ukswagen AC	G - Additional work steps		cation			
9	22 + 24	Voltage signal of right front ABS wheel speed sensor - G45-	Vehicle raised     Vehicle raised		<ul> <li>Check installation of right front ABS wheel speed sensor -G45- and rotor</li> </ul>			
		edunes	• Ignition switched off					
	() () ()		<ul> <li>Rotate front right wheel at approx.</li> <li>1 rotation per second</li> </ul>	min. 65 mV alternat- ing voltage	<ul> <li>Check right front ABS wheel speed sensor -G45- for mix-up and read measuring value block <u>⇒ page 145</u>, display group number 001</li> </ul>			
10	art or <i>in Wh</i> O	Voltage signal of left front ABS wheel speed sensor - G47-	Vehicle raised	epect to the	<ul> <li>Check installation of left front ABS wheel speed sensor -G47 and rotor</li> </ul>			
	in pa		Ignition switched on	Corre				
	ial purposes,		<ul> <li>Rotate front left wheel at approx. 1 rotation per second</li> </ul>	min. 65 mV alternat- ing voltage	<ul> <li>Check left front ABS wheel speed sensor - G47- for mix-up and read measuring value block ⇒ page 145, display group number 001</li> </ul>			
	(brmatic							

	Set measurement range: Voltage test (2 V = ≈)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
Зтер	300/(013	Of DU	- Additional work steps				
11	20 + 21	Voltage signal of right rear ABS wheel speed sensor - G44-	<ul> <li>Vehicle raised</li> <li>Ignition switched off</li> </ul>		<ul> <li>Check installation of right rear ABS wheel speed sensor -G44- and rotor</li> </ul>		
			<ul> <li>Rotate rear right wheel at approx. 1 rotation per second</li> </ul>	min. 190 mV alter- nating voltage	<ul> <li>Check right rear ABS wheel speed sensor -G44- for mix-up and read measuring value block ⇒ page 145 , display group number 001</li> </ul>		
12	18 + 19	Voltage signal of left rear ABS wheel speed sensor - G46-	Vehicle raised		<ul> <li>Check installation of left rear ABS wheel speed sensor -G46- and rotor</li> </ul>		

	Set measurement range: Voltage test (2 V = ≈)							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>		cation			
			Ignition switched off					
			<ul> <li>Rotate rear left wheel at approx. 1 rotation per second</li> </ul>	min. 190 mV alter- nating voltage	<ul> <li>Check left rear ABS wheel speed sensor - G46- for mix-up and read measuring value block <u>⇒ page 145</u>, display group number 001</li> </ul>			

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		isedbyves	Set measurement range: voltage test	(20 V =)	
Test	-VAG1598-	Test of	• Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		- Additional work steps		cation
13	-	Voltage supply for -	lgnition switched off	10.0 -14.5 V	
		tor -T16- 2)	<ul> <li>Connect multimeter -VAG1526- to harness connector -T16-<sup>2)</sup> using connector test kit -VAG1594-</li> </ul>	a three	
	rin who,			spectto	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
	parto			the co	⇒ Wiring diagrams, Troubleshooting & Component locations
2) Terminal	assignment of diagnos	tic connector $\Rightarrow$ page 19.		rectne	
	purp			SSOF	

	Set measurement range: Resistance measurement, 200 Ω							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	SOCKETS	00 00	- Additional work steps		cation			
14	-	Resistance of Kwire for - VAG1551-, harness connec- tor -T16-3)	<ul> <li>Ignition switched off</li> <li>Disconnect multi-pin connector from ABS Control Module (w/EDL)</li> <li>-J104</li> </ul>	max: 1.5Ω	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> </ul>			



Set measurement range: Resistance measurement, 200 Ω						
Test	-VAG1598-	Test of	•	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	SOCKETS			Additional work steps wagen AG down		
			-	Connect test box -VAG1598/21-	Ot guar	
			JUT	Connect multimeter -VAG1526- to	" antee or	
		Ine	5	connector -T40/29- of from ABS	PCC CODE	
				ing connector test kit -VAG1594	· 8172	
3) Terminal	assignment of diagnos	stic connector $\Rightarrow$ name 19			ooiiiitz	1
3) reminar assignment of diagnostic connector <u>- page 13</u> .						
(esp)						
Function test: ABS Warning Light -K47-						
Test	-VAG1598-	Test of	•	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	SUCKEIS	u n	-	Additional work steps		
15	-	Function of ABS Warning	•	Ignition switched off	ABS Warning Light -	ctne
		Light -K47-	-	Ignition switched on.	approx. two (2) sec-	10 SS
		rcial			onds and then goes	infor
		amme			ouruguin	- Check wire routing according to wiring di-
		00,00			nint	agram
		te ma			Lie Co	⇒ Wiring diagrams, Troubleshooting & Component locations
DA nagentario 2 holingo 2						

## 3.2.3 Brake Light Switch, Adjusting

# i Note

Brake light switch must be removed for adjustment.

- Remove cover, driver's side. ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation
- Disconnect connector from brake light switch.
- Remove brake light switch by rotating 90° toward left.
- Completely remove plunger of brake light switch.
- Press down brake pedal as far as possible by hand.
- Guide brake light switch through assembly hole and re-install by rotating 90° toward right.
- Release brake pedal.

# After adjusting brake light switch, check whether brake pedal is in end position (released position).

- Connect connector for brake light switch.
- Operate brake pedal.<sup>®</sup>
- brake lights light up.
- Remove foot from brake pedal.
- brake lights must not light up.
- Install cover, driver's side. ⇒ Body Interior; Rep. Gr. 70; Removal and Installation



#### 3.3 ABS/EDL, Bosch 5.3, Electrical Tests

#### Special tools and workshop equipment required

- Test box -VAG1598A-٠
- Connector test kit -VAG1594A-
- Multimeter -VAG1526A-
- Adapter -VAG1598/27-



- Vehicles for which On Board Diagnostic (OBD) does not result in suggestions regarding the malfunction cause. In this case, the electrical test should be performed in its entirety.
- Vehicles for which On Board Diagnostic (OBD) results in direct suggestions regarding the malfunction cause. In this case, only perform test steps recommended in the DTC table (selective troubleshooting).

#### **Test requirements**

- Before beginning the test, switch off ignition and electrical consumers (headlights, lighting, fans ...)
- All fuses must be OK (remove fuses from fuse holder for test). ⇒ Wiring diagrams, Troubleshooting & Component locations
- Disconnect multi-pin connector from ABS control module (w/ EDL) -J104- and connect test box -VAG1598- to connector of wiring harness using adapter -VAG1598/27- .

Protected Specified values refer to readings on the VAG1526 and are not necessarily applicable for other test units.
Multi-Pin Connector Terminal Assignments

# i Note

All terminals omitted here are not occupied at the moment and must not be connected to other components under any circumstance.





		and a contract of the second s				
Terminal		Wire connection to component	uby Volkswag	does not on		
1	⇒ Right rear ABS wheel speed sensor -G44-		thoriseout	andrante <sub>e</sub>		
2	⇒ Not assigned		300	COT RCC.		
3	⇒ Right rear ABS wheel speed sensor -G44-	Supr		Cortan		
4	⇒ Right front ABS wheel speed sensor -G45-	Imit		2		
5	⇒ Right front ABS wheel speed sensor -G45-	oto				
6	⇒ Left front ABS wheel speed sensor -G47-	is is				
7	⇒ Left front ABS wheel speed sensor -G47-	hok				
8	⇒ Left rear ABS wheel speed sensor -G46-	rinv				
9	⇒ Left rear ABS wheel speed sensor -G46-	art c				
10	⇒ Not assigned	du				
11	⇒ Harness connector -T16/7- , K - wire	Ses				
12	⇒ Not assigned	nıpo				
13	⇒ Not assigned	sial P				
14	⇒ Brake light switch -F-	merd				
15	$\Rightarrow$ Voltage supply, terminal X	Loo				
		o areas		11.55 B		
Terminal		Wire connection to component?		THOUSE .		
16	$\Rightarrow$ (GND) from battery -	·~~	<sup>20</sup> 5.	Coby		
17	$\Rightarrow$ Voltage supply from battery +		*4614Ado	A Kathoin		
18	$\Rightarrow$ Voltage supply from battery +		Abeloeted by	UDY UDBERNSHION		
19	$\Rightarrow$ (GND) from battery -		D.	51		
20	⇒ Not assigned					
21	⇒ of ABS warning lamp					
22	→ Not assigned					

Terminal		Wire connection to component?
16	⇒ (GND) from battery -	Cody E
17	$\Rightarrow$ Voltage supply from battery +	140141do
18	$\Rightarrow$ Voltage supply from battery +	VIOKSMSJGELLACE LOGECTED PLO
19	$\Rightarrow$ (GND) from battery -	
20	$\Rightarrow$ Not assigned	
21	$\Rightarrow$ of ABS warning lamp	
22	$\Rightarrow$ Not assigned	
23	⇒ Not assigned	
24	$\Rightarrow$ Not assigned	
25	$\Rightarrow$ Not assigned	
26	⇒ Not assigned	
27	⇒ Not assigned	

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awewagen AG. Vollowagen AG does a							
Terminal	Wire connection to component						
28	⇒ Not assigned						
29	⇒ Not assigned						
30	⇒ Not assigned						
31	⇒ Not assigned						
Overview of test steps							
Component to b	e checked						
Voltage supply (	terminal X) to ABS control module (w/EDL) -J104-	<ul> <li>Perform step 1.</li> </ul>					
Voltage supply of	of ABS hydraulic unit -N55- and ABS return flow pump -V39- at ABS control module (w/EDL) -J104-	<ul> <li>Perform step 2.</li> </ul>					
Function of brak	e light switch -F-	<ul> <li>Perform step 3.</li> </ul>					
Resistance of rig	ght front ABS wheel speed sensor -G45-	<ul> <li>Perform step 4.</li> </ul>					
Resistance of le	ft front ABS wheel speed sensor -G47-	<ul> <li>Perform step 5.</li> </ul>					
Resistance of rig	ght rear ABS wheel speed sensor -G44-	<ul> <li>Perform step 6.</li> </ul>					
Resistance of le	ft rear ABS wheel speed sensor -G46-	<ul> <li>Perform step 7.</li> </ul>					
Voltage supply f	or -VAG1551- , harness connector -T16-	<ul> <li>Perform step 8.</li> </ul>					
Resistance of th	e K-wire for On Board Diagnostic (OBD), harness connector -T16-	<ul> <li>Perform step 9.</li> </ul>					
Function of ABS	Warning Light -K47-	<ul> <li>Perform step 10.</li> </ul>					
Function of t bra	ke and parking brake warning ligh -K7 <sup>2</sup> ive	– Perform step 11.					
	Protected by Copyring						



**Test Table** 



#### Notes for test table

- The socket designations of the VAG1598 test box are identical to the terminal designations of the ABS control module (w/EDL) -J104- in the wiring diagram. ⇒ Wiring diagrams, Troubleshooting & Component locations
- If the measured values do not match the specifications, carry out the corrective actions on the right side of the table. ⇒ Wiring diagrams, Troubleshooting & Component locations
- Use the connector kit -VAG1594- for continuity tests (bridging).
- If measured values differ only slightly from specified values, clean sockets and connectors of the testers and test leads (using G 000 700 04 contact spray) and repeat test. Before replacing the relevant components, check wires and connections and also repeat resistance measurement at component, especially for specified values under 10 Ω.

	Set measurement range: voltage test (20 V =)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets		<ul> <li>Additional work steps</li> </ul>		<b>cation</b> to the		
1	19 + 15	Voltage supply (terminal X) to ABS control module (w/ EDL) -J104-	• Ignition switched on.	10.0 - 14.5 V	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
2	16 + 17	Voltage supply of ABS hy- draulic unit -N55- to ABS control module (w/EDL) - J104-	Ignition switched off	10.0 - 14.5 V	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
	16 + 18	Voltage supply of ABS return flow pump -V39- to ABS con- trol module (w/EDL) -J104-	LLOO LO BREAL	10.0 - 14.5 V	<ul> <li>Check wire routing according to wiring di- agram ⇒ Wiring diagrams, Troubleshoot- ing &amp; Component locations</li> </ul>		
			CT TO DULL		⇒ Wiring diagrams, Troubleshooting & Component locations		
	UBUID IN THE WORLD						

	Set measurement range: voltage test (20 V =)							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>		cation			
3	19 + 14	Function of brake light switch	Ignition switched off	0.0 -0.5 V	<ul> <li>Check brake light switch -F- and read</li> </ul>			
		-F-	Brake pedal not depressed		ber 002			
					<ul> <li>Check wire routing according to wiring di- agram</li> </ul>			



	Set measurement range: voltage test (20 V =)							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation			
					⇒ Wiring diagrams, Troubleshooting & Component locations			
			<ul> <li>Operate brake pedal.</li> </ul>	approx. battery volt-	– Check brake light switch -F- ⇒ page 31			
			AG. Volkswage	age				
	oised by Volkswayen Art. Volkowayen AG does not guarant							

		Set ı	measurement range: Resist	ance measu	rement (2 kΩ)	
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps		Specified value	Corrective actions for deviation from specifi- cation
4	4 + 5	Resistance of right front ABS wheel speed sensor -G45- <sup>(2)</sup> , <sup>(2)</sup> , <sup>(2</sup>	Ignition switched off		0.4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at right front ABS wheel speed sensor -G45</li> <li>Check wire routing according to wiring diagram</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>Move wires during test</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace right front ABS wheel speed sensor -G45-</li> <li>Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>
			7,140100 K			CURPOR STREET

Set measurement range: Resistance measurement (2 kΩ)						
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	Specified value	Corrective actions for deviation from specification	
5	6 + 7	Resistance of left front ABS wheel speed sensor -G47-	Ignition switched off	0.4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at left front ABS wheel speed sensor -G47</li> </ul>	

	Set measurement range: Resistance measurement (2 kΩ)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
			<ul> <li>Additional work steps</li> </ul>				
					<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
		ad by Volkswager	AG. Voikswagen AG does not guar.		⇒ Wiring diagrams, Troubleshooting & Component locations		
		thorise	"antee		<ul> <li>Move wires during test</li> </ul>		
		1855 al	UT RCC		If no malfunctions are found in wire routing:		
		in a start	Spranz II		<ul> <li>Replace left front ABS wheel speed sensor -G47-</li> </ul>		
		whole, is not ben		in with respec	<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>		
	art or is			r to the c	•		

Set measurement range: Resistance measurement (2 kΩ)							
Test	-VAG1598- 🖁	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets		<ul> <li>Additional work steps</li> </ul>	SS Of	cation		
6	1 + 3	Resistance of right rear ABS wheel speed sensor -G44-	Ignition switched off	0.4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at right rear ABS wheel speed sensor -G44</li> </ul>		
		otcom		tionint	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
		ARTING TO	Jun <sup>26</sup>		⇒ Wiring diagrams, Troubleshooting & Component locations		
		* OUISC	-u <sup>20</sup>		<ul> <li>Move wires during test</li> </ul>		
		auf Cov	Guido's		If no malfunctions are found in wire routing:		
		LOIGCIED PY COPYLICE	D HABBEMSHIP NATUD.		<ul> <li>Replace right rear ABS wheel speed sen- sor -G44-</li> </ul>		



	Set measurement range: Resistance measurement (2 kΩ)							
Test step	-VAG1598- sockets	Test of	<ul> <li>Test requirements</li> <li>Additional work steps</li> </ul>	Specified value	Corrective actions for deviation from specification			
					<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul>			

		Set	measurement range: Resistance meas	urement (2 kΩ)	
Test step	-VAG1598- sockets	Test of Aby Volkswagen AG. Volks	<ul> <li>Test requirements</li> <li>Additional work steps</li> </ul>	Specified value	Corrective actions for deviation from specification
7	8 + 9	Resistance of left rear ABS wheel speed sensor -G46-	Ignition switched off	0.4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at left rear ABS wheel speed sensor -G46</li> </ul>
		ane <sup>2</sup>	CGDF ATL		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
	Of Derin,				⇒ Wiring diagrams, Troubleshooting & Component locations
	isn		Mith		<ul> <li>Move wires during test</li> </ul>
	hole		espe		If no malfunctions are found in wire routing:
	t or in w		act to th		<ul> <li>Replace left rear ABS wheel speed sensor -G46-</li> </ul>
	purposes, in pari		e correctness of		<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>
	otiviate of commercial	Q. BUIRDOO JUS	information/i, ius		
40		Profected by copyer	DA nagewaylov york		

	Set measurement range: voltage test (20 V =)				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		<ul> <li>Additional work steps</li> </ul>		
8	-	Voltage supply for -	Ignition switched off	10.0 -14.5 V	
		tor -T16- <sup>4)</sup>	<ul> <li>Connect multimeter -VAG1526- to harness connector -T16- <sup>4)</sup> using connector test kit -VAG1594-</li> </ul>		
					<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
		wswagen AG	Volkswagen AG does		⇒ Wiring diagrams, Troubleshooting & Component locations
4) Terminal	4) Terminal assignment of diagnostic connector $\Rightarrow page 45$ .				
	NE <sup>55 ALL</sup> OF REAL				
	Set measurement range: Resistance measurement 200.0				

	Set measurement range: Resistance measurement, 200 Ω				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		- Additional work steps		cation
9	, in part or in whole,	Resistance of Kwire for - VAG1551- , harness connec- tor -T16- <sup>5)</sup>	<ul> <li>Ignition switched off</li> <li>Disconnect multi-pin connector from ABS control module (w/EDL) - J104-</li> </ul>	max: 1.5 Ω	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Com-</li> </ul>
	onnimercial purposes		<ul> <li>Connect test box -VAG1598A- using adapter -VAG1598/27</li> <li>Connect multimeter -VAG1526- to terminals -T16/7-<sup>5)</sup> and multi-pinconnector from -T40/11- of ABS control module (w/EDL) -J104- using connector test kit -VAG1594.</li> </ul>	ctness of inform	ponent locations
5) Terminal	assignment of diagno	stic connector <u>⇒ page 45</u> .	ouroo		
		Cled by copyright, Copyrigh	Semestion Valitation of the		
		-iostory4	. DA Abren		Λ·



	Function test: ABS Warning Light -K47-				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
Step	SUCKEIS		<ul> <li>Additional work steps</li> </ul>		cauon
10	-	Function of ABS Warning Light -K47-	<ul> <li>Ignition switched off</li> <li>Ignition switched on.</li> <li>Ignition switched on.</li> </ul>	ABS Warning Light - K47- lights up for approx. two (2) sec- onds and then goes out again	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>Malfunction in instrument cluster</li> <li>⇒ Body Interior; Rep. Gr. 70; Removal and Installation</li> </ul>
			2 <sup>tbelt</sup> min		A liability

	Function test: Brake and parking brake warning light -K7-				
Test	-VAG1598-	Test of	• ¿Test requirements	Specified value	Corrective actions for deviation from specifi-
step	SOCKETS		$-\frac{2}{2}$ Additional work steps		cation of to
11	-	Function of brake and park-	•tg Parking brake not engaged	Brake and parking	ine c
		ing brake warning light -K7-	• Brake fluid level is OK	brake warning light -	orree
			• Switch on ignition		stnes
			burb		S Of
			- Engage parking brake.	Brake and parking brake warning light -	infon
			alle	K7- lights up	naii
			0000		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
					→ Wiring diagrams, Troubleshooting & Com-
			. TO		ponent locations
			UIA do	15	- Malfunction in instrument cluster
			34611/1000	A A A A	Body Interior; Rep. Gr. 70; Removal and Installation
	Protected by				





#### 3.4 ABS/EDL/ASR/ESP, Bosch 5.3, Electrical Tests

#### Special tools and workshop equipment required

- Test box -VAG1598/20-٠
- Connector test kit -VAG1594A-
- Multimeter -VAG1526A-



Before beginning the test, switch on  $S_{A_{p_{O}}}$  consumers (headlights, lighting, fans ...)  $S_{A_{p_{O}}}$ Before beginning the test, switch off ignition and electrical

 $\Rightarrow$  page 49.

**Test requirements** 

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- All fuses must be OK (remove fuses from fuse holder for test).
   ⇒ Wiring diagrams, Troubleshooting & Component locations
- Disconnect multi-pin connector from ABS control module (w/ EDL) -J104- and connect test box -VAG1598/20- to connector of wiring harness.

Specified values refer to readings on the VAG1526 and are not necessarily applicable for other test units.

## 3.4.1 Multi-Pin Connector Terminal Assignments

# i Note

All terminals omitted here are not occupied at the moment and must not be connected to other components under any circumstance.





