Audi A8 1994 ➢

Radio, Telephone and Navigation System, Self-diagnosis

Edition 09.2000

List of Workshop Manual Repair GroupsList of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

Audi A8 1994 ➤

Radio, Telephone and Navigation System, Self-diagnosis

Repair Group

01 - Self-diagnosis

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.

Contents

01 - Self-diagnosis

1 - Self-diagnosis of radio systems

1.1 - Self-diagnosis of radio systems

1.2 - General

Technical features of radio systems

The new generation of AUDI radio systems (including the radio element of the radio/navigation system) has extensive self-diagnosis capability.

The radio units have a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

1.3 - Starting self-diagnosis of radio systems

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List

1.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting vehicle battery so as not to damage control units.
- Always switch telematics control unit to service mode before disconnecting vehicle battery.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .

- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

Address word for radio: 56

- Press keys 5 and 6.

-> Indicated on display:

```
Rapid data transfer       Q
56 - Radio
```

- Confirm entry with Q key.

Note:

While the self-diagnosis is running the letters "DIAG" will appear on the radio unit display.

Up to MY 01:

```
4D0035192E      Radio      D0002
Code 00117      WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

From MY 02 onwards:


```
8E0035195B      symphony II      NP2      0004
Code 00737      WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

All vehicles:

- 4D0035192E: Part number of radio
- 8E0035195B: Part number of radio
- Radio: Component designation
- symphony II NP 2: Component designation and manufacturer
- D0002: Software version of radio
- 0004: Software version of radio
- Code 00117: Code for radio
- Code 00737: Code for radio
- WSC XXXXX: Workshop code

Note:

Check code against encoding table =>Page 13 .

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer      HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer      HELP
Fault in communication link
```

```
Rapid data transfer      HELP
K-wire not switched to earth
```

```
Rapid data transfer      HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

1.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

Up to MY 01:

```
4D0035192E     Radio     D0002
Code 00117     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

From MY 02 onwards:

```
8E0035195B     symphony II     NP2     0004
Code 00737     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

All vehicles:

- 4D0035192E: Part number of radio
- 8E0035195B: Part number of radio
- Radio: Component designation
- symphony II NP 2: Component designation and manufacturer
- D0002: Software version of radio
- 0004: Software version of radio

- Code 00117: Code for radio
- Code 00737: Code for radio
- WSC XXXXX: Workshop code

Press ⇒ key.

1.6 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 5 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 12 .
- Switch off ignition and unplug diagnostic connector.

1.7 - Fault table for radio systems

Notes:

- The following table lists all the faults which can be recognised by the radio system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults are erased if they do not re-occur after radio has been switched on/off 40 times (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 - Signal too low* *This fault may also be stored if starter has been operated for more than 10 seconds.	- Battery discharged/defective - Short circuit in vehicle electrical system - Battery voltage lower than 9.5 V - Alternator defective	- Charge/replace battery => Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging battery Check alternator => Electrical System; Repair Group 27; Removing and installing alternator Removing and installing alternator Repair short circuit in vehicle electrical system
00849 S-contact on ignition/starter switch -D - Open circuit	- Ignition/starter switch -D defective - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace ignition/starter switch -D => Electrical system; Repair Group 94; Repairing lock cylinder and ignition/starter switch Repairing lock cylinder and ignition/starter switch

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00850		

Active amplifier control output on radio - Short to earth	- Wiring damage - Open circuit in wiring - Active amplifier defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace active amplifier => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing BOSE power amplifier Radio systems; Removing and installing BOSE power amplifier
00852 Loudspeaker f - Short circuit - Open circuit	- Wiring damage - Front loudspeaker defective - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace defective loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing loudspeakers Radio systems; Removing and installing loudspeakers

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00853 Loudspeaker r - Short circuit - Open circuit	- Wiring damage - Rear loudspeaker defective - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace defective loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing loudspeakers Radio systems; Removing and installing loudspeakers

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00854 Output radio display dash panel insert - No communication 1)	- Open circuit in wiring - Dash panel insert defective - Radio defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Radio systems; Removing and installing radio

1) Whether or not any faults are still present following fault elimination is not detected during self-diagnosis.

Therefore, whenever a fault has been eliminated and the fault memory erased, it is essential to check that the secondary display is functioning correctly, and then interrogate the fault memory again.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00855 Connection to CD changer - No communication	- Open circuit in wiring - Voltage supply to CD changer interrupted - CD changer -R41 defective - Radio defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to CD changer using current flow diagram Replace CD changer => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing CD changer Radio systems; Removing and installing radio

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00856 Aerial on radio - Short circuit - Open circuit	- Open circuit in wiring - Short circuit in aerial wire - Aerial wire not plugged in	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check aerial wire Check aerial
00857 CD changer -R41 - No communication - Defective	- Open circuit in wiring - Voltage supply to CD changer interrupted - CD changer -R41 defective - Radio defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to CD changer using current flow diagram Replace CD changer => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing CD changer Radio systems; Removing and installing radio

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00858 Connect. radio IF outp. to aerial amp. - Short circuit - Open circuit	- Wiring damage - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring or short circuit
00878		

Connections to loudspeakers fl - Short circuit - Open circuit	- Wiring damage - Open circuit in wiring - Front left loudspeaker defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace front left loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing loudspeakers Radio systems; Removing and installing loudspeakers

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00879 Connections to loudspeakers fr - Short circuit - Open circuit	- Wiring damage - Open circuit in wiring - Front right loudspeaker defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace front right loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing loudspeakers Radio systems; Removing and installing loudspeakers
01044 Control unit - Incorrectly encoded	- Radio not encoded to match configuration in vehicle	- Encode radio accordingly=>Page 12

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01300 Control unit for navigation system with CD drive -J401 - No communication	- CAN bus fault - Open circuit in wiring - Wiring damage - Control unit for navigation system with CD drive -J401 defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing control unit for navigation system with CD drive -J401 Navigation system III; Removing and installing control unit for navigation system with CD drive -J401
01303		

Telephone transmitter/receiver unit - No communication	- CAN bus fault - Open circuit in wiring - Telephone transmitter/receiver unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace transmitter/receiver unit => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing transmitter/receiver unit Telephone system; Removing and installing transmitter/receiver unit

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01305 Data bus display - Defective	- CAN bus fault - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring
01317 Control unit with display in dash panel insert -J285 - No communication	- CAN bus fault - Open circuit in wiring - Dash panel insert defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01326 Multi-function steering wheel control unit -J453 - No communication	- CAN bus fault - Open circuit in wiring - Multi-function steering wheel control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace multi-function steering wheel control unit => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453

65535 Control unit - Defective	- Radio defective	- Replace radio => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio Radio systems; Removing and installing radio

1.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function tests the loudspeaker wiring and the secondary display.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer     Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Loudspeakers
```

All loudspeakers are briefly energised (barely audible).

Note:

Any faults (e.g. short circuits) that occur will be recorded in the fault memory.

- Press ⇒key.

Up to MY 01:

-> Indicated on display:
"DISPLAY"
"TEST"
will appear on the secondary display on the dash panel insert.

```
Final control diagnosis
Output radio display/dash panel insert
```

Note:

In vehicles with radio/navigation system, the display changes between normal and inverse every 4 seconds.

- Press ⇒key.

From MY 02 onwards:

-> Indicated on display:

```
Final control diagnosis
Segment test
```

All pixels light up on radio display.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Segment test
```

An area measuring 4x4 pixels lights up in the centre of the radio display. "Diagnosis" disappears on display.

Note:

Pixel faults are not stored in fault memory.

- Press ⇒key.

All vehicles:

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

1.9 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 4
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 - Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

Notes:

-

```
Attention:
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

-

```
Rapid data transfer
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

1.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

1.11 - Encoding control unit

This function is used to encode the radio as follows:

- Radio configuration
- Sound system
- Number of passive loudspeakers
- Country identification

Notes:

- The encoding procedure is used to set the various radio configuration options (radio/navigation system).
- The encoding table only lists the possible combinations applying to the Audi A8.

- The term "aerial with remote power supply" refers to active aerials, i.e. the aerial amplifier receives its voltage supply via the centre conductor of the high-frequency cable.

Encoding procedure

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 7 to select "Encode control unit" function.

-> Indicated on display:

```
Rapid data transfer     Q
07 - Encoding control unit
```

- Confirm entry with Q key.

-> Indicated on display:

```
Encode control unit
Enter code number XXXXX     (0-32000)
```

- Enter code number as per encoding table: up to MY 01=>Page 14 .

Coding up to MY 01: 00117

- Country identification: 0 = Standard
- Sound balancing: 0 = Standard
- Number of passive loudspeakers: 1 = 1 passive loudspeaker at front left (Bose with telephone)
- Sound system: 1 = Bose sound system
- Radio configuration: 7 = Radio with CD changer and secondary display

Coding from MY 02 onwards: 00637

- Radio configuration 5: 0 = Standard
- Radio configuration 4: 0 = A8
- Radio configuration 3: 6 = With Bose and active amplifier deactivation when using telephone
- Radio configuration 2: 3 = With navigation system and telephone
- Radio configuration 1: 7 = With diversity, CD changer and multi-function steering wheel

```
4D0035192E     Radio     D0002
Code 00117     WSC XXXXX
```

-> The display will show the control unit identification and the coding that was entered (00117).
- Press ⇒ key to terminate encoding procedure.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6.

-> Indicated on display:

```
Rapid data transfer     Q
06 -End output
```

- Confirm entry with Q key.

Encoding table up to MY 01:

5	4	3	2	1	← Decimal places of byte coding on tester display

5	4	3	2	1	← Decimal places of byte coding on tester display
				7	Radio configuration

	Aerial with remote power supply	CD changer	Secondary display
1	X	-	-
3	X	X	-
5	X	-	X
7	X	X	X

X = Component fitted - = Not fitted

5	4	3	2	1	← Decimal places of byte coding on tester display
			1		Sound system adjustment

	Type of adjustment
0	Standard (not Bose sound system)
1	Bose sound system

		1			Number of passive loudspeakers

	Number and locations
0	No passive loudspeakers (Bose sound system)
1	1 passive loudspeaker (front left) (Bose with telephone)
2	2 passive loudspeakers (front) and 2 active loudspeakers (rear)
5	2 passive loudspeakers (front) and no active loudspeakers (rear)

5	4	3	2	1	← Decimal places of byte coding on tester display
	0				Sound balancing

0	Standard

0					Country identification

0	Standard

Encoding table from MY 02 onwards:

5	4	3	2	1	← Decimal places of byte coding on tester display
				7	Radio configuration 1

	Diversity box	CD changer	Multi-function steering wheel
0	-	-	-
1	X	-	-
2	-	X	-
3	X	X	-
4	-	-	X
5	X	-	X
6	-	X	X
7	X	X	X

5	4	3	2	1	← Decimal places of byte coding on tester display
					X = Component fitted - = Not fitted

5	4	3	2	1	← Decimal places of byte coding on tester display			
			3		Radio configuration 2			
						Navigation	Telephone	VCS
					0	-	-	-
					1	X	-	-
					2	-	X	-
					3	X	X	-
					4	-	-	X
					5	X	-	X
					6	-	X	X
					7	X	X	X
					X = Component fitted - = Not fitted			

5	4	3	2	1	← Decimal places of byte coding on tester display			
		6			Radio configuration 3			
						Fader OFF	BOSE display ON	Active amplifier deactivation when using telephone
					0	-	-	-
					1	X	-	-
					2	-	X	-
					3	X	X	-
					4	-	-	X
					5	X	-	X
					6	-	X	X
					7	X	X	X
					X = Component fitted - = Not fitted			

5	4	3	2	1	← Decimal places of byte coding on tester display	
	0				Radio configuration 4	
					0	A8
					1	A4 (B6)
					2	A6
					3	A4 (B6) Cabrio
					4	TT
					5	A2
0					5th decimal place = 0	