· · · · · · · · · · · · · · · · · · ·	a <sup>th</sup> <sup>n</sup>	· ° ° 0 ~
Terminal	Wire connection to component	1 acces
1	⇒ Voltage supply, terminal 15	Dr. Bay
2	<ul> <li>⇒ Plus-activation of ABS return flow pump relay 3105-</li> <li>⇒ Plus-activation of ABS solenoid valve relay -3106-</li> <li>⇒ Voltage supply of Steering Angle Sensor -G85-</li> </ul>	A lability with
3	⇒ Activation of left front ABS outlet valve -N102-	est la service de la service d
4	⇒ Activation of right rear ABS outlet valve -N135-	pect
5	⇒ Activation of left front ABS inlet valve -N101-	to th
6	⇒ Activation of right rear ABS inlet valve -N133-	8 00
7	⇒ Ground (GND)-activation of ABS return flow pump relay -J105-	rect
8	⇒ Not assigned	nesg
9	⇒ Left front ABS wheel speed sensor -G47	of jj
10	⇒ Left front ABS wheel speed sensor -G47-8	nfort
11	⇒ Right rear ABS wheel speed sensor -G44- (only in vehicles with 16" suspension)	natio
12	$\Rightarrow$ Right rear ABS wheel speed sensor -G44-	
13	⇒ Left rear ABS wheel speed sensor -G46-	No. of the second secon
14	$\Rightarrow$ Left rear ABS wheel speed sensor -G46-	Sull <sup>o</sup>
	Contraction of the second seco	Coolins Coolins

edby Volkswagen AG. Volkswagen AG does not guara.

Terminal	Wire connection to component
15	⇒ Right front ABS wheel speed sensor -G45- (only in vehicles with 15" suspension) "D∀ uadentiation"
16	⇒ Right front ABS wheel speed sensor -G45-
17	⇒ Right front ABS wheel speed sensor -G45- (only in vehicles with 16" suspension)
18	$\Rightarrow$ Signal wire of the sensor for transverse acceleration -G200- <sup>6</sup> )
19	⇒ Not assigned
20	⇒ ABS return flow pump relay -J105- ⇒ Control wire for ABS return flow pump -V39-
21	⇒ Not assigned
22	⇒ Voltage supply of Hydraulic pump for traction control -V156-
23	⇒ Not assigned
24	⇒ Ground (GND) supply of Hydraulic pump for traction control -V156-
25	⇒ Activation of left rear ABS outlet valve -N136-

Terminal	Wire connection	on to component Holkswagen AG. VC	mkswagen AG does no
26	⇒ Activation of right front ABS inlet valve -N99-	isedby	Un guaraps
27	⇒ Not assigned	cautho.	<sup>10</sup> 80/2
28	$\Rightarrow$ Ground (GND) terminal 31 ( ABS Control Module (w/EDL) -J104- )	uness	*CCBD#
Sensor for transv	erse acceleration -G200- and sender for rotation rate -G202- are combined together as one unit	t <u>⇒ Item 5 (page 11)</u> .	PM/lib.
		JVP6	

	24	All the second se
Terminal	Wire connection to component	res
29	⇒ Ground (GND) terminal 31 ( ABS Control Module (w/EDL) -J104- )	eatt
30	⇒ Not assigned	io the
31	⇒ Only on vehicles with navigation system	¢ cor
32	⇒ Not assigned	rrect
33	⇒ Not assigned	ness
34	⇒ Voltage supply of sensor for transverse acceleration -G200- / sender foerotation rate -G202- 7)	Of ir
35	⇒ Not assigned	16m
36	⇒ Ground (GND) - activation of ABS solenoid valve relay -J106-	Patio
37	⇒ Not assigned	nin <sub>t</sub>
38	⇒ Right rear ABS wheel speed sensor -G44- (only in vehicles with 15" suspension)	88. 100
39	⇒ Not assigned	Shire
40	⇒ Not assigned	
41	⇒ Not assigned	an uping
42	⇒ Brake light switch -F-	62NISXION NOT
	seator4	. DA Mana

7) Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are combined together as one unit  $\Rightarrow$  Item 5 (page 11).

Terminal	Wire connection to component
43	⇒ Not assigned
44	⇒ Traction control switch -E256-
46	⇒ Harness connector -T16/7- , K - wire
47	⇒ Not assigned



Terminal	Wire connection to component
48	⇒ Brake pedal switch -F47-
49	⇒ Activation of pilot valve -1- traction control -N225-
50	⇒ Activation of pilot valve -2- traction control -N226-
51	⇒ Voltage supply (terminal 30)
52	⇒ Activation of high pressure switch valve -2- traction control -N228-
53	⇒ Activation of left rear ABS inlet valve -N134-
54	⇒ Activation of high pressure switch valve -1- traction control -N227-
55	⇒ Activation of right front ABS outlet valve -N100-
56	$\Rightarrow$ Not assigned of KSWagen Ad. Venterlagen AG does not
57	⇒ Not assigned
58	⇒ Not assigned
59	⇒Not assigned
The second se	

Terminal	Wire connection to component
60 <i>e</i>	⇒ Not assigned
61 <sup>4</sup> / <sub>6</sub>	⇒ Steering Angle Sensor -G85-
62 <sup>1</sup>	⇒ Not assigned
63 <sup>b</sup>	⇒ Steering Angle Sensor -G85-
64 <sub>0</sub>	⇒ Data-BUS wire ⇒ Wiring diagrams, Troubleshooting & Component locations
65 <sup>%</sup>	⇒ Not assigned
66 <sup>1</sup>	⇒ Data-BUS wire ⇒ Wiring diagrams, Troubleshooting & Component locations
67 <sup>.00</sup>	⇒ Ground (GND) supply of Sender 1 for brake booster -G201- $\vec{s}$
68	⇒ Signal wire of Sender 1 for brake booster -G201-
69 <sup>9</sup>	⇒ Voltage supply of r Sender 1 for brake booste -G201-
70	> Not assigned
70	Swarning lamp activation
35	⇒ Only on vehicles with navigation system
72	⇒ Not assigned
73	⇒ Not assigned
	Lator DA france.

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A DIT.	$\lambda_{D_{t}}$
Terminal	Wire connection to component
74	⇒ Not assigned
ole, is n <sub>d</sub>	with rest
Terminal	Wire connection to component
<sup>2</sup> 75	⇒ Not assigned
ad n	⇒ Parking brake switch
's <b>77</b>	$\Rightarrow$ Test signal of the sender for rotation rate -G202- <sup>8</sup> )
od 78	$\Rightarrow$ Reference signal of the sender for rotation rate -G202- <sup>8</sup> )
nd 19	⇒ Signal wire of the sender for rotation rate -G202- <sup>8</sup> ) $\frac{9}{5}$
80	⇒ Sensor for transverse acceleration -G200- / sender for rotation rate -G202- <sup>8)</sup>
8	⇒ Not assigned
82 <u>́</u>	⇒ Not assigned
83 <sup>6</sup> 7.4	⇒ Not assigned
84 <sup>*</sup> 9 <sub>6</sub>	⇒ Not assigned
85	Solution And And And And And And And And And An
86	⇒ Standing time signal from instrument cluster
87	⇒ Not assigned
88	⇒ Not assigned

8) Sensor for transverse acceleration -G200- and e sender for rotation rat -G202- are combined together as one unit  $\Rightarrow$  Item 5 (page 11).

#### Overview of test steps

Component to be checked	
Resistance between left front ABS inlet valve -N101- and left front ABS outlet valve -N102-	<ul> <li>Perform step 1.</li> </ul>
Resistance between right front ABS inlet valve -N99- and right front ABS outlet valve -N102-	<ul> <li>Perform step 2.</li> </ul>
Resistance between left rear ABS inlet valve -N134- and left rear ABS outlet valve -N136-	<ul> <li>Perform step 3.</li> </ul>
Resistance between right rear ABS inlet valve -N133- and right rear ABS outlet valve -N135-	<ul> <li>Perform step 4.</li> </ul>
Resistance between pilot valve -1- traction control -N225- and pilot valve -2- traction control -N226-	<ul> <li>Perform step 5.</li> </ul>
Resistance between high pressure switch valve -1- traction control -N227- and high pressure switch valve -2- traction control -N228-	I – Perform step 6.



Component to be checked	
Resistance of left front ABS wheel speed sensor -G47-	– Perform step 7.
Resistance of right front ABS wheel speed sensor -G45-	<ul> <li>Perform step 8.</li> </ul>
Resistance of left rear ABS wheel speed sensor -G46-	🖳 Perform step 9.
Resistance of right rear ABS wheel speed sensor -G44-	<ul> <li>Perform step 10.</li> </ul>
ABS solenoid valve relay -J106-	<ul> <li>Perform step 11.</li> </ul>
ABS return flow pump relay -J105-	<ul> <li>Perform step 12.</li> </ul>
Function of ABS Warning Light -K47-	<ul> <li>Perform step 13.</li> </ul>
Function of warning light for brake system -K118-	<ul> <li>Perform step 14.</li> </ul>
le, is no	With res
Component to be checked	pec
Function of ESP Control Lamp -K155-	– Perform step 15.
Function of ASR/ESP button -E256-	– Perform step 16.
Voltage supply of ) ABS control module (w/EDL -J104-	– Perform step 17.
Function of brake light switch -F- and brake pedal switch -F47-	– Perform step 18.
Function of parking brake warning light switch -F9-	– Perform step 19.
Activation of the Steering Angle Sensor -G85-	– Perform step 20.
Hydraulic pump for traction control -V156-	– Perform step 21.
Wires for the sensor for transverse acceleration -G200- and the sender for rotation rate -G202- 9)	- Perform step 22.
Activation of Sender 1 for brake booster -G201-	<ul> <li>Perform step 23.</li> </ul>
Test of databus wires	<ul> <li>Perform step 24.</li> </ul>
Voltage supply for -VAG1551- , harness connector -T16-	<ul> <li>Perform step 25.</li> </ul>
Resistance of the K-wire for On Board Diagnostic (OBD), r harness connecto -T16-	<ul> <li>Perform step 26.</li> </ul>
9) Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are combined together as one unit $\Rightarrow$ Item 5 (page 11) .	ensylon ha*

# 3.4.2 Test Table





#### Notes for test table

- The socket designations of the adapter -VAG1598/20- are identical to the terminal designations for the ABS control module (w/EDL) -J104- in the wiring diagram.
   Wiring diagrams, Troubleshooting & Component locations
- If the measured values do not match the specifications, carry out the corrective actions on the right side of the table. ⇒ Wiring diagrams, Troubleshooting & Component locations
- Use the connector kit -VAG1594A- for continuity tests (bridging leads).
- If measured values differ only slightly from specified values, clean sockets and connectors of the testers and test leads (using G 000 700 04 contact spray) and repeat test. Before replacing the relevant components, check wires and connections and also repeat resistance measurement at component, especially for specified values under 10 Ω.

Test step       -VAG1598- sockets       Test of -Additional work steps       Specified value cation       Corrective actions for deviation from specifi- cation         1       5 + 3       Left front ABS inlet valve - N101- Left front ABS outlet valve - N102-       Ignition switched off       9 to 22 0       - Check wire routing according to wiring di- agram         -       Nove wires during test       - Move wires during test       - Move wires during test         -       Ning diagrams, Troubleshooting & Com- ponent locations       - Replace ABS hydraulic unit -N55-         -       - Replace ABS hydraulic unit -N55-       - Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or -> Suspen- sion, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and In- stallation		Set measurement range: Resistance measurement (200 Ω)						
step       sockets       - Additional work steps       cation         1       5 + 3       Left front ABS inlet valve - N101- Left front ABS outlet valve - N102-       Ignition switched off       9 to 22 0       - Check wire routing according to wiring di- agram         -       Nove wires during test       - Move wires during test       - Move wires during test         -       Ning diagrams, Troubleshooting & Com- ponent locations       - Replace ABS hydraulic unit -N55-         -       Replace ABS hydraulic unit -N55-       - Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Installation or > Suspen- sion, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and In- stallation	Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
1       5+3       Left front ABS inlet valve - N101- Left front ABS outlet valve - N102- set front ABS out	step	sockets	nha	<ul> <li>Additional work steps</li> </ul>	pect	cation		
-1080	1	5+3	Left front ABS inlet valve - N101- Left front ABS outlet valve - N102- Second de la constant Perpartement of Guilloro Studies of States	Ignition switched off	9 to 22 9 to 22 9 to 22	<ul> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace ABS hydraulic unit -N55-</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>		

		Set r	measurement range: Resistance measu	urement (200 Ω)	
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	Specified value	Corrective actions for deviation from specification
2	26 + 55	Right front ABS inlet valve	• Ignition switched off	9 to 22 Ω	<ul> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace ABS hydraulic unit -N55-</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul>
		lercial p		finform	·

	Set measurement range: Resistance measurement (200 Ω)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets	CALL	<ul> <li>Additional work steps</li> </ul>		cation		
3	53 + 25	Left rear ABS infet valve - N134- Left rear ABS outlet valve - N136-	• Ignition switched off	ັ <sup>ນອີ</sup> 9 to 22 Ω	<ul> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace ABS hydraulic unit -N55-</li> </ul>		



	Set measurement range: Resistance measurement (200 Ω)						
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	Specified value	Corrective actions for deviation from specification		
		eduneseauthonised by Volk	and guarantee or acce	07 80	<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul>		
		<sup>1</sup> Dec <sub>min</sub>		Aliability			

	Set measurement range: Resistance measurement $f(200 \Omega)$					
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-	
step	sockets	rinw	<ul> <li>Additional work steps</li> </ul>	act to	cation	
4	6 + 4	Right rear ABS inlet valve - N133- Right rear ABS outlet valve - N135- N135- <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup> <sup>1110</sup>	• Ignition switched off	9 to correctness of information in this of the second sec	<ul> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If no malfunctions are found in wire routing:         <ul> <li>Replace ABS hydraulic unit -N55-</li> <li>Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul> </li> </ul>	



Set measurement range: Resistance measurement (200 Ω)					
Test -VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-	
step sockets	suot.	<ul> <li>Additional work steps</li> </ul>		cation	
5 49 + 50 F -I F	Pilot valve -1- traction control -N225- Pilot valve -2- traction control -N226- - N226- -	Ignition switched off	12 to 28 Ω	<ul> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>The malfunctions are found in wire routing:</li> <li>Replace ABS hydraulic unit -N55-</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>	

	Set measurement range: Resistance measurement (200 Ω)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>				
6	54 + 52	High pressure switch valve -1- traction control -N227- High pressure switch valve -2- traction control -N228-	<ul> <li>Ignition switched off</li> </ul>	12 to 28 Ω	<ul> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace ABS hydraulic unit -N55-</li> </ul>		



	Set measurement range: Resistance measurement (200 Ω)						
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	Specified value	Corrective actions for deviation from specification		
					<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul>		

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	Set measurement range: Resistance measurement (2 kΩ)					
Test	-VAG1598-	Test of	Test requirements		Specified value	Corrective actions for deviation from specifi-
step	sockets		- Additional work steps		111855 a	cation
7	9 + 10	Resistance of left front ABS wheel speed sensor -G47-	Ignition switched off	purposes, in part or in whole, is not ben the	0.4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at left front ABS wheel speed sensor -G47</li> <li>Check wire routing according to wiring diagram</li> <li>Move wires during test</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If no malfunctions are found in wire routing:</li> <li>Replace left front ABS wheel speed sensor -G47-</li> <li>Brake Systems from MY 1997; Rep. Gr. 45 : Removal and Installation or ⇒ Suspen-</li> </ul>
				mmercial		sion, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and In- stallation
L				ateorco		nin this

	Set measurement range: Resistance measurement (2 kΩ)				
Test	-VAG1598-	Test of	<ul> <li>Test requirements</li> </ul>	Specified value	Corrective actions for deviation from specifi-
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>	14645	cation
8	15 + 16 15" Suspension	Resistance of right front ABS wheel speed sensor -G45-	Ignition switched off	0,4 to 2.3 kΩ <sub>∂≀∂∂≀</sub>	<ul> <li>Disconnect harness connector at right front</li> <li>ABS wheel speed sensor -G45</li> </ul>



		dult					
		Set 1	measurement range: Resistance meas	surement (2 kΩ)			
Test	-VAG1598-	Test of 🖉	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets	e, is no	<ul> <li>Additional work steps</li> </ul>	WithT	cation		
	16 + 17 16" Suspension	in who,		740	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
		rt or			Move wires during test		
		s, in pa			⇔ Wiring diagrams, Troubleshooting & Com- ponent locations		
		0086			If no malfunctions are found in wire routing:		
		ial purp			<ul> <li>Replace right front ABS wheel speed sen- sor -G45-</li> </ul>		
		ate of commerce		onnation in this of	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspen- sion, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and In- stallation		
	The second						
		10		. 20.5	1		

		CT OJ FUIRO		118410	
		Set	measurement range: Resi	istance measurement (2 kΩ)	
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	·DA NBORNEWP / Specified value	Corrective actions for deviation from specification
9	13 + 14	Resistance of left rear ABS wheel speed sensor -G46-	Ignition switched off	0.4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at left rear ABS wheel speed sensor -G46</li> <li>Check wire routing coording to wiring di</li> </ul>
					agram
					<ul> <li>Move wires during test</li> </ul>
					⇒ Wiring diagrams, Troubleshooting & Component locations
					If no malfunctions are found in wire routing:
					<ul> <li>Replace left rear ABS wheel speed sensor -G46-</li> </ul>



	Set measurement range: Resistance measurement (2 kΩ)									
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-					
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>		cation					
			wewagen AG. Volkswagen A	G d <sub>OAc</sub>	<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45 ; Removal and Installation</li> </ul>					
			thorised by Voine	-s not guarantee						

		Set	measurement range: Resis	tance measuremen	nt (2 kΩ)	
Test step	-VAG1598- sockets	Test of	• S <sup>5</sup> Test requirements	Spe	ecified value	Corrective actions for deviation from specifi-
			<ul> <li>Additional work steps</li> </ul>			8
10	12 + 38 15" Suspension	Resistance of right rear ABS wheel speed sensor -G44-	Ignition switched off	0.4	4 to 2.3 kΩ	<ul> <li>Disconnect harness connector at right rear ABS wheel speed sensor -G44</li> </ul>
	11 + 12 16" Suspension	io hundi				<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
		tor				<ul> <li>Move wires during test</li> </ul>
		s, in par				⇒ Wiring diagrams, Troubleshooting & Com- ponent locations
		OS G				If no malfunctions are found in wire routing:
		alpurp				<ul> <li>Replace right rear ABS wheel speed sensor G44-</li> </ul>
		reorcommerci				<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr.</li> <li>45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY</li> <li>1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>
			CtojBulger		- Hann	

	Set measurement range: Resistance measurement (200 Q)								
Test step	-VAG1598- sockets	Test of	Test requirements     Additional work steps	Specified value	Corrective actions for deviation from specification				
11	2 + 36	ABS solenoid valve relay - J106-	Ignition switched off	50 to 70 Ω					



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		Set n	neasurement range: Resistance measu	rement (200 Ω)	Nr ann
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		- Additional work steps		cation (2)
			<ul> <li>Disconnect harness connector from Steering Angle Sensor -G85</li> </ul>		, respec
			rt or in		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
			u ba		If no malfunctions are found in wire routing:
					- Replace ABS solenoid valve relay -J106-
			burpos		⇒ Wiring diagrams, Troubleshooting & Com- ponent locations
			nercial		inform

	Set measurement range: Resistance measurement (200 $\Omega$ )							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>					
12	2 + 7	ABS return flow pump relay -	Ignition switched off	<sup>24</sup> μ <sub>0</sub> 50 to 70 Ω				
		J105-		SUL.	Guldos			
			<ul> <li>Disconnect harness connector</li> </ul>	NOIANDOD 6	a Majur.			
			from Steering Angle Sensor -G85	IBCIED PICE	LI DIKENNEGENISAULT			
				T	Check wire routing according to wiring di-			
					agram			
					If no malfunctions are found in wire routing:			
					<ul> <li>Replace ABS return flow pump relay - J105-</li> </ul>			
					⇒ Wiring diagrams, Troubleshooting & Component locations			



				Function test: ABS Warning Light	-K47-	
Test step	-VAG1598- sockets	Test of	•  -	Test requirements Additional work steps	Specified value	Corrective actions for deviation from specification
13	-	Function of ABS Warning Light -K47-	•	Ignition switched off Ignition switched on.	ABS Warning Light - K47- lights up for approx. two (2) sec- onds and then goes out again	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>Malfunction in instrument cluster</li> <li>⇒ Body Interior; Rep. Gr. 70; Removal and Installation</li> </ul>
Test step	-VAG1598- sockets	F Test of	- un	ction test: Warning light for brake sy <b>Test requirements</b>	rstem -K118-	Corrective actions for deviation from specification
14	-	Function of warning light for brake system -K118-	•	Additional work steps Brake fluid level is OK. Switch on ignition	Warning light for brake system - K118- lights up for two (2) seconds and then goes out again.	<ul> <li>Check brake fluid level warning switch - F34- in cap</li> <li>For some models, may also light up as parking brake warning lamp</li> <li>Check wire routing according to wiring di- agram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Com- ponent locations</li> <li>Malfunction in instrument cluster</li> </ul>
						⇒ Body Interior; Rep. Gr. 70; Removal and Installation

coopt any liability with respect to the correctness of information in this opposite the correctness of information in this opposite the second s

				Function test: ESP Control Lamp -	K155-					
	Test	-VAG1598-gen/	rest of shot	Test requirements	Specified value	Corrective actions for deviation from specifi-				
	step	SOCKETS	guarante -	- Additional work steps		cation				
	15 sad		Function of ESP Control Lamp -K155-	Ignition switched off Ignition switched on.	ESP Control Lamp - K155- lights up for two (2) seconds and then goes out.					
Dot Do	5			A LINK WIT		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>				
SI 'aro				hrespe		⇒ Wiring diagrams, Troubleshooting & Component locations				
				ct to		<ul> <li>Malfunction in instrument cluster</li> </ul>				
				the cor		⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation				
				rectnes						
			Func	tion test: Warning lamp for ASR/ESP	button -E256-					
	Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-				
ILLUNC	step	sockets	-	- Additional work steps		cation				
10	16	-	Function of ASR/ESP button •	Switch on ignition	ESP Control Lamp -					
	REALIDIO DURIO		-E256-	Function of ESP Control Lamp - K155- was already checked in step 15	K155- lights up for two (2) seconds and then goes out.					
		HOLAGOD A GOD ALIGHE	C AGUIDANO -	Press ASR/ESP button -E256	ESP Control Lamp - K155- lights up.					
		Protecter	.ĐA nagswarr	<ul> <li>Press ASR/ESP button -E256- again.</li> </ul>	ESP Control Lamp - K155- goes out.					
		Test step 16a: Continued below								



			Continuation of test step 16a	l				
	Set measurement range: voltage test (20 V =)							
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>		cation			
16a	44 + 28	Function of ASR/ESP button	Connect test box -VAG1598/20-					
		-E256-	Switch on ignition					
			<ul> <li>ASR/ESP button -E256- pressed</li> </ul>	approx. battery volt-	gen AG d-			
			<ul> <li>ASR/ESP button -E256- not press- ed</li> </ul>	W <sup>01K</sup> 0.0 to 0.5 V	- does not guarante			
			ASR/ESP button -E256- malfunction-		<ul> <li>Replace ASR/ESP button -E256-</li> </ul>			
			Ling Line Line		⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation			
	•	•	<sup>10</sup> t <sub>06</sub>					

			S.		3
			Set measurement ange: voltage te	st (20 V =)	iesp
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		- Additional work steps		cation
17	1 + 28 1 + 29	Voltage supply of ABS con- trol module (w/EDL) -J104-	• Ignition switched on.	10.0 to 14.5 V	porrectr
	51 + 28	Voltage supply of ABS con- trol module (w/EDL) -J104-	Ignition switched off	10.0 to 14.5 V	ess of
			nercial		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
			orcont		⇒ Wiring diagrams, Troubleshooting & Component locations
			ARALLE TO DE		18 <sup>JI/00</sup>
			4176 COPHIN	Profected by copy	CONTINUE VOIKSWAGENAG.
				-	-



			Set measurement range: voltage test	t (20 V =)	
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	SOCKETS		<ul> <li>Additional work steps</li> </ul>		
18	28 + 42	Function of brake light switch -F-	<ul> <li>Ignition switched off swagen AG does not see the swagen AG does not see the second seco</li></ul>	0.0 to 0.5 V	<ul> <li>Check brake light switch -F- and read measuring value block <u>⇒ page 145</u>, dis- play group number 002</li> </ul>
		11055.81	<ul> <li>Operate brake pedal.</li> </ul>	approx. battery volt-	Check brake light switch -F- ⇒ page 151
	28 + 48	Brake Vacuum Vent Valve Switch for Cruise Control/ Diesel Fuel Injection -F47-	<ul><li> Ignition switched on.</li><li> Brake pedal not depressed</li></ul>	approx. battery volt- age	<ul> <li>Check brake pedal switch -F47- and read measuring value block <u>⇒ page 145</u>, dis- play group number 002</li> </ul>
		ole, is n	<ul> <li>Brake pedal depressed</li> </ul>	0.0 to 0.5 V	<ul> <li>Check brake pedal switch -F47-</li> <li>⇒ page 151</li> </ul>
		or in wr			<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
		in part			Wiring diagrams, Troubleshooting & Com-
		sesodu			ctness

	Set measurement range: voltage test (20 V =)						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets	11100	<ul> <li>Additional work steps</li> </ul>	ation			
19	1 + 76	Function of parking brake	Ignition switched on.	0.0 to 0.5 V			
		warning light switch -+9-	<ul> <li>Parking brake not engaged</li> </ul>	11209			
		"Durge	<ul> <li>Parking brake engaged</li> </ul>	approx. battery volt-			
			IKSWAGEN PG. Protected by copyright	Arguffindoage	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Com-</li> </ul>		
					ponent locations		



	Set measurement range: Voltage measurement (20 V =) in test step 20, resistance measurement (200 $\Omega$ )/(20 M $\Omega$ ) in test step 20a					
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-	
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation	
20	-	Voltage supply of Steering	Ignition switched off			
			- Disconnect harness connector apen Afrom Steering Angle Sensor -G85			
		authorisedbyVolksw	<ul> <li>Disconnect multipin connector - T88- from ABS control module (w/ EDL) -J104-</li> </ul>			
		Line uness	<ul> <li>Check wire between terminal T6a/4 and terminal T6a/1 of harness con- nector from Steering Angle Sensor C85</li> </ul>	10.0 to 14.5 V	<ul> <li>Check wire routing according to wiring di- agram</li> </ul>	
		e, is not be		Sility with t	⇒ Wiring diagrams, Troubleshooting & Component locations	
		hole		Test step 20: Contin	ued below.	
		torin		ct to the		

		in pa	Continuation of test step 20	COTT	
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	SOCKETS	nurpo	<ul> <li>Additional work steps</li> </ul>	0 SSE	
20	-	Voltage supply of Steering Angle Sensor -G85-	<ul> <li>Multi-pin connector -T88- from ABS control module (w/EDL) -J104- connected</li> <li>Ignition switched on.</li> <li>Check wire between terminal T6a/5 and terminal T6a/1 of harness connector from Steering Angle Sensor -G85</li> </ul>	10.0 to 14.5 V	<ul> <li>Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> </ul>
		•		Test step 20a: Cont	inued below.

	Continuation of test step 20 agen AG							
Test step	-VAG1598- sockets	Test of	Test requirements <sup>keway</sup>	Specified value	Corrective actions for deviation from specification			
			- Additionapwork steps	·'@@				
20a	-	Wires for the Steering Angle	<ul> <li>Set measuring range to 200 Ω</li> </ul>		CC COL			
		Sensor -Gos-	<ul> <li>Connect test box -VAG1598/20-</li> </ul>		T BILL			
			<ul> <li>Check wiring between multi-pin connector for Steering Angle Sen- sor -G85- and multi-pin connector of ABS control module (w/EDL) - J104- for open circuits:</li> </ul>	max: 1.5 Ω	<ul> <li>Check wire routing according to wiring di- agram ⇒ Wiring diagrams, Troubleshoot- ing &amp; Component locations</li> </ul>			
	Test step 20a: Continued below							
		in part o			the corr			
		ses,	Continuation of test step 20a		ectn			
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-			
step	sockets	cial Pl	<ul> <li>Additional work steps</li> </ul>					
20a		Wires for the Steering Angle	• Set measuring range to 20 $M\Omega$		la material de la companya de la com			
		Sensor -G85-	S Demove fues S14		ion in			
			Charles virge for short singuit to D		the second second			
			or Ground (GND).	$\Omega^{\infty}$	Juno			
			- OLITADOS JUBULADOS AG DO	Contraction of the state of the	<ul> <li>⇒ Check wire routing according to wiring diagram</li> <li>⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> </ul>			
			1.6.0513.0					



	Set measurement range: Resistance measurement (200 $\Omega$ /20 M $\Omega$ )						
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation		
21		Wiring or hydraulic pump for	Ignition switched off				
		traction control	• Set measuring range to 200 $\Omega$				
			<ul> <li>Disconnect harness connector -T2- from Hydraulic pump for traction control -V156</li> </ul>	-			
			- Disconnect multipin connector - T88- from ABS control module (w/ EDL) -J104-	agen AG de			
			<ul> <li>Check wiring between harness connector -T2- from Hydraulic pump for traction control -V156- and multi-pin connector of ABS control module (w/EDL) -J104- for open circuits:</li> </ul>	max. <sup>7</sup> 4,50	<ul> <li>Check wire routing according to wiring diagram ⇒ Wiring diagrams, Troubleshooting &amp; Component locations</li> </ul>		
			Line and the second sec	Test step 21: Contir	nued below		

			<sup>6</sup> , <i>i</i> s not,		SI WITH TO	
		04 <i>w</i>	Continuation of test step 21		spe	
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-	
step	sockets	part (	<ul> <li>Additional work steps</li> </ul>		cation To	
		es, in	Set measuring range to 20 MΩ		rrect	
		sodu	– Remove fuse -S14		ness	
		rcialpu	<ul> <li>Check wires for short circuit to B+ or Ground (GND).</li> </ul>	Ω ∞	of info <sub>r</sub>	
			Comme		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>	
			to a land		⇒ Wiring diagrams, Troubleshooting & Component locations	
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		Set mea	sureme	ent range: Resistance measurem	ent (200 Ω/20 MΩ)	cs not guar	
Test	-VAG1598-	Test of	• Tes	st requirements	Specified value	Corrective actions for deviation from specifi-	
step	SOCKETS		– Add	ditional work steps	messic	cation	
22	-	Wires for the sensor for	• Igni	ition switched off		P12	
		G200- and the sender for ro-	• Set	t measuring range to 200 $\Omega$	e e e e e e e e e e e e e e e e e e e	Balling	
	tation rate -G202- <sup>10)</sup>	<ul> <li>Disc from atio tatic</li> </ul>	connect harness connector m sensor for transverse acceler- on -G200- and the sender for ro- on rate -G202-		WITHTESPECT		
			– Diso T88 EDL	sconnect multipin connector 8- from ABS control module (w/ IL) -J104-			
			– Cor	nnect test box -VAG1598/20-			
				urp	Test step 22: Contin	ued below	
10) Sensor	) Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are combined together as one $u_{init} \Rightarrow ltem 5 (page 11)$ .						

			1 comme		non,
	,		Continuation of test step 22		15.
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		<ul> <li>Additional work steps</li> </ul>	Of BUILS	cation
			<ul> <li>Check wiring between multi-pin connector for sensor for transverse acceleration -G200- of sender for rotation rate -G202- and multi-pin connector of ABS control module (w/EDL) -J104- for open circuits:</li> </ul>	max; <sub>4</sub> 5,1.5 Ω	<ul> <li>Check wire routing according to wiring diagrams. Troubleshooting &amp; Component locations</li> <li>Auguan Structure</li> <li>Auguan Structure</li> </ul>

					to.
		Set mea	asurement range: Resistance measurem	ent (200 Ω/20 MΩ)	DI PIL
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation &
23		Wires for Sender 1 for brake	• gignition switched off		1resf
			• $\overset{\scriptscriptstyle{\widehat{M}}}{\subseteq}$ Set measuring range to 200 $\Omega$		ectit
			Disconnect harness connector from Sender 1 for brake booster - G201		) the corre
			Disconnect multipin connector - T88- from ABS control module (w/ EDL) -J104-		ctness of j
			- Connect test box -VAG1598/20-		nfor
			<ul> <li>Check wiring between multi-pin connector for Sender 1 for brake booster -G201- and multi-pin con- nector of ABS control module (w/ EDL)-J104- for open circuits:</li> </ul>	max: 1.5 Ω	<ul> <li>Check wire routing according to wiring diagram – Wiring diagrams, Troubleshoot- ing &amp; Component locations</li> </ul>
			<sup>4</sup> Du	Test step 23: Contin	nued below.

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	Test step 20. Continued below.						
			iugurdo	Contraction of the second	bil/AdoO		
			Continuation of test step 23	A BERNSHION			
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-		
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation		
			• Set measuring range to 20 $M\Omega$				
			– Remove fuse -S14				
			<ul> <li>Check wires for short circuit to B+ or Ground (GND).</li> </ul>	$\Omega \propto$			
					<ul> <li>Check wire routing according to wiring di- agram</li> </ul>		
					⇒ Wiring diagrams, Troubleshooting & Component locations		
Brake System On Board Diagnostic - Edition 07.2002

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	Set measurement range: Resistance measurement (200 Ω/20 MΩ)				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	sockets		<ul> <li>Additional work steps</li> </ul>		cation
24	64	Data-bus wires	Ignition switched off		in re
	or 66		• Set measuring range to 200 $\Omega$		apect
			<ul> <li>Disconnect multi-pin connectors from the control modules that are connected vie a databus wire.</li> </ul>		to the corre
			- Connect test box -VAG1598/20-		ctne
			<ul> <li>Check databus wires for open circuit.</li> </ul>	max: 1.5Ω	<ul> <li>Check wire routing according to wiring di- agram ⇒ Wiring diagrams, Troubleshoot- ing &amp; Component locations</li> </ul>
	Test step 24: Continued below				
int nin no					

S

	Continuation of test step 24				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
step	SOCKETS		- Additional work steps	Ū.	Cation
			• Set measuring range to 20 $M\Omega_{1900}$		an Stip Mater
			– Remove fuse -S14	Protect	apaw.
			<ul> <li>Check wires for short circuit to B+ or Ground (GND).</li> </ul>	$\Omega \propto$	
					<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
					⇒ Wiring diagrams, Troubleshooting & Component locations



	Set measurement range: voltage test (20 V =)				
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-
3.00	300//013		<ul> <li>Additional work steps</li> </ul>	sin agenaGdoesno	
25	-	Voltage supply for -	Ignition switched off sed by	10.0 to 14.5 V	9Uarantes
		tor -T16- 11)	<ul> <li>Connect multimeter -VAG1526- to harness connector -T16- <sup>11)</sup> us- ing connector test kit -VAG1594- )</li> </ul>		<sup>- C</sup> OF <sup>R</sup> CCEDF
			d to of the		<ul> <li>Check wire routing according to wiring di- agram</li> </ul>
			lle, is no		⇒ Wiring diagrams, Troubleshooting & Component locations
11) Terminal assignment of diagnostic connector $\Rightarrow$ page 45.		ostic connector $\Rightarrow$ page 45 .	art or in wh		pect to the

	Set measurement range: Resistance measurement, 200 Ω					
Test	-VAG1598-	Test of	Test requirements	Specified value	Corrective actions for deviation from specifi-	
step	SOCKEIS		<ul> <li>Additional work steps</li> </ul>			
26	-	Resistance of Kwire for - VAG1551-, -T16- harness	Ignition switched off	max: 1.5 Ω	- Check wire routing according to wiring di-	
	col	connector <sup>12)</sup>	<ul> <li>Disconnect multi-pin connector from ABS control module (w/EDL) - J104-</li> </ul>		tion in this	
			<ul> <li>Connect test box -VAG1598/20-</li> </ul>		JICO Y	
			<ul> <li>Connect multimeter -VAG1526- to terminals -T16/7c, 12) and - T88/46- of multi-pin connectors from ABS control module (w/EDL) - J104- using connector test kit, VAG1594</li> </ul>	.ĐA negsweat	on tor light to the t	
					⇒ Wiring diagrams, Troubleshooting & Component locations	

12) Terminal assignment of diagnostic connector  $\Rightarrow$  page 45.

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## 3.5 ABS/EDL/ASR/ESP, Bosch 5.3, On Board Diagnostic

 $\Rightarrow$  "3.5.1 ABS/EDL/ASR/ESP, Bosch 5.3, Application", page 72

⇒ "3.5.2 On Board Diagnostic, Technical Data", page 73

 $\Rightarrow$  "3.5.3 ABS/EDL/ASR/ESP, Bosch 5.3, Troubleshooting Flow Chart", page 73

## i Note

- ABS is a vehicle safety system; working on the system requires specific system knowledge.
- Before working on the ABS system, check DTC memory to determine existing malfunctions and to perform a guided fault finding.
- Make sure ignition is switched off before disconnecting harness connectors.
- Observe the appropriate safety precautions when working with brake fluid.
- Malfunctions in the ABS system are indicated by illumination of the ABS warning light. Certain malfunctions cannot be recognized until vehicle is driven for 30 seconds above the minimum speed of 60 km/h is reached (road test vehicle).
- If the ABS Warning Light -K47- and the warning light for brake system -K118- are not lit, but the brake system is not functioning properly, check for malfunctions in traditional brake system components.

The Electronic Stabilization Program (ESP) is a driving dynamics regulation system. It stabilizes the vehicle both in understeer and oversteer situations. ESP works throughout the entire speed range. When ESP is in regulation mode, the ESP indicator lamp blinks three times per second.

A few seconds after engine is started and driving begins, a light pumping noise may be audible. This is not a malfunction. It is the self-monitoring function of the ESP system.

#### ESP is another addition to the existing driving safety systems.

ESP increases vehicle safety during critical driving situations. It reduces the likelihood of skidding relative to the well-known safety systems and improves steering control.

#### Function

Because the control modules are inter-connected via a data-BUS wire, the DTC memory contents of all control modules installed in the vehicle must always be checked at the beginning of trouble-shooting procedures.

This is done via the "Automatic Test Sequence" which is activated to via button function 002400

Be sure to check whether a stored malfunction might be influencing the ABS system.

The On Board Diagnostic (OBD) function relates to the electrical and electronic parts of the ABS system; i.e. it can only recognize malfunctions (e.g. interruption of a wheel speed sensor) via the electrical connection to the control module.

The 88-pin ABS control module (w/EDL) -J104- is located at right behind the instrument panel at the heating / A/C housing. The



- 2 -ABS return flow pump
- 3 -Hydraulic pump for traction control with brake pressure sensor



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#### 3.5.2 On Board Diagnostic, Technical Data

## Control module identification

The control module version is indicated when the Scan Tool -VAG1551- (ST) or the tester -VAS5051- is connected and the control module for brake electronics is selected. DTC memory Volkswagen AESPIkswagen AG doed

not guarante

DTC memory contents remain intact even without voltage supply due to use of a permanent memory.

## Data exchange

Occurs with the Scan Tool -VAG1551- (ST) in operating mode 1 (rapid data transfer) and for the tester -VAS5051- in operating mode Vehicle Self-Diagnosis. a.s.s. withrespecttothe

## Technical information required

⇒ Wiring diagrams, Troubleshooting & Component locations

## ABS/EDL/ASR/ESP, Bosch 5.3, Troubleshooting Flow Chart

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- Check connector terminals of ABS components for damage and proper seating.
- All fuses are OK according to wiring diagram (remove fuses from fuse holder for test).
- Supply voltage OK (at least 10.0 volts)

## Selectable Functions, Overview

		Chapter
00 -	Automatic test sequence	⇒ "3.6.1 Automatic Test Se- quence", page 77
01 -	Check control module version (Connecting Scan Tool - VAG1551- (ST) and selecting functions)	⇒ "3.6.2 VAG 1551, Connect- ing and Selecting Functions", page 77
01 -	Check control module version (Connecting -VAS5051- and selecting functions)	⇒ "3.6.3 VAS 5051, Connect- ing and Selecting ABS Control Module", page 80

<code-block>
 series
 </code>



02 -	Check DTC Memory	<u>⇒ "3.6.4 Diagnostic Function</u> <u>02 - Check DTC Memory",</u> <u>page 81</u>
03 -	Output Diagnostic Test Mode (DTM)	<u>⇒ page 82</u>
04 -	Basic Setting	<u>⇒ "3.6.14 Diagnostic Function</u> 04 - Basic Setting", page 164
05 -	Erase DTC Memory	<u>⇒ "3.6.9 Diagnostic Function</u> <u>05 - Erase DTC Memory",</u> <u>page 132</u>
06 -	End Output	<u>⇒ "3.6.10 Diagnostic Function</u> <u>06 - End Output", page 132</u>
07 -	Code Control Module	volkswagen → 3.6.11 Diagnostic Function 07 - Coding Control Module", page 133
08 -	Read measuring value block	Autor State St

#### 3.6.1 Automatic Test Sequence

All control module DTC memories are checked via the automatic test sequence.

in part or in WF

noses.

- Switch on ignition.

Indicated on display:

<u> </u>
<u>"3.6.12 Diagnostic Function</u> " <u>- Reading Measured Value</u> <u>Block", page 145</u>
Highliny with respect to
VAG - On Board Diagnostic (OBD) HELP 1- Rapid data transfer <sup>1</sup> )
rre
VAG - On Board Diagnostic (OBD) HELP 2- Blink code output <sup>1</sup> )
s of information in this oc

13) Appear alternately on display

- Press button 1 to select "Rapid data transfer" operating mode 01.
- Switch printer on via the print-button (indicator lamp in button lights up).

Indicated on display:

- Press button twice to select "Automatic test sequence", func-Protected by Cop tion 00.

Scan tool -VAG1551- display first indicates control module coding of engine, e.g.:

After this, all control module identifications will be indicated on the display along with any DTC memory entries.