1.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer       Q
08 - Read measured value block
```


- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

- Enter display group number (from table => Page 16 from MY 02 onwards) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

List of display groups up to MY 01:

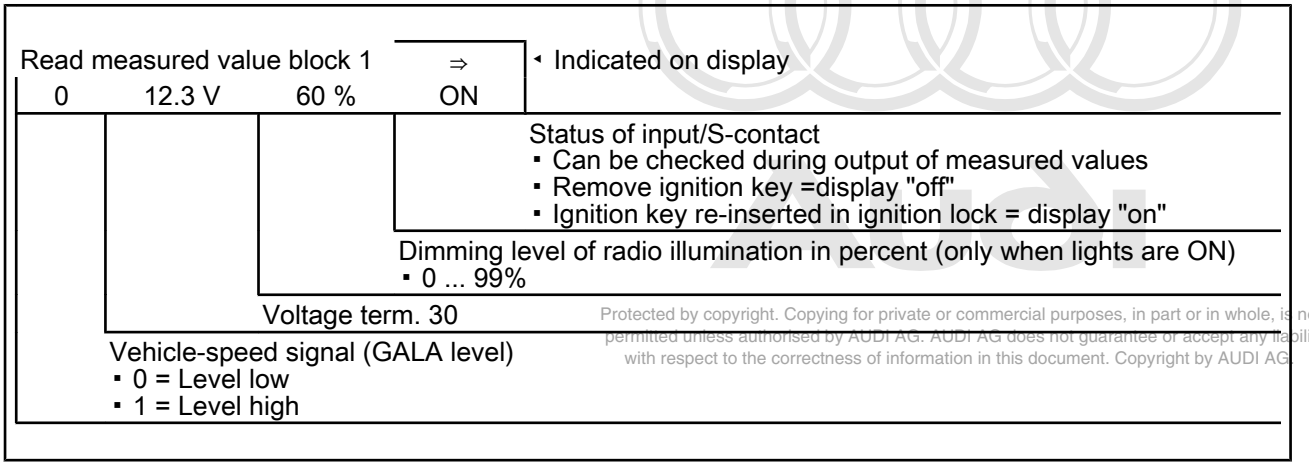
Display group number	Indicated on display
001	1 = Vehicle-speed signal (GALA level) 2 = Voltage term. 30 3 = Radio illumination dimming in % 4 = Status of S-contact
002	1 = Front loudspeakers 2 = Status of front loudspeakers 3 = Rear loudspeakers 4 = Status of rear loudspeakers
003	1 = Type of aerial 2 = Aerial 3 = Status of aerial
004	1 = Control output for active amplifier 3 = Telephone 4 = Status of input/telephone mute
005	1 = CD connection 2 = Status of CD connection
006	1 = External display (dash panel insert) 2 = Status of external display
007	1 = Reception status of remote control

List of display groups from MY 02 onwards:

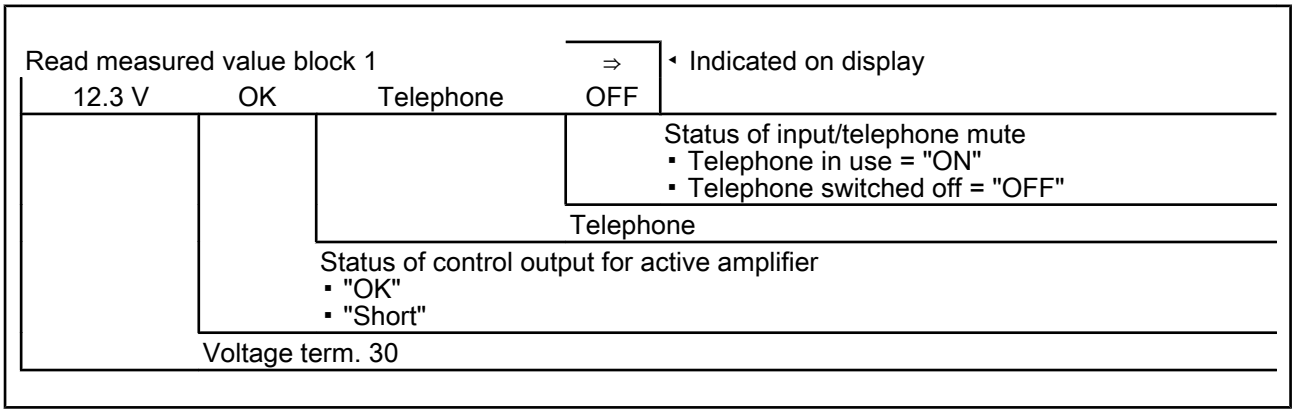
Display group number	Indicated on display

001	1 = Voltage term. 30 2 = Control output for active amplifier 3 = Telephone 4 = Status of telephone mute input
002	1 = Front loudspeakers 2 = Status of front loudspeakers
003	1 = Type of aerial 2 = Aerial 3 = Status of aerial
004	1 = CD connection 2 = Status of CD connection
005	1 = IF output 2 = Status of IF output

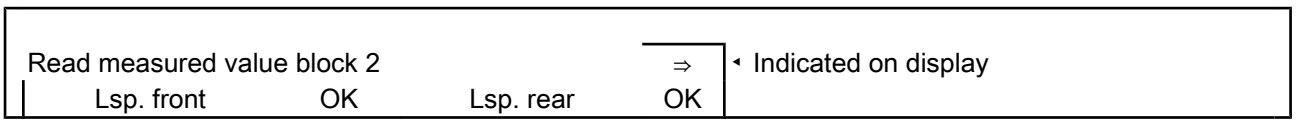
Measured value block 001 up to MY 01

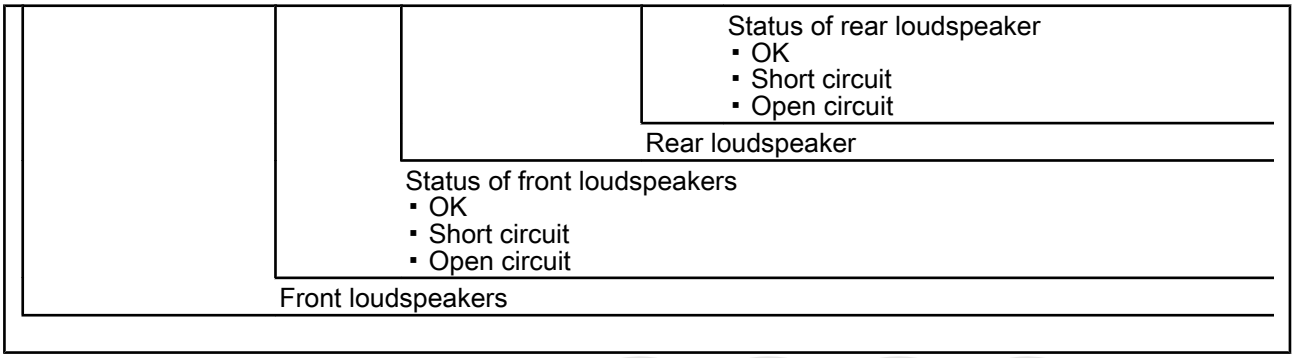


Measured value block 001 from MY 02 onwards

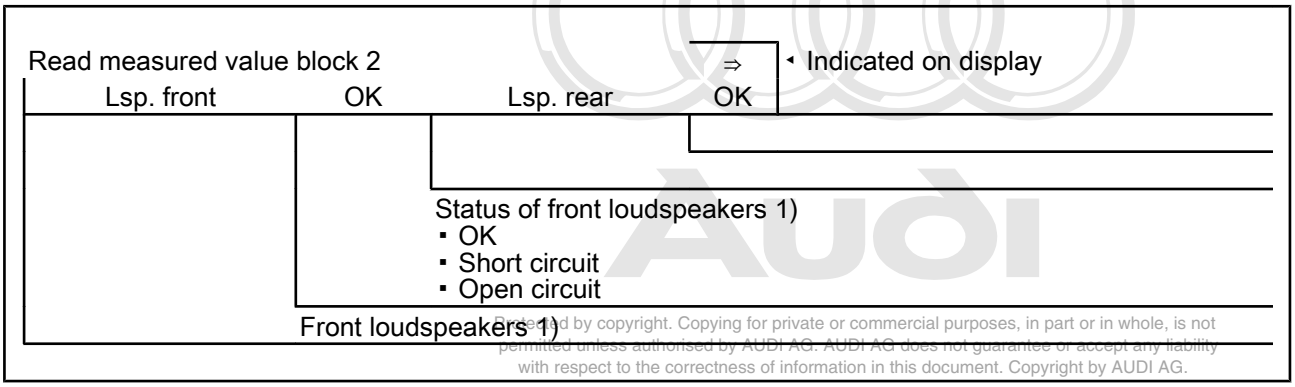


Measured value block 002 up to MY 01



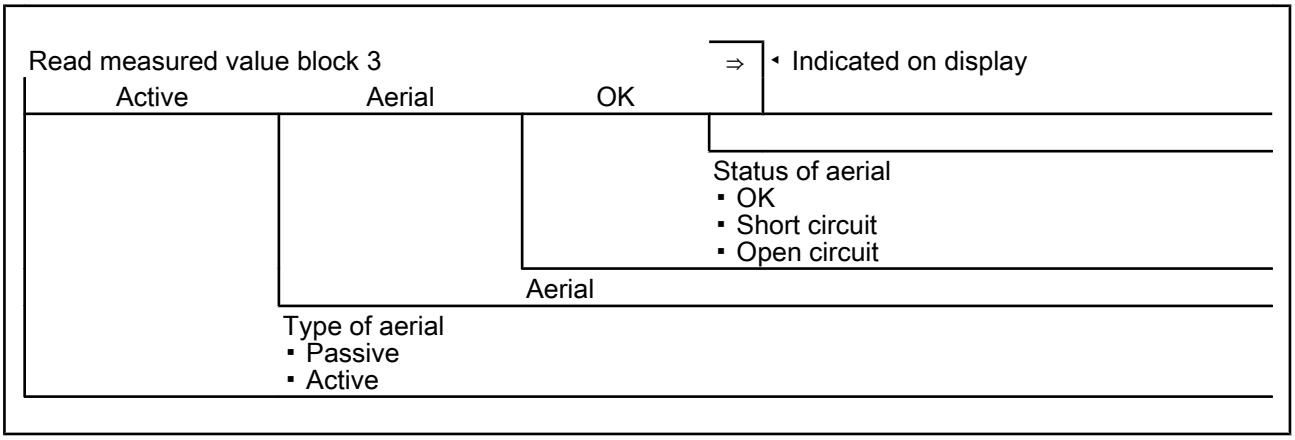


Measured value block 002 from MY 02 onwards

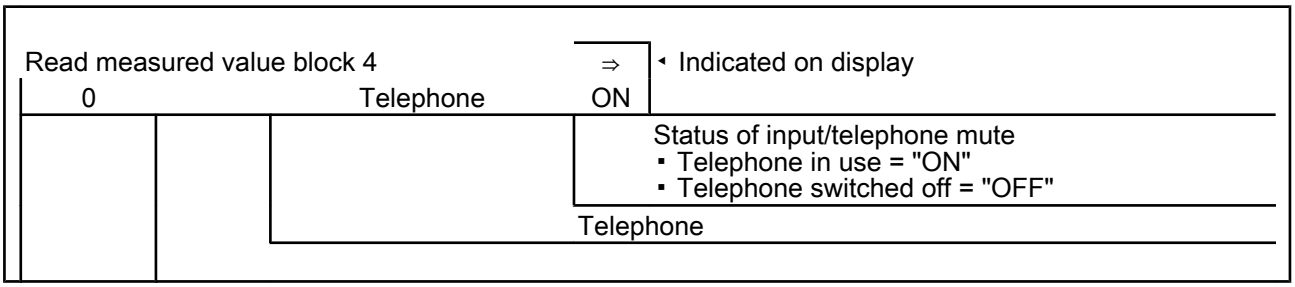


1) No display for BOSE sound system

Measured value block 003

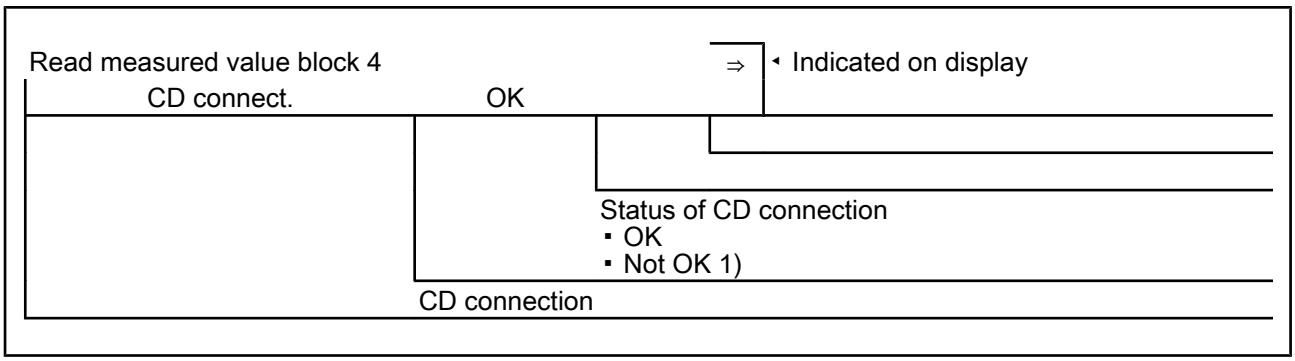


Measured value block 004 up to MY 01



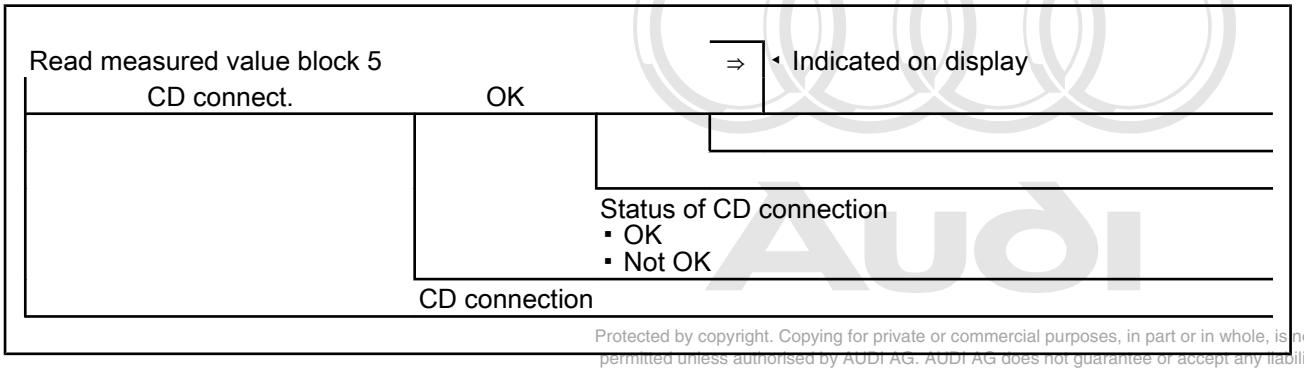
Status of control output for active amplifier
- 0 = Status OK
- 1 = Short to earth

Measured value block 004 from MY 02 onwards

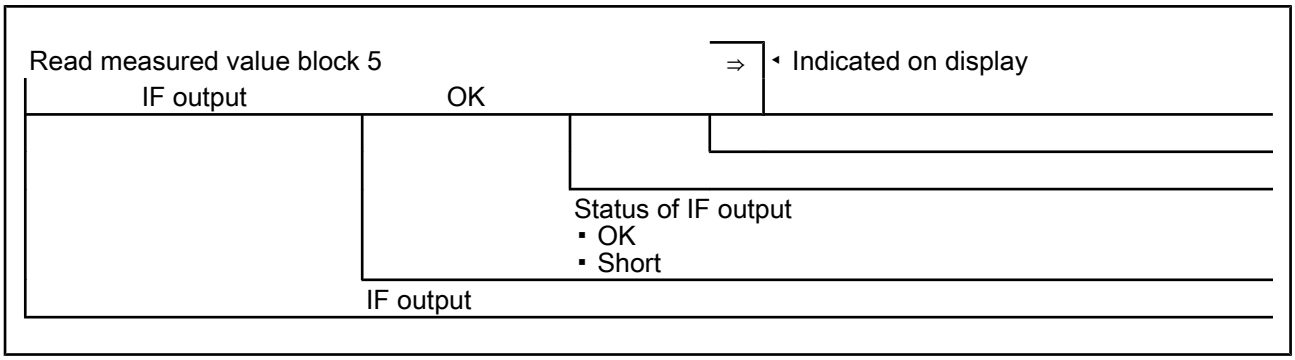


1) Displayed even if there is no CD changer fitted

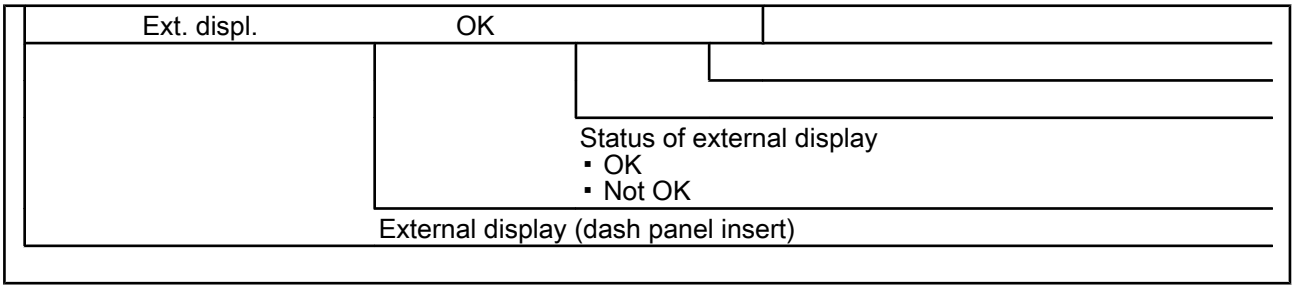
Measured value block 005 up to MY 01



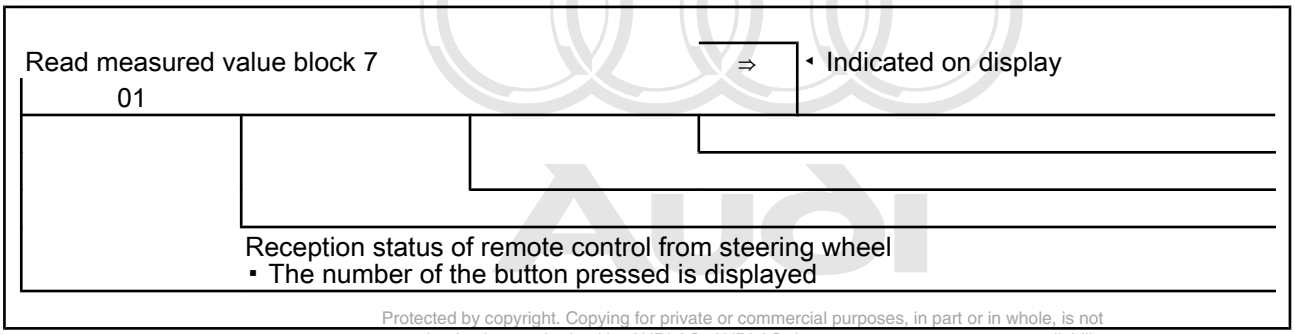
Measured value block 005 from MY 02 onwards



Measured value block 006 up to MY 01



Measured value block 007



1.13 - Adaption

The "Adaption" function from MY 02 onwards can be used to make and store the following changes:

- Deactivation and activation of vehicle-speed display

In the case of driving school vehicles, this channel can be used to activate the vehicle-speed display in the radio display.

- Deactivation and activation of transport mode

If the transport mode is activated, the radio can no longer be switched on manually.

- Activation and deactivation of long-wave reception

For certain countries or if requested by the customer, long-wave reception can be activated using this channel.

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 52).

Adaption table:

Adaption channel	Adaption function
77	Activation of vehicle-speed display => Page 21
88	Activation of long-wave reception => Page 22
99	Activation of transport mode => Page 23

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer      Q
10 - Adaption
```

- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Enter desired adaption channel (adaption table => Page 20).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Activating and deactivating vehicle-speed display

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 7 and 7 to select "Channel 77".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 77     Adaption     0
```

Top line shows selected channel and respective system configuration (0 = vehicle-speed display deactivated, 1 = vehicle-speed display activated).

- Press ⇒ key.

-> Indicated on display:

```
Channel 77     Adaption     0
Enter adaption value XXXXX
```


- Enter new adaption value (e.g. 00001); 00001 = vehicle-speed display ON, 00000 = vehicle-speed display OFF.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 77     Adaption     1
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 77     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 77     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Activating and deactivating long-wave reception

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 8 and 8 to select "Channel 88".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 88     Adaption     0
```

Top line shows selected channel and respective system configuration (0 = long-wave reception activated, 1 = long-wave reception deactivated).

- Press ⇒ key.

-> Indicated on display:

```
Channel 7     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00001 = long-wave reception deactivated, 00000 = long-wave reception activated.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 88     Adaption     1
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 88     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 88     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Activating and deactivating transport mode

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 9 and 9 to select "Channel 99".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99     Adaption     0
```

Top line shows selected channel and respective system configuration (0 = transport mode deactivated, 1 = transport mode activated).

- Press ⇒ key.

-> Indicated on display:

```
Channel 99     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00001 = transport mode ON, 00000 = transport mode OFF.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99     Adaption     1
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

2 - Self-diagnosis of navigation system II (Navigation System Plus) (up to Wk 47/99)

2.1 - Self-diagnosis of navigation system II (Navigation System Plus) (up to Wk 47/99)

2.2 - General

Navigation system II combines the functions of a navigation system with those of a high-quality RDS car radio and also permits reception of television programs and video text.

Driver instructions are not only given in voice form, but also as visual recommendations (arrows, turn-off directions) on the dash panel insert centre display. The 5" colour monitor in the centre console offers a choice between a visual recommendation and a map illustration.

Navigation system II has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

The radio unit is integrated in the new navigation system II; during self-diagnosis the navigation system is addressed with the address word 37 and the radio system with the address word 56.

This combination unit has only one K-wire, which allows access to both the radio and navigation system.

Encoding of the radio unit is carried out during self-diagnosis of the radio system.

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Performing self-diagnosis of radio unit
=> Self-diagnosis of radio system
(address word 56) as of Page 1

Performing self-diagnosis of navigation unit
=> Self-diagnosis of navigation system
(address word 37) as of Page 24

2.3 - Starting self-diagnosis of navigation system II

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook

- Parts List

2.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

Address word for navigation system: 37

- Press keys 3 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
37 - Navigation
```

- Confirm entry with Q key.

```
4D0035192E     Navigation     0004
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4D0035192E: Part number of radio/navigation system
- Navigation: Component designation
- 0004: Software version
- Code 00000: Code not used
- WSC XXXXX: Workshop code

- Press ⇒ key.

Indicated on display of radio/navigation system:

DIAG

Indicated on dash panel insert display:

DIAG

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```


=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer     HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

2.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

```
4D0035192E     Navigation     0004
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4D0035192E: Part number of radio/navigation system
- Navigation: Component designation
- 0004: Software version
- Code 00000: Code not used
- WSC XXXXX: Workshop code

- Press ⇒ key.

2.6 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:


```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 28 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 31 .
- Switch off ignition and unplug diagnostic connector.

2.7 - Fault table for navigation system II

Notes:

- The following table lists all the faults which can be recognised by the navigation system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults are erased if they do not re-occur after navigation system has been switched on/off 40 times (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 - Signal too low* *This fault may also be stored if starter has been operated for more than 10 seconds.	- Battery discharged/defective - Short circuit in vehicle electrical system - Battery voltage lower than 9.5 V - Alternator defective	- Charge/replace battery => Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging battery Repair short circuit in vehicle electrical system Check alternator => Electrical System; Repair Group 27; Removing and installing alternator Removing and installing alternator

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00854		

Output radio display dash panel insert - No communication 1)	- Open circuit in wiring - Dash panel insert defective - Radio/navigation system defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402

1) Whether or not any faults are still present following fault elimination is not detected during self-diagnosis.

Therefore, whenever a fault has been eliminated and the fault memory erased, it is essential to check that the secondary display is functioning correctly, and then interrogate the fault memory again.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00862 Navigation aerial (GPS) - R50/R52 - Open circuit/short circuit - to positive - Short to positive	- Navigation aerial - (GPS) defective - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace navigation aerial => Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (route navigation); Removing and installing navigation aerial (-R50) Navigation system I (route navigation); Removing and installing navigation aerial (-R50)
00867 Connection to ABS control unit - No signal	- Wiring damage - Open circuit in wiring - ABS wheel sensors defective - ABS control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Perform ABS self-diagnosis => Running gear self-diagnosis for ABS, ESP; Repair Group 01

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01311 Data bus information - No communication	Data transfer between navigation system control unit and radio control unit takes place via CAN bus - The radio/navigation system is not connected - Open circuit in bus wire between control units in radio/navigation system	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace radio/navigation system => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402 Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402

65535 Control unit - Defective	- Radio/navigation system defective	- Replace radio/navigation system => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402 Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402

2.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- The navigation system must be switched on.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function tests the secondary display in the dash panel insert.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer      Q
03 - Final control diagnosis
```


- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Output radio display dash panel insert
```

Dash panel insert displays the following test pattern:

DISPLAY TEST

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press ⇒ key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

2.9 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 27
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 - Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

Notes:

-
```
Attention:
Fault memory not interrogated
```
-> Test sequence has not been correctly implemented if adjacent display appears.

-
```
Rapid data transfer
Fault memory not interrogated
```
-> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

2.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

2.11 - Encoding control unit

Notes:

- How to encode radio components is described in the section "Self-diagnosis of radio systems" under "Encoding control unit" => Page 12 .
- The navigation components do not have to be encoded.

2.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer       Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```


- Enter display group number (from table => Page 32) and confirm with Q key.

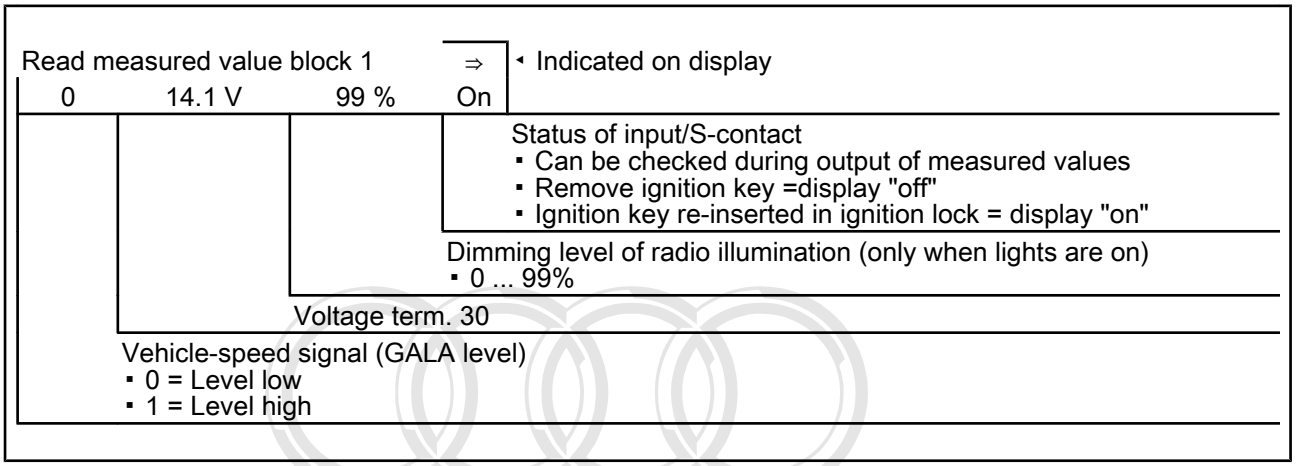
The measured value block selected is then displayed in standardised form.

List of display groups:

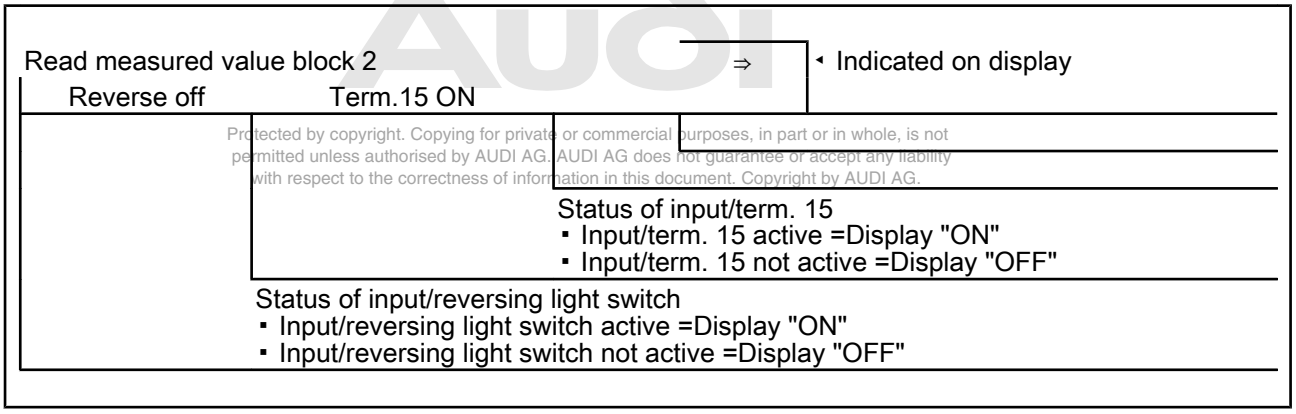
Display group number	Indicated on display
001	1 = Vehicle-speed signal (GALA level) 2 = Voltage term. 30 3 = Radio illumination dimming in % 4 = Status of S-contact
002	1 = Status of input/ reversing light switch 2 = Status of input/term. 15

Display group number	Indicated on display
003	1 = GPS aerial 2 = Status of GPS aerial remote power supply
004	1 = External display 2 = Function/communication with external display
005	1 = Data bus 2 = Function/communication with information data bus
006	1 = Pulse generator (ABS), left 2 = Vehicle speed, left in km/h 3 = Pulse generator (ABS), right 4 = Vehicle speed, right in km/h

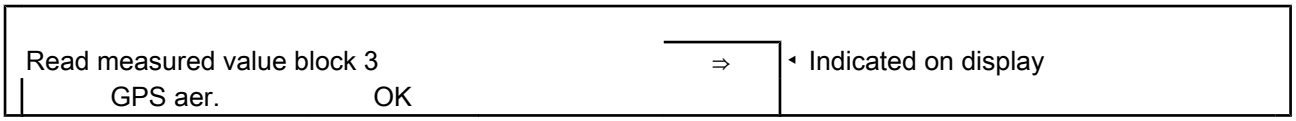
Measured value block 001

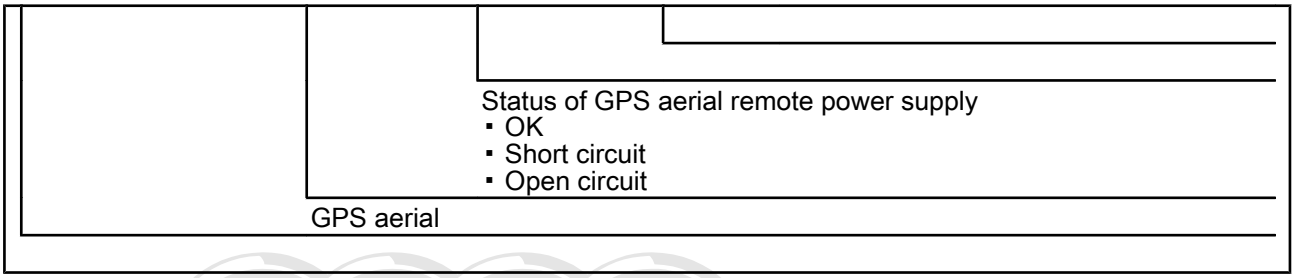


Measured value block 002

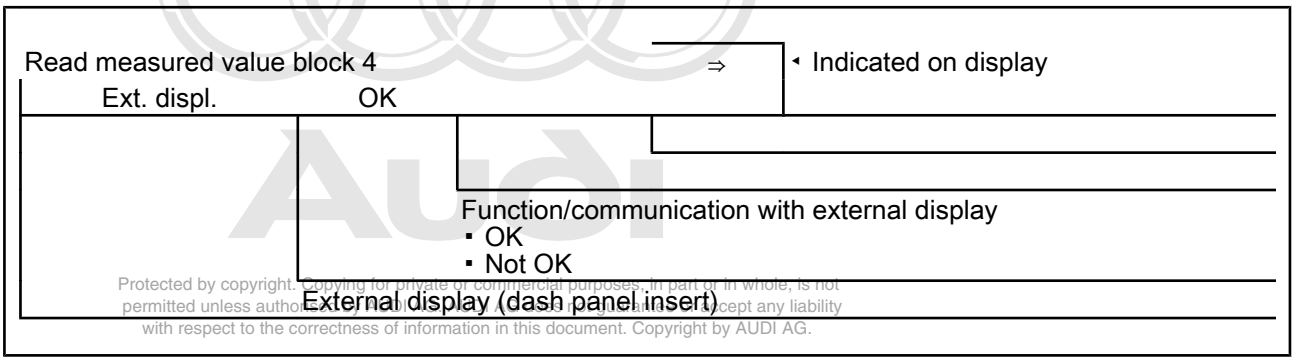


Measured value block 003

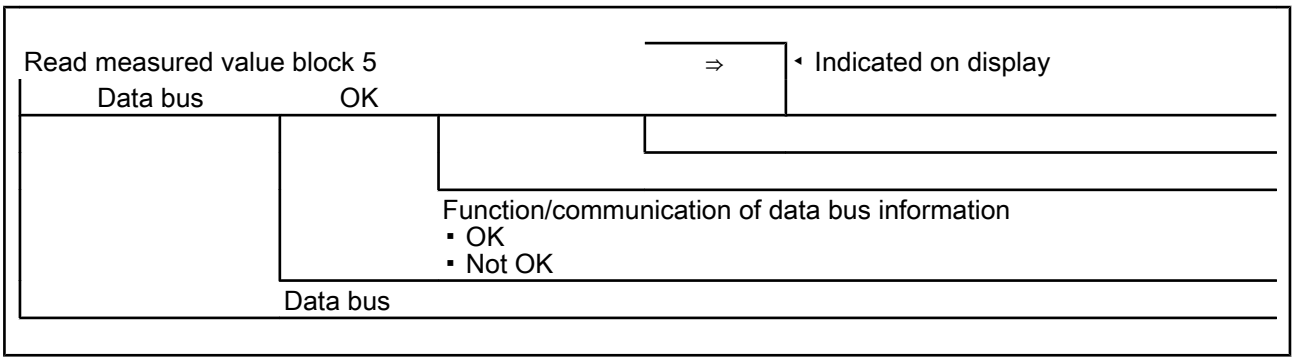




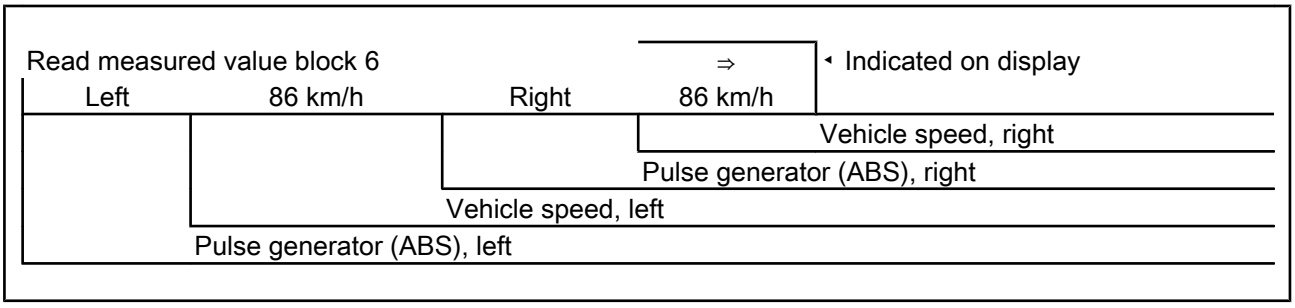
Measured value block 004



Measured value block 005



Measured value block 006



2.13 - Adaption

The "Adaption" function can be used to make and store the following changes:

- Changes to tyre size
- Changes to number of pulses from ABS wheel sensors

Navigation system II uses the pulses from the ABS sensors to calculate distance.

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 35).

Adaption table:

Adaption channel	Adaption function
01	Tyre circumference in mm => Page 35
02	Number of pulses from ABS sensors => Page 36

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer      Q
10 - Adaption
```

- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```


- Enter desired adaption channel (adaption table => Page 35).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Adapting tyre circumference

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 1 to select "Channel 1".

Note:

- Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2060
```

Top line shows selected channel and currently stored tyre circumference in mm.

- Press ⇒ key.

-> Indicated on display:

```
Channel 1     Adaption     2060     Q
Enter adaption value XXXXX
```


- Enter new tyre circumference with zero before 4-digit number (e.g. 02074). Tyre table => Page 37 .
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2074     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2074     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2074
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting number of pulses from ABS wheel sensors

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 2 to select "Channel 2".

Note:

- Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     42
```

Top line shows selected channel and currently stored number of pulses from ABS wheel sensors.

- Press ⇒ key.

-> Indicated on display:

```
Channel 2     Adaption     42     Q
Enter adaption value XXXXX
```

- Enter new number of pulses with three zeroes before the 2-digit number.

The number of pulses is always 45 for A8 with navigation system II.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     45     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     45     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     45
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Tyre table for Audi A8:

	Tyre size	Circumference (mm)
Summer tyres	225/60 R16	2060
Summer tyres	225/55 R17	2074
Summer tyres	245/45 R18	2065
Summer tyres	245/45 ZR 18	2065
Summer tyres	255/35 ZR 20	2092
Winter tyres	225/60 R16	2060
Winter tyres	225/55 R17	2070
Winter tyres	235/45 R18	2040
Winter tyres	235/50 R18	2114

3 - Self-diagnosis of navigation system II-D (Navigation System Plus RNS 4.1) (from Wk 48/99 onwards)

3.1 - Self-diagnosis of navigation system II-D (Navigation System Plus RNS 4.1) (from Wk 48/99 onwards)

Navigation System Plus RNS 4.1 is an enhancement of the existing navigation system II (Navigation System Plus). Key innovations include a control unit for aerial selection, expanded self-diagnosis, an interface to the information data bus, and dynamic navigation.

3.2 - General

Features:

- The features of the existing navigation system II (Navigation System Plus) have been retained
- Dynamic navigation
- Interface to telematics
- Interface to electronic logbook

From Wk 45/01 onwards (RNS 4.2 version):

- With electronic logbook, destinations entered via chipcard
- Operator service for telematics
- Current road/street displayed in dash panel insert
- Entry of intermediate destination, and spelling assistant
- Voice control

3.3 - Fault messages on navigation system display

Indicated on display of navigation system II-D:

RDS-TMC tuner: Connection to RDS-TMC tuner faulty or could not be established!

Cause of fault:

- No or faulty CAN communication between operating electronics control unit for navigation system -J402 and navigation system interface -R94 (open circuit or wiring not connected).
- Navigation system interface -R94 is defective.

If this fault occurs, no TMC traffic information can be received via the radio and the "Settings" menu of the jam function cannot be called up.

No radio or navigation information is shown in dash panel insert display.

Indicated on display of navigation system II-D:

Dynamic navigation: Telephone not responding. Dynamic operation only available with ignition ON.

Cause of fault:

- No or faulty CAN communication between operating electronics control unit for navigation system -J402 and telephone/telematics control unit -J526 (open circuit or wiring not connected).
- Telephone/telematics control unit -J256 is defective.
- Terminal 15 is OFF (ignition switched off).

If this fault occurs, no TMC traffic information can be received via the telephone. Dynamic navigation is not possible.

Indicated on display of navigation system II-D:

Connection to logbook faulty. Journeys are not stored. Please log journeys manually. Please confirm with RETURN.

Cause of fault:

- No or faulty CAN communication between operating electronics control unit for navigation system -J402 and electronic logbook.
- Electronic logbook not connected or defective.

If this fault occurs, no data can be read into the navigation system from the electronic logbook or stored on the chipcard.

No fault is entered in fault memory.

Indicated on display of navigation system II-D:

LOGBOOK Logbook not active. Please activate on PC. Please log journeys manually.

This message appears:

- If, after having received his vehicle, the customer has not yet activated his chipcard for the electronic logbook on his PC.
- This message on the navigation system display does not indicate a fault.

Inform the customer.

Indicated on display of navigation system II-D:

CD is unsuitable. Please insert CD-ROM for TravelPilot DX.

This message appears:

- If inserted navigation CD is not compatible with TravelPilot DX.

- Insert navigation CD with DX logo.

Inform the customer.

The fault messages are displayed until the respective fault is eliminated or the respective message is confirmed by pressing the RETURN button.

3.4 - Starting self-diagnosis of navigation system II-D

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List

3.5 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before connecting and disconnecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

Address word for navigation system: 37

- Press keys 3 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
37 - Navigation
```

- Confirm entry with Q key.

Up to Wk 36/00:

```
4D0035192H     Navigation     BNO     0004
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

From Wk 37/00 onwards:

```
4D0035192K     RNS 4.1 H05 BNO     0017
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

All vehicles:

- 4D0035192H: Part number of operating electronics control unit for navigation system (refer also to Parts List)
- Navigation: Component designation
- RNS 4.1 H05: Component designation
- BNO: Manufacturer
- 0004: Software version of operating electronics control unit for navigation system
- Code 00000: Code not used
- WSC XXXXX: Workshop code

Indicated on display of navigation system II-D:

```
DIAG
```

Indicated on dash panel insert display:

```
DIAG
```

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer     HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.

- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 42

02 - Interrogate fault memory => Page 43

03 - Final control diagnosis=> Page 46

05 - Erase fault memory => Page 47

06 - End output => Page 48

08 - Read measured value block => Page 48

10 - Adaption=> Page 52

3.6 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```


- Confirm entry with Q key.

Up to Wk 36/00:

```
4D0035192H     Navigation     BNO     0004
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

From Wk 37/00 onwards:

```
4D0035192K     RNS 4.1 H05 BNO     0017
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

All vehicles:

- 4D0035192H: Part number of operating electronics control unit for navigation system (refer also to Parts List)
- Navigation: Component designation
- RNS 4.1 H05: Component designation

- BNO: Manufacturer
- 0004: Software version of operating electronics control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC XXXXX: Workshop code

3.7 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 43 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 48 .
- Switch off ignition and unplug diagnostic connector.

3.8 - Fault table for navigation system II-D

Notes:

- The following table lists all the faults which can be recognised by the navigation system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.

- Sporadic faults are erased if they do not re-occur after navigation system has been switched on/off 40 times (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00625 Vehicle-speed signal - No signal* *The GALA speed and GPS speed are continuously cross-checked in the navigation unit. This fault is stored if the GPS signal is > 40 km/h for 100 sec. but no GALA signal is present.	- Open circuit in wiring - Dash panel insert defective - Navigation system control unit defective	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402
00668 Vehicle voltage terminal 30 - Signal too low* *This fault may also be stored if starter has been operated for more than 10 seconds.	- Battery discharged/defective - Short circuit in vehicle electrical system - Battery voltage lower than 9.5 V - Alternator defective	- Charge/replace battery => Electrical system, Repair Group 27 Repair short circuit in vehicle electrical system Check alternator => Electrical system, Repair Group 27

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00854 Output radio display dash panel insert - No communication 1)	- Open circuit in wiring - Dash panel insert defective - Navigation system control unit defective	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402

1) Whether or not any faults are still present following fault elimination is not detected during self-diagnosis.

Therefore, whenever a fault has been eliminated and the fault memory erased, it is essential to check that the secondary display is functioning correctly, and then interrogate the fault memory again.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00862		

Navigation aerial 1) (GPS) - R50/R52 - Open circuit - Short circuit	- Open circuit in aerial wire - Short circuit in aerial wire - Navigation aerial 1) (GPS) defective - Aerial splitter -R87 1) defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace GPS aerial wire Replace navigation aerial (GPS) => Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (route navigation); Removing and installing navigation aerial (-R50) Telematics; Removing and installing GPS aerial splitter -R87

1) If an aerial splitter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested up to the aerial splitter. The wiring from the aerial splitter to the GPS aerial and the aerial itself are tested by the telematics system => Self-diagnosis of telematics system, Page 119 .

If fault 00862 occurs, the number of received satellites must be checked first. At least 4 satellites must be received when the vehicle is located outdoors. Call up the "Settings" menu on the navigation unit and then the "GPS Viewer" menu by pressing the MODE button.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00867 Connection to ABS control unit - No signal	- Wiring damage - Open circuit in wiring - ABS wheel sensors defective - ABS control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Perform ABS self-diagnosis => Running gear self-diagnosis for ABS, ESP; Repair Group 01
01300 Control unit for navigation system with CD drive - J401 - Defective	The navigation system control unit contains the central unit and the navigation unit, which are interconnected via a CAN bus. - Internal short circuit or short to earth of a bus wire between central unit and navigation unit in navigation system control unit.	- The navigation system control unit does not need to be replaced if the system remains operative (the control unit then switches to single-wire mode) The control unit must be replaced if the system is no longer operative

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01311 Data bus information - No communication	The navigation system control unit contains the central unit and the navigation unit, which are interconnected via a CAN bus. - Internal short circuit or short to earth of a bus wire between central unit and navigation unit in navigation system control unit.	- The navigation system control unit does not need to be replaced if the system remains operative (the control unit then switches to single-wire mode) The control unit must be replaced if the system is no longer operative
01317		

Control unit with display in dash panel insert -J285 - No communication 1)	- CAN bus fault - Open circuit in wiring - Dash panel insert defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert

1) Communication is tested at a vehicle speed of > 15 km/h.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
65535 Control unit - Defective	- Navigation system control unit defective	- Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402 Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402

3.9 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- The navigation system must be switched on.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.
- Final control diagnosis can only be performed once. Ignition must be switched off and on again if final control diagnosis is to be repeated.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer      Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Telephone/navigation systems loudspeaker
-R39
```

A high-pitched tone is issued at loudspeaker output for approx. three seconds.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Output radio display dash panel insert
```

Dash panel insert displays the following test pattern:

```
DISPLAY
TEST
```

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press ⇒ key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

3.10 - Erasing fault memory

Notes:

- When the fault memory is erased the function status register is reset at the same time.
- If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 43
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

Notes:

```
Attention:
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

```
Rapid data transfer
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

3.11 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

3.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

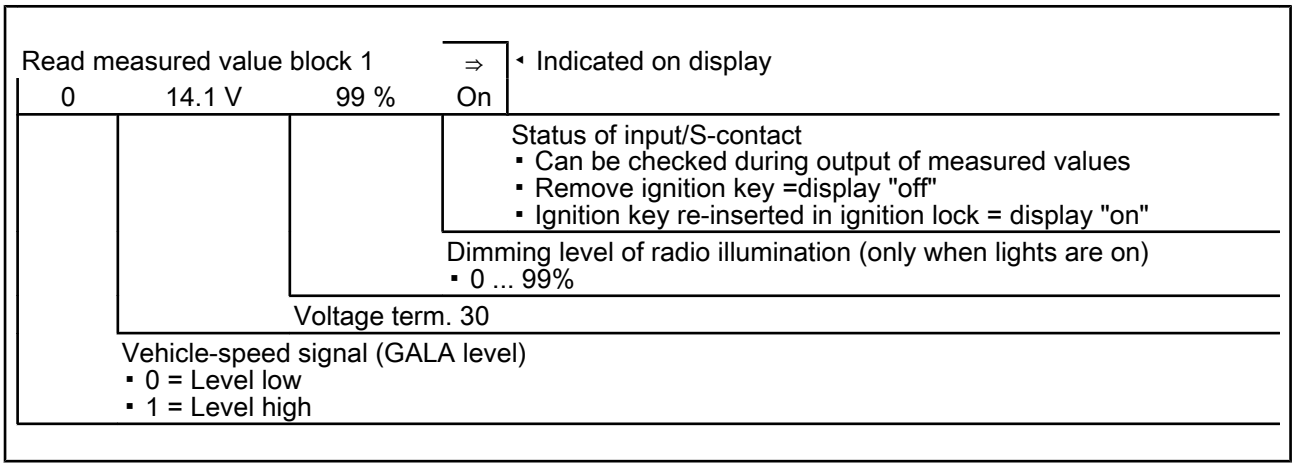
- Enter display group number (from table => Page 49) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

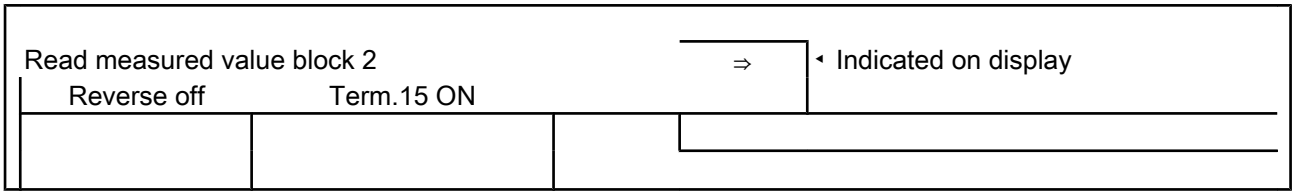
List of display groups:

Display group number	Indicated on display
001	1 = Vehicle-speed signal (GALA level) 2 = Voltage term. 30 3 = Radio illumination dimming in % 4 = Status of S-contact
002	1 = Status of input/ reversing light switch 2 = Status of input/term. 15
003	1 = GPS aerial 2 = Status of GPS aerial remote power supply
004	1 = External display 2 = Function/communication with external display
005	1 = Data bus 2 = Function/communication with information data bus
006	1 = Pulse generator (ABS), left (rear wheel) 2 = Vehicle speed, left in km/h
007	1 = Content of function status register

Measured value block 001



Measured value block 002



	Status of input/term. 15 ▪ Input/term. 15 active =Display "ON" ▪ Input/term. 15 not active =Display "OFF"
Status of input/reversing light switch ▪ Input/reversing light switch active =Display "ON" ▪ Input/reversing light switch not active =Display "OFF"	

Measured value block 003

Read measured value block 3		⇒	◂ Indicated on display
GPS aer.	OK		
		Status of GPS aerial remote power supply 1) ▪ OK ▪ Short circuit ▪ Open circuit	
	GPS aerial		

1) If an aerial splitter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested up to the aerial splitter. The wiring from the aerial splitter to the GPS aerial and the aerial itself are tested by the telematics system => Self-diagnosis of telematics system, Page 119 .

If fault 00862 occurs, the number of received satellites must be checked first. At least 4 satellites must be received when the vehicle is located outdoors. Call up the "Settings" menu on the navigation unit and then the "GPS Viewer" menu by pressing the MODE button.

Measured value block 004

Read measured value block 4		⇒	◂ Indicated on display
Ext. displ.	OK		
		Function/communication with external display ▪ OK ▪ Not OK	
	External display (dash panel insert)		

Measured value block 005

Read measured value block 5		⇒	◂ Indicated on display
Data bus	OK		
		Communication, information data bus (internal data bus) ▪ OK ▪ Not OK	

Data bus

Measured value block 006

Read measured value block 6 ⇒ Indicated on display

Left 86 km/h

Vehicle speed calculated as a function of ABS signal with allowance for programmed tyre circumference and number of pulses per wheel revolution.

Pulse generator (ABS), left

Measured value block 007

Read measured value block 7 ⇒ Indicated on display

255

The content of the function status register =>Page 51 is composed of:1)

- Wheel circumference adapted = 128
- Number of pulses for ABS sensors adapted = 64
- ABS pulses detected at least once = 32
- CAN communication with dash panel insert OK = 16
- Signal from reversing light switch detected = 8
- Terminal 15 (ignition ON) detected = 4
- Current consumption of GPS aerial OK (10 to 30 mA) = 2
- CAN communication with navigation unit (internal) OK = 1

1) If all eight items listed are OK, the numerical values indicated above are added together and a value of 255 appears in the function status register (measured value block 7). If, for example, ABS pulses were not detected, the value for ABS pulses (32) is subtracted from the value of 255 and the value displayed in the function status register is then 223

(255 - 32 = 223). If the function register shows 244, for example:

255 - 244 = 11; the 11 is composed of 8 (signal from reversing light switch not detected), 2 (current consumption of GPS aerial not OK) and 1 (CAN communication with navigation unit not OK).

3.13 - Function status register

Functional description

Production diagnosis is a special mode for checking the wiring and correct functioning of the navigation system. An automated check of the individual fault locations is carried out and the result permanently stored in the so-called function status register (measured value block 007).

Production diagnosis can be disabled/enabled by way of the "Adaption" function (channel number 03) =>Page 55 .

Production diagnosis is also disabled when a navigation CD is inserted.

The "Erase fault memory" function also resets the function status register.

Test requirements:

- No navigation CD inserted
- Navigation system switched on
- Tyre circumference adaption performed => Page 53
- Number of pulses from ABS wheel sensors adapted => Page 54
- Erase fault memory => Page 47
- Move vehicle at min. 10 km/h
- When vehicle stops engage reverse gear for min. 2 seconds

If production diagnosis has been performed correctly (all test requirements met) and if the navigation system is in good working order, measured value block 007 (function status register) displays the value 255.

3.14 - Adaption

The "Adaption" function can be used to make and store the following changes:

- Changes to tyre size
- Changes to number of pulses from ABS wheel sensors
- Disabling/enabling of production diagnosis
- Coloured or monochrome dash panel display
- Changes to country identification
- Connection of telematics system
- Connection of electronic logbook

From Wk 45/01 onwards (RNS 4.2 version), additional features:

- Connection of electronic logbook and monitoring of CAN bus stations (Equipment configuration list)
- Change to diagnosis of passive loudspeakers (front)

  This adaption does not have to be performed. Make sure that "0" is set in Channel 9.

- Deactivation and activation of transport mode

If transport mode is activated, the device switches off 10 seconds after being switched on. "TRANSPORT MODE" is shown in the display.

Transport mode may be switched on in new vehicles when they are delivered.

Navigation system II-D uses the pulses from the ABS sensors to calculate distance.

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 52).

Adaption table:

Adaption channel	Adaption function
01	Tyre circumference in mm => Page 53
02	Number of pulses from ABS sensors => Page 54
03	Disabling/enabling of production diagnosis (function status register) => Page 55
04	Dash panel display code => Page 56

Adaption channel	Adaption function
05	Country identification => Page 57
06	Adaption of telematics system => Page 58
07	Adaption of electronic logbook => Page 59

From Wk 45/01 onwards (RNS 4.2 version):

07	Adaption of CAN bus stations => Page 60
09	Diagnosis of passive loudspeakers (front) => Page 62
99	Activation of transport mode => Page 63

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer      Q
10 - Adaption
```

- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Enter desired adaption channel (adaption table => Page 52).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Adapting tyre circumference

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 1 to select "Channel 1".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2060
```

Top line shows selected channel and currently stored tyre circumference in mm.

- Press ⇒ key.

-> Indicated on display:

```
Channel 1     Adaption     2060
Enter adaption value XXXXX
```

- Enter new tyre circumference with zero before 4-digit number (e.g. 2075). Tyre table => Page 37 .
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting number of pulses from ABS wheel sensors

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 2 to select "Channel 2".

Note:

- Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     42
```

Top line shows selected channel and currently stored number of pulses from ABS wheel sensors.