#### VAG 1551, Connecting and Selecting 3.6.2 **Functions**

All functions previously performed with the -VAG 1551- can also be performed using the tester -VAS5051- in operating mode "Vehicle SelfDiagnosis":

Special tools and workshop equipment required

Rapid da Select i	ata trans Eunction	sfer HE XX	LP:	. Hannot
		0110	V Yather	<sup>90</sup> .7
	. ĐA na	<u>Dewsxie</u>	*	

036906014 BJ MARELLI 4AV 2427 Coding 00000 WSC XXXXX



#### i Note

- During On Board Diagnostic (OBD), the ABS function is switched off in the control module. ٠
- DTC memory can be erased after repair has been completed ٠ and DTC memory has been checked.



- Connect Scan Tool -VAG1551- (ST) to Data Link Connector (DLC) using cable -VAG1551/3B- with ignition switched off.
- Connect -VAS5051- <u>⇒ page 80</u>.

Indicated on display:

VAG - On Board Diagnostic (OBD) HELP 1- Rapid data transfer<sup>1</sup>)

VAG - On Board Diagnostic (OBD) HELP
2- Blink code output<sup>1</sup>)

14) Appear alternately on display

```
Note
```

- If nothing is indicated on the display, check the harness connector for On Board Diagnostic (OBD)
- Perform electrical test ⇒ page 15. ⇒ Wiring diagrams, Troubleshooting & Component locations
- Depending on the program, additional operating information can be printed out by pressing the HELP button of the scan tool -VAG1551- .
- The  $\square$  button is used for advancing through the program sequence.
- The PRINT button is used for switching on the printer (lamp in button lights up).
- Switch on ignition.
- supported to the second of the Switch printer on via the print-button (indicator lamp in button lights up).
- Press button 1 to select "Rapid data transfer" operating mode 01.

Indicated on display:

Rapid data transfer HELP Enter address word XX

Press buttons 0 and 3 (03 is the address word for the vehicle system to be tested, "brake electronics").

Indicated on display:

Rapid data tr 03 - Brake el	ransfer Q Lectronics	s, in p
		0

Press of button to confirm input.

and then, for example, the following is indicated:

0

Ĩ

7D0907379 ESP 5.3 T4 Front V	05_→
Coding 06912 WSC XXXXX	HO

Indicated:

The control module identification number.

e.g. (7D0 907 379)

Application of the control module refer to parts catalog.

Protectedbyc

- The system identification (ESP 5.3 Front).
- Control module coding e.g. (06912).





Code control module  $\Rightarrow$  page 133.

Workshop code. Refer to Operating instructions for VAG1551 Scan Tool (ST).

If the control module identification number does not appear refer to overview of selectable functions  $\Rightarrow$  page 146.

Press  $\square$  button.

Indicated on display; (function selection, e.g. 02 "Check DTC Memory").

Rapid data transfer HELP Select function XX

Indicated on display:

Rapid data transfer HELP Control module not responding!

- If "Control module not responding!" is indicated again:

Indicated on display:

Rapid data transfer HELP Control module not responding!

Malfunctions occurred while checking the control module identification (possible external sources?).

Rapid data transfer  $\rightarrow$  No signal from control module!

- i \_ bu., d on display; (u., /'). dsta transfer HELP function XX data duranter NELP function xX data duranter net responding! Press the TELE button to print out an overview of all of the possible matfunction causes, re-enter address, word 03 for "brake electronics" and confirm. "Control module not responding!" is indicated again: "o display: fo, = Wiring diagrams, Trou-fo, = Wiring diagram, Trou-fo, = Wiring di diagram, Trou-fo, = Wiring diagram, Trou-fo, = Wiring di
- word 03 for "Brake electronics" and press of button to confirm.
- VAS 5051, Connecting and Selecting 3.6.3 ABS Control Module

All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051, in operating mode "Vehicle SelfDiagnosis":

⇒ Vehicle diagnosis, testing and information system VAS 5051 Protecte

#### Special tools and workshop equipment required

DV UBBEMSYION AQUID. 1000 THE UPON





## Note

- During On Board Diagnostic (OBD), the ABS function is AG does not switched off in the control module.
- DTC memory can be erased after repair has been completed and DTC memory has been checked.
- Connect tester -VAS5051- to Data Link Connector (DLC) using diagnostic cable -VAS5051/1- or -VAS5051/3- with ignition switched off.

ð

- Display fields are listed from top to bottom in functions 04 basic setting and 08 - read measuring value block.
- If indications shown in work procedure are not obtained on display: ⇒ Vehicle diagnosis, testing and information system VÁS 5051

#### **Diagnostic Function 02 - Check DTC** 3.6.4Memory

Note

All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051-

Indicated on display.

С М-Protected by copy Press buttons 0- and 2 to select "Check DTC Memory", function 02.

Indicated on display:

Number of stored DTCs or "No DTC recognized" will be indicated on display.

- Press → button.
- Press  $\square$  button.

The stored malfunctions are displayed and printed out in sequence.

Rapid data transfer HELP Select function XX

ced and liability with respect to the correctness of information in this occurrence of the second se

Rapid data transfer Q 02 - Check DTC Memory

X malfunctions recognized!



Rapid data transfer HELP Select function XX

Using the DTC print-out, repair malfunction as instructed in DTC table,  $\Rightarrow$  page 89

If "No DTC recognized!" is displayed, the program will return to "Select function XX" after the 🗐 button is pressed.

Indicated on display:

- End Output (function 06)  $\Rightarrow$  page **13**<sup>2G</sup>.
- Switch off ignition and disconnect diagnostic connector.

Work procedure upon recognizing a malfunction:

- kswagen AG does not guarantee or accepted area antee or accepted or accepted by the second second second second 1. Repair malfunction as instructed in DTC table 
  → page 89.
- 2. Check DTC memory (function 02)
- 3. Erase DTC memory (function 05)
- 4. End Output (function 06)
- 5. Road test vehicle
- 6. Check DTC memory again

# 3.6.5

- <section-header><section-header>
- ٠

#### Example

-VAG1551- Display during output Diagnostic Test Mode (DTM)

(e.g. front left wheel, fl)

Output Diagnostic	: Test Mode (DTM)	-→lfl: B+
OfI: 0V	fl wheel locked	

IfI = Inlet valve, front left

B+ = Battery Positive Voltage (B+), there is voltage at valve

EuroVan 1992 ≻ Brake System On Board Diagnostic - Edition 07.2002

Ofl = Outlet valve, front left	agen AG da
0V = 0 volts; no voltage at valve	uoes not guar
locked/ free = wheel condition; must be checked by second tech- nician when requested	-rantee or acco
Output Diagnostic Test Mode (DTM) -→EL	DL Dr
valves/ Hydr-P : B+ Wheel fl/fr lock	
Hydr-P = Hydraulic pump	IS WITH
- Connect Scan Tool -VAG1551- (ST).	resp
– Switch on ignition.	ectto
<ul> <li>Press button 1 to select "Rapid data transfer" operating mode 01.</li> </ul>	, the corre
<ul> <li>Select control module for brake electronics (address word 03)</li> </ul>	actine
Indicated on display	Rapid data transfer Q OS 03 - Brake electronics
- Press O button to confirm input.	Ormation
Note Note	In this co
Three warning tones will sound while the control module identifi- cation is checked.	60 100 100 IN
- The control module version is shown on the display of the Scan Tool -VAG1551- (ST).	Sewesto V Latter Mar
- Press - button.	.DA nana
Indicated on display	Rapid data transfer HELP Select function XX
- Press buttons 0 and 3.	
Indicated on display	Rapid data transfer Q 03 - Output Diagnostic Test Mode (DTM)
<ul> <li>Press</li></ul>	
ABS return flow pump -V39- should start running.	
Indicated on display	Output Diagnostic Test Mode (DTM) - $\rightarrow$ ABS return flow pump -V39 -
– Press 🗔 button.	
Indicated on display	Output Diagnostic Test Mode (DTM) - $\rightarrow$ Operate brake
<ul> <li>Operate brake pedal.</li> </ul>	
– Press 🔄 button.	
Indicated on display	Output Diagnostic Test Mode (DTM) - $\rightarrow$ Ifl: 0V Ofl: 0V fl wheel locked
<ul> <li>Instruct 2nd technician to turn the affected wheel by hand.</li> </ul>	



If wheel does not lock, it is possible that there is a malfunction in the mechanical/hydraulic part of the brake system.



– Press → button.

Indicated on display

- Operate brake pedal.
- Press → button.

Output Diagnostic Test Mode (DTM) - →

Operate brake

Indicated on display

Output Diagnostic Test Mode (DTM) Ifr: 0V Ofr: 0V fr wheel locked

Output Diagnostic Test Mode (DTM) Ifr: B+ Ofr: OV fr wheel locked

Instruct 2nd technician to turn the affected wheel by hand.

Note

If wheel does not lock, it is possible that there is a malfunction in the mechanical/hydraulic part of the brake system.

- Press  $\square$  button.

Indicated on display

– Press → button.

ABS return flow pump -V39- should start running.

Brake pedal must not give.

If brake pedal gives, there is a malfunction in the hydraulic unit. If this is the case, the hydraulic unit must be replaced.

⇒ Brake Systems from MY 1997; Rep. Gr. 45; Description and Operation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Description and Operation

Indicated on display

Instruct 2nd technician to turn the affected wheel by hand.



If wheel locks, it is possible that the brake pressure lines to the wheel brakes have been mixed up.

-  ${}^{\circ}$ Press  $\square$  button.

ABS return flow pump -V39- will stop running

Indicated on display

Press 🗔 button.

Brake pedal must give noticeably.

If brake pedal does not give, there is a malfunction in the hydraulic unit. If this is the case, the hydraulic unit must be replaced.

⇒ Brake Systems from MY 1997; Rep. Gr. 45; Description and Operation or  $\Rightarrow$  Suspension, Wheels, Brakes, Steering MY, 1992-1996; Rep. Gr. 45: Description and Operation 1992-1996; Rep. Gr. 45 Description and Operation Store Prote

DAN

Indicated on display

Instruct 2nd technician to turn the affected wheel by hand.



If wheel does not lock, it is possible that there is a malfunction in the mechanical/hydraulic part of the brake system.

Press  $\square$  button.

Output Diagnostic Test Mode (DTM) -  $\rightarrow$ Ifr: B+ Ofr: B+ fr wheel free

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Ation in this coordinates

Output Diagnostic Test Mode (DTM) - -Ifr: B+ Ofr: OV fr wheel free

Output Diagnostic Test Mode (DTM) Ifr: 0V Ofr: 0V fr wheel locked



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Brake System On Board Diagnostic - Edition 07.2002	Peop and
Mes	C.C.B.
Indicated on display	Output Diagnostic Test Mode (DTM) - → Release brake
- Remove foot from brake pedal.	
- Press 🔄 button.	Ith resp
Indicated on display	Output Diagnostic Test Mode (DTM) - → Operate brake
<ul> <li>Operate brake pedal.</li> </ul>	he co
- Press - button.	rrecth
Indicated on display	Output Diagnostic Test Mode $(DTM) - \rightarrow$ Irl OV Orl: OV rl wheel locked
- Instruct 2nd technician to turn the affected wheel by hand.	informati
Note Of the Article Ar	<sup>17</sup> in 15,15 15,00
If wheel does not lock, it is possible that there is a malfunction the mechanical/hydraulic part of the brake system.	in <sub>Juanno</sub> o,
- Press 🔄 button.	Cohuging Control
Indicated on display	· Đơ US ĐƯợng Diagnostic Test Mode (DTM) - → Irl B+ Orl: 0V rl wheel locked
– Press → button.	
ABS return flow pump -V39- should start running.	
Brake pedal must not give.	

If brake pedal gives, there is a malfunction in the hydraulic unit. If this is the case, the hydraulic unit must be replaced.

⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Description and Operation or  $\Rightarrow$  Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Description and Operation

Indicated on display

- Instruct 2nd technician to turn the affected wheel by hand.

## Note

If wheel locks, it is possible that the brake pressure lines to the wheel brakes have been mixed up.

– Press → button.

ABS return flow pump -V39- will stop running.

Indicated on display

- Press  $\square$  button.

Brake pedal must give noticeably.

If brake pedal does not give, there is a malfunction in the hydraulic unit. If this is the case, the hydraulic unit must be replaced.

⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Description and Operation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Description and Operation

Output Diagnostic Test Mode (DTM) -  $\rightarrow$  Irl B+ Orl: B+ rl wheel free

Output Diagnostic Test Mode (DTM) -  $\rightarrow$  Irl B+ Orl: OV rl wheel free

Brake System On Board Diagnostic - Edition 07.2002 Indicated on display Output Diagnostic Test Mode (DTM) Irl OV Orl: OV rl wheel locked Instruct 2nd technician to turn the affected wheel by hand. Note If wheel does not lock, it is possible that there is a malfunction in the mechanical/hydraulic part of the brake system. - Press  $\square$  button. Indicated on display Output Diagnostic Test Mode (DTM) -  $\rightarrow$ Release brake Remove foot from brake pedal. Press  $\square$  button. Indicated on display Output Diagnostic Test Mode (DTM) -  $\rightarrow$  Operate brake Operate brake pedal. Press  $\Box$  button. Indicated on display Output Diagnostic Test Mode (DTM) Irr: OV Orr: OV rr wheel locked Instruct 2nd technician to turn the affected wheel by hand. IC. <sup>†</sup> g<sub>Uarantee or</sub> accept <sup>antee or</sup> accept <sup>ante</sup> authorisedby Note If wheel does not lock, it is possible that there is a malfunction in the mechanical/hydraulic part of the brake system. Press Dutton. Indicated on display Output Diagnostic Test Mode (DTM) Irr: B+ Orr: OV rr wheel locked - Press  $\rightarrow$  button. , the correctness of information ABS return flow pump -V39- should start running. Brake pedal must not give. If brake pedal gives, there is a malfunction in the hydraulic unit. If this is the case, the hydraulic unit must be replaced. ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Description and Operation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Description and Operation Indicated on display Output Diagnostic Test Mode (DTM) -  $\rightarrow$  Irr: B+ Orr: B+ rr wheel free

EuroVan 1992



. DA negewextoV ydribinygo). Projected by copyright, If wheel locks, it is possible that the brake pressure lines to the wheel brakes have been mixed up.

Instruct 2nd technician to turn the affected wheel by hand.

– Press → button.

ABS return flow pump -V39- will stop running.



Indicated on display

- Press  $\square$  button.

Brake pedal must give noticeably.

If brake pedal does not give, there is a malfunction in the hydraulic unit. If this is the case, the hydraulic unit must be replaced.

Brake Systems from MY 1997; Rep. Gr. 45; Description and Operation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Description and Operation

Indicated on display

Instruct 2nd technician to turn the affected wheel by hand.



If wheel does not lock, it is possible that there is a malfunction in the mechanical/hydraulic part of the brake system.

– Press  $\Box$  button.

Indicated on display

Output Diagnostic Test Mode (DTM) - → EDL valves/ Hydr P; B+ Wheel fl/fr lock

Remove foot from brake pedal.

Press  $\square$  button.

Indicated on display:

Instruct 2nd technician to turn the affected wheels by hand.

If wheels do not lock, there is a of the ABS system. If this is the	malfunction in the hydraulic part case, the hydraulic unit must be
replaced.	0 er

⇒ Brake Systems from MY 1997, Rep. Gr. 45 ; Description and Operation or  $\Rightarrow$  Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Description and Operation

Press  $\square$  button.

Note

The ABS Warning Light -K47- and the brake and parking brake warning light -K7- will go out.

Indicated on display

Press  $\square$  button.

Indicated on display

Output Diagnostic Test Mode (DTM) Irr: OV Orr: OV rr wheel locked

Output Diagnostic Test Mode (DTM) - → Release brake

Le ( Wheel 5 part Infc Profected by copyright Copyright on commet Output Diagnostic Test Mode (DTM) DONE Rapid data transfer HELP Select function XX .DAnsesweniov.vahlehvqoo

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Output Diagnostic Test Mode (DTM) Irr: B+ Orr: OV rr wheel free

#### i Note

- If the ABS Warning Light -K47- does not go out, there is a malfunction in the system.
- Follow test sequence exactly: First check DTC memory, then erase it.
- End Output (function 06)  $\Rightarrow$  page 132.

# Protection of the constitution of the second 3.6.6 DTC Table, DTCs 00257-00532

ess authorised by



## DTCs 00597 - 01424 ⇒ page 105 , DTCs 01425 - 65535 ⇒ page 120

Notes for DTC table

• The "Automatic test sequence" must always be initiated via the button combination 0 0 at the beginning of every troubleshooting procedure, because the various control modules are inter-connected via a data-BUS wire. This checks all of the control modules installed in the vehicle for any Diagnostic Trouble Codes (DTCs) they may have stored.

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- The following list contains all malfunctions that can be recognized by the ABS control module (w/EDL) -J104- and printed out by the scan tool -VAG1551- or displayed on the -VAS5051-. The malfunctions are listed in order according to their 5-digit DTC numbers. With resp
- ◆ The DTC appears (in operating mode "Rapid Data Transfer") only on the print-out

Example:	40	
DTC	P-Code	Malfunction type number
5-digit	5-digit	3-digit
18256	P1848	035

- The 5-digit P-code which sometimes appears next to the DTC is intended for On Board Diagnostic (OBD) II and can be ignored.
- The three digit malfunction type number is a data code and can be ignored. The text relating to malfunction type is, however, useful. •
- Before replacing the component determined to be malfunctioning, check all relevant harness connectors, wires and Ground (GND) connections according to wiring diagram ⇒ Wiring diagrams, Troubleshooting & Component locations
- After repairs, DTC memory must always be checked again using the scan tool -VAG1551- or tester -VAS5051- and erased.
- Road test vehicle (at above 60 km/h for 30 seconds).
- Check DTC memory again after road test.

<ul> <li>Road test vehicle (at above 60 km/h for 30</li> <li>Check DTC memory again after road test.</li> </ul>	seconds).	1100	E ALLOO THEILOR SHE
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action	A NOKANGA NOKANGA NOKANGA NA
No malfunction recognized	If "No DTC recognized" is indicated after repair has If ABS does not function properly despite the indic 1. Road test vehicle at above 20 km/h, 2. Check DTC memory again, if there still aren't a 3. Continue troubleshooting without using On Boa entirety.	been completed, outpu ation "No malfunction r ny malfunctions stored, rd Diagnostic (OBD) ar	t Diagnostic Trouble Mode (DTM) is terminated. ecognized", proceed as follows: ad perform the electrical test $\Rightarrow$ page 15 in its

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		*h0, 100
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00257 Left front ABS inlet valve -N101-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> <li>Connection, ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> </ul>	<ul> <li>Perform electrical test ⇒ page 15</li> <li>Perform a function test:</li> <li>Perform output Diagnostic Test Mode (DTM) ⇒ page 82</li> <li>If the suggested steps do not lead to a localization of the malfunction, replace the ABS control module (w/EDL) -J104</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal-</li> </ul>
	pu'	Ilation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996;         Rep. Gr. 45 ; Removal and Installation
		E Contraction of the second se

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00259		to a superior
Right front ABS inlet valve -N99-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test <u>&gt; page 15</u></li> </ul>
	<ul> <li>Connection, ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> </ul>	- Perform a function test:
		Perform output Diagnostic Test Mode (DTM) <u>⇒ page 82</u>
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00265		



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Left front ABS outlet valve -N102- (GND) Connection	circuit, short circuit to B+ or to Ground ) in wiring ection, ABS hydraulic unit -N55- to ABS	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>AG. Volkswagen AG do</li> <li>Perform electrical test page 15</li> <li>Perform a function test:</li> </ul>
Connec control	ection, ABS hydraulic unit -N55- to ABS	- Perform a function test: "Pantos
	in module (W/LDL) - 5 TO 4- 55 St	<ul> <li>Perform output Diagnostic Test Mode (DTM) <u>⇒ page 82</u></li> <li>If the suggested steps do not lead to a localization of the malfunction, replace the ABS control module (w/EDL) -J104</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>

Printed output from Scan Tool -VAG1551- (ST)	Possible cause trade	Corrective action
00267 Right front ABS outlet valve -N100-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> <li>Connection, ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test <u>⇒ page 15</u></li> <li>Perform a function test:</li> <li>Perform output Diagnostic Test Mode (DTM) <u>⇒ page 82</u></li> <li>If the suggested steps do not lead to a localization of the mal-</li> </ul>
	CLEDDAY CODALIGIEL	<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00273		

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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Right rear ABS inlet valve -N133-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		- Perform electrical test ⇒\oave(15agen ∧ o
	<ul> <li>Connection, ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> </ul>	<ul> <li>Perform a function test:</li> </ul>
		<ul> <li>Perform output Diagnostic Test Mode (DTM) ⇒ page 82</li> </ul>
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ) ABS control module (w/EDL -J104-</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996 Rep. Gr. 45; Removal and Installation
	whole is	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00274	u na	
Left rear ABS inlet valve -N134-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	- Check harness connectors and wires according to wiring diagram
	nd la	– Perform electrical test ⇒ page 15
	<ul> <li>Connection, ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> </ul>	<ul> <li>Perform a function test:</li> </ul>
		Perform output Diagnostic Test Mode (DTM) ⇒ page 82
		- If the suggested steps do not lead to a localization of the mal-
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

<del>DA Nege</del>wealor yorne Protected by copyrig Printed output from Scan Tool -VAG1551-(ST) Possible cause Corrective action 00275



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Right rear ABS outlet.valve -N135-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> <li>Connection, ABS hydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test ⇒ page 15</li> <li>Perform a function test:</li> <li>Perform output Diagnostic Test Mode (DTM) ⇒ page 82</li> <li>If the suggested steps do not lead to a localization of the malfunction, replace the ABS control module (w/EDL) -J104</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>
in part	Ne corre	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00276 Left rear ABS outlet valve -N136-	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test ⇒ page 15</li> </ul>
MG. Protected by copyright Copyright Al	<ul> <li>Connection, ABS bydraulic unit -N55- to ABS control module (w/EDL) -J104-</li> <li>Control module (w/EDL) -J104-</li> </ul>	<ul> <li>Perform a function test:</li> <li>Perform output Diagnostic Test Mode (DTM) <u>⇒ page 82</u></li> <li>If the suggested steps do not lead to a localization of the malfunction, replace the ABS control module (w/EDL) -J104</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00283		

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Left front ABS wheel speed sensor -G47- 15)	<ul> <li>Open circuit, short circuit to B+ or loose contact in wires between left front ABS wheel speed sen- sor -G47- and ABS control module (w/EDL) - J104</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Open circuit/short circuit to B+	Call.	<ul> <li>Perform electrical test <u>⇒ page 15</u></li> </ul>
0100 Jo	1800 III VIN	<ul> <li>Read measuring value block ⇒ page 145 Display group number 001</li> </ul>
hole, is,	1th resp	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
art or in w	ect to the	⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Installation or $⇒$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
<ul> <li>15) Malfunction type is recognized when vehicle is driver</li> </ul>	for 30 seconds at above 60 km/h	
ses od the set of the	octness	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00283	natio	
Left front ABS wheel speed sensor -G47- <sup>16)</sup>	<ul> <li>Open circuit, short circuit to Ground (GND) or loose contact in wires between left front ABS wheel speed sensors G47- and ABS control mod- ule (w/EDL) -J1045.</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Implausible signal	Cost Cost	– Perform electrical test ⇒ page 15
The state of the s	<ul> <li>Damage of rotor or left front ABS wheel speed sensor -G47-</li> </ul>	<ul> <li>Check left front ABS wheel speed sensor -G47 and rotor for damage</li> </ul>
.E	<ul> <li>Left front ABS wheel speed sensor -G47- coil malfunctioning</li> </ul>	<ul> <li>Replace rotor/ left front ABS wheel speed sensor -G47-</li> </ul>
		$\Rightarrow$ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Installation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>



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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
ole, isnot	ky with resp	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
16) Malfunction type is recognized when vehicle is drive	en for 30 seconds at above 60 km/h	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00285	0 28	
Right from ABS wheel speed sensor -G45-	<ul> <li>Open circuit, short circuit to B+ of loose contact in wires between right front ABS wheel speed sensor -G45- and ABS control module (w/EDL) - J104</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Open circuit/short circuit to B+	3 <sup>35</sup>	– Perform electrical test ⇒ page 15
4 to Buy Re	7189110	<ul> <li>Read measuring value block ⇒ page 145 Display group number 001</li> </ul>
CONTRACT CON	Katubiy Mac	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
Profected by co	. DA napswedlov,	$\Rightarrow$ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

17) Malfunction type is recognized when vehicle is driven for 30 seconds at above 60 km/h

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00285 Right front ABS wheel speed sensor -G45-	<ul> <li>Open circuit, short circuit to Ground (GND) or loose contact in wires between right front ABS wheel speed sensor -G45- and ABS control mod- ule (w/EDL) -J104</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Deform electrical test - page 15</li> </ul>
Implausible signal		$ -$ Perform electrical test $\Rightarrow$ page 15

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- AG Volkswagen An				
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	and by Volkswageri Addition	Cor	
	<ul> <li>Damage of rot sensor -G45-</li> </ul>	or or right front ABS wheel speed	- (	Check right front ABS wheel speed sensor -G45- and rotor for damage
	<ul> <li>Right front AB malfunctioning</li> </ul>	S wheel speed sensor -G45- coil	- 1	Replace rotor/ right front ABS wheel speed sensor -G45-
	ole, is not		⇒ E latio Rep	Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Instal- on or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; b. Gr. 45 ; Removal and Installation
	or in wh		– I f	f the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104
	es, in part		⇒ E latic Rep	Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Instal- on or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; b. Gr. 45 ; Removal and Installation
18) Malfunction type is recognized when vehicle is drive	n for 30 seconds at abo	ve 60 km/h		ness of infor

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00287	98	The second se
Right rear ABS wheel speed sensor -G44-	<ul> <li>Open circuit, short circuit to B+ or loose contact in wires between right rear ABS wheel speed sensor -G44- and ABS control module (w/EDL) + J104</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Open circuit/short circuit to B+	COOD AD DO	Perform electrical test <u>⇒ page 15</u>
	otold	Performance Read measuring value block ⇒ page 145 Display group number 001
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

19) Malfunction type is recognized when vehicle is driven for 30 seconds at above 60 km/h



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00287 Right rear ABS wheel speed sensor -G44	Open circuit short circuit to Ground (GND) or	Check barness connectors and wires according to wiring diagram
20) 20)	loose contact in wires between right rear ABS wheel speed sensor -G44- and ABS control mod- ule (w/EDL) -J104	
Implausible signal set	7 acco	– Perform electrical test ⇒ page 15
and the second sec	<ul> <li>Damage of rotor or right rear ABS wheel speed sensor -G44-</li> </ul>	<ul> <li>Check right rear ABS wheel speed sensor -G44- and rotor for damage</li> </ul>
, is not p	<ul> <li>Right rear ABS wheel speed sensor -G44- coil malfunctioning</li> </ul>	<ul> <li>Replace rotor/ right rear ABS wheel speed sensor -G44-</li> </ul>
t or in whole	aspect to th	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
, in par	ecorre	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
hurposes	ctness of	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
20) Malfunction type is recognized when vehicle is driver	n for 30 seconds at above 60 km/h	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00290 <sup>94</sup> 044		
Left rear ABS wheel speed sensor -G46- <sup>21)</sup>	<ul> <li>Open circuit, short circuit to B+ or loose contact in wires between left rear ABS wheel speed sen- sor -G46- and ABS control module (w/EDL) - J104 DBMSN</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Open circuit/short circuit to B+		Perform electrical test <u>⇒ page 15</u>
		<ul> <li>Read measuring value block ⇒ page 145 Display group number 001</li> </ul>
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>

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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
		⇒ Brake Systems from MY 1997, Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
21) Malfunction type is recognized when vehicle is driver	n for 30 seconds at above 60 km/h	55 Butto
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00290	S	in re
Left rear ABS wheel speed sensor -G46- <sup>22)</sup>	<ul> <li>Open circuit, short circuit to Ground (GND) or loose contact in wires between left rear ABS wheel speed sensor -G46- and ABS control mod- ule (w/EDL) -J104</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Implausible signal	es, =:	– Perform electrical test ⇒ page 15
	<ul> <li>Damage of rotor or left rear ABS wheel speed sensor -G46-</li> </ul>	<ul> <li>Check left rear ABS wheel speed sensor -G46- and rotor for dam- age</li> </ul>
	<ul> <li>Left rear ABS wheel speed sensor -G46- coil malfunctioning</li> </ul>	<ul> <li>Replace rotor/ left rear ABS wheel speed sensor -G46-</li> </ul>
	o to are nut	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

22) Malfunction type is recognized when vehicle is driven for 30 seconds at above 60 km/h

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00301		
ABS return flow pump -V39-		



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<ul> <li>Read measuring value block <u>⇒ page 145</u> Display group number 006</li> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
<ul> <li>Perform electrical test <u>⇒ page 15</u></li> <li>Replace ABS return flow pump relay -J105-</li> <li>Wiring diagrams, Troubleshooting &amp; Component locations</li> <li>If none of the suggested steps lead to a localization of the mal- function, replace the ABS hydraulic unit -N55- along with the ABS return flow pump -V39</li> <li>Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- ation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>
- ⇒a

Printed output from Scan Tool -VAG1551-	Possible cause	Corrective action
00301	" Dilling	
ABS return flow pump -V39-		, KOO'S
Implausible signal	<ul> <li>Open circuit, short circuit to B+ or to Ground (<i>au</i>)</li> <li>(GND) in wiring OP (<i>au</i>)</li> <li>(GND) in wiring OP (<i>au</i>)</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		– Perform electrical test ⇒ page 15
		– Erase DTC memory 05 ⇒ page 132.
		– End Output ⇒ page 132.
		<ul> <li>Switch off ignition.</li> </ul>
		<ul> <li>Switch on ignition.</li> </ul>
		<ul> <li>Check DTC memory again.</li> </ul>
		<ul> <li>If none of the suggested steps lead to a localization of the mal- function, replace the ABS hydraulic unit -N55- along with the ABS return flow pump -V39</li> </ul>

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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
		⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Installation or $⇒$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00302		
ABS solenoid valve relay -J106-	en AG. Volkswagen AG doo	
polised by Volkswee	Ses not guarante	<ul> <li>Read measuring value block <u>⇒ page 145</u> Display group number 006</li> </ul>
unless autre	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	- Check harness connectors and wires according to wiring diagram
	P11	– Perform electrical test <u>⇒ page 15</u>
otper	♦ ABS solenoid valve relay -J106-	<ul> <li>Replace ABS solenoid valve relay -J106</li> </ul>
12.51 6	Anthree States	⇒ Wiring diagrams, Troubleshooting & Component locations
or in who	,spect to th	<ul> <li>If none of the suggested steps lead to a localization of the mal- function, replace the ABS hydraulic unit -N55- along with the ABS return flow pump -V39</li> </ul>
ses, in part	le correctr	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
I purpo	ess of <sub>ii</sub>	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00526	on in	
Brake light switch -F	this 2	
Open circuit	autro .	
OULIFICOS .	Cool (Cool)	<ul> <li>Read measuring value block <u>⇒ page 145</u> Display group number 002</li> </ul>
146UNGODYNGAN	OBENNEYJON AQHIDIN	
	DAnana DAnana	404



Printed output from Scan Tool VAG1551- (ST)	Possible cause	Corrective action
s not bearing	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Je, i,	A Lee	– Perform electrical test ⇒ page 15
r in wh	pectto	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
s, in part o	the correc	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
asodin	tness o	•

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
(ST) 00526 Brake light switch -F- Implausible signal	<ul> <li>Open circuit, short circuit to Btt for to Ground (GND) in wing</li> <li>OyueBensilo Mathematical Strategy of the strategy of</li></ul>	<ul> <li>Read measuring value block ⇒ page 145 Display group number 002</li> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test ⇒ page 15</li> <li>Adjust brake light switch ⇒ page 151</li> <li>If the suggested steps do not lead to a localization of the malfunction, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00532		

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Voltage supply	<ul> <li>Contact resistance in voltage supply to ABS con- trol module (w/EDL) -J104-</li> </ul>	
	<ul> <li>Check Generator (GEN) and Voltage Regulator (VR).</li> </ul>	
	<ul> <li>Battery completely malfunctioning.</li> </ul>	does not guara
Signal too small	uthorise	⇒ Wiring diagrams, Troubleshooting & Component locations
	8 unessa	<ul> <li>Read measuring value block <u>⇒ page 145</u> Display group number 006</li> </ul>
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
	isho	– Perform electrical test <u>⇒ page 15</u>
	· elocitation of the second seco	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	n part or <i>i</i>	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	ses,	ectnes

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00532	amme	nat
Voltage supply	<ul> <li>Contact resistance in voltage supply to ABS con- trol module (w/EDL) -J104-</li> </ul>	on in this
	Check Generator (GEN) and Voltage Regulator (VR).	-USUNOR
	Battery completely malfunctioning.	Coldina *
	- ADD ADD ADD ADD ADD ADD ADD ADD ADD AD	⇒ Wiring diagrams, Troubleshooting & Component locations
	Protectery,	Read measuring value block ⇒ page 145 Display group number 006
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
		– Perform electrical test <u>⇒ page 15</u>
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	olised by Volkswagen AG. Volkswag	Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation


## 3.6.7 DTC Table, DTCs 00597-01424





Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00597		
Varying wheel speed impulse	<ul> <li>Wheel or tire sizes not the same on all four wheels</li> </ul>	<ul> <li>Check wheel and tire sizes.</li> </ul>
	<ul> <li>ABS wheel speed sensor wire</li> </ul>	
	<ul> <li>Harness connectors</li> </ul>	AG. Volkswagen AG. de
	<ul> <li>ABS wheel speed sensor</li> </ul>	odby Volkswag
	<ul> <li>Short circuit to Ground (GND)</li> </ul>	- autorise
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	- Check harness connectors and wires according to wiring diagram
	le la	Perform electrical test ⇒ page 15
	<ul> <li>Damage of rotor or ABS wheel speed sensor G44- , -G45- , -G46- , -G47-</li> </ul>	<ul> <li>Check ABS wheel speed sensors -G44- , -G45- , -G46- , and G47-</li> </ul>
	in wh	<ul> <li>Replace malfunctioning rotor/ABS wheel speed sensor</li> </ul>
	in part or	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	sesodu	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00778		Pati

00778 Steering Angle Sensor -G85- <sup>23)</sup>	<ul> <li>Open circuit in wire, short circuit to B+ or to Ground (GND) in CAN-bus wiring</li> </ul>	- Check harness connectors and wires according to wiring diagram
faulty	<ul> <li>Steering Angle Sensor -G85- was not zeroed.</li> </ul>	<ul> <li>Perform electrical test ⇒ page 15</li> <li>Perform zeroing.</li> </ul>
	<ul> <li>Steering Angle Sensor -G85- malfunctioning</li> </ul>	<ul> <li>Initiate basic setting ⇒ page 164 Display group number 001</li> <li>Replace Steering Angle Sensor -G85-02N<sup>SNON</sup></li> </ul>

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
	AG Volkswager	$\Rightarrow$ Suspension, Wheels, Steering from MY 1997; Rep. Gr. 48 ; Removal and Installation
23) Data is transmitted between the ABS Control Module	(w/EDL) -J104- and the Steering Angle Sensor -G85- via a datab	us.
	uttoised U,	1000 CO.

Printed output from Scan Tool -VAG1551- (ST)	P	pssible cause	C	orrective action
00778				leg.
Steering Angle Sensor -G85- 24)	•	The zero position learned by the Steering Angle Sensor -G85- during straight-ahead driving in the zeroing procedure has become misadjusted.	-	Connect -VAG1551- and select "Read measuring value block".
Implausible signal	•	Check specified values of the Steering Angle Sensor -G85	-	Read measuring value block <u>⇒ page 145</u> Display group number 005
d ui			-	Perform zeroing:
Ses			-	Initiate basic setting <u>⇒ page 164</u> Display group number 001
cial purpo	•	The Steering Angle Sensor -G85- is not installed correctly.	-	Check installed position of Steering Angle Sensor -G85-
ommerc			⇒ m	Suspension, Wheels, Steering from MY 1997; Rep. Gr. 48 ; Re- oval and Installation
o of c	•	Vehicle alignment is not OK	-	Perform vehicle alignment.

24) Data is transmitted between the ) ABS Control Module (w/EDL -J104- and the Steering Angle Sensor -G85- via a databus. " OUISdo.

24) Data is transmitted between the ) ABS Control Modu	le (w/EDL -J104- and the Steering Angle Sensor -G85- via a data	bus. Jun
	OUITROS 7	Sur Cold
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
00778	PAger	
Steering Angle Sensor -G85- <sup>25)</sup>	• Steering Angle Sensor -G85- was not zeroed.	<ul> <li>Perform zeroing.</li> </ul>
Adjustment not performed		– Initiate basic setting <u>⇒ page 164</u> Display group number 001
01044		



	ov guar	
Printed output from Scan Tool -VAG1551-	Possible cause	Corrective action
Control module incorrectly coded	The ) ABS control module (w/EDL -J104- is either not coded or incorrectly coded.	<ul> <li>Code the control module</li> <li>⇒ page 133</li> </ul>
01119 Gear recognition signal	<ul> <li>Malfunction in Transmission Control Module (TCM)</li> </ul>	Check DTC memory of Transmission Control Module (TCM) .

25) Data is transmitted between the ABS Control Module (w/EDL) -J104- and the Steering Angle Sensor -G85- via a databus.

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01203		t inf
ABS / instrument cluster electrical connection		Drna
Open circuit/short circuit to Ground (GND)	Open circuit, short circuit to Ground (GND) in wiring	- Check harness connectors and wires according to wiring diagram
a Mid	30	– Perform electrical test <u>⇒ page 15</u>
101 FUIT 10	<ul> <li>Malfunction in instrument cluster</li> <li>Standing time signal from instrument cluster in</li> </ul>	<ul> <li>Check standing time, "Read measuring value block" <u>⇒ page 145</u>, Display group number 004</li> </ul>
44BILA	terrupted	<ul> <li>Check instrument cluster.</li> </ul>
	Protected P.	$\Rightarrow$ Electrical Equipment from August 1998; Rep. Gr. 90 ; Diagnosis and Testing

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01203		
ABS / instrument cluster electrical connection	<ul> <li>Open circuit in wire between instrument cluster and hydraulic control module</li> </ul>	
Open circuit/short circuit to Ground (GND) or	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>