- Press ⇒ key.

-> Indicated on display:

```
Channel 2     Adaption     42     Q
Enter adaption value XXXXX
```

- Enter new number of pulses with three zeroes before the 2-digit number.

The number of pulses is always 45 for A8 with navigation system II-D.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     45     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     45     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     45
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting production diagnosis (function status register)

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 3 to select "Channel 3".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     0
```

Top line shows selected channel and status of production diagnosis (function status register) (0 = disabled, 1 = active).

- Press ⇒ key.

-> Indicated on display:

```
Channel 3     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = production diagnosis disabled, 00001 = production diagnosis active.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting dash panel insert display

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 4 to select "Channel 4".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     0
```

Top line shows selected channel and type of dash panel insert display (0 = monochrome display, 1 = coloured display).

- Press ⇒ key.

-> Indicated on display:

```
Channel 4     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001).

Up to Wk 44/01:

00000 = Monochrome display

00001 = Coloured display

From Wk 45/01 onwards (RNS 4.2 version):

00000 = Monochrome display (up to MY 01)

00001 = Monochrome display (from MY 02 onwards)
No adaption with coloured display, i.e. this value is irrelevant for A8.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting country identification

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 5 to select "Channel 5".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     0
```

Top line shows selected channel and country identification (0 = Europe, 1 = USA).

- Press ⇒ key.

-> Indicated on display:

```
Channel 5     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = Europe, 00001 = USA.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting telematics

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 6 to select "Channel 6".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1
```

Top line shows selected channel and respective system configuration (1 = without telematics, 3 = with telematics).

- Press ⇒ key.

-> Indicated on display:

```
Channel 6     Adaption     1
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00003); 00001 = without telematics, 00003 = with telematics.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     3     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     3     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     3
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting electronic logbook

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 7 to select "Channel 7".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     0
```


Top line shows selected channel and respective system configuration (0 = without electronic logbook, 1 = with electronic logbook).

- Press ⇒ key.

-> Indicated on display:

```
Channel 7     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00001 = with electronic logbook, 00000 = without electronic logbook.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

From Wk 45/01 onwards (RNS 4.2 version):

Adaption of CAN bus stations

Which control units have been installed in the vehicle must be set in adaption channel 07. The navigation system control unit monitors the CAN bus communication status.

The CAN bus communication status can also be displayed on the navigation system display by pressing the "AS" and "V" keys simultaneously.

Indicated on display of navigation system II-D:

FM1	Aerial	TP
Card reader	:	Not encoded
TV tuner	:	Ok
Gateway	:	No connection
Telematics	:	Ok
Multi-funct. steering wheel	:	Ok
VCS	:	Ok
Dash	:	Ok
Communication status		**Back to RETURN**

- Not encoded: Device not installed or device installed but not encoded
- No connection: Device encoded but not installed
- Switch on term.15: Device encoded but no signal at terminal 15

-> Indicated on display:

```
Adaption
Enter channel number XX
```


- Press keys 0 and 7 to select "Channel 7".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     6
```

Top line shows selected channel and respective system configuration (=> Equipment configuration list, Page 61).

- Press ⇒ key.

-> Indicated on display:

```
Channel 7      Adaption      0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00015).
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7      Adaption      15
```


- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7      Adaption      15      Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7      Adaption      15
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Equipment configuration list

Adaption value	Electronic logbook	Multi-function steering wheel	TV tuner	Voice control system
0				
1	x			
2		x		
3	x	x		
4			x	
5	x		x	
6		x	x	
7	x	x	x	
8				x
9	x			x
10		x		x
11	x	x		x
12			x	x
13	x		x	x
14		x	x	x

Adaption value	Electronic logbook	Multi-function steering wheel	TV tuner	Voice control system
15	x	x	x	x

x = Control unit fitted

e.g.: 15 = With electronic logbook, with multi-function steering wheel, with TV tuner and with voice control system

Diagnosis of passive loudspeakers (front)

Whether or not fault memory entries for the front passive loudspeakers are to be stored can be set using this channel.

The value is always "0" for A8!

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 9 to select "Channel 9".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 9     Adaption     1
```

Top line shows selected channel and respective system configuration (0 = with fault memory entries, 1 = without fault memory entries).

- Press ⇒ key.

-> Indicated on display:

```
Channel 9     Adaption     1
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00000); 00001 = without fault memory entries, 00000 = with fault memory entries.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 9     Adaption     0
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 9     Adaption     0     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 9     Adaption     0
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Activating and deactivating transport mode

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 9 and 9 to select "Channel 99".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99      Adaption     0
```

Top line shows selected channel and respective system configuration (0 = transport mode deactivated, 1 = transport mode activated).

- Press ⇒ key.

-> Indicated on display:

```
Channel 99      Adaption     0
Enter adaption value XXXXX
```


- Enter new adaption value (e.g. 00001); 00001 = transport mode ON, 00000 = transport mode OFF.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99      Adaption     1
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99      Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 99      Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

4 - Self-diagnosis of navigation system III (route navigation) (from Wk 27/99 onwards)

4.1 - General

Features:

- Dead reckoning and use of satellite navigation data
- User prompting for destination input and function selection via display in dash panel insert
- Active route guidance with recommendations in the form of arrow symbols on dash panel insert display
- Voice recommendations
- Display of current road/street name
- Display of current distance from destination
- Arrival time display

Functional description

The Audi navigation system III processes signals from the worldwide satellite navigation system GPS (Global Positioning System).

Following start-up, the vehicle location is established with the aid of signals from the GPS satellite navigation system.

If the vehicle is in an area (country, town or road) not covered by the navigation CD, "OFF ROAD" or "OFF MAP" appears on the display of the dash panel insert. In such cases only the direct straight line distance and the direction of the destination are indicated, as the navigation system cannot compare the GPS signals and the vehicle measured values with the information stored.

Driver instructions are not only given in voice form, but also as visual recommendations (arrows, turn-off directions) on the centre display in the dash panel insert.

The navigation system has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

4.2 - Starting self-diagnosis of navigation system III

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List

4.3 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before connecting and disconnecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

Address word for navigation system: 37

- Press keys 3 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
37 - Navigation
```

- Confirm entry with Q key.

```
4B0919887A     Navigation     0001
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4B0919887A: Part number of navigation system control unit (refer also to Parts List)
- Navigation: Component designation
- 0001: Software version of control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC XXXXX: Workshop code

Indicated on dash panel insert display:

DIAG

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer      HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer      HELP
Fault in communication link
```

```
Rapid data transfer      HELP
K-wire not switched to earth
```

```
Rapid data transfer      HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 66

02 - Interrogate fault memory => Page 67

03 - Final control diagnosis=> Page 70

05 - Erase fault memory => Page 71

06 - End output => Page 72

08 - Read measured value block => Page 72

10 - Adaption=> Page 77

4.4 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

```
4B0919887A     Navigation     0001
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4B0919887A: Part number of navigation system control unit (refer also to Parts List)
- Navigation: Component designation
- 0001: Software version of control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC XXXXX: Workshop code

4.5 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 68 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 72 .
- Switch off ignition and unplug diagnostic connector.

4.6 - Fault table for navigation system III

Notes:

- The following table lists all the faults which can be recognised by the navigation system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults are erased if they do not re-occur after navigation system has been switched on/off 40 times (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00576 Terminal 15 - Open circuit	- Open circuit in wiring	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder
00625 Vehicle-speed signal - No signal* *The GALA speed and GPS speed are continuously cross-checked in the navigation unit. This fault is stored if the GPS signal is > 40 km/h for 100 sec. but no GALA signal is present.	- Open circuit in wiring - Dash panel insert defective - Navigation system control unit defective	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 - Signal too low* *This fault may also be stored if starter has been operated for more than 10 seconds.	- Battery discharged/defective - Short circuit in vehicle electrical system - Battery voltage lower than 9.5 V - Alternator defective	- Charge/replace battery => Electrical system, Repair Group 27 Repair short circuit in vehicle electrical system Check alternator => Electrical system, Repair Group 27
00851		

Loudspeaker* *This fault is stored if a fault occurs in final control diagnosis (loudspeaker).	- Mutual shorting of + and - wires to hands-free loudspeaker	- Rectify mutual wire shorting Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00852 Loudspeaker f - Short circuit - Open circuit	- Short to earth of a loudspeaker wire to hands-free loudspeaker - Open circuit in a loudspeaker wire to hands-free loudspeaker - Hands-free loudspeaker defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace hands-free loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing hands-free loudspeaker Telephone system; Removing and installing hands-free loudspeaker

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00854 Output radio display dash panel insert - No communication 1)	- Open circuit in wiring - Dash panel insert defective - Navigation system control unit defective	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive - J401

1) Whether or not any faults are still present following fault elimination is not detected during self-diagnosis.

Therefore, whenever a fault has been eliminated and the fault memory erased, it is essential to check that the secondary display is functioning correctly, and then interrogate the fault memory again.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00862		

Navigation aerial (GPS) - R50/R52 - Open circuit - Short circuit	- Open circuit in aerial wire - Short circuit in aerial wire - Navigation aerial - (GPS) defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace GPS aerial wire Replace navigation aerial (GPS) => Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (route navigation) (up to Wk 26/99); Removing and installing navigation aerial (GPS) - R50 Navigation system I (route navigation) (up to Wk 26/99); Removing and installing navigation aerial (GPS) -R50
01311 Data bus information - No communication	The navigation system control unit contains the central unit and the navigation unit, which are interconnected via a CAN bus. - Internal short circuit or short to earth of a bus wire between central unit and navigation unit in navigation system control unit.	- The navigation system control unit does not need to be replaced if the system remains operative (the control unit then switches to single-wire mode) The control unit must be replaced if the system is no longer operative

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
65535 Control unit - Defective	- Navigation system control unit defective	- Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401 Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401

4.7 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- The navigation system must be switched on.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer      Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Loudspeakers
```

The loudspeaker receives a brief electrical pulse (inaudible).

Note:

The "mutual wire shorting" fault category can only be detected for the loudspeaker by way of this final control element test. If this fault occurs, it is stored in the fault memory (00851).

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Loudspeaker connection
```

A noise is issued at loudspeaker output for approx. three seconds. The noise will be spoken phrases (if speech is loaded into the navigation system) or otherwise a crackling noise.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Output radio display dash panel insert
```

Dash panel insert displays the following test pattern:

```
DISPLAY
TEST
```

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press ⇒ key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

4.8 - Erasing fault memory

Notes:

- When the fault memory is erased the function status register is reset at the same time.
- If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 67
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

Notes:

```
Attention:
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

```
Rapid data transfer
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

4.9 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

4.10 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

- Enter display group number (from table => Page 73) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

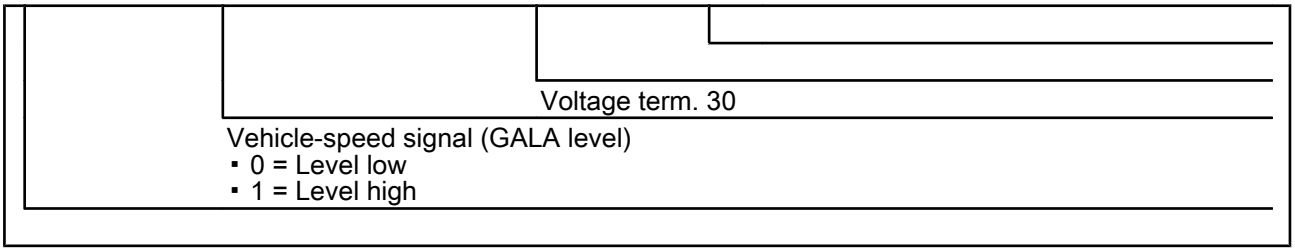
List of display groups:

Display group number	Indicated on display
001	1 = Vehicle-speed signal (GALA level) 2 = Voltage term. 30
002	1 = Status of input/ reversing light switch 2 = Status of input/term. 15
003	1 = GPS aerial 2 = Status of GPS aerial remote power supply
004	1 = Status of display 2 = Function/communication with external display
005	1 = Data bus 2 = Status of communication, data bus
006	1 = Left 2 = Vehicle speed in km/h
007	1 = Content of function status register

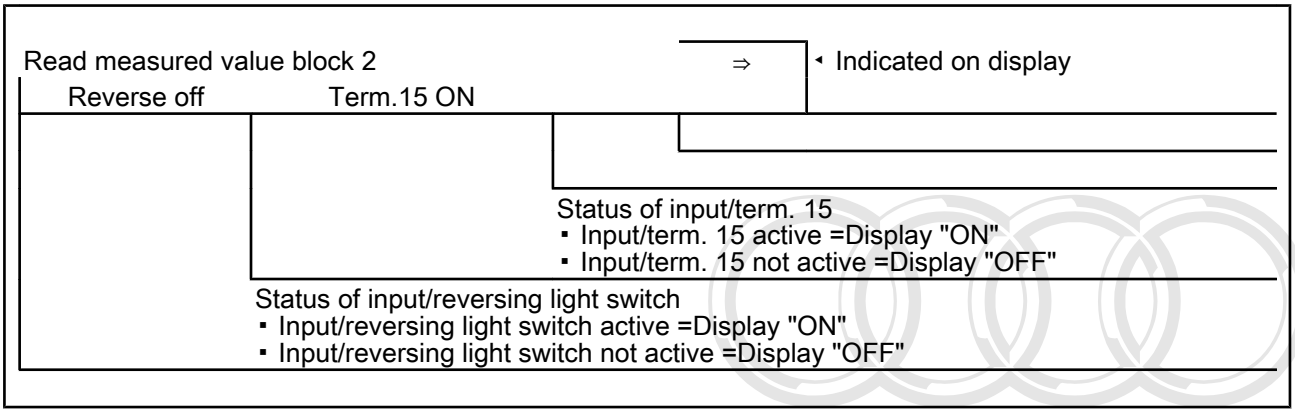
Display group number	Indicated on display
008	1 = Front loudspeakers 2 = Status of front loudspeakers
010	1 = Telephone 2 = Status of input/telephone mute 3 = Telephone 4 = Status of telephone mute output

Measured value block 001

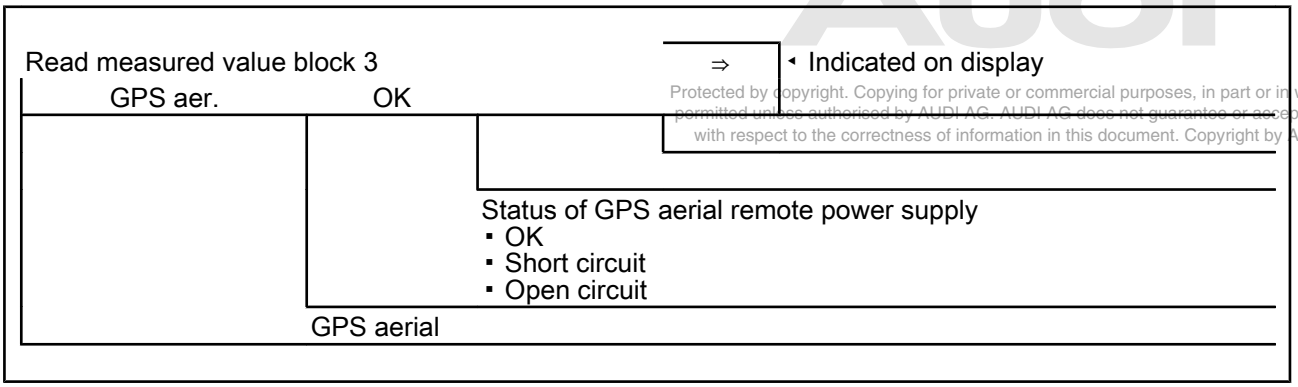
Read measured value block 1		⇒	Indicated on display
0	14.1 V		



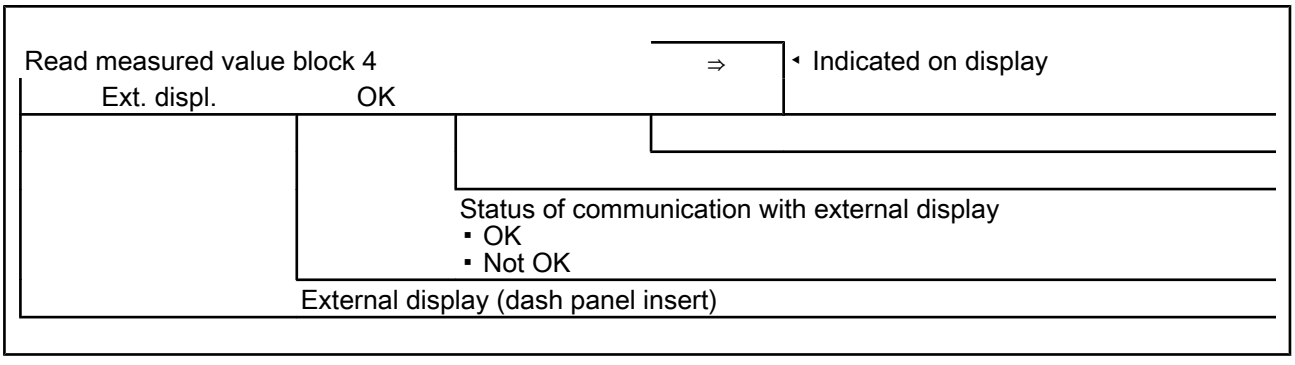
Measured value block 002



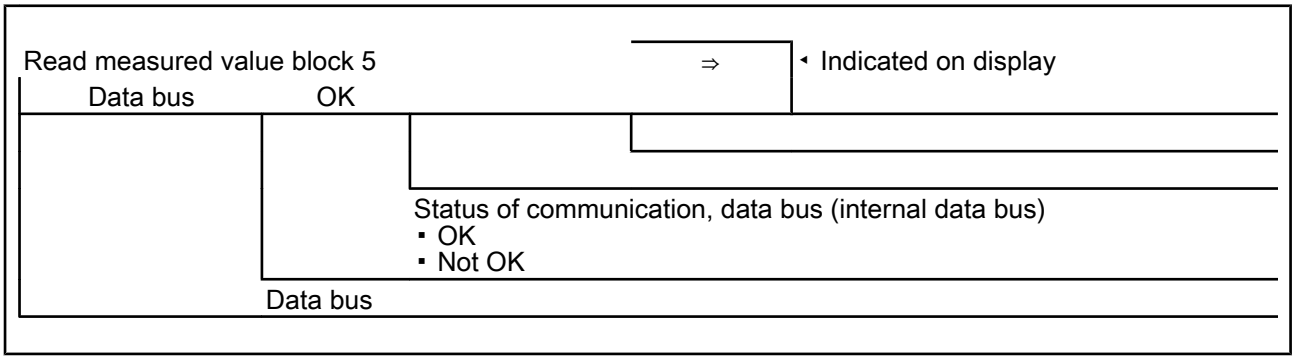
Measured value block 003



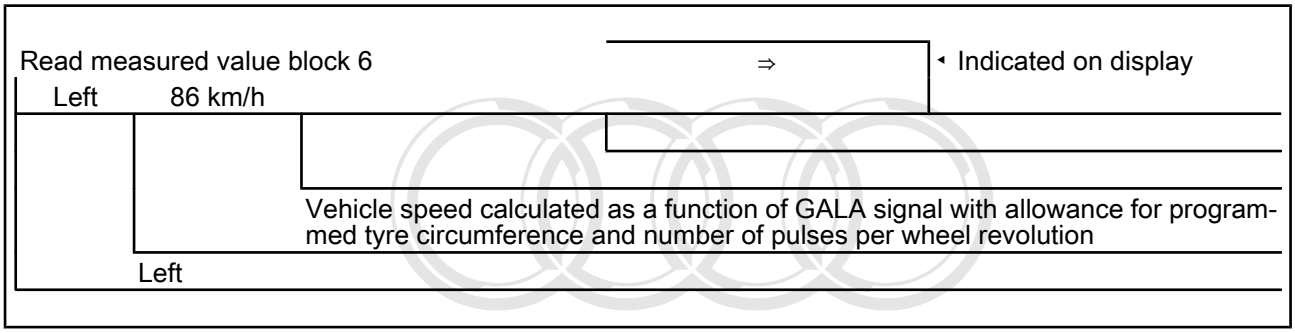
Measured value block 004



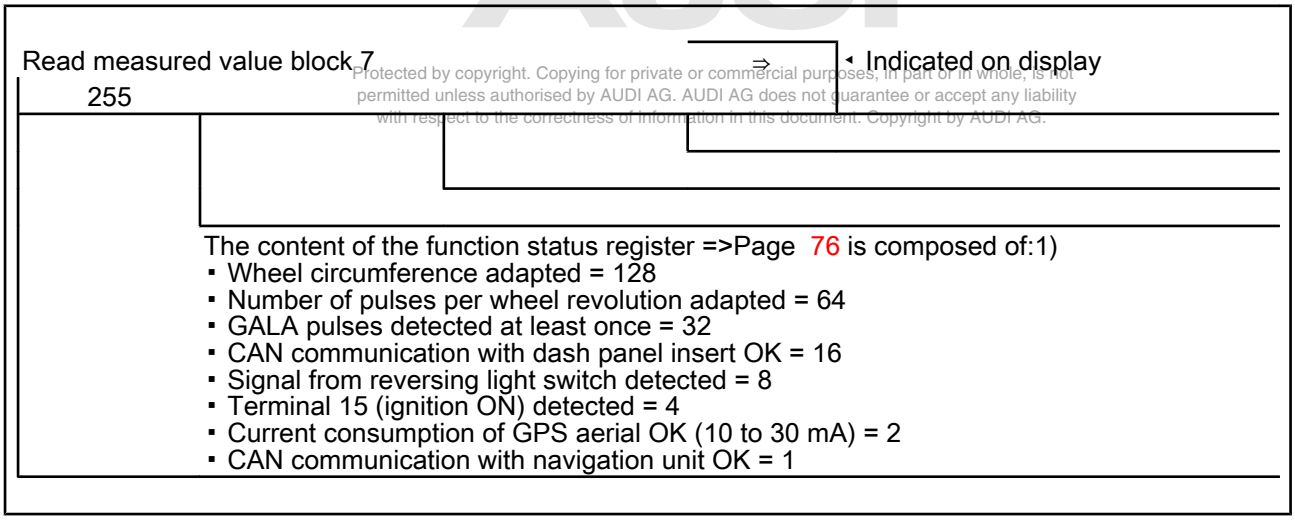
Measured value block 005



Measured value block 006



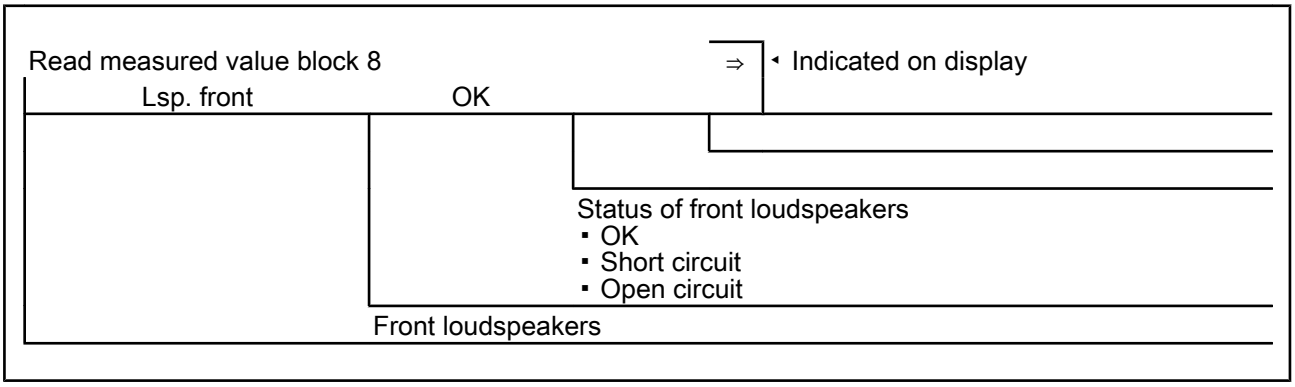
Measured value block 007



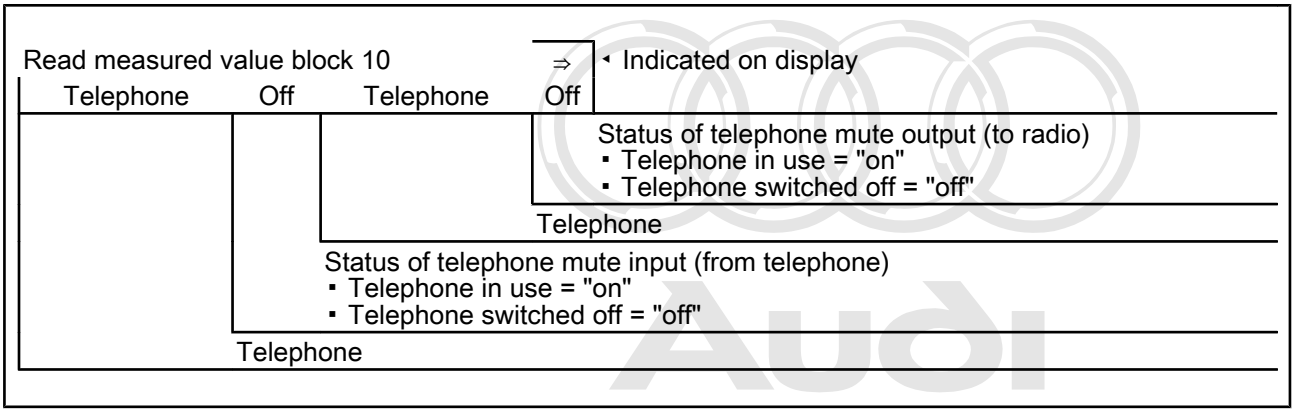
1) If all eight items listed are OK, the numerical values indicated above are added together and a value of 255 appears in the function status register (measured value block 7). If, for example, GALA pulses were not detected, the value for GALA pulses (32) is subtracted from the value of 255 and the value displayed in the function status register is then 223 (255 - 32 = 223). If the function register shows 244, for example:

255 - 244 = 11; the 11 is composed of 8 (signal from reversing light switch not detected), 2 (current consumption of GPS aerial not OK) and 1 (CAN communication with navigation unit not OK).

Measured value block 008



Measured value block 010



4.11 - Function status register

Functional description

Production diagnosis is a special mode for checking the wiring and correct functioning of the navigation system. An automated check of the individual fault locations is carried out and the result permanently stored in the so-called function status register (measured value block 007).

Production diagnosis can be disabled/enabled by way of the "Adaption" function (channel number 03) =>Page 79 .

Production diagnosis is also disabled when a navigation CD is inserted.

The "Erase fault memory" function also resets the function status register.

Test requirements:

- No navigation CD inserted
- Navigation system switched on
- Tyre circumference adaption performed => Page 77
- Adaption of number of pulses per wheel revolution (GALA) performed => Page 78
- Erase fault memory => Page 71
- Move vehicle at min. 10 km/h
- When vehicle stops engage reverse gear for min. 2 seconds

If production diagnosis has been performed correctly (all test requirements met) and if the navigation system is in good working order, measured value block 007 (function status register) displays the value 255.

4.12 - Adaption

The "Adaption" function can be used to make and store the following changes:

- Changes to tyre size
- Changes to number of pulses per wheel revolution (GALA)
- Disabling/enabling of production diagnosis
- Connection of separate or external loudspeakers
- Changes to country identification

The navigation system uses the vehicle-speed signal from speedometer (GALA) to calculate distance.

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 77).

Adaption table:

Adaption channel	Adaption function
01	Tyre circumference in mm => Page 77
02	Number of pulses per wheel revolution (GALA) => Page 78
03	Disabling/enabling of production diagnosis (function status register) => Page 79
04	Connection of separate/external speakers => Page 80
05	Country identification => Page 81

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer      Q
10 - Adaption
```


- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Enter desired adaption channel (adaption table => Page 77).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Adapting tyre circumference

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 1 to select "Channel 1".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2060
```

Top line shows selected channel and currently stored tyre circumference in mm.

- Press ⇒ key.

-> Indicated on display:

```
Channel 1     Adaption     2060
Enter adaption value XXXXX
```

- Enter new tyre circumference with zero before 4-digit number (e.g. 2075). Tyre table => Page 37 .
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting number of pulses per wheel revolution (GALA)

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 2 to select "Channel 2".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     4
```

Top line shows selected channel and currently stored number of pulses.

- Press ⇒ key.

-> Indicated on display:

```
Channel 2     Adaption     4
Enter adaption value XXXXX
```

- Enter new number of pulses with four zeroes before the number.

The number of pulses is always 8 for A8 with navigation system III.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```


- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting production diagnosis (function status register)

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 3 to select "Channel 3".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     0
```

Top line shows selected channel and status of production diagnosis (function status register) (0 = disabled, 1 = active).

- Press ⇒ key.

-> Indicated on display:

```
Channel 3     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = production diagnosis disabled, 00001 = production diagnosis active.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
```


- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting loudspeaker connection

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 4 to select "Channel 4".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     0
```

Top line shows selected channel and type of loudspeaker connection (0 = external radio, 1 = separate loudspeaker). If a radio system is fitted the front left loudspeakers are used. Otherwise a separate loudspeaker (hands-free loudspeaker) is fitted.

- Press ⇒ key.

-> Indicated on display:

```
Channel 4     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = external radio, 00001 = separate loudspeaker.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting country identification

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 5 to select "Channel 5".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     0
```

Top line shows selected channel and country identification (0 = Europe, 1 = USA).

- Press ⇒ key.

-> Indicated on display:

```
Channel 5     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = Europe, 00001 = USA.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

5 - Self-diagnosis of navigation system Nav IV (BNS 4.0) (from Wk 04/01 onwards)

5.1 - Self-diagnosis of navigation system Nav IV (BNS 4.0) (from Wk 04/01 onwards)

5.2 - General

Features:

- The features of the existing navigation system III (route navigation) have been retained
- Dynamic navigation
- Provision for interface to telematics

Functional description

Navigation system BNS 4.0 (Nav IV) is an enhancement of the existing navigation system III (route navigation).

Key innovations include an interface to the information data bus and dynamic navigation.

The navigation system receives information for dynamic navigation from the TMC function of the radio or via the telephone.

5.3 - Starting self-diagnosis of navigation system BNS 4.0 (Nav IV)

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List

5.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before connecting and disconnecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

Address word for navigation system: 37

- Press keys 3 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
37 - Navigation
```

- Confirm entry with Q key.

```
4B0919887A     BNS 4.0     0001
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4B0919887A: Part number of navigation system control unit (refer also to Parts List)
- BNS 4.0: Component designation
- 0001: Software version of control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC XXXXX: Workshop code

Indicated on dash panel insert display:

```
DIAG
```

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer     HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

06 - End output => Page 91

08 - Read measured value block => Page 91

10 - Adaption=> Page 95

5.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.


```
4B0919887A     BNS 4.0     0001
Code 00000     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4B0919887A: Part number of navigation system control unit (refer also to Parts List)
- BNS 4.0: Component designation
- 0001: Software version of control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC XXXXX: Workshop code

5.6 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault

=> Page 86 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 91 .
- Switch off ignition and unplug diagnostic connector.

5.7 - Fault table for navigation system

Notes:

- The following table lists all the faults which can be recognised by the navigation system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults are erased if they do not re-occur after navigation system has been switched on/off 40 times (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00576 Terminal 15 - Open circuit	- Open circuit in wiring	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder
00625		

Vehicle-speed signal - No signal* *The GALA speed and GPS speed are continuously cross-checked in the navigation unit. This fault is stored if the GPS signal is > 40 km/h for 100 sec. but no GALA signal is present.	- Open circuit in wiring - Dash panel insert defective - Navigation system control unit defective	- Eliminate open circuit in wiring Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 - Signal too low* *This fault may also be stored if starter has been operated for more than 10 seconds.	- Battery discharged/defective - Short circuit in vehicle electrical system - Battery voltage lower than 9.5 V - Alternator defective	- Charge/replace battery => Electrical system, Repair Group 27 Repair short circuit in vehicle electrical system Check alternator => Electrical system, Repair Group 27
00851 Loudspeaker* *This fault is stored if a fault occurs in final control diagnosis (loudspeaker).	- Mutual shorting of + and - wires to hands-free loudspeaker	- Rectify mutual wire shorting Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00852 Loudspeaker f - Short circuit - Open circuit	- Short to earth of a loudspeaker wire to hands-free loudspeaker - Open circuit in a loudspeaker wire to hands-free loudspeaker - Hands-free loudspeaker defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace hands-free loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing hands-free loudspeaker Telephone system; Removing and installing hands-free loudspeaker

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00862		

Navigation aerial 1) (GPS) - R50/R52 - Open circuit - Short circuit	- Open circuit in aerial wire - Short circuit in aerial wire - Navigation aerial 1) (GPS) defective - Aerial splitter -R87 1) defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace GPS aerial wire Replace navigation aerial (GPS) => Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (route navigation); Removing and installing navigation aerial (-R50) Telematics; Removing and installing GPS aerial splitter -R87

1) If an aerial splitter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested up to the aerial splitter. The wiring from the aerial splitter to the GPS aerial and the aerial itself are tested by the telematics system => Self-diagnosis of telematics system, Page 119 .

If fault 00862 occurs, the number of received satellites must be checked first. At least 4 satellites must be received when the vehicle is located outdoors. Call up the "Settings" menu on the navigation unit and then the "GPS Viewer" menu by pressing the MODE button.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01300 Control unit for navigation system with CD drive -J401 - Defective	- Control unit for navigation system with CD drive -J401 defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing control unit for navigation system with CD drive -J401 Navigation system III; Removing and installing control unit for navigation system with CD drive -J401
01317 Control unit with display in dash panel insert -J285 - No communication 1)	- CAN bus fault - Open circuit in wiring - Dash panel insert defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert

1) Communication is tested at a vehicle speed of > 15 km/h.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
65535		

Control unit - Defective	- Navigation system control unit defective	- Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401 Navigation system III (route navigation) (from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401

5.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- The navigation system must be switched on.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function tests the loudspeakers and the secondary display in the dash panel insert.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer      Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Loudspeakers
```

The loudspeaker receives a brief electrical pulse (inaudible).

Note:

The "mutual wire shorting" fault category can only be detected for the hands-free loudspeaker by way of this final control element test. If this fault occurs, it is stored in the fault memory (00851).

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Loudsp. tel./navig. -R39
```

A noise is issued at loudspeaker output for approx. three seconds. The noise will be spoken phrases (if speech is loaded into the navigation system) or otherwise a crackling noise.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Output radio display/dash panel insert
```

Dash panel insert displays the following test pattern:

DISPLAY TEST

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press ⇒ key.

-> Indicated on display:

```
Final control diagnosis
End
```


- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

5.9 - Erasing fault memory

Notes:

- When the fault memory is erased the function status register is reset at the same time.
- If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 85
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

Notes:

◆
```
Attention:
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

◆
```
Rapid data transfer
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

5.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

5.11 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

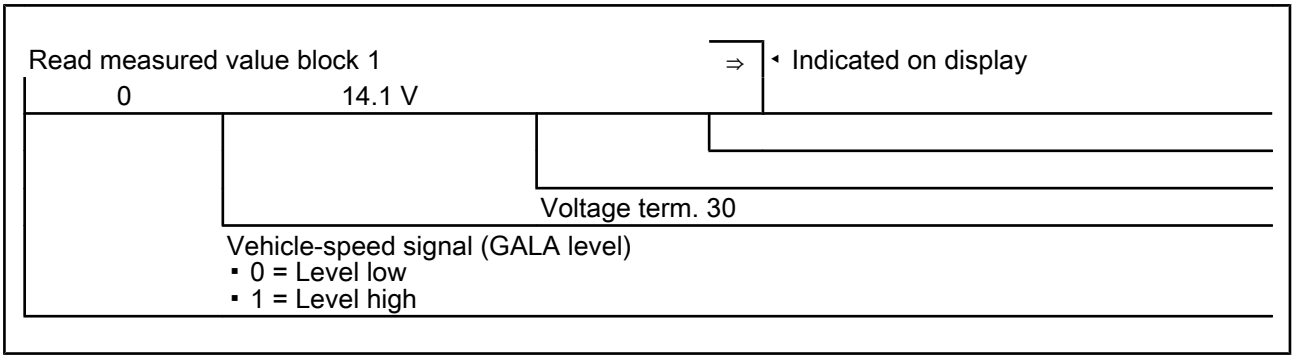
- Enter display group number (from table => Page 92) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

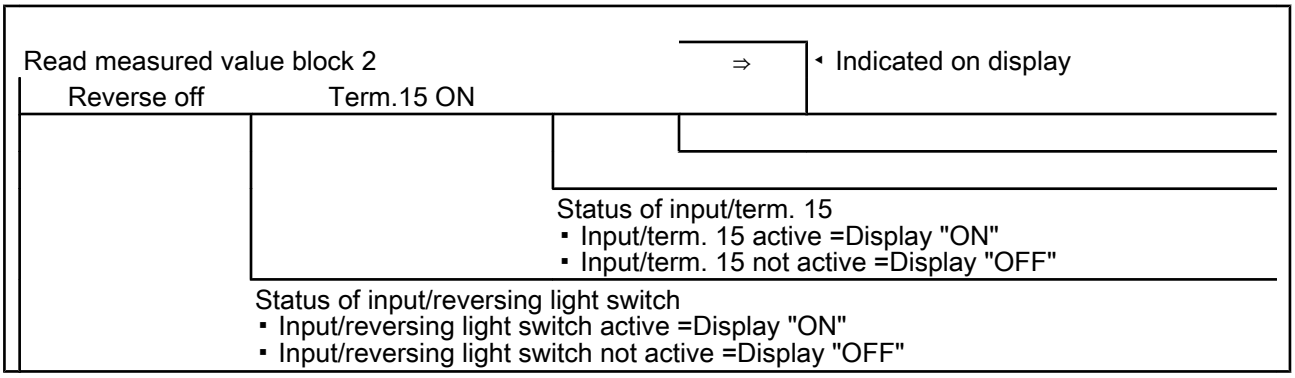
List of display groups:

Display group number	Indicated on display
001	1 = Vehicle-speed signal (GALA level) 2 = Voltage term. 30
002	1 = Status of input/ reversing light switch 2 = Status of input/term. 15
003	1 = GPS aerial 2 = Status of GPS aerial remote power supply
004	1 = External display 2 = Status of communication with external display
005	1 = Data bus 2 = Status of communication, information data bus
006	1 = Left 2 = Vehicle speed in km/h
007	1 = Content of function status register
008	1 = Front loudspeakers 2 = Status of front loudspeakers
010	1 = Telephone 2 = Status of telephone mute input

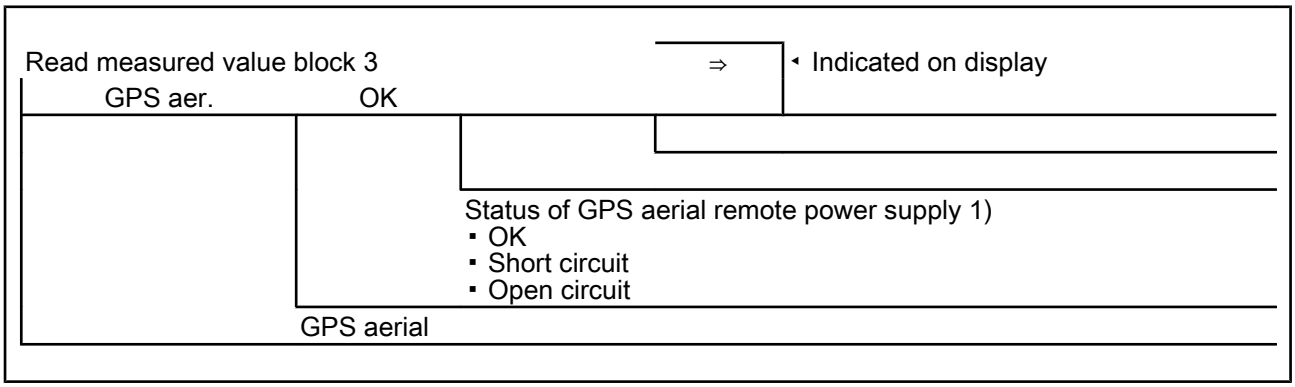
Measured value block 001



Measured value block 002



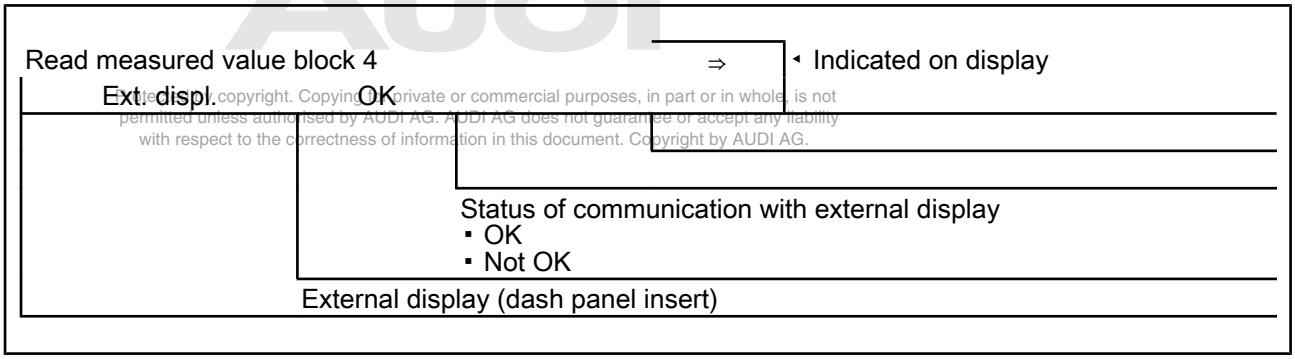
Measured value block 003



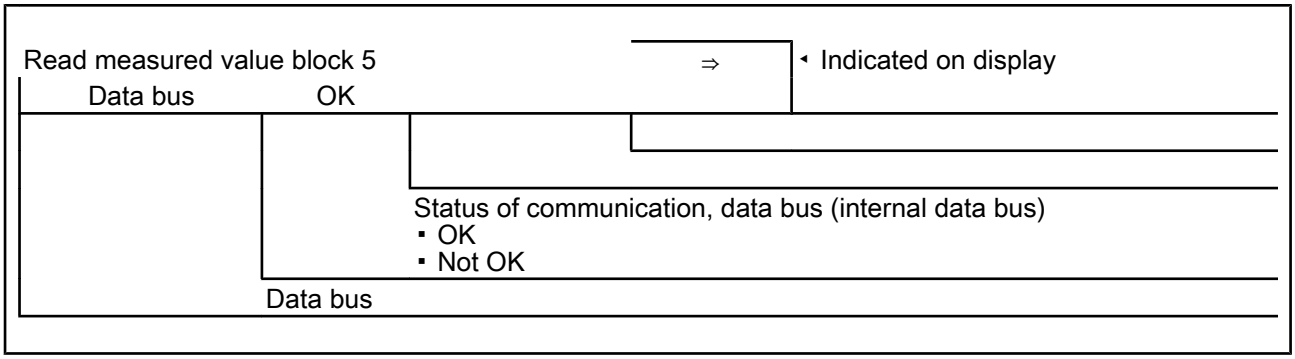
1) If an aerial splitter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested up to the aerial splitter. The wiring from the aerial splitter to the GPS aerial and the aerial itself are tested by the telematics system => Self-diagnosis of telematics system, Page 119 .