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1. Contraction of the second	40	•
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
No signal	billin and a second second	– Perform electrical test <u>⇒ page 15</u>
ious.	Malfunction in instrument cluster	<ul> <li>Check standing time, "Read measuring value block"</li> </ul>
0(e,	• Standing time signal from instrument cluster in-	<u>⇒ page 145</u> , Display group number 004
1 mil	terrupted	<ul> <li>Check instrument cluster.</li> </ul>
part or	o the co	$\Rightarrow$ Electrical Equipment from August 1998; Rep. Gr. 90 ; Diagnosis and Testing
01316 <sup>j_i</sup>	rect	
Brake control module Control difference	<ul> <li>It took longer than 5 seconds for ESP adjustment.</li> </ul>	<ul> <li>Notify your distribution center or general importer.</li> </ul>
mercial (	informe	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01418	8 <sup>3.</sup>	
Pilot valve -1- traction control -N225-	Bully	
"RUGUI CODN!	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
ccled ph coor	GENSHION NO.	– Perform electrical test <u>⇒ page 15</u>
~~~	<ul> <li>Pilot valve 1- traction control -N225- malfunc- tioning</li> </ul>	
		<ul> <li>Replace ABS hydraulic unit -N55-</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ) ABS control module (w/EDL -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation



Printed output from Scan Tool -VAG1551 Rswa		Corrective action
(SI)	s and does here	
01419 vised by t	SI guarans	
Pilot valve -2- traction control -N226-	neeor.	
ited iness.	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Contraction of the second seco	8	– Perform electrical test ⇒ page 15
Je, <i>is no</i> ,	<ul> <li>Pilot valve -2- traction control -N226 malfunc- tioning</li> </ul>	
4m c	pect	<ul> <li>Replace ABS hydraulic unit -N55-</li> </ul>
in part or <i>i</i>	to the corre	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
, sa	ectness	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
nercial pur	s of inform	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
otcom	ation in t	

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01420 Gung	100 11 <sup>200</sup>	
High pressure switch valve -1- traction control	augusto a	
-INZZI-	• Open circuit, short circuit to B+ or to Ground (GND) in wiring	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		– Perform electrical test <u>⇒ page 15</u>
	<ul> <li>High pressure switch valve -1- traction control - N227- malfunctioning</li> </ul>	
		<ul> <li>Replace ABS hydraulic unit -N55-</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

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edby Volume	94 <sub>ar</sub>	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
S. T.	St. P. L.	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	ability with t	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	aspectt	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01421	rec	
High pressure switch valve -2- traction control -N228-	friess o	
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
	tion	– Perform electrical test ⇒ page 15
	<ul> <li>High pressure switch valve -2- traction control - N228- malfunctioning</li> </ul>	
946Ug	Haut	<ul> <li>Replace ABS hydraulic unit -N55-</li> </ul>
COP' COP COPACIFIC COP'	Natural Contract Nation	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01422		
Hydraulic pump for traction control -V156-		



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
	<ul> <li>Open circuit, short circuit to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		– Perform electrical test <u>⇒ page 15</u>
	KSWagen AG. Volkswagen AG does ba	– Initiate basic setting ⇒ page 164 Display group number 002
isedbyv	July July 101	<ul> <li>Replace Hydraulic pump for traction control -V156-</li> </ul>
Juness authorit	"Ifee or accept	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
entities		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ) ABS control module (w/EDL -J104</li> </ul>
ole, is not,	N with rest	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
or in w <sub>t</sub>	ection	- - - - - - - 
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01422		
Hydraulic pump for traction control -V156-	55 OF	
Open circuit/short circuit to B+	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	- Check harness connectors and wires according to wiring diagram
LL CO	tion	– Perform electrical test <u>⇒ page 15</u>
e e e	14/16	– Initiate basic setting ⇒ page 164 Display group number 002
TH CHO	110 <sup>04</sup>	<ul> <li>Replace Hydraulic pump for traction control -V156-</li> </ul>
"BUISTOD WEIL	164/d00 1484	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
-MOODA	Protected	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation



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		outhorised by Voint	S not guarantee or
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	admesso	Corrective action
01422		thuit a	A line
Hydraulic pump for traction control -V156-		Q <sup>t</sup> o	
Short circuit to Ground (GND)	<ul> <li>Open circuit, sho wiring</li> </ul>	ort circuit to Ground (GND) in	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		rin w	– Perform electrical test ⇒ page 15
		arto	– Initiate basic setting <u>→ page 164</u> Display group number 002
		in age	- Replace Hydraulic pump for traction control V156-
		'sasodund	⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
		nercial	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		moo to aske	⇒ Brake Systems from MY 1997; Rep. Gr. $45$ ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

	22	
	Herofolge	ill all of
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01423 Sensor for transverse acceleration -G200-	ied by co.	Protection PA nagewaylo Lun
	<ul> <li>The sensor for transverse acceleration -G200- is not installed correctly.</li> </ul>	- Check the installation position of the sensor for transverse acceleration -G200
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
	<ul> <li>Sensor for transverse acceleration -G200- mal- functioning<sup>26)</sup></li> </ul>	<ul> <li>Perform electrical test <u>⇒ page 15</u></li> <li>Replace sensor for transverse acceleration -G200</li> </ul>



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
	, a)(e ,	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	sr in who	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	s, in part c	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
26) Sensor for transverse acceleration -G200- and send	der for rotation rate -G202- are combined together as one unit	<u>tem 5 (page 11)</u> .
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01423		
Sensor for transverse acceleration -G200-		The second second
Electrical malfunction in circuit	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test ⇒ page 15</li> </ul>
	<ul> <li>Sensor for transverse acceleration -G200- mal- functioning<sup>27)</sup></li> </ul>	<ul> <li>Replace sensor for transverse acceleration -G200</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ) ABS control module (w/EDL -J104</li> </ul>
		$\Rightarrow$ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

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espect to the correctness of information information in the correct of the correc

27) Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are combined together as one unit  $\Rightarrow$  Item 5 (page 11).



28) Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are combined together as one unit = Item 5 (page 11).

29) The input signals received by ABS control module (w/EDL) -J104- are analyzed by computing programs and checked for plausibility. If the sensor for transverse acceleration -G200- fails, the relevant computing program relies primarily on the Steering Angle Sensor -G85- . It must be determined whether the Steering Angle Sensor -G85- is functioning properly.

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#### There are four possibilities:

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01423	The specified values are within specifications: First case:	ess of j
Sensor for transverse acceleration -G200- Implausible signal	<ul> <li>The zero position of the Steering Angle Sensor G85- is located within specified range</li> <li>The zero position of the sensor for transverse acceleration -G200- is located within specified range</li> <li>Sensor for transverse acceleration -G200- malfunctioning</li> </ul>	<ul> <li>Figure 132 - Erase DTC memory 05 ⇒ page 132 .</li> <li>Road test vehicle. Drive at above 60 km/h for 30 seconds.</li> <li>Check DTC memory 02 ⇒ page 81 .</li> <li>If malfunction occurs again:</li> <li>Replace sensor for transverse acceleration G200</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or a Superscient Wheele Brakes Starting MY 1002 1006.</li> </ul>
	lunctioning	⇒ Brake Systems from MY 1997; Rep. Gr. 45 lation or ⇒ Suspension, Wheels, Brakes, Ste Rep. Gr. 45 ; Removal and Installation

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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01423	The specified values are not within specifications: Second case:	SUarantee or a
Sensor for transverse acceleration -G200-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located outside specified range</li> <li>The zero position of the sensor for transverse acceleration -G200- is located within specified range</li> </ul>	<ul> <li>Perform zeroing:</li> <li>Initiate basic setting ⇒ page 164 Display group number 001</li> </ul>
Implausible signal	es, in part or <i>in whole</i>	<ul> <li>Erase DTC memory 05 ⇒ page 132/2.</li> <li>Road test vehicle. Drive at above 60 km/h for 30 seconds.</li> <li>Check DTC memory 02 ⇒ page 81 2</li> <li>If the malfunction occurs again, perform the next test step.</li> </ul>
	sodind	less of

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01423	The specified values are not within specifications: Third case:	ninni
Sensor for transverse acceleration -G200-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located within specified range</li> </ul>	LIGHTON'
	<ul> <li>The zero position of the sensor for transverse acceleration -G200- is located outside the speci- fied range</li> </ul>	Solviania Volkewa

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Implausible signal	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		– Perform electrical test <u>⇒ page 15</u>
		– Erase DTC memory 05 ⇒ page 132.
		- Road test vehicle. Drive at above 60 km/h for 30 seconds.
		– Check DTC memory 02 → page 81.
		dised by Volkswagen on HG does not guarant

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Continuation:	a de la companya de la	If malfunction occurs again:
	<ul> <li>Sensor for transverse acceleration -G200- mal- functioning</li> </ul>	- Replace sensor for transverse acceleration -G200
	in whole, <sub>i</sub>	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	part or	<ul> <li>If the suggested steps do not lead to a localization of the mature function, replace the ABS control module (w/EDL) -J104</li> </ul>
	rposes, in	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	cial pu	of info

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01423	The specified values are not within specifications: Fourth case:	CONTRACTOR OF CONT
	2	State Coprision AG. Protected by Copriding Contribution in Coprision



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Sensor for transverse acceleration -G200-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located outside specified range</li> <li>The zero position of the sensor for transverse acceleration -G200- is located outside the speci- fied range</li> </ul>	<ul> <li>Perform zeroing:</li> <li>Initiate basic setting <u>⇒ page 164</u> Display group number 001</li> </ul>
Implausible signal	and uness	<ul> <li>Erase DTC memory 05 <u>⇒ page 132</u>.</li> <li>Road test vehicle. Drive at above 60 km/h for 30 seconds.</li> <li>Check DTC memory 02 <u>⇒ page 81</u>.</li> </ul>
or in whole, is	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test <u>⇒ page 15</u></li> </ul>
n part		The cor

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	
Continuation:		If malfunction occurs again:
commerc	<ul> <li>Sensor for transverse acceleration -G200- mal- functioning</li> </ul>	<ul> <li>Replace sensor for transverse acceleration -G200</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	PULITICO 3 7	– If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104
	Protected by copyright,	Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01424		

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Sender for rotation rate -G202- , signal wire	<ul> <li>Open circuit, short circuit to B+ or Ground (GND) in wires between sender for rotation rate -G202- and ABS control module (w/EDL) -J104-</li> </ul>	<ul> <li>Check wires, harness connectors and Ground (GND) wires ac- cording to wiring diagram:</li> </ul>
Failure in electrical circuit	. IO/KSW	en Perform electrical test <u>⇒ page 15</u>
	<ul> <li>Sender for rotation rate -G202- malfunctioning</li> </ul>	<ul> <li>Replace sender for rotation rate -G202</li> </ul>
	adunessautic	⇒ Brake Systems from MY 1997, Rep. Gr. 45 ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
	toelling.	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	uhole, is no	⇒ Brake Systems from MY 1997; Rep. Gr. $45$ ; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. $45$ ; Removal and Installation
	ched by copyright, copyring or pinate or commercial purposes, in part or in	erord DA negoewexio V tarihingoo inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin inanoosiin



## 3.6.8 DTC Table, DTCs 01425-65535



Printed output from Scan Tool -VAG1551- (ST)	Possible cause G. Volkswagen AG does not	Corrective action
01425 Sender for rotation rate -G202- , reference	Sed 07	
Failure in electrical circuit	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test <u>&gt; page 15</u></li> </ul>
30) The reference line of yaw sensor -6202- carries the restraight ahead.	ference signal. The reference signal corresponds to the signal the	sensor sends to the ABS Control Module (w/EDL) -J104- when the vehicle is traveling
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	
01435		
Sender 1 for brake booster - G201-	• The brake light switch is not adjusted correctly	<ul> <li>Read measuring value block <u>⇒ page 145</u>, Display group number 002</li> </ul>
mmer	Adjust brake light switch	– Ådjust brake light switch ⇒ page 151
All ate of co	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	Check harness connectors and wires according to wiring diagram
TO DI	Burgo	– Perform electrical test <u>⇒ page 15</u>
Sinteo 37	<ul> <li>Sender 1 for brake booster -G201- is malfunc- tioning.</li> </ul>	<ul> <li>Replace I Hydraulic pump for traction contro -V156- with Sender 1 for brake booster -G201-</li> </ul>
	Protected by COP	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
		– Initiate basic setting ⇒ page 164 Display group number 002
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation



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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01435		N'itt
Sender 1 for brake booster -G201-		res
Electrical malfunction in circuit	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	- Checkharness connectors and wires according to wiring diagram
barr		– Perform electrical test <u>⇒ page 15</u>
poses, in	<ul> <li>Sender 1 for brake booster -G201- is malfunc- tioning.</li> </ul>	<ul> <li>Replace Hydraulic pump for traction control -V156- with Sender 1 for brace booster -G201-</li> </ul>
nercial pur		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
Julios		– Initiate basic setting <u>→ page 164</u> Display group number 002
IN BED		- If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104
"Ado for		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	40UNDODAD BALLER AND MANDER	

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01435		
Sender 1 for brake booster -G201-	<ul> <li>Hydraulic pump for traction control -V156- was activated and does not build up pressure be- tween 2 bar and 30 bar in brake master cylinder.</li> </ul>	
Implausible signal		– Erase DTC memory 05 ⇒ page 132
		<ul> <li>Road test vehicle. Drive at above 60 km/h for 30 seconds.</li> </ul>
		– Check DTC memory 02 <u>⇒ page 81</u> .
	<ul> <li>Hydraulic pump for traction control -V156- mal- functioning</li> </ul>	<ul> <li>Replace Hydraulic pump for traction control -V156- with Sender 1 for brake booster -G201-</li> </ul>

	outsed by Volkswagen	AG. Volkswagen AG does not Strake System On Board Diagnostic - Edition 07.2002
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
	<ul> <li>Master brake cylinder malfunctioning</li> </ul>	<ul> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> <li>– Initiate basic setting ⇒ page 164, Display group number 002</li> <li>– Check and replace master brake cylinder</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>
	;esod	thess

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01464	i lie	atio
Brake pressure sensor/lateral acceleration sensor <sup>31)</sup>	<ul> <li>Insufficient voltage supply to Sender 1 for brake booster -G201-</li> </ul>	Nin the Color
Voltage supply	<ul> <li>Insufficient voltage supply to sensor for trans- verse acceleration -G200-</li> </ul>	1000 LIGON LOOM
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Set use the set of t</li></ul>

31) If this malfunction is recognized by On Board Diagnostic (OBD), then the voltage supply of Sender 1 for brake booster -G201- was not distinguished from the voltage supply for the sensor for transverse acceleration -G200-. Check both components and their wiring.

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Continuation:		If malfunction occurs again:



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
	<ul> <li>Sender 1 for brake booster -G201- or the sensor</li> </ul>	<ul> <li>– Erase DTC memory 05 ⇒ page 132.</li> </ul>
	tioning	– Ignition off.
authorised by Volks	Nagenness not guaranteeor	<ul> <li>Disconnect the harness connectors in sequence, first from one and then from the other sender/sensor and check DTC memory again each time.</li> </ul>
duness	SC CROT RI	– Check DTC memory 02 <u>⇒ page 81</u> .
Domine 10		<ul> <li>Replace the sender/sensor that is disconnected when ignition is switched on and DTC is not indicated.</li> </ul>
thole, is no	Withrespe	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
toriny	ct to th	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
ses, in part	e correctm	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
alpurpo	ess of in	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01486	in in the	
DTC number: 01486 /Literature	The of	
Crosol	<ul> <li>The ESP driving test was activated</li> </ul>	<ul> <li>Perform entire ESP driving test</li> </ul>
silfado .		– Initiate basic setting <u>⇒ page 164</u> Display group number 003
1/10	CAN .	

<ul> <li>Initiate basic setting <u>⇒ page 164</u> Display group number 003</li> </ul>

5.	100	$\sum_{i=1}^{n}$ minimize basic setting $\frac{1}{2}$ page 104 Display group number 005
A by copyright	GENNSXION AGHIGIN	
Printed output from Scan Tool -VAG1551- (ST)	Possible cause "DAllan"	Corrective action
01542		

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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Sender for rotation rate -G202- <sup>32) 33)</sup>	<ul> <li>Check specified values of:</li> <li>Steering Angle Sensor -G85-</li> </ul>	<ul> <li>Read measuring value block <u>⇒ page 145</u>, Display group number 005</li> </ul>
	, is not be,	<ul> <li>Now check zero position of Steering Angle Sensor -G85- during straight ahead driving with -VAG1551- connected. This will clarify the degree of adjustment.</li> </ul>
Implausible signal	<ul> <li>Check specified values of:</li> <li>Sensor for transverse acceleration -G200-</li> </ul>	<ul> <li>Read measuring value block ⇒ page 145/page 145</li> <li>Display group number 005</li> </ul>
	ses, in par	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
32) Sensor for transverse acceleration -G200- and sen	der for rotation rate G202- are combined together as one unit	⇒ Item 5 (page 11)

33) The input signals received by ABS Control Module (w/EDL) -J104- are analyzed by computing programs and checked for plausibility. If the sender for rotation rate G202- fails, the relevant computing program relies primarily on the Steering Angle Sensor -G85- and the sensor for transverse acceleration -G200-. If you think there is a problem with the e sender for rotation rat -G202-, check whether the Steering Angle Sensor -G85- and sensor for transverse acceleration -G200-. If you think there is a problem with the e sender for rotation rat -G202-, check whether the Steering Angle Sensor -G85- and sensor for transverse acceleration -G200- are OK. ation in this doc

#### There are four possibilities:

There are four possibilities:	o lo are in are of c	Nin History
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01542	The specified values are within specifications: First case:	D GEMSHOL/GHUD!
Sender for rotation rate -G202-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located within specified range</li> </ul>	<ul> <li>Read measuring value block <u>⇒ page 145</u> Display group number 005</li> </ul>
	<ul> <li>The zero position of the sensor for transverse acceleration -G200- is located within specified range</li> </ul>	
Implausible signal	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
		– Perform electrical test <u>⇒ page 15</u>



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
		<ul> <li>– Erase DTC memory 05 ⇒ page 132.</li> </ul>
		<ul> <li>Road test vehicle. Drive at above 60 km/h for 30 seconds.</li> </ul>
		– Check DTC memory 02 <u>⇒ page 81</u> .
	<ul> <li>Sender for rotation rate -G202- malfunctioning</li> </ul>	If malfunction occurs again:
	eedby Von	- Replace sender for rotation rate -G202
	authess authorite	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	Coming.	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	hole, is not	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	or in w	ection

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01542	The specified values are not within specifications: Second case:	tness o
Sender for rotation rate -G202-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located outside specified range</li> <li>The zero position of the sensor for transverse acceleration -G200- is located within specified range</li> </ul>	<ul> <li>Perform zeroing:</li> <li>Initiate basic setting ⇒ page 164 Display group number 001</li> </ul>
Implausible signal	Lected by COPYING COPY	<ul> <li>Erase DTC memory 05 ⇒ page 132 .</li> <li>Road test vehicle. Drive at above 60 km/h for 30 seconds.</li> <li>Check DTC memory 02 ⇒ page 81 .</li> <li>If the malfunction occurs again, perform the next test step.</li> </ul>

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
01542	The specified values are not within specifications: Third case:	
Sender for rotation rate -G202-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located within specified range</li> </ul>	
	<ul> <li>The zero position of the sensor for transverse acceleration -G200- is located outside the speci- fied range</li> </ul>	So.
Implausible signal	• Open circuit, short circuit to B+ or to Ground (GND) in wiring	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test <u>⇒ page 15</u></li> </ul>
Continued:		Z Z
hole, is		nresp

<u>Š</u>		
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
Continuation:		If malfunction occurs again:
al purposes	<ul> <li>Sensor for transverse acceleration -G200- mal- functioning</li> </ul>	- Replace sensor for transverse acceleration -G200
commerci		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
0 		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
	Toj Bullicoo Jun	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation
	Protected by Volkewagen Agenticos	



Printed output from Scan Tool -VAG1551-	Possible cause	Corrective action
01542	The specified values are not within specifications: Fourth case:	