If fault 00862 occurs, the number of received satellites must be checked first. At least 4 satellites must be received when the vehicle is located outdoors. Call up the "Settings" menu on the navigation unit and then the "GPS Viewer" menu by pressing the MODE button.

Measured value block 004



Measured value block 005



Measured value block 006

Read measured value block 6	⇒	Indicated on display
Left	86 km/h	
		Vehicle speed calculated as a function of GALA signal with allowance for programmed tyre circumference and number of pulses per wheel revolution
Left		

Measured value block 007

Read measured value block 7	⇒	Indicated on display
255		
		The content of the function status register =>Page 95 is composed of:1) ▪ Wheel circumference adapted = 128 ▪ Number of pulses per wheel revolution adapted = 64 ▪ GALA pulses detected at least once = 32 ▪ CAN communication with dash panel insert OK = 16 ▪ Signal from reversing light switch detected = 8 ▪ Terminal 15 (ignition ON) detected = 4 ▪ Current consumption of GPS aerial OK (10 to 30 mA) = 2 ▪ CAN communication with navigation unit OK = 1

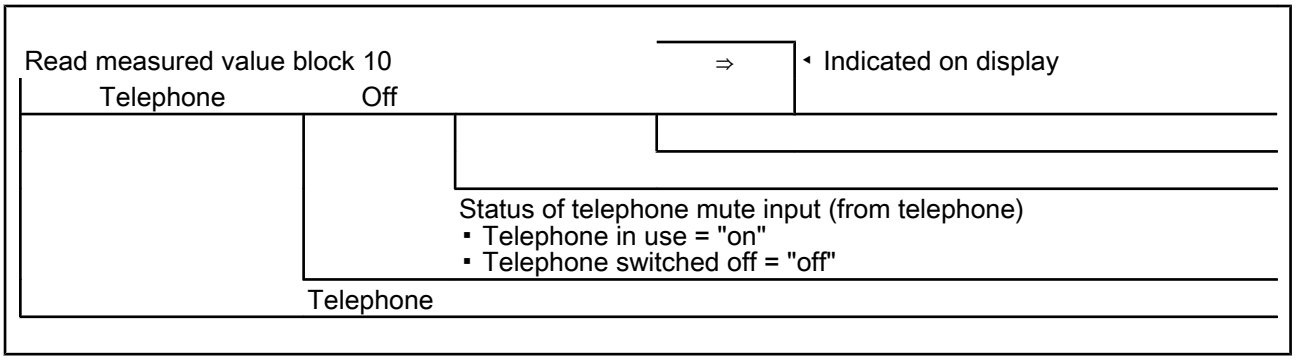
1) If all eight items listed are OK, the numerical values indicated above are added together and a value of 255 appears in the function status register (measured value block 7). If, for example, GALA pulses were not detected, the value for GALA pulses (32) is subtracted from the value of 255 and the value displayed in the function status register is then 223 (255 - 32 = 223). If the function register shows 244, for example:

255 - 244 = 11; the 11 is composed of 8 (signal from reversing light switch not detected), 2 (current consumption of GPS aerial not OK) and 1 (CAN communication with navigation unit not OK).

Measured value block 008

Read measured value block 8	⇒	Indicated on display
Lsp. front	OK	
		Status of front loudspeakers ▪ OK ▪ Short circuit ▪ Open circuit
Front loudspeakers		

Measured value block 010



5.12 - Function status register

Functional description

Production diagnosis is a special mode for checking the wiring and correct functioning of the navigation system. An automated check of the individual fault locations is carried out and the result permanently stored in the so-called function status register (measured value block 007).

Production diagnosis can be disabled/enabled by way of the "Adaption" function (channel number 03) =>Page 98 .

Production diagnosis is also disabled when a navigation CD is inserted.

The "Erase fault memory" function also resets the function status register.

Test requirements:

- No navigation CD inserted
- Navigation system switched on
- Tyre circumference adaption performed => Page 96
- Adaption of number of pulses per wheel revolution (GALA) performed => Page 97
- Erase fault memory => Page 90
- Move vehicle at min. 10 km/h
- When vehicle stops engage reverse gear for min. 2 seconds

If production diagnosis has been performed correctly (all test requirements met) and if the navigation system is in good working order, measured value block 007 (function status register) displays the value 255.

5.13 - Adaption

The "Adaption" function can be used to make and store the following changes:

- Changes to tyre size
- Changes to number of pulses per wheel revolution (GALA)
- Disabling/enabling of production diagnosis
- Connection of separate or external loudspeakers
- Changes to country identification
- Adaption of dynamic navigation

  The navigation system control unit must be adapted with regard to whether or not dynamic navigation is to be set and, if so, via which device the associated information is to be delivered: Symphony II and/or Telematik II.

- Connection of electronic logbook

The navigation system uses the vehicle-speed signal from speedometer (GALA) to calculate distance.

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 96).

Adaption table:

Adaption channel	Adaption function
01	Tyre circumference in mm => Page 96
02	Number of pulses per wheel revolution (GALA) => Page 97
03	Disabling/enabling of production diagnosis (function status register) => Page 98
04	Connection of separate/external loudspeakers => Page 99
05	Country identification => Page 100
06	Adaption of dynamic navigation => Page 101
07	Adaption of electronic logbook => Page 102

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```


- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer       Q
10 - Adaption
```

- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Enter desired adaption channel (adaption table => Page 96).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Adapting tyre circumference

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 1 to select "Channel 1".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2060
```

Top line shows selected channel and currently stored tyre circumference in mm.

- Press ⇒ key.

-> Indicated on display:

```
Channel 1     Adaption     2060
Enter adaption value XXXXX
```

- Enter new tyre circumference with zero before 4-digit number (e.g. 2075).
  Tyre table => Page 37 .
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2075
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting number of pulses per wheel revolution (GALA)

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 2 to select "Channel 2".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     4
```

Top line shows selected channel and currently stored number of pulses.

- Press ⇒ key.

-> Indicated on display:

```
Channel 2     Adaption     4
Enter adaption value XXXXX
```

- Enter new number of pulses with four zeroes before the number.

The number of pulses is always 8 for A8 with navigation system IV.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting production diagnosis (function status register)

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 3 to select "Channel 3".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     0
```

Top line shows selected channel and status of production diagnosis (function status register) (0 = disabled, 1 = active).

- Press ⇒ key.

-> Indicated on display:

```
Channel 3     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = production diagnosis disabled, 00001 = production diagnosis active.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting loudspeaker connection

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 4 to select "Channel 4".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     0
```

Top line shows selected channel and type of loudspeaker connection (0 = external radio, 1 = separate loudspeaker). If a radio system is fitted the front left loudspeakers are used. Otherwise a separate loudspeaker (hands-free loudspeaker) is fitted.

- Press ⇒ key.

-> Indicated on display:

```
Channel 4     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = external radio, 00001 = separate loudspeaker.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 4     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting country identification

-> Indicated on display:

```
Adaption
Enter channel number XX
```


- Press keys 0 and 5 to select "Channel 5".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     0
```

Top line shows selected channel and country identification (0 = Europe, 1 = USA).

- Press ⇒ key.

-> Indicated on display:

```
Channel 5     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00000 = Europe, 00001 = USA.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting dynamic navigation

The control unit is informed whether or not dynamic navigation is to be set and, if so, via which channels the associated information is to be supplied.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 6 to select "Channel 6".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     0
```

Top line shows selected channel and respective system configuration.

0 = Without dynamic operation

1 = Dynamic operation via Symphony II radio

2 = Dynamic operation via Telematik II

3 = Dynamic operation via Symphony II radio and Telematik II

- Press ⇒ key.

-> Indicated on display:

```
Channel 6     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00001 = Dynamic operation via Symphony II radio.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1     Q
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting electronic logbook

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 7 to select "Channel 7".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     0
```

Top line shows selected channel and respective system configuration (0 = without electronic logbook, 1 = with electronic logbook).

- Press ⇒ key.

-> Indicated on display:

```
Channel 7     Adaption     0
Enter adaption value XXXXX
```

- Enter new adaption value (e.g. 00001); 00001 = with electronic logbook, 00000 = without electronic logbook.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

6 - Self-diagnosis of multi-function steering wheel

6.1 - Self-diagnosis of multi-function steering wheel

6.2 - General

Technical features of multi-function steering wheel

The multi-function steering wheel permits the key functions of the radio system or radio/telephone/telematics unit and the Tiptronic function to be operated from the steering wheel, and has extensive self-diagnosis capability.

The control unit of the multi-function steering wheel has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

6.3 - Starting self-diagnosis of multi-function steering wheel

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List

6.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

Address word for steering wheel electronics: 16

- Press keys 1 and 6.

-> Indicated on display:

```
Rapid data transfer      Q
16 - Steering wheel electronics
```

- Confirm entry with Q key.

```
4B0907487A Steering wheel electronics
D01
Code 00001
```

-> Adjacent display appears after approx. 5 s:
- 4B0907487 A, C or J: Part number of control unit for steering wheel electronics (refer also to Parts List)
- Steering wheel electronics: Component designation
- D01: Software version of control unit
- Code 00001: Control unit code

Note:

Check code against encoding tables => from Page 112 onwards.

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer     HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 105

02 - Interrogate fault memory => Page 106

03 - Final control diagnosis=> Page 108

05 - Erase fault memory => Page 110

06 - End output => Page 110

07 - Encode control unit=> Page 111

08 - Read measured value block => Page 113

6.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

```
4B0907487A     Steering wheel electronics
D01
Code 00001
```

-> Adjacent display appears after approx. 5 s:
- 4B0907487 A, C or J: Part number of control unit for steering wheel electronics (refer also to Parts List)
- Steering wheel electronics: Component designation
- D01: Software version of control unit
- Code 00001: Control unit code

- Press ⇒ key.

6.6 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 107 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 110 .
- Switch off ignition and unplug diagnostic connector.

6.7 - Fault table for multi-function steering wheel

Notes:

- The following table lists all the faults which can be recognised by the control unit of the multi-function steering wheel and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults are erased if they do not re-occur after multi-function steering wheel has been switched on/off 40 times (ignition on for at least 5 minutes, vehicle speed > 30 km/h).
- The three-digit fault type code next to the fault code is a data code which can be ignored.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01426 Operating unit in steering wheel -E221 - No communication - Implausible signal	- Open circuit - connection broken between interface and steering wheel - Incomprehensible messages on CAN bus (interface and buttons on steering wheel are linked via CAN bus)	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check wiring between interface and steering wheel
01748 Switch for Tiptronic on steering wheel, upshift 1) - Open circuit/short to positive - Defective	- Open circuit in wiring - Sticking switch - Switch defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace switch => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing control switches on multi-function steering wheel

1) A Tiptronic switch for upshifting and downshifting is fitted on both the left and right-hand side of the steering wheel. If this fault is detected, there is a fault at one of the two switches.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01749		

Switch for Tiptronic on steering wheel, downshift 1) - Open circuit/short to positive - Defective	- Open circuit in wiring - Sticking switch - Switch defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace switch => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing control switches on multi-function steering wheel
65535 Control unit - Defective	- Control unit defective	- Replace control unit => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453

1) A Tiptronic switch for upshifting and downshifting is fitted on both the left and right-hand side of the steering wheel. If this fault is detected, there is a fault at one of the two switches.

6.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function checks all system functions.

Performing final control diagnosis:

- Switch on ignition
- Switch off radio, switch off navigation system; telephone not used
- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer     Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Segment test
```

The text "AAAABBBBCCCCDDDD" is shown on the central display in the dash panel insert.

- Switch on radio.
- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Radio louder
```

The radio volume is increased.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Radio quieter
```

The radio volume is reduced.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Radio station search up
```

The next station is located and displayed on the central display in the dash panel insert.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Radio station search down
```

The previous station is reset and displayed on the central display in the dash panel insert.

- Switch off radio and insert workshop telephone card. Switch on telephone and then enter PIN.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Telephone memory
```

The first name stored in the telephone memory is displayed on the central display in the dash panel insert.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Next telephone memory
```

The second entry in the telephone memory is displayed on the central display in the dash panel insert.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

6.9 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 106
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```


Notes:

-

```
Attention:
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

-

```
Rapid data transfer
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

6.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

6.11 - Encoding control unit

This function is used to encode multi-function steering wheel control unit as follows:

- Steering wheel variant
- Language variant

Notes:

- The encoding procedure is used to set the various configuration options for the multi-function steering wheel.
- The encoding table only lists the possible combinations applying to the Audi A8.
- The code must always correspond to the equipment fitted in the vehicle.

Encoding procedure

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 7 to select "Encode control unit" function.

-> Indicated on display:

```
Rapid data transfer     Q
07 - Encode control unit
```

- Confirm entry with Q key.

-> Indicated on display:

```
Encode control unit
Enter code number XXXXX     (0-32000)
```

- Enter code number as per encoding tables => from Page 112 onwards.

Code: e.g. 00001

- First digit: 0 = Standard
- Second and third digits; language variant:
  00 = German
- Fourth digit; Tiptronic: 0 = Without Tiptronic
- Fifth digit; steering wheel variant: 1 = Steering wheel for radio/telephone operation

- Confirm entry with Q key.

```
4B0907487A Steering wheel electronics
D01      □
Code 00001
```

-> The display will show the control unit identification and the coding that was entered (00001).

- Press ⇒ key to terminate encoding procedure.

Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6.

Indicated on display:

```
Rapid data transfer     Q
06 - End output
```

- Confirm entry with Q key.

Encoding table for control unit index "A":

X		Standard
0		Always zero
	XX	Language variant
	00	German
	01	English
	02	French
	03	Italian
	04	Dutch
	05	Spanish
	06	Portuguese
	07	Danish
	08	Swedish
		XX Steering wheel variant
		01 Radio and telephone operation
		02 Radio operation

Encoding table for control unit index "C":

X X X X X	Code
X	Standard
0	Always zero
X	Radio remote control
0	0 Switched on (standard) 1 Switched off
X	Language variant
0	Always zero
X	Tiptronic
0	Always zero
X	Steering wheel variant
1	Radio and telephone operation
2	Radio operation (6-button radio)
5	Radio/telephone operation and voice control

Encoding table for control unit index "J":

X X X X X	Code
X	Standard
0	Always zero
X	Radio remote control
0	0 Switched on (standard) 1 Switched off
X	Language variant
0	Always zero

X	Tiptronic
0	0 Without Tiptronic
1	1 With Tiptronic
X	Steering wheel variant
1	Radio and telephone operation
2	Radio operation (6-button radio)
5	Radio/telephone operation and voice control

6.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```


- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

- Enter display group number (from table => Page 113) and confirm with Q key.

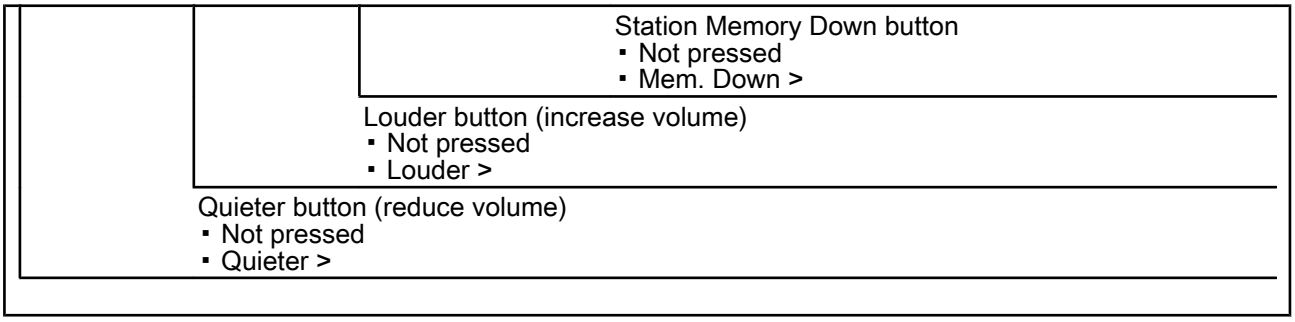
The measured value block selected is then displayed in standardised form.

List of display groups:

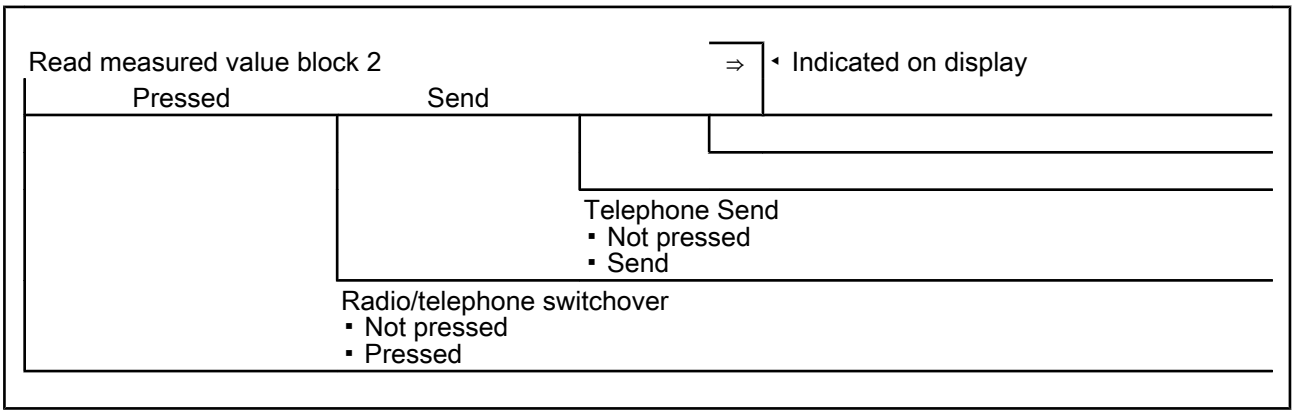
Display group number	Indicated on display
001	1 = Volume Lower button 2 = Volume Higher button 3 = Station Memory Down button 4 = Station Memory Up button
002	1 = Radio/telephone switchover 2 = Telephone Send
003	1 = Tiptronic Upshift button 2 = Tiptronic Downshift button

Measured value block 001

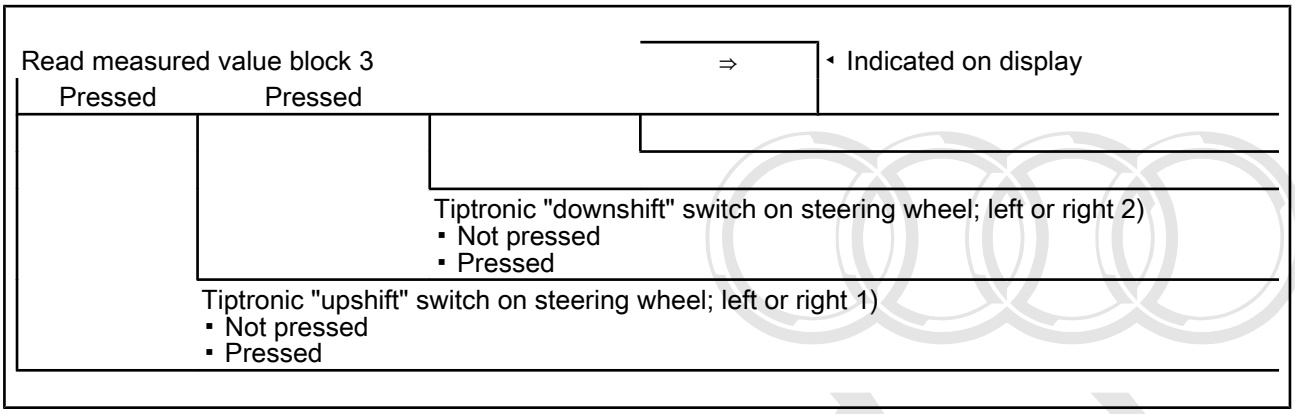
Read measured value block 1			⇒	◂ Indicated on display
Quieter >	Louder >	Mem. Down >	Mem. Up >	
				Station Memory Up button ▪ Not pressed ▪ Mem. Up >



Measured value block 002



Measured value block 003



1) There is a button (rocker switch) on the left and right-hand side of the steering wheel for shifting up and down. "Pressed" appears at the first position in measured value block 003 if one of the two buttons is pressed up (upshift).

2) There is a button (rocker switch) on the left and right-hand side of the steering wheel for shifting up and down. "Pressed" appears at the second position in measured value block 003 if one of the two buttons is pressed down (downshift).

7 - Self-diagnosis of telematics system

7.1 - Self-diagnosis of telematics system

7.2 - General

The telematics system provides a connection between the navigation system and the mobile telephone.

By pressing an emergency call button, and/or when the airbag is ignited, the telematics system transmits an emergency call which is forwarded by the network provider to the emergency services. The navigation system identifies the precise location of the vehicle.

Pressing a breakdown help button in the event of a breakdown enables assistance to be called quickly without the driver having to take any other action. A range of other services, such as up-to-the-minute traffic reports, can also be accessed.

The new telematics system has extensive self-diagnosis capability.

The telematics system has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

7.3 - Notes on enabling system

If the telematics system SIM card is defective, a new one must be requested by fax.

=> Radio, Telephone and Navigation System; Repair Group 91; Telematics Telematics

Hotline number: 0800/2 83 47 27

Fax number: 0800/963 963 9

7.4 - Starting self-diagnosis of telematics system

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List
- SSP 236 Audi telematics +

7.5 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

Address word for telematics: 75

- Press keys 7 and 5.

-> Indicated on display:

```
Rapid data transfer      Q
75 - Telematics
```

- Confirm entry with Q key.

Notes:

- During self-diagnosis the emergency call function is deactivated.
- During self-diagnosis the central display on the dash panel indicates "Diagnosis Activated".


```
4B0035617     Telematics Nokia 1     0001
□
Code 0003324     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4B0035617: Part number of telematics system
- Telematics Nokia 1: Component designation

- 0001: Software version of telematics system
- Code 0003324: Code for telematics system
- WSC XXXXX: Workshop code

Note:

Check code against encoding table => Page 127 .

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer     HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 117

02 - Interrogate fault memory => Page 118

03 - Final control diagnosis=> Page 124

05 - Erase fault memory => Page 125

06 - End output => Page 126

07 - Encode control unit=> Page 126

08 - Read measured value block => Page 128

10 - Adaption=> Page 132

7.6 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

```
4B0035617     Telematics Nokia 1     0001

Code 0003324     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4B0035617: Part number of telematics system
- Telematics Nokia 1: Component designation
- 0001: Software version of telematics system
- Code 0003324: Code for telematics system
- WSC XXXXX: Workshop code

- Press ⇒ key.

7.7 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```


- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 119 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 126 .

- Switch off ignition and unplug diagnostic connector.

7.8 - Fault table for telematics system

Notes:

- The following table lists all the faults which can be recognised by the telematics system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults which do not re-occur after telematics system has been switched on/off 40 times are erased.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00003 Control unit - Defective	- Telematics control unit defective	- Replace telematics control unit => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing telephone/telematics control unit -J526 Telematics; Removing and installing telephone/telematics control unit -J526
00469 Data bus display in single-wire mode - Fault in electrical circuit	- CAN bus fault - Open circuit in wiring - Wiring damage	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder
00851 Loudspeaker* *This fault is stored if a fault occurs in final control diagnosis (loudspeaker).	- Mutual shorting of + and - wires to hands-free loudspeaker	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace hands-free loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing hands-free loudspeaker Telephone system; Removing and installing hands-free loudspeaker

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00862 Navigation aerial (GPS) - R50/R52 - Open circuit - Short circuit	- Open circuit in aerial wire - Short circuit in aerial wire - Navigation aerial (GPS) defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace GPS aerial wire Replace navigation aerial (GPS) => Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (route navigation); Removing and installing navigation aerial (-R50) Navigation system I (route navigation); Removing and installing navigation aerial (-R50)
01300 Control unit for navigation system with CD drive -J401 - No communication	- CAN bus fault - Open circuit in wiring - Wiring damage - Control unit for navigation system with CD drive -J401 defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing control unit for navigation system with CD drive -J401 Navigation system III; Removing and installing control unit for navigation system with CD drive -J401

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01301 Speech input control unit -J507 - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to speech input control unit interrupted - Speech input control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to speech input control unit according to current flow diagram Replace speech input control unit => Radio, Telephone and Navigation System; Repair Group 91; Voice control system; Removing and installing speech input control unit -J507 Voice control system; Removing and installing speech input control unit -J507

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01304 Radio - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to radio interrupted - Radio defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to radio using current flow diagram Replace radio => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio Radio systems; Removing and installing radio
01305 Data bus display - Defective	- CAN bus fault - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01317 Control unit with display in dash panel insert -J285 - No communication	- CAN bus fault - Open circuit in wiring - Dash panel insert defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert
01326 Multi-function steering wheel control unit -J453 - No communication	- CAN bus fault - Open circuit in wiring - Multi-function steering wheel control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace multi-function steering wheel control unit => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01522		

Telephone handset -R37 - No signal	- Open circuit in wiring - Telephone handset defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone handset => Radio, Telephone and Navigation System; Repair Group 91; Telephone system Telephone system
01523 Telephone microphone -R38 - Open circuit/short to positive - Short to earth	- Open circuit in wiring - Short in wiring - Telephone microphone defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone microphone => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing hands-free microphone Telematics; Removing and installing hands-free microphone

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01524 Telephone aerial - No signal	- Open circuit in aerial wire - Short circuit in aerial wire - Telephone aerial defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace telephone aerial wire Replace telephone aerial => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing aerial Telephone system; Removing and installing aerial
01526 Emergency call button -E276 - Open circuit/short to positive - Short to earth	- Open circuit in wiring - Short in wiring - Emergency call button defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Rectify open circuit/short Replace emergency call button => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing emergency call button -E276 and breakdown help button -E275 Telematics; Removing and installing emergency call button -E276 and breakdown help button -E275

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01527		

Breakdown help button -E275 - Open circuit/short to positive - Short to earth	- Open circuit in wiring - Short in wiring - Emergency call button defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Rectify open circuit/short Replace breakdown help button => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing emergency call button -E276 and breakdown help button -E275 Telematics; Removing and installing emergency call button -E276 and breakdown help button -E275
01528 Additional aerial for telematics -R90 - No signal	- Open circuit in aerial wire - Short circuit in aerial wire - Additional aerial for telematics (emergency aerial) defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace wire of additional aerial for telematics Replace additional aerial for telematics => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing additional aerial for telematics Telematics; Removing and installing additional aerial for telematics

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01529 Additional loudspeaker for telematics -R91 - Open circuit/short to positive - Short to earth	- Open circuit in wiring - Short in wiring - Additional loudspeaker for telematics defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Rectify open circuit/short Replace additional loudspeaker => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing additional loudspeaker for telematics -R91 (emergency loudspeaker) Telematics; Removing and installing additional loudspeaker for telematics -R91 (emergency loudspeaker)
01531		

Emergency battery - No signal	- Open circuit in wiring - Short in wiring - Emergency battery defective/ discharged	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Rectify open circuit/short Replace emergency battery => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing emergency battery for telematics Telematics; Removing and installing emergency battery for telematics

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01656 Crash signal - No signal	- Open circuit in wiring - Short in wiring - Airbag control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Rectify open circuit/short Check airbag control unit => Body Self-Diagnosis; Repair Group 01
01796 Telematics SIM card - No signal	- Open circuit in wiring - Short in wiring - Telematics SIM card defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Rectify open circuit/short Replace telematics SIM card => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Replacing telematics SIM card Telematics; Replacing telematics SIM card

7.9 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function tests the loudspeaker wiring and buttons -E275 and-E276.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer     Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Loudspeakers
```

A test tone is audible through the hands-free loudspeaker.

Note:

Any faults (e.g. short circuits) that occur will be recorded in the fault memory.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Additional loudspeaker for telematics
R91
```

A test tone is audible through the emergency loudspeaker.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Emergency call button E276
```

The emergency call button begins to flash.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Breakdown help button E275
```

The breakdown help button begins to flash.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

7.10 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 118
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 - Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

Notes:

◆

```
Attention:
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

◆

```
Rapid data transfer
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

7.11 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

7.12 - Encoding control unit

This function is used to encode the telematics system as follows:

- Vehicle model
- Voice recognition/multi-function steering wheel
- Navigation system

- Radio configuration

Notes:

- The encoding procedure is used to set the various configuration options.
- The encoding table only lists the possible combinations applying to the Audi A8.
- In contrast to the codes of other control units, the code of the telematics control unit has 7 digits.

Encoding procedure

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 7 to select "Encode control unit" function.

-> Indicated on display:

```
Rapid data transfer      Q
07 - Encode control unit
```

- Confirm entry with Q key.

-> Indicated on display:

```
Encode control unit
Enter code number XXXXX  (0-32000)
```


- Enter code number as per encoding table => Page 127 .

Code: 03324

- 0 = Not used, always 0
- Vehicle model: 3 = A8
- Voice recognition/multi-function steering wheel: 3 = with voice recognition and multi-function steering wheel
- Navigation system: 2 = Nav II-D
- Radio system: 4 = Radio system without CAN bus or Nav II-D

```
4B0035617     Telematics Nokia 1     0001

Code 0003324     WSC XXXXX
```

-> Control unit identification appears on display together with code entered (0003324).

- Press ⇒ key to terminate encoding procedure.

Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 6.

Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

Encoding table:

5 - 7	4	3	2	1	← Decimal places of byte coding on tester display

Radio:
1: Without radio
2: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II)
3: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II) with Bose
4: With radio (without CAN) (Chorus I, Concert I, Symphony I) or Nav II-D
5: With radio (without CAN) (Chorus I, Concert I, Symphony I) or Nav II-D with Bose

Navigation:
0: Without nav
1: With Nav III
2: With Nav II-D
3: With Nav IV
4: With Nav II-D (from Wk 45/01 onwards)
5: With Nav IV (from Wk 45/01 onwards)

Voice control/multi-function steering wheel (VCS/MSW):
0: Without VCS, without MSW
1: Without VCS, with MSW
3: With VCS, with MSW

Vehicle model:
0: A3
1: A4 (B5)
2: A6
3: A8
4: A2
5: A4 (B6)

000: Columns reserved for subsequent encoding = 0

7.13 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

- Enter display group number (from table => Page 128) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

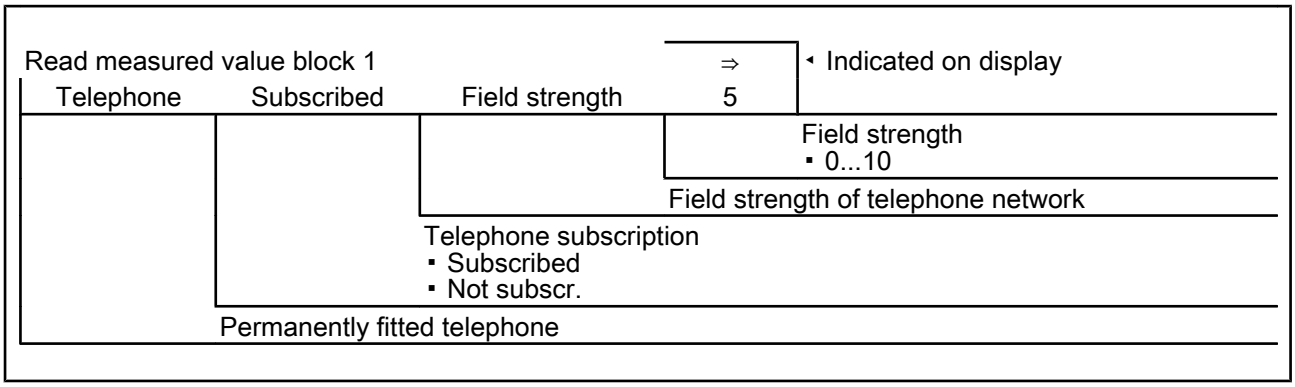
List of display groups:

Display group number	Indicated on display
001	1 = Telephone 2 = Subscribed/not subscribed 3 = Field strength 4 = 0...010

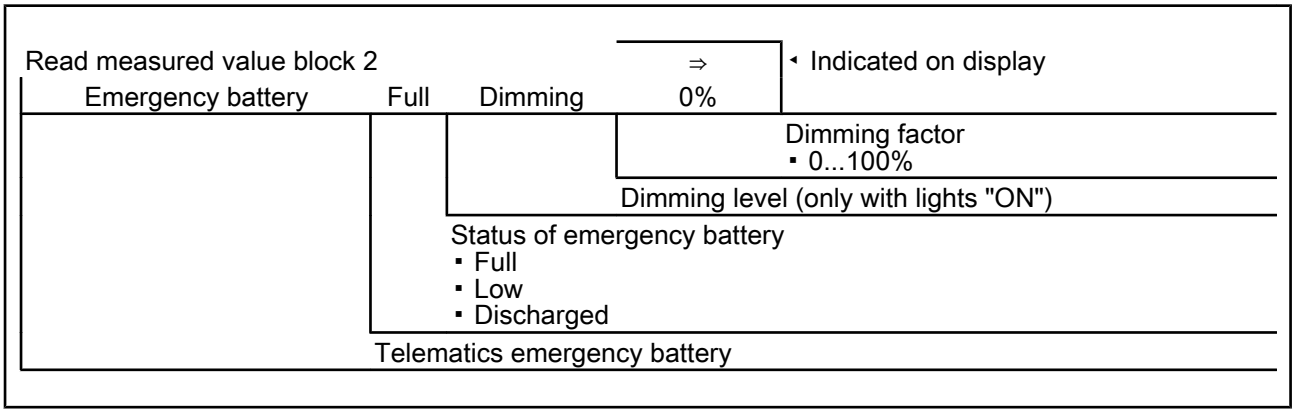
Display group number	Indicated on display
002	1 = Emergency battery 2 = Fully charged/low/discharged 3 = Dimming 4 = 0...100%
003	1 = Speed signal 2 = xxx km/h 3 = Forward/reverse
004	1 = Emergency call button 2 = Pressed/not pressed 3 = Breakdown help button 4 = Pressed/not pressed
005	1 = Device number
006	1 = SIM card number
080	1 = Key ID
081	1 = Chassis number

Display group number	Indicated on display
125	1 = Dash panel data bus 2 = Steering wheel data bus 3 = Radio data bus 4 = Navigation data bus
126	1 = Voice recognition data bus

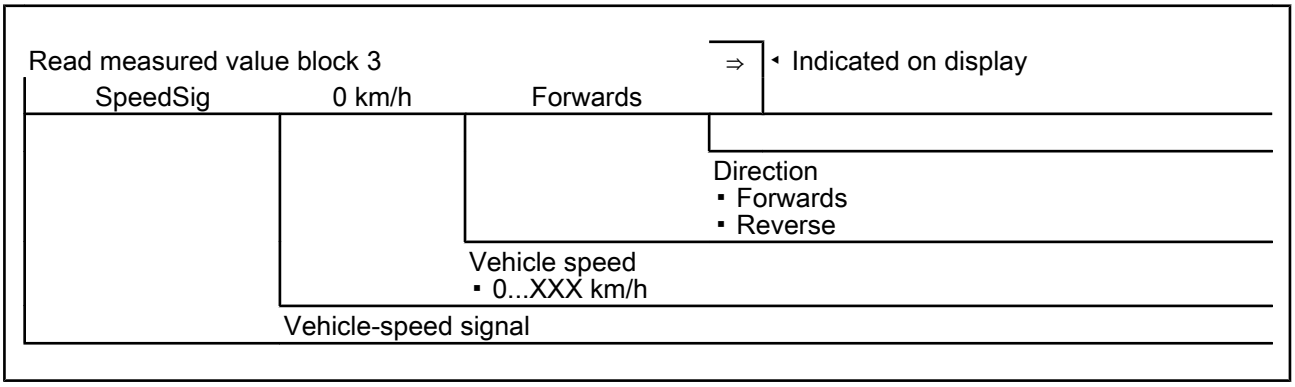
Measured value block 001



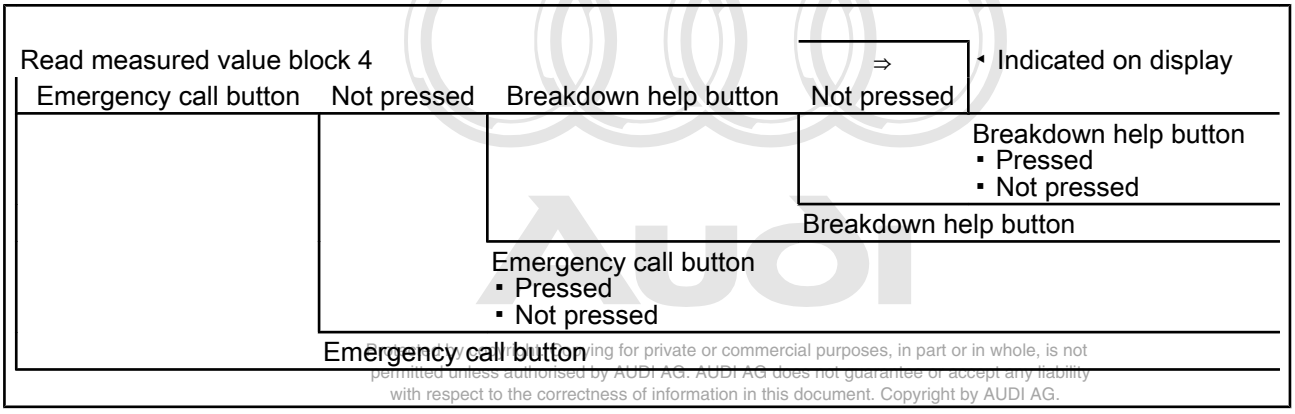
Measured value block 002



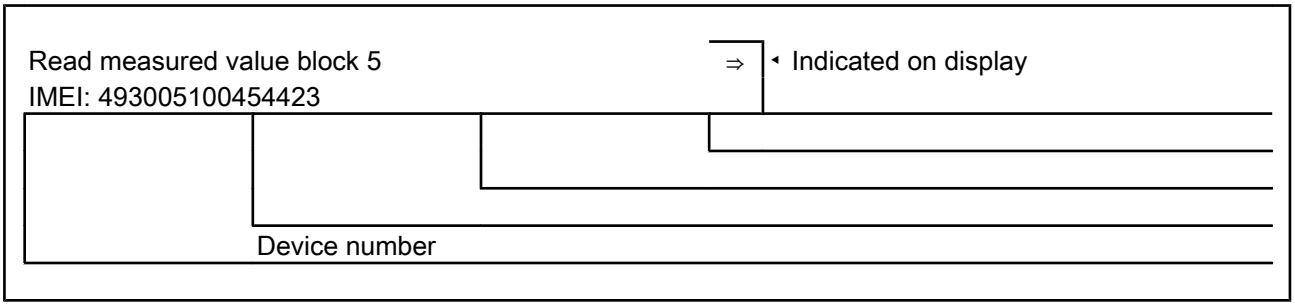
Measured value block 003



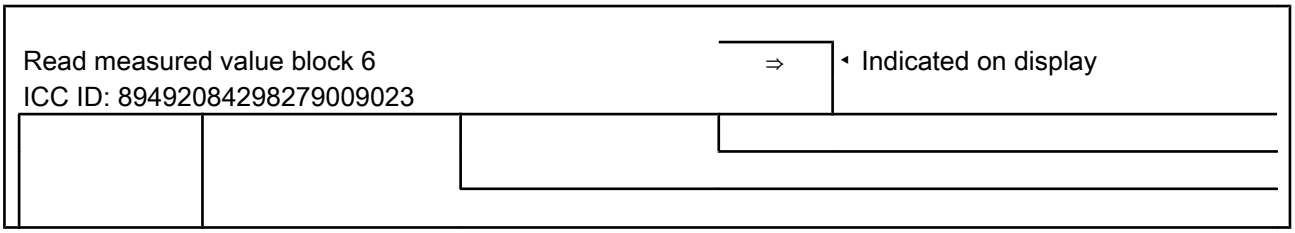
Measured value block 004



Measured value block 005



Measured value block 006



SIM card number
- Display of number with telematics SIM card inserted
- "n.fitted" = Telematics SIM card not inserted
- "n.active" = There is another SIM card in the telephone handset

Measured value block 080

Read measured value block 80 ⇒ Indicated on display
KEY ID: 3762H CP3.07 12/99

Display of key ID with hardware version and production date

Measured value block 081

Read measured value block 81 ⇒ Indicated on display
WVW ZZZ1 JZW W123456 6.510 26-05-00 221

Display of chassis number with software version and date

Measured value block 125

Read measured value block 125 ⇒ Indicated on display

Dash 1 | Steering wheel 1 | Radio 1 | Navigat 1

Navigation unit
- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

Radio
- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

Multi-function steering wheel control unit
- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

Dash panel insert
- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

Measured value block 126

Read measured value block 126 ⇒ Indicated on display

Voice rec 1

Voice recognition system
- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

7.14 - Adaption

A number of functions can be adapted via the channels:

- Changes to tyre size
- Changes to number of pulses per wheel revolution (GALA)
- Activating/deactivating Service mode

The Service mode must be activated before the vehicle battery is disconnected and deactivated after the battery has been reconnected.

If the Service mode is active, the control unit does not switch over to emergency battery operation. No load is placed on the emergency battery in the control unit.

- GSM aerial test selection

It is possible to determine which GSM aerial is to be monitored by the control unit. At present only the emergency aerial can be tested.

- GSM aerial selection

For test purposes, it is possible to switch over to the main aerial or emergency aerial and to use a telephone connection to check that the aerials are functioning correctly. Under normal operating conditions, selection must be performed automatically.

- System selection

This channel is used to prevent system fault messages from appearing in the dash panel display and telephone handset. This is necessary if the telematics control unit is to be operated as a permanently fitted telephone after the telematics service contract has expired.

The telematics system uses the vehicle-speed signal from speedometer (GALA) to calculate distance.

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 132).

Adaption table:

Adaption channel	Adaption function
01	Tyre circumference in mm => Page 133
02	Number of pulses per wheel revolution (GALA) => Page 134

Adaption channel	Adaption function
03	Activate/deactivate Service mode => Page 135
05	Aerial test selection => Page 136
06	Aerial selection => Page 137
07	System selection => Page 138

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer       Q
10 - Adaption
```

- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Enter desired adaption channel (adaption table => Page 132).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Adapting tyre circumference

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 1 to select "Channel 1".