Sender for rotation rate -G202-	<ul> <li>The zero position of the Steering Angle Sensor - G85- is located outside specified range</li> </ul>	
ole, is not be	<ul> <li>The zero position of the sensor for transverse acceleration -G200- is located outside the speci- fied range</li> </ul>	
Implausible signal		Perform test steps from second and third case scenarios.
part or		otheco
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	
01542		SS OF
Sender for rotation rate -G202-		info
faulty	<ul> <li>Sender for rotation rate -G202- malfunctioning</li> </ul>	Replace sender for rotation rate -G202
to the second	Contraction of the second seco	⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
"to found	They are a second	<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
OMIBINE C	19 19 19 19 19 19 19 19 19 19 19 19 19 1	⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
18031		
Powertrain databus <sup>34)</sup>		
no communication		– Perform function 00, automatic test sequence $\Rightarrow$ page 77.
		<ul> <li>Read measuring value block <u>⇒ page 145</u>, Display group number 125</li> </ul>

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Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
	◆ Open circuit, short circuit to B+ or to Ground (GND) in wiring	<ul> <li>Check harness connectors and wires according to wiring diagram</li> <li>Perform electrical test ⇒ page 15</li> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> <li>⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation</li> </ul>

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34) Data is transmitted between the ABS Control Module (w/EDL) -J104-, the Engine Control Module (ECM), the Transmission Control Module (TCM), and the Steering Agele Sensor -G85- via a databus.

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
18034		Ima
Powertrain databus	Coll	ion ,
Missing message from Transmission Control	are of	- Perform function 00, automatic test sequence $\Rightarrow$ page 77.
	Hickory Contraction of the second	<ul> <li>Read measuring value block <u>⇒ page 145</u>, Display group number 125</li> </ul>
	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
	Protectedy	- Perform electrical test <u>⇒ page 15</u>

Printed output from Scan Tool -VAG1551- (ST) Possible cause		Corrective action		
18036				
Powertrain databus				
Missing message from steering angle sensor		– Perform function 00, automatic test sequence $\Rightarrow$ page 77.		
		<ul> <li>Read measuring value block <u>⇒ page 145</u> Display group number 125</li> </ul>		



Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
is not be	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
the second s		<ul> <li>Perform electrical test <u>⇒ page 15</u></li> </ul>
orin <sub>N</sub>	• Steering Angle Sensor -G85- malfunctioning	<ul> <li>Replace Steering Angle Sensor -G85-</li> </ul>
, in part		⇒ Suspension Wheels, Steering from MY 1997; Rep. Gr. 48 ; Re- moval and Installation
səsodur		ctness c
Printed output from Scan Tool -VAG1551- (ST)	Possible cause	
18256 Check the DTC memory of the Engine Control Module (ECM).		ationinthis
	<sup>6</sup> 0-0.	- Perform function 00, automatic test sequence $\Rightarrow$ page 77.
	FOLINGOS JUN	Read measuring value block <u>⇒ page 145</u> Display group number 125
	<ul> <li>Open circuit, short circuit to B+ or to Ground<sup>Ka™</sup> (GND) in wiring option ⊕aloud</li> </ul>	Check harness connectors and wires according to wiring diagram
		<ul> <li>Perform electrical test <u>⇒ page 15</u></li> </ul>
		<ul> <li>If the suggested steps do not lead to a localization of the mal- function, replace the ABS control module (w/EDL) -J104</li> </ul>
		⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Instal- lation or $\Rightarrow$ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
18258		
CAN-Bus missing signal from Engine Control Module (ECM)		

Printed output from Scan Tool -VAG1551- (ST)	Possible cause	Corrective action
		<ul> <li>Perform function 00, automatic test sequence ⇒ page 77.</li> </ul>
	Nokewagen AG. Volkswagen AG does not	- Read measuring value block $\Rightarrow$ page 145 , Display group number 125
2. <sup>11</sup>	Open circuit, short circuit to B+ or to Ground (GND) in wiring	<ul> <li>Check harness connectors and wires according to wiring diagram</li> </ul>
Juness	. Storept	<ul> <li>Perform electrical test <u>⇒ page 15</u></li> </ul>
enning.		

Printed output from Scan (ST)	Tool -VÃG1551-	Possible cause	Corrective action
18262	0 <i>h</i> M		spec
Powertrain databus	orin		tot
Hardware faulty	part .		- $Perform$ function 00, automatic test sequence $\Rightarrow$ page 77.
	oses, in		- Read measuring value block $\Rightarrow$ page 145 , Display group number 125
	rcial purp	<ul> <li>Open circuit, short circuit to B+ or to Ground (GND) in wiring</li> </ul>	<ul> <li>– Cbeck harness connectors and wires according to wiring diagram</li> </ul>
	June		<ul> <li>Perform electrical test ⇒ page 15</li> </ul>
65535	I COL		onin
Control module faulty	O De la	ABS control module (w/EDL) -J104- malfunctioning	Replace ABS control module (w/EDL) -J104-
	AUC TO LOUIS DE	in the second se	$^{ m ⇔}$ ⇒ Brake Systems from MY 1997; Rep. Gr. 45 ; Removal and Instal- lation or ⇒ Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45 ; Removal and Installation
		Protected by Copyright	



## 3.6.9 Diagnostic Function 05 - Erase DTC Memory

# Note

All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051- .

# i Note

Follow test sequence exactly: first check DTC memory, then erase it.

## Requirements

- DTC memory checked <u>⇒ page 81</u>.
- Press → button.

Indicated on display:	Rapid data transfer HELP Select function XX
<ul> <li>Press buttons 1 and 5 to select "Erase DTC Memory", func- tion 05.</li> </ul>	- not guarantee or
Indicated on display:	Rapid data transfer Q 05 - Erase DTC Memory
- Press of button to confirm input.	A Tablin
Indicated on display:	Rapid data transfer → DTC Memory is erased!
- Press $\square$ button.	spectto
Indicated on display:	Rapid data transfer HELP Select function XX
If displayed:	Attention! DTC memory was not checked
3.6.10 Diagnostic Function 06 - End Output	is of inf
- Press buttons () and () to end output.	Ormati
Indicated on display	Rapid data transfer Q
<ul> <li>Press          button to confirm input:         </li> </ul>	UIDOR.
Indicated on display:	Rapid data transfer HELP Select function XX
- Switch off ignition.	BRINSHION KATUP.
<ul> <li>Switch off ignition and disconnect diagnostic connector.</li> </ul>	DA none
<ul> <li>Switch on ignition.</li> </ul>	

The ABS Warning Light -K47- , the warning light for brake system -K118- and the ESP Control Lamp -K155- must go out after approx. 2 seconds.

#### 3.6.11 **Diagnostic Function 07 - Coding Control** Module

## Note

- All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051-.
- If ABS control module (w/EDL) -J104- is coded with 00000, the ABS Warning Light -K47- and ESP Control Lamp -K155- remain constantly lit.
- If control module does not indicate a coding appropriate for the vehicle, or if control module has been replaced, the ABS control module (w/EDL) -J104- must be coded:
- Coding is only possible if a dealership number is stored in the scan tool -VÁĠ1551- .

At the beginning of the control module coding, determine the individual engine/transmission codes, vehicle type and M-numbers (optional equipment number)  $\Rightarrow$  page 13

Before you can code the control module "Login Procedure" function 11 must be successfully carried out using the Scan Tool -VAG1551-.

After the control module is coded, zero adjustment of the Steering Angle Sensor -G85- must be performed before exiting the "Ini-tiating Basic Setting" function 04, display group 001  $\Rightarrow$  page 164.

#### **Test sequence**

- Connect scan tool -VAG1551- and select the control module for brake electronics with ignition switched on (address word 03). ifected by copyright Cc
- Press → button

Indicated on display

Press buttons 1 and 1. This selects the "Login procedure" function 11.

Indicated on display:

Press of button to confirm input.

Indicated on display:

- Enter login code according to the following table:

Rapid data transfer O Login procedure 11

Login procedure Enter code numbers XXXXX



### Login code table

Engine	Engine Code	Transmission type	Vehicle version <sup>35)</sup>	Brake version <sup>35)</sup>	Login code	
75KW	ACV	Manual transmission	Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU en AG. Volkswagen AG does not	07942	
			Bus, short wheel base, s <sup>ddby</sup> ⇒ PR no. 0E1 m <sup>ore</sup> Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	<sup>Laraniee</sup> 07362	
			Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 15" ⇒ PR no. 1P4	FN3 ⇒ PR no. 1LU	07842	
			Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 16" ⇒ PR no. 1P4	FNR ⇒ PR no. 1LB	07762 (respect to the	
Continued on next page						
35) Overview and use o	of PR no. for vehicle and brake v	versions <mark>⇒ page 13</mark> .	al purposes, i		ectness of in	

Engine	Engine Code	Transmission type	Vehicle version <sup>36)</sup>	Brake version <sup>36)</sup>	Login code
75KW	ACV	Manual transmission	Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 15" ⇒ PR no. 1P9	FN3 ⇒ PR no. 1LU	07542
			Bus, short wheel base ⇒ PR no. 0É% Sport suspension 46" ⇒ PR no. 1P9	FNR ⇒ PR no. 1LB	07462
			Camper, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR nö. <sup>v</sup> 1LU	03242

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		40	NOIN	-snot ou		
Engine	Engine Code	Transmission type		Vehicle version <sup>36)</sup>	Brake version <sup>36)</sup>	Login code
		anited unless au		Camper, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	05242
Continued on next	t page	ot <sup>2</sup> 0				
36) Overview and use o	of PR no. for vehicle and brake ve	ersions $\Rightarrow$ page 13 .			in respectiv	

Engine	Engine Code	Transmission type	Vehicle version <sup>37)</sup>	Brake version <sup>37)</sup>	Login code
75KW ACV	Manual transmission	Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	PT FN3 PR no. 1LU	09942	
		(commercial F	Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	information,,,	09362
		o are nut to built	Delivery van, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	01942
	CODJULIE COD'	Delivery van, long wheel base of ⇒ FR no. 0E2 M <sub>9</sub> <sub>Pologolo</sub> Standard suspension 16" ⇒ PR no.√1P0 or "-"	FNR ⇒ PR no. 1LB	01362	

Engine	Engine Code	Transmission type	Vehicle version <sup>38)</sup>	Brake version <sup>38)</sup>	Login code
75KW	ACV	Automatic transmission	Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	07943



Engine	Engine Code	Transmission type	Vehicle version <sup>38)</sup>	Brake version <sup>38)</sup>	Login code
is not bermite		Aliability with	Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	07363
art or in whole			Bus, short wheel base $\Rightarrow$ PR no. 0E1 Lowered suspension 15" $\Rightarrow$ PR no. 1P4	FN3 ⇒ PR no. 1LU	07843
urposes, in pe			Bus, short wheel base $\Rightarrow$ PR no. 0E1 Lowered suspension 16" $\Rightarrow$ PR no. 1P4	FNR ⇒ PR no. 1LB	07763
Continued on next	page		fi infa		3
38) Overview and use o	f PR no. for vehicle and brake ve	ersions $\Rightarrow$ page 13.			

Engine	Engine Code	Transmission type	Vehicle version <sup>39)</sup>	Brake version <sup>39)</sup>	Login code
75KW ACV	Automatic transmission	Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 15" ⇒ PR no. 1P9	FN3 ⇒ PR no. 1LU	07543	
	Profected by	.9An9gsweyler	Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 16" ⇒ PR no. 1P9	FNR ⇒ PR no. 1LB	07463
		Camper, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	03243	
			Camper, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	05243
Continued on next	page	·			•



Engine	Engine Code	Transmission type	Vehicle version <sup>40)</sup>	Brake version <sup>40)</sup>	Login code
75KW	ACV	Automatic transmission	Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	09943
			Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR <sup>t/⊙es</sup> not ⇒ PR no. 1LB <sup>t</sup> 9∪ <sub>∂r<sub>a</sub></sub>	09363
			Delivery van, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	01943
			Delivery van, long wheel base ⇔ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	01363 <sup>Mill respect</sup>
Continued on next	page	•	rt or		o the
40) Overview and use o	f PR no. for vehicle and brake	versions <u>⇒ page 13</u> .	poses, in pa	Ξ.	correctness

			7		()
Engine	Engine Code	Transmission type	Vehicle version <sup>41)</sup>	Brake version <sup>41)</sup>	Login code
150KW	АХК	Automatic transmission	Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 16" ⇒ PR no. 1P4	FNR ⇒ PR no. 1LB	07669 07669
			Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 16" ⇒ PR no. 1P9	FNR ⇒ PR no. 1LB	07,469
			Camper, short wheel base ⇒ PR no. 0E1 Standard suspension 16" ⇒ PR no. 1P0 or "-"	⇒ PR no. 1LB on Katu • DV UBBEN	03169

	Mes		-C <sub>0</sub> 0,		
Engine	Engine Code	Transmission type	Vehicle version <sup>41)</sup>	Brake version <sup>41)</sup>	Login code
	ole, is not bern		Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	09369
41) Overview and use of	PR no. for vehicle and brake ve	ersions $\Rightarrow$ page 13.	pectothe correctness of information internation information information internation in the second se		



Indicated on display

Rapid data	transfer	HELP
Select fun	ction XX	





## Coding table

Engine	Engine Code	Transmission type G. Voll	(swagen Acar Vehicle version <sup>42)</sup>	Brake version <sup>42)</sup>	Code
75KW	ACV	Manual transmission	Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1₽0 or "-"	FN3 ⇒ PR no. 1LU	06912
	Otbernin,	ourie	Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 16" ⇒ PR no. 1P0 or "-2	FNR ⇒ PR no. 1LB	06332
	r in whole, is n		Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 15" ⇒ PR no. 1P4	FN3 ⇒ PR no. 1LU	06812
	ses, in part o	Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 16" ⇒ PR no. 1P4	FNR ⇒ PR no. 1LB	06732	
Continued on next	page			•	
42) Overview and use o	of PR no. for vehicle and brake ve	ersions $\Rightarrow$ page 13.	"information		

Engine	Engine Code	Transmission type	Vehicle version43	Brake version <sup>43)</sup>	Code
75KW	75KW ACV Manual transmission	Manual transmission	Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 15" ⇒ PR no. 1P9	FN3 ⇒ PR no. 1LU	06512
		Bus, short wheel base Bus, short wheel base PR no. 0E1 Sport suspension 16" ⇒ PR no. 1P9	FNR ⇒ PR no. 1LB	06432	
		Camper, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	02212	
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			10/KSWager	Share -	
Engine	Engine Code	Transmission type	vsed <sup>by V</sup> Vehicle version <sup>43)</sup>	Brake ver	sion <sup>43)</sup> Code
		ite dunes	Camper, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	<sup>ee</sup> o <sub>f</sub> FN3 <sup>ec</sup> c <sub>₹</sub> PR no	04212 1LU
Continued on next page					
t3) Overview and use of PR no. for vehicle and brake versions <u>⇒ page 13</u> .					

43) Overview and use of PR no. for vehicle and brake versions ⇒ page 13

Engine	Engine Code	Transmission type	Vehicle version <sup>44)</sup>	Brake version44)	Code
75KW	ACV	Manual transfission	Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 of LU	08912
		ommercial pu	Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR <sup>of</sup> ⇒ PR norm <sub>atio</sub>	08332
		o to strate of	Delivery van, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	EN3 ⇒ PR no. 1LU	00912
			Delivery van, long wheel base ⇒ PR no. 0E2 Standard suspension 16" <sup>19</sup> Per PR no. 1P0 or "-"" <sup>19</sup> Per PR no. 1P0 or "-""	FNR ⇒ PR no. 1LB	00332
Continued on next	page				° j

44) Overview and use of PR no. for vehicle and brake versions  $\Rightarrow$  page 13.

Engine	Engine Code	Transmission type	Vehicle version <sup>45)</sup>	Brake version <sup>45)</sup>	Code
75KW	ACV	Automatic transmission	Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	06913



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Engine	Engine Code	I ransmission type	Vehicle version <sup>45)</sup>	Brake version <sup>45)</sup>	Code
	hole, is hotpen		Bus, short wheel base ⇒ PR no. 0E1 Standard suspension 16" ⇒ PR no. 1P0 or"-"	FNR ⇒ PR no. 1LB	06333
n part or in wr		Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 15" ⇒ PR no. 1P4	FN3 ⇒ PR no. 1LU	06813	
	al purposes,		Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 16" ⇒ PR no. 1P4 5	FNR ⇒ PR no. 1LB	06733

	18 MILE		200 <sup>0</sup> 23 <sup>1</sup> 1		
Engine	Engine Code 📎	Transmission type	Vehicle version <sup>46)</sup>	Brake version <sup>46)</sup>	Code
75KW	ACV	Automatic transmission	Bus, short wheel base Sport suspension 15" ⇒ PR no. 1P9	FN3 ⇒ PR no. 1LU	06513
		D	Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 16" ⇒ PR no. 1P9	FNR ⇒ PR no. 1LB	06433
			Camper, short wheel base ⇒ PR no. 0E1 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	02213
			Camper, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	04213

46) Overview and use of PR no. for vehicle and brake versions  $\Rightarrow$  page 13.

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Engine	Engine Code	Transmission type	Vehicle version <sup>47)</sup>	Brake version <sup>47)</sup>	Code
75KW AC	ACVs: 'slotin u	Automatic transmission	Bus, long wheel base ⇒ PR no. 0€2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	08913
	es, in part or i		Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or≝-"	FNR ⇒ PR no. 1LB	08333
ivate or commercial purpose	ercial purpos		Delivery van, long wheel base ⇒ PR no. 0E2 Standard suspension 15" ⇒ PR no. 1P0 or "-"	FN3 ⇒ PR no. 1LU	00913
	in a comm		Delivery van, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	00333
ntinued on next pa	age <sup>4</sup> 9 <sub>101</sub>		SUN	· · ·	

47) Overview and use o	) Overview and use of PR no. for vehicle and brake versions $\Rightarrow$ page 13.						
Engine	Engine Code	Transmission type	Vehicle version <sup>48)</sup>	Brake version <sup>48)</sup>	Code		
150KW	АХК	Automatic transmission	Bus, short wheel base ⇒ PR no. 0E1 Lowered suspension 16" ⇒ PR no. 1P4	FNR ⇒ PR no. 1LB	06639		
			Bus, short wheel base ⇒ PR no. 0E1 Sport suspension 16" ⇒ PR no. 1P9	FNR ⇒ PR no. 1LB	06439		
			Camper, short wheel base ⇒ PR no. 0E1 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	02139		



Engine	Engine Code	Transmission type	Vehicle version <sup>48)</sup>	Brake version <sup>48)</sup>	Code
	Aunessautor	sedon ve	Bus, long wheel base ⇒ PR no. 0E2 Standard suspension 16" ⇒ PR no. 1P0 or "-"	FNR ⇒ PR no. 1LB	08339
48) Overview and use of	of PR no. for vehicle and brake	versions $\Rightarrow$ page 13.	218		
	Contration of commercial purposes, in part or in whole, is not be	Protected by copyrig	Littly with respect to the correctness of information		



Press g button to confirm input.

Display will indicate the control module identification and the coding, e.g.:

- Press  $\square$  button

Indicated on display

Press buttons 1 and 1. This selects the "Login procedure" function 11.

Indicated on display:

Press of button to confirm input.

Indicated on display:

Enter code 40168.

### The login code 40168 is reserved for zeroing the steering angle sensor -G85- .

Indicated on display

- Press buttons 0 and 4 to select the function "Initiate basic setting" for performing the zero adjustment of the steering angle sensor -G85- -, display group 001 ⇒ page 164
- Diagnostic Function 08 Reading Meas-3.6.12 ured Value Block ability with respect to the correctness of information in this of the second se

Caution

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

- Test equipment must always be secured to the rear seat and operated from there by a second person.
- If test and measuring equipment is operated from the passenger seat, the person seated there could be injured in the event of an accident involving deployment of the passenger-side airbag.



All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051-

The control module can transmit numerous measured values. These measured values provide information about the operational status of the system and the sensors connected to it. In many cases the data supplied can be used to troubleshoot and repair malfunctions. Because these measured values cannot all be evaluated simultaneously, they are organized into individual display groups that can be selected via display group numbers.

Connect scan tool -VAG1551- and select the control module for brake electronics with ignition switched on (address word 03); <u>⇒ page 77</u>.

7D0907379 ESP 5.3 T4 Front V05→ Coding 06912 WSC XXXXX

Rapid data transfer HELP Select function XX

Rapid data transfer Q 11 Login procedure

Login procedure HELP Enter code number 40168

Rapid data transfer HELP Select function XX



Indicated on display:

Press buttons 0 and 8. This selects "Read Measuring Value \_ Block" function 08.

Indicated on display:

Rapid data transfer Q 08 - Read Measuring Value Block

Read measuring value block Enter display group number XXX

Rapid data transfer HELP Select function XX

- Press Q button to confirm input.

Indicated on display:

orised by Volkswagen AG. Volkswagen AG does not gu - Enter display group number Overview of selectable display group numbers, ⇒ "3.6.13 Selectable Display Group Numbers", page 146

### Selectable Display Group Numbers 3.6.13



Display group number	Display field	Description
001 <u>⇒ page 149</u>	1	Wheel speed at front left wheel speed sensor (km/h)
	2	Wheel speed at front right wheel speed sensor (km/h)
	3	Wheel speed at rear left wheel speed sensor (km/h)
	4	Wheel speed at rear right wheel speed sensor (km/h)
002	1	Brake test switch
<u>⇒ page 151</u>	2	Brake light switch
	3	Parking brake switch
	4	Traction control switch
003	1	Engine speed (RPM)
<u>⇒ page 153</u>	2	Engine torque
	3	Engine torque loss
	4	Throttle valve angle
004 <u>⇒ page 155</u>	1	Standing time (TIM)
	2	EDL shut-off
	3	Not assigned
	4	Not assigned
005	1	Steering angle
<u>⇒ page 157</u>	2	Rotation rate
	3	Brake pressure
	4	Transverse acceleration
006	1	Supply voltage of control module
<u>⇒ page 160</u>	2	ABS solenoid valve relay
	3	Voltage at motor for ABS return flow pump
	4	Workshop code
125	1	Databus for steering angle
<u>⇒ page 162</u>	2	Databus for engine
	3	Databus for transmission
		Protected by C.



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Wheel Speed Sensor, Checking

# Display group number 001

- Press buttons 0, 0 and 1.
- Press of button to confirm input.

	Read measuring value block 1 $\rightarrow$ $\rightarrow$ 1 $\rightarrow$ 2 $\rightarrow$ 3 $\rightarrow$ 4
<ul> <li>Measuring value block always has 4 display fields (arrows).</li> <li>Values 1 to 4 in the individual display fields can be interpreted according to the following test table.</li> </ul>	
Indicated on display: (with vehicle at standstill)	Read@measuring value block 1→ 1 Km/h 1 Km/h <sub>S</sub> 1 Km/h 1 Km/h
Press button to enter next display group number.	suarantee a
If the $\Box$ button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons $\Box$ and $\Box$ .	Oraccentar,
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# i Note

- Note the following for display group number 001:
- The current wheel speeds are indicated. This is useful for checking wheel speed sensor allocation by wheel. (Vehicle must be raised and a second technician must turn wheel by hand)



# Brake Pedal Switch, Brake Light Switch and Parking Brake Switch and Traction Control Button, Checking

# Display group number 002

- Press buttons 0, 0 and 2.
- Press o button to confirm input.

Read measuring value block 2  $\rightarrow$   $\rightarrow$  1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4

Measuring value block always has 4 display fields (arrows).
 Values 1 to 4 in the individual display fields can be interpreted according to the following test table.

Indicated on display: (with vehicle at standstill)

Press button to enter next display group number.

If the  $\square$  button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons  $\bigcirc$  and  $\bigcirc$ .

Read measuring value block  $2 \rightarrow 0$  0 operated 0



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Read measurir	ng value block	-odunile	2 →	Display group number: 002	
0	0	operated	0	< Indicated on display (example)	
		e, is hot		Traction control switch: ◆ 0 → Traction control switch not operated	
	Who w			<ul> <li>operated → Traction control switch operated</li> </ul>	
	orin			For deviations: "Electrical test", <u>⇒ page 15</u> , test step 16	
	, in part		Parking brake ♦ 0 → Parking	switch: g brake not engaged	
	OSeS		♦ operated →	Parking brake engaged	
	For deviations: "Electrical test", $\Rightarrow$ page 15 , test step 19 $\frac{3}{2}$				
	laio	Brake light switch: $0 \rightarrow Brake pedal not depressed$			
		$\bullet$ operated $\rightarrow$	Brake pedal de	epressed 55	
	For deviations: "Electrical test", <u>⇒ page 15</u> , test step 18				
	Brake pedal switch: ◆ 0 → Brake pedal not depressed				
	• operated $\rightarrow$ Brake pedal depressed				
	For deviations:	: "Electrical test'	', <u>⇒page 15</u> , te	est step 18	
			+oajoi9	. DA napa	

# Engine Speed, Torque, Torque Loss and Throttle Valve Angle, Checking

# Display group number 003

Measuring value block display group 003 should be read with engine running

- Press buttons 0, 0 and 3.
- Press of button to confirm input.

Re	ad	l r	nea	ası	ır:	ing	J	value	block	3	→
$\rightarrow$	1	$\rightarrow$	2	$\rightarrow$	3	$\rightarrow$	4	Ł			

Measuring value block always has 4 display fields (arrows). Values 1 to 4 in the individual display fields can be interpreted according to the following test table.

Indicated on display: e.g.

Press button to enter next display group number.





i Note

- Note the following for display group number 003:
- Measuring value block display group 003 should be read with engine running.



# Standing Time, EDL Shut-Off Due to Excessive Brake Temperature, Checking

# Display group number 004

- Press buttons 0, 0 and 4.
- Press of button to confirm input.

Read measuring value block 4  $\rightarrow$   $\rightarrow$  1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4

Measuring value block always has 4 display fields (arrows).
 Values 1 to 4 in the individual display fields can be interpreted according to the following test table.

Indicated on display: e.g.

Press button to enter next display group number.

If the  $\square$  button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons  $\bigcirc$  and  $\bigcirc$ .

Read measuring value block  $4 \rightarrow 2:50$  h off





Read measuri	ng value block		<b>4</b> →	Display group number: 004							
2:50 h	off			< Indicated on display (example)							
				Not assigned							
			Not assigned								
		EDL shut-off du	ue to excessive	e brake temperature							
	Standing time: ♦ Hours : minutes										
	<ul> <li>too large</li> </ul>	too large									
	Standing times of more than 255 hours and 59 minutes are indicated as "invalid" on the display for a certain time. ◆ Error										
	There weren't 2 valid time transfers from the instrument cluster to the ABS control module (w/EDL) J104- after ignition was switched on and engine was started. Check whether DTC 01203 is present, DTC table, ⇒ page 105 .										
	Standing time switched on fo time ignition is	could not obtain r the first time af switched on.	ed after ignition ter the instrum	n was switched on. Standing time calculation must be activated for at least 20 seconds when ignition is ent cluster or the hydraulic control module have been replaced. The standing time will be indicated the next							
			or in whole,	The autroso it is it is it is it is a contract of the contract it is it							

# Steering Angle, Rotation Rate, L. Acceleration, Checking Display group number 005 AG. Volkswagen AG does not guarantee of guarantee of guarantee of accepted to the second state of accepted t Read measuring value block 5 $\rightarrow$ $\rightarrow$ 1 $\rightarrow$ 2 $\rightarrow$ 3 $\rightarrow$ 4 3, is notoer Indix Press t. If the I t. value bloc. Measuring value block always has 4 display fields (arrows). Values 1 to 4 in the individual display fields can be interpreted according to the following test table. Indicated on display: e.g. (with vehicle at standstill) Read measuring value block 5 → 0.00 0.000/s 1.3 bar 0.00 m/s²) Ig Ig DA nagewayo V Kuthanya Januara Press buttonc to enter next display group number. If the $\square$ button is pressed, the work sequence "Read measuring" value block" must be re-initiated using buttons 0 and 8.



Read measuri	na value block		5 ->	Display group number: 005					
0,0 <sup>0</sup>	0,00 <sup>0</sup> /s	1.3 bar	0,00 m/s <sup>2</sup>	< Indicated on display (example)					
				Transverse acceleration: ◆ Specification with vehicle at standstill: +/- 0.7 m/s <sup>2</sup>					
				<ul> <li>Specification with steering wheel fully turned at a speed of 20 km/h: max. ± 6.0 m/s<sup>2</sup>; the value of the measured value increases steadily.</li> </ul>					
				<ul> <li>Test of the sensor for transverse acceleration -G200- ⇒ page 159</li> </ul>					
			Brake pressur ♦ Specification	re on with brake pedal not depressed: +/- 5 bar					
		Rotation rate: Specificatio	n with vehicle	at standstill: +/- 3 <sup>0</sup> /s					
	Steering angle Specified va	: alue for straight	-ahead driving	0.0 <sup>0</sup> ± 2.5 <sup>0</sup> <sup>50</sup> )					
	- Function 04	, Basic Setting,	display group	1 <u>⇒ page 164</u>					
50) On Board Diag	On Board Diagnostic (OBD) will be terminated by the ABS Control Module (w/EDL) -J104- if road speed exceeds 20 km/h.								
				Protected by Copyrights					

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Transverse Acceleration Sensor, Checking

Note

Sensor for transverse acceleration -G200- and sender for rotation rate -G202- are combined together as one unit *⇒ Item 5 (page 11)* .

Remove sensor for transverse acceleration -G200- . Do not disconnect the harness connector from the sensor for transverse acceleration -G200- . ⇒ Brake Systems from MY 1997; Rep. Gr. 45; Removal and Installation or  $\Rightarrow$  Suspension, Wheels, Brakes, Steering MY 1992-1996; Rep. Gr. 45; Removal and Installation



ad by Volkswagen AG. Volkswagen AG does not guara

All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051- .

Connect Scan Tool -VAG1551- (ST). -~~

The sensor for transverse acceleration -G200- can be checked using the "Read measuring value block" function, display group e Indica, indicado in

Measuring value block has 4 display fields (arrows). Display field 4 indicates the value for the sensor for transverse accel-

Indicated on display: e.g. (with vehicle at standstill)

Read measuring value block 5  $_{\rightarrow}$  $\rightarrow$  1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4

Read measuring value block 5  $\rightarrow$  0.00 0.000/s 1.3 bar 0.00 m/s<sup>2</sup>) DA nogewealov tertifiction interno



- Rotate it 90° toward the right relative to its installation position (see illustration).
- Indicated on display in display field 2 (with vehicle at standstill) e.g. 9.8 ±1 m/s<sup>2</sup>.

A plus in front of the number indicates the effective force while kswagen AG. Volkswagen AG does driving around a left-hand curve.

- Rotate it 90° toward the left relative to its installation position (see illustration).
- Indicated on display in display field 2 (with vehicle at standstill) e.g. -9,8 ±1 m/s<sup>2</sup>.

A negative sign in front of the number indicates the effective force while driving around a right-hand curve.

# Control Module, Solenoid Valve Relay and ABS Return Flow Pump, Checking Supply Voltage

# Display group number 006

- Press buffons 0, 0 and 6.

 Image: A set of the set

Read 12.7	measuring value block 6→ V on off WSC	



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Read measuri	Read measuring value block		6 →	Display group number: 006
12.7 V	on	off	WSC	< Indicated on display (example)
				Workshop code
			Voltage at m ♦ off→ spec	otor for ABS return flow pump: ification, there is no voltage at the ABS return flow pump V39 <sup>2</sup> AG. Volkswagen AG does not
			<ul> <li>on→ not p ABS return</li> </ul>	permitted during "Read Measuring Value Block". There is voltage at the ABS return flow pump -V39 The rn flow pump relay -J105- was activated by the ABS control module (w/EDL) -J104- with ignition on.
		Relay for sole ♦ on → spec	enoid valve: cification, relay	was activated by ABS Control Module (w/EDL) -J104- with ignition on.
		• off $\rightarrow$ Not	permitted during	g "Read measuring value block". The ABS solenoid valve relay -J106- was not activated with ignition on
	Supply voltage ♦ Specification	e of control mo on: 10.5 -14.5	dule: V	lith respe
				commercial purposes, in part or in
				Profection 100 100 100 100 100 100 100 100 100 10

# Data-bus Wires, Checking

# Display group number 125

- Press buttons 1, 2 and 5.
- Press of button to confirm input.

Read measuring value block 125  $\rightarrow$   $\rightarrow$  1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4

Measuring value block always has 4 display fields (arrows).
 Values 1 to 4 in the individual display fields can be interpreted according to the following test table.

Indicated on display: e.g. (with vehicle at standstill)

Read measuring value block 125  $\rightarrow$  Steering angle 1 engine 1 Trans. 1

Press button to enter next display group number.

If the  $\Box$  button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons  $\boxed{0}$  and  $\boxed{8}$ .



Read measuri	ng value block		125 →	Display group number: 125				
Steering an- gle	Engine 1	Transmission 1		< Indicated on display (example)				
1				Not assigned				
			Databus for tr	ansmission <sup>51)</sup>				
	♦ 1 → Data-BUS connection.							
• 0 $\rightarrow$ No data-BUS connection. <sup>52)</sup>								
		Databus for en ◆ 1 → Data-B	igine US connection					
		• $0 \rightarrow No data$	a-BUS connect	ion. <sup>52)</sup>				
	Databus for st ♦ 1 → Data-E	teering angle 3US connection.		assautorised				
	• $0 \rightarrow No dat$	a-BUS connection	on. <sup>52)</sup>	a dunke				
51) Only for vehicle	es with automatic t	ransmission.		A A A A A A A A A A A A A A A A A A A				
52) There is an op	en circuit in the dat	ta-BUS connection o	r data-BUS wires	are mixed-up.				
⇒ Wiring diagra	ams, Troublesh	ooting & Compo	nent locations	purposes, in part or in whole,				
				Information of the series of t				
				163				



### 3.6.14 **Diagnostic Function 04 - Basic Setting**

# Note

All functions previously performed with the -VAG1551- can also be performed using the tester -VAS5051-.

Function 04 "Initiate basic setting" fulfills three objectives for ESP:

# The Steering Angle Sensor -G85- is zeroed via display group 001.

Before zeroing, use the -VAG1551- to code the ABS control module (w/EDL) -J104-  $\Rightarrow$  page 133 and then complete function 11 "Login procedure".

This is necessary if:

- <code-block><code-block></code></code>



Indicated on display:

Press buttons 0 and 8. (04 selects "Initiate basic setting", function 4.)

Indicated on display:

- Press o button to confirm input.

Indicated on display:

- Press buttons 0, 0 and 1.
- Press Q button to confirm input.

If this appears in display, the "Login Procedure" has not been successfully completed.

- Repeat login procedure.

Indicated on display:

Check the zero position using "Read Measuring Value Block" ⇒ page 145 , Display group 005

or

Indicated on display:

- lay: <sup>CINESWagen AG. Volkswagen AG does not guarantee or accepted to the second guarantee or accepted</sup>
- 1. Check DTComemory (function 02)
- 2. Erase DTC memory (function 05)
- 3. End Output (function 06)
- 4. Switch ignition off.
- 5. Switch ignition on.
- 6. Then repeat zeroing.
- Press → button.

Indicated on display

# Display Group 2 - Activating Traction Control Hydraulic Pump

Activation of the hydraulic pump does not require any preparations. It is used to bleed the hydraulic system.

Connect scan tool -VAG1551- and select the control module for brake electronics with ignition switched on (address word 03); <u>⇒ page 77</u>.

Indicated on display:

Press buttons 0 and 8. (04 selects "Initiate basic setting" Press D button to confirm input. "DV ue6eMSHIO MATURINGO" function 4.)

Indicated on display:

# Indicated on display:

Press buttons 0, 0 and 2.

Rapid data transfer HELP Enter address word XX

Rapid data transfer Q 04 - Basic Setting

Basic Setting HELP Enter display group number XXX

Function is unknown or can -  $_{\rightarrow}$  not be performed at the moment

System in basic setting  $1_{\rightarrow}$ Zeroing Steer.-Sens. OK

System in basic setting  $1_{\rightarrow}$  Zeroing Steer.-Sens. not OK

Rapid data transfer HELP Enter address word XX

srrectness of information in the Rapid data transfer HELP Enter address word XX

> Rapid data transfer Q - Basic Setting 04

Basic Setting HELP Enter display group number XXX



Press of button to confirm input.

Indicated on display:

Hydraulic pump will be activated for 10 seconds

- Press  $\square$  button.

Indicated on display:

Rapid data transfer HELP Enter address word XX

Rapid data transfer HELP Enter address word XX

Rapid data transfer Q

- Basic Setting

Basic Setting HELP

in basic setting 2 test activated OK

04

System

System

System in basic setting 2

Vent system OK

# **Display Group 3 - Activating ESP Driving Test**

The ESP driving test is used to test the plausibility of the signals from the sensor for transverse acceleration -G202-, sender for rotation rate -G202- and Sender 1 for brake booster -G201- .

The ESP driving test should be carry outed after any components of the ESP system are removed or replaced.

- Once the ESP driving test has been initiated, it cannot be aborted and must be performed completely.
- Connect scan tool -VAG1551- and select the control module for brake electronics with ignition switched on (address word ...ch G does not gu 03); <u>⇒ page 77</u>.

Indicated on display:

Press buttons 0 and 8. (04 selects "Initiate basic setting", function 4.)

Indicated on display:

Press of button to confirm input.

Indicated on display:

- Press buttons 0, 0 and 3.
- Press D button to confirm input.

Indicated on display:

The ESP driving test is activated.

The ABS Warning Light -K47- and the ESP Control Lamp -K155light up.

- Press  $\square$  button.

Indicated on display:

- Disconnect diagnostic connection.
- Start engine.
- DAngenexion Depress brake pedal forcefully (brake pressure higher than 35 bar) until the ESP Control Lamp -K155- goes out.

Protectedby

# Note

This completes the adjustment with the engine not running

Perform the following road test:

Rapid data transfer HELP Select function XX Vatriei

- Drive around a right (left) curve and then around a left (right) curve.
- After these curves, drive straight-ahead for awhile.

# Note

, habitity with respect to the correctness of information in this operation in this operation in this operation in the second se The ABS Warning Light -K47- must go out. This represents successful completion of the ESP driving test.

# WARNING

Always follow the rules of the road and pay attention to traffic conditions as first priorities.



- While driving around the curves, a rotation rate of around 10 "/sec must be obtained. A curve with a radius of 10 12 m and a speed of 15 - 20 km/h for around 4 sec. fulfills this require-Prote ment. DYU
- Road test must not require the use of ABS, EDL, ASR or ESP.
- Other maneuvers required while driving around the curves (i.e. due to traffic conditions) will not influence the test.
- If the ABS Warning Light -K47- does not go out, the ESP driving test was not performed properly.
- If the ABS Warning Light -K47- does not go out, and the ESP Control Lamp -K155- lights up again, check DTC memory *⇒ page 81* .

### 3.6.15 **Display Groups**

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

- Test equipment must always be secured to the rear seat and operated from there by a second person.
- If test and measuring equipment is operated from the passenger seat, the person seated there could be injured in the event of an accident involving deployment of the passenger-side airbaq
- Connect scan tool -VAG1551- and select the control module for brake electronics with ignition switched on (address word 03).

Indicated on display:

Press buttons 0 and 8. This selects "Read Measuring Value Block" function 08.

Indicated on display:

Press g button to confirm input.

Indicated on display:

Rapid data transfer HELP Select function XX

Rapid data transfer Q 08 - Read Measuring Value Block

Read measuring value block Enter display group number XXX





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# Overview of selectable display group numbers

Dverview of selectable display group numbers								
Display group number	Display field	Description						
001	1	Wheel speed at left front wheel speed sensor (km/h)	with					
<u>⇒ page 171</u>	2	Wheel speed at right front weel speed sensor (km/h)	esp					
	3	Wheel speed at left rear wheel speed sensor (km/h)	ect to					
	4	Wheel speed at right rear wheel speed sensor (km/h)	othe					
002	1	Brake light switch	corr					
<u>⇒ page 172</u>	2	Voltage at motor for ABS return flow pump	ectn					
	3	ABS solenoid valve relay	SS					
	4	Not assigned	of in					
004	1	invalid	orm					
<u>⇒ page 174</u>	2	EDL shut-off due to excessive brake temperature	ation					
	3	EDL shut-off	inth					
	4	Not assigned	8 8					



# Wheel Speed Sensors - Checking

# Display group number 001

- Press buttons 0, 0 and 1.
- Press o button to confirm input.

<ul> <li>Press          Description button to confirm input.     </li> </ul>	Volkswagen AG door
thoised by Volks	Read measuring value block $1 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 4$
<ul> <li>Measuring value block always has 4 display fields (arrows).</li> <li>Values 1 to 4 in the individual display fields can be interpreted according to the following test table.</li> </ul>	Or accept
Indicated on display: (with vehicle at standstill)	Read measuring value block 1→ 1 Km/h 1 Km/h 1 Km/h
Press button to enter next display group number.	Irest
If the _ button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons () and ().	pect to the correctness of information internation information inf
Protected by copyright,	. DA nopewexiov vainding

# **i** Note

- Note the following for display group number 001:
- The current wheel speeds are indicated. This is useful for checking wheel speed sensor allocation by wheel. (Vehicle must be raised and a second technician must turn wheel by hand)

Read measuring value block en AG. Volkswagen AG does 1 →				Display group number: 001
1 km/h <sup>53)</sup>	1 km/h <sup>53)</sup>	1 km/h <sup>53)</sup>	1 km/h <sup>53)</sup>	< Indicated on display (example)
uness autoris			unice	Wheel speed at rear right wheel speed sensor • (1 19 <sup>53)</sup> km/h)
10 emilie			Wheel speed a ♦ (1 19 <sup>53)</sup> k	t rear teft wheel speed sensor ۲۰۰۳/h)
hole, is n		Wheel speed a ♦ (1 19 <sup>53)</sup> I	at front right whe km/h)	eel speed sensor
M UI O UR	neel speed at (1 19 <sup>53)</sup> ki	t front left whee m/h)	el speed sensor	octto the
53) On Board Diagnosti	ic (OBD) will be	terminated by the	ABS control module	e (w/EDL) -J104- If road speed exceeds 19 km/h.

# Brake Light Switch, Checking Voltage

# Display group number 002

- Press buttons 0, 0 and 2.
- Press of button to confirm input.

Read measuring value block 2  $\rightarrow$   $\rightarrow$  1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4

Measuring value block always has 4 display fields (arrows).
 Values 1 to 4 in the individual display fields can be interpreted according to the following test table.

Indicated on display: (with vehicle at standstill)

Read measuring value block 2  $\rightarrow$  0 0 1

Press button to enter next display group number.

If the  $\Box$  button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons  $\boxed{0}$  and  $\boxed{8}$ .



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Read measurir	ng value block		2 →	Display group number: 002						
0	0	1		< Indicated on display (example)						
				Not assigned						
			Relay for soler ◆ 0 → Not per EDL) -J104	moid valve: rmitted during "Read measuring value block". The relay was not activated by the ABS Control Module (w/ with ignition on.						
			Electrical test, ◆ 1 →Permitte J104- with i	carry out steps 1 and 2. ed during "Read measuring value block". The relay was activated by the ABS Control Module (w/EDL) - ignition on.						
		Voltage at mot $\blacklozenge$ 0 $\rightarrow$ No volt	/oltage at motor for ABS return flow pump: • 0 → No voltage (OK)							
		• $1 \rightarrow Voltage$	► 1 → Voltage present (malfunctioning)							
		If there is volta	oltage at the motor for return flow pump, replace the hydraulic control module.							
	Brake light swi ♦ 0 → Brake p	tch: pedal not depres	ssed	ses, in p						
	• $1 \rightarrow Brake p$	oedal depressed	t	ess c						
	If -VAG1551- indicates a -0- despite depressed brake pedal or indicates a -1- when brake pedal is not being depressed, perform test step no. 3 of Ele Test.									
				the state of contrast of contr						
				Protected by Copyrights States and Copyrights Copyright						



# EDL Shut-Off, Checking

# Display group number 004

- Press buttons 0, 0 and 4.
- ised by Volkswagen AG. Volkswagen AG does not guarantee or action of the second s Press of button to confirminput.

Read measuring value block 4  $\rightarrow$ 1  $2 \rightarrow 3$ 

Read measuring value block  $2 \rightarrow 0 \ 0 \ 1$ 

Measuring value block always has 4 display fields (arrows). Values 1 to 4 in the individual display fields can be interpreted according to the following test table.

Indicated on display: (with vehicle at standstill)

Press button to enter next display group number.

DA nageweilo V danging voor inentoo If the - button is pressed, the work sequence "Read measuring value block" must be re-initiated using buttons 0 and 8. Proceeding to commercial purpor

Read measurin	g value block		4 →			Display grou	ıp number: 004	
invalid	0	0		< Indicated on d	isplay (example)			
				Not assigned		AG.V	olkswagen 4 o	
			EDL shut-off	available		AbyVolkswagenne	-sonAG does not gue	
			$\bullet  0 \rightarrow EDS $		thorise	0.1	alter	
			▼ I → ED3 I		1855 24			Or aco
		EDL shut-of	f due to excessiv	e brake temperatu	re			Dr. P. C.
			was not shut off dur	ting 20x ignition sw	itched on			liabili
		T → ED3	was shut on du					2 With
	Not assigned				0/6 <sup>,</sup> /;			n res
				2				pect t
				itt or				o the
				in pa				corre
				Ses,				ectne
				DOTION				SS of
								info
					amme			mati
					ot cot			nin
					O TE NI			nie 2
					10/10/01 10/01			BHROC
					UIAdo D			Cor Cor
					<sup>1</sup> 46,11,1		Kathein V	~
						-lotected by	DA Nageweylov.	



### **Special Tools** 4

# Special tools and workshop equipment required

- ۲ Tester -VAS5051-
- Scan Tool (ST) -VAG1551-٠
- ٠ Scan Tool -VAG1552-
- Cable -VAG1551/3B-٠
- Test box -VAG1598/20-٠
- Multimeter -VAG1526A-٠
- Connector test kit -VAG1594A-٠
- Test box -VAG1598/14-۲
- Protected by copyright, Copyright on muller clash purposes, in par-Adapter -VAG1598/24-٠
- Test box -VAG1598A-٠
- Adapter -VAG1598/27-










## **Cautions & Warnings**

#### Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

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# Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be . crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the . instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten • fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- NOIKEN Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is • ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of • the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be • serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery • negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

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## **Cautions & Warnings**

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been . inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.



### I have read and I understand these Cautions and Warnings.

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