Note:

- Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2060
Tyre circumference
```

Top line shows selected channel and currently stored tyre circumference in mm.

- Press ⇒ key.

-> Indicated on display:

```
Channel 1     Adaption     2060     Q
Enter adaption value XXXXX
```

- Enter new tyre circumference with zero before 4-digit number (e.g. 02074). Tyre table => 37 .

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2074     Q
Tyre circumference
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2074     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 1     Adaption     2074
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Adapting number of pulses per wheel revolution (GALA)

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 2 to select "Channel 2".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     4
Revolution pulses
```

Top line shows selected channel and currently stored number of pulses.

- Press ⇒ key.

-> Indicated on display:

```
Channel 2     Adaption     4
Enter adaption value XXXXX
```

- Enter new number of pulses with four zeroes before the number.

The number of pulses is always 8 for A8 with telematics system.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8     Q
Revolution pulses
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 2     Adaption     8
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Activating/deactivating Service mode

The control unit switches over to emergency battery operation immediately when the vehicle battery is disconnected. If emergency battery operation remains active over a long period, the emergency battery will discharge and must then be replaced (fault code: 01531).

If the Service mode is active, the control unit does not switch over to emergency battery operation. The Service mode must be deactivated when service work has been completed.

Service mode can also be activated and deactivated by entering *#4610# on the handset.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 3 to select "Channel 3".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     0
Service mode off
```


Top line shows selected channel and currently stored Service mode status.

0 = Service mode deactivated

1 = Service mode activated

- Press ⇒ key.

-> Indicated on display:

```
Channel 3     Adaption     0
Enter adaption value XXXXX
```

- Enter 1 to activate Service mode.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1
Service mode on
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 3     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Aerial test selection

It is possible to determine which GSM aerial is to be monitored by the control unit. A fault is entered if this function is not possible.

At present only the emergency aerial can be tested. "2 = GSM emergency aerial is tested" must therefore be set.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 5 to select "Channel 5".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     0
Test OFF
```


Top line shows selected channel and currently stored aerial test.

0 = No test

1 = GSM main aerial is tested

2 = GSM emergency aerial is tested

3 = Both GSM aerials are tested

- Press ⇒ key.

-> Indicated on display:

```
Channel 5     Adaption     0
Enter adaption value XXXXX
```

- Enter 2 to test the GSM emergency aerial.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     2
Emergency aerial test ON
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     2     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     2
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

Aerial selection

It is possible to determine which GSM aerial is to be used to establish the telephone connection.

Under normal operating conditions: "0 = automatic selection"

For test purposes, it is possible to switch over to the emergency aerial or main aerial and to use a telephone connection to check that the aerials are functioning correctly.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 6 to select "Channel 6".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     0
autom.
```

Top line shows selected channel and currently stored aerial selection.

0 = Automatic selection

1 = GSM main aerial selected

2 = GSM emergency aerial selected

- Press ⇒ key.

-> Indicated on display:

```
Channel 6     Adaption     0
Enter adaption value XXXXX
```

- Enter 1 to select the GSM main aerial.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1
Main aerial
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 6     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

System selection

When the telematics service contract has expired, it is possible to continue to use the telematics control unit as a permanently fitted telephone (with new SIM card). Channel 7 is used to prevent the telematics fault messages from being displayed.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 7 to select "Channel 7".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     0
```

Top line shows selected channel and currently stored status.

0 = Standard mode

1 = Fault messages not displayed

- Press ⇒ key.

-> Indicated on display:

```
Channel 7     Adaption     0
Enter adaption value XXXXX
```

- Enter 1 to prevent the telematics fault messages from being displayed.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1
Telephone only, no telematics faults
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 7     Adaption     1
Altered value stored
```


- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

8 - Self-diagnosis of voice control system

8.1 - Self-diagnosis of voice control system

8.2 - General

It is possible to operate telephone, telematics and (from MY 02 onwards) radio/navigation functions conveniently by means of spoken commands.

The new voice control system has extensive self-diagnosis capability.

The speech input control unit -J507 has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

8.3 - Starting self-diagnosis of voice control system

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List
- SSP 236 Audi telematics +

8.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

Address word for voice control system: 67

- Press keys 6 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
67 - Voice control
```

- Confirm entry with Q key.

Up to MY 01:

```
4B0035753 Voice control system     0001
Code 0000001     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

From MY 02 onwards:

```
4B0035753A Voice control system 0100
Code 0018017     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

All vehicles:

- 4B0035753: Part number of voice control system
- 4B0035753A: Part number of voice control system
- Voice control system: Component designation
- 0001: Software version of voice control system
- 0100: Software version of voice control system
- Code 0000001: Code for voice control system
- Code 0018017: Code for voice control system
- WSC XXXXX: Workshop code

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer     HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```


- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

8.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

Up to MY 01:

```
4B0035753 Voice control system     0001
Code 0000001     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

From MY 02 onwards:


```
4B0035753A Voice control system 0100
Code 0018017     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:

All vehicles:

- 4B0035753: Part number of voice control system
- 4B0035753A: Part number of voice control system
- Voice control system: Component designation

- 0001: Software version of voice control system
- 0100: Software version of voice control system
- Code 0000001: Code for voice control system
- Code 0018017: Code for voice control system
- WSC XXXXX: Workshop code

Press ⇒ key.

8.6 - Interrogating fault memory

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 143 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 147 .
- Switch off ignition and unplug diagnostic connector.

8.7 - Fault table for voice control system

Notes:

- The following table lists all the faults which can be recognised by the voice control system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for a certain period of time. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults which do not re-occur after voice control system has been switched on/off 40 times (terminal 15) are erased.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00003 Control unit - Defective	- Speech input control unit defective	- Replace control unit => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing speech input control unit -J507 Telematics; Removing and installing speech input control unit -J507
00532 Supply voltage - Signal too low	- Battery discharged/defective - Short circuit in vehicle electrical system - Battery voltage lower than 9 V - Alternator defective	- Charge/replace battery => Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging battery Check alternator => Electrical System; Repair Group 27; Removing and installing alternator Removing and installing alternator Repair short circuit in vehicle electrical system

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01303 Telephone transmitter/receiver unit - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to telephone transmitter/receiver unit interrupted - Telephone transmitter/receiver unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone transmitter/receiver unit => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing telephone/telematics control unit -J526 Telematics; Removing and installing telephone/telematics control unit -J526
01304 Radio - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to radio interrupted - Radio defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to radio using current flow diagram Replace radio => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio Radio systems; Removing and installing radio

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01305		

Data bus display - Defective	- CAN bus fault - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring
01317 Control unit with display in dash panel insert -J285 - No communication	- CAN bus fault - Open circuit in wiring - Dash panel insert defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01326 Multi-function steering wheel control unit -J453 - No communication	- CAN bus fault - Open circuit in wiring - Multi-function steering wheel control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace multi-function steering wheel control unit => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453

8.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.
- If final control diagnosis is to be repeated, ignition must be switched off and then on again.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.
- Switch on radio.

-> Indicated on display:

```
Rapid data transfer     Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Radio muting
```

- Press ⇒key.

-> Indicated on display:

```
Control element being tested
Radio muting
```

No sound is audible through the loudspeakers.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Loudspeakers
```

- Press ⇒key.

-> Indicated on display:

```
Control element being tested
Loudspeakers
```

A test tone is audible through the loudspeakers.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Telephone microphone R38
```


- Press ⇒key.

-> Indicated on display:

```
Control element being tested
Telephone microphone R38
```

Loudspeakers are muted.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

8.9 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 143
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```


- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 - Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

Notes:

-

```
Attention:
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

-

```
Rapid data transfer
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

8.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

8.11 - Encoding control unit

This function can be used to encode voice control system (from control unit number 4B0 035 735A onwards) to match vehicle equipment configuration.

Control units with number 4B0 035 753 only have one code.

If control units with number 4B0 035 753 are replaced by control units with number 4B0 035 753A, the latter must be encoded as per No. 4B0 035 753.

Encoding procedure

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 7 to select "Encode control unit" function.

-> Indicated on display:

```
Rapid data transfer      Q
07 - Encode control unit
```

- Confirm entry with Q key.

-> Indicated on display:

```
Encode control unit
Enter code number XXXXX      (0-32000)
```

- Enter code number as per encoding table for control unit number 4B0 035 753 => Page 149 .

```
4B0035753 Voice control system      0001
Code 0000001     WSC XXXXX
```

-> The display will show the control unit identification and the code that was entered (0000001).
- Press ⇒ key to terminate encoding procedure.

Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 6.

Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

Encoding table for control unit number 4B0 035 753:

Code: 0000001

Encoding table for control unit number: 4B0 035 753A:

6 - 7	5 - 4	3	2	1	← Decimal places of byte coding on tester display
					Equipment configuration list 1: Without radio 2: With radio 3: Navigation plus (RNS 4.1) 4: Radio and CD changer 5: Navigation plus (RNS 4.1) and CD changer 6: Navigation plus (RNS 4.1) and TV tuner 7: Navigation plus (RNS 4.1), TV tuner and CD changer
				Radio: 0: Without radio 1: Navigation plus (RNS 4.1) 2: chorus 3: concert 4: symphony	
			Microphone level: 0: Standard 6: Amplified 1)		
		Mute adaption: 05: Radio 18: Navigation plus (RNS 4.1)			
	00: Columns reserved for subsequent encoding = 0				

1) If the user speaks very quietly (which may cause problems with regard to the recognition of spoken commands), "6" can be used to activate a microphone amplifier.

8.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

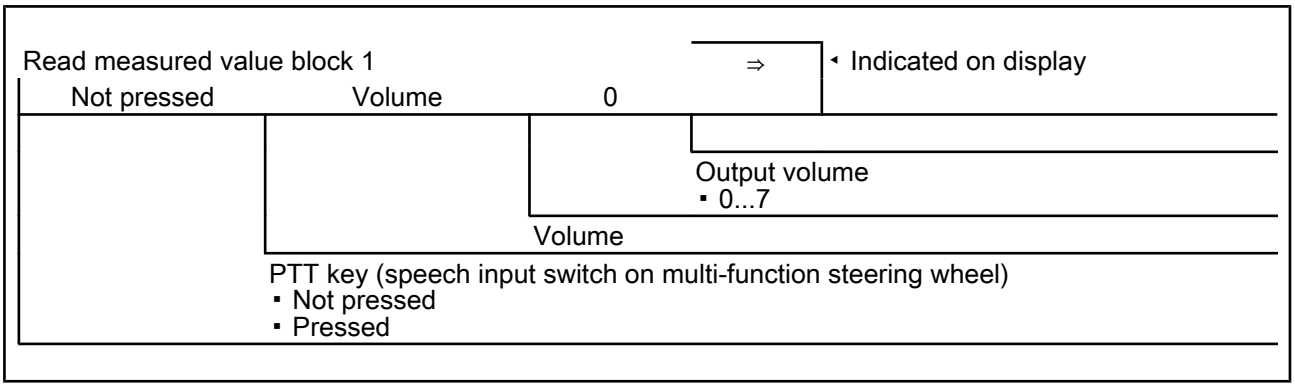
- Enter display group number (from table => Page 150) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

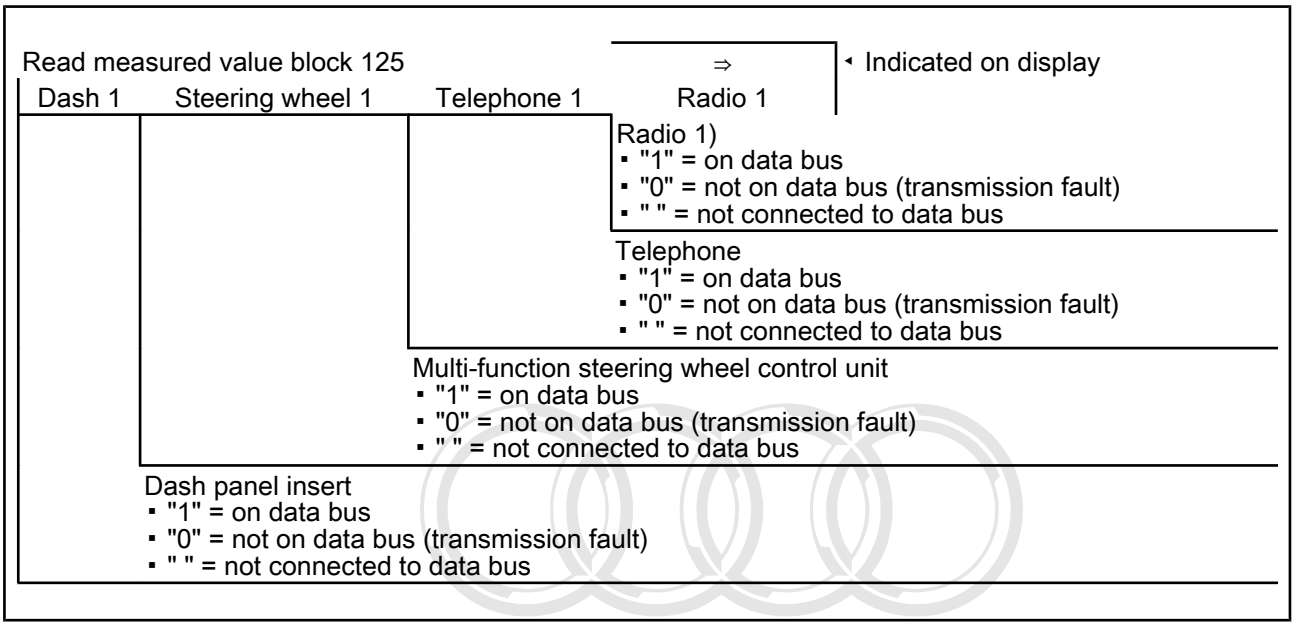
List of display groups:

Display group number	Indicated on display
001	1 = PTT key 2 = Volume 3 = 0...6
125	1 = Dash panel data bus 2 = Steering wheel data bus 3 = Telephone data bus 4 = Radio data bus
126	1 = Monitoring data bus

Measured value block 001

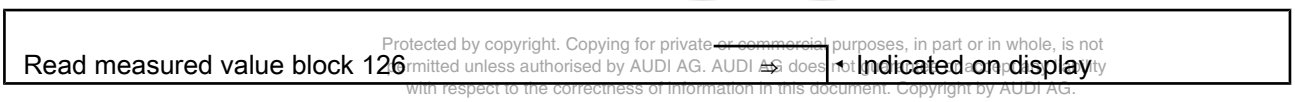


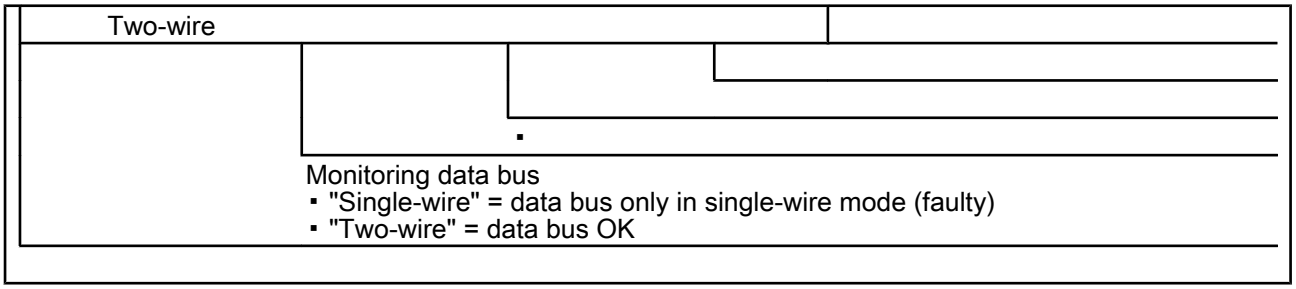
Measured value block 125



1) Not for code 0000001

Measured value block 126





9 - Self-diagnosis of telephone

9.1 - Self-diagnosis of telephone

9.2 - General

Technical features of permanently fitted telephone

The new permanently fitted telephone has extensive self-diagnosis capability.

The permanently fitted telephone has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

9.3 - Starting self-diagnosis of telephone

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List
- SSP 236 Audi telematics +

9.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.

- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .
- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

Address word for telephone: 77

- Press keys 7 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
77 - Telephone
```

- Confirm entry with Q key.

```
4D0035192E     Telephone Nokia 3     0001
Code 0013324     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4D0035192E: Part number of telephone
- Telephone Nokia 3: Component designation
- 0001: Software version of telephone
- Code 0013324: Code for telephone
- WSC XXXXX: Workshop code

Note:

Check code against encoding table => Page 161 .

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer     HELP
No control unit response
```

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer     HELP
Fault in communication link
```

```
Rapid data transfer     HELP
K-wire not switched to earth
```

```
Rapid data transfer      HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

9.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

```
4D0035192E     Telephone Nokia 3     0001

Code 0013324     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 4D0035192E: Part number of telephone
- Telephone Nokia 3: Component designation
- 0001: Software version of telephone
- Code 0013324: Code for telephone
- WSC XXXXX: Workshop code

- Press ⇒ key.

9.6 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer       Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 154 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 159 .
- Switch off ignition and unplug diagnostic connector.

9.7 - Fault table for telephone

Notes:

- The following table lists all the faults which can be recognised by the telephone and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.

- Sporadic faults which do not re-occur after telephone has been switched on/off 40 times are erased.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00003 Control unit - Defective	- Transmitter/receiver unit defective	- Replace transmitter/receiver unit => Radio, Telephone and Navigation System; Repair Group 91; Telephone system Telephone system
00469 Data bus display in single-wire mode - Fault in electrical circuit	- CAN bus fault - Open circuit in wiring - Wiring damage	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder
00851 Loudspeaker* *This fault is stored if a fault occurs in final control diagnosis (loudspeaker).	- Mutual shorting of + and - wires to hands-free loud-speaker	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace hands-free loud-speaker => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing telephone/navigation systems loudspeaker -R39 Telephone system; Removing and installing telephone/navigation systems loudspeaker -R39

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01300 Control unit for navigation system with CD drive - J401 - No communication	- CAN bus fault - Open circuit in wiring - Wiring damage - Navigation system control unit -J401 defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing control unit for navigation system with CD drive -J401 Navigation system III; Removing and installing control unit for navigation system with CD drive -J401
01301		

Speech input control unit -J507 - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to speech input control unit interrupted - Speech input control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to speech input control unit according to current flow diagram Replace speech input control unit => Radio, Telephone and Navigation System; Repair Group 91; Voice control system; Removing and installing speech input control unit - J507 Voice control system; Removing and installing speech input control unit - J507

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01304 Radio - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to radio interrupted - Radio defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Check voltage supply to radio using current flow diagram Replace radio => Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio Radio systems; Removing and installing radio
01305 Data bus display - Defective	- CAN bus fault - Open circuit in wiring	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01317 Control unit with display in dash panel insert -J285 - No communication	- CAN bus fault - Open circuit in wiring - Dash panel insert defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace dash panel insert => Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert
01326		

Multi-function steering wheel control unit -J453 - No communication	- CAN bus fault - Open circuit in wiring - Multi-function steering wheel control unit defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace multi-function steering wheel control unit => Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01522 Telephone handset -R37 - No communication	- Open circuit in wiring - Telephone handset defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone handset => Radio, Telephone and Navigation System; Repair Group 91; Telephone system Telephone system
01523 Telephone microphone -R38 - Open circuit/short to positive - Short to earth	- Open circuit in wiring - Short in wiring - Telephone microphone defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone microphone => Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing hands-free microphone Telematics; Removing and installing hands-free microphone

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01524 Telephone aerial - No signal	- Open circuit in aerial wire - Short circuit in aerial wire - Telephone aerial defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace telephone aerial wire Replace telephone aerial => Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing aerial Telephone system; Removing and installing aerial

9.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function tests the loudspeaker wiring.

Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer     Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Loudspeakers
```

A test tone is audible through the loudspeaker.

Note:

Any faults (e.g. short circuits) that occur will be recorded in the fault memory.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

9.9 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 154
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 - Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

Notes:

-

```
Attention:
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

-

```
Rapid data transfer
Fault memory not interrogated
```

  -> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

9.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

9.11 - Encoding control unit

This function is used to encode the telephone as follows.

- Data bus
- Vehicle model
- Voice recognition/multi-function steering wheel

- Navigation system
- Radio configuration

Notes:

- The encoding procedure is used to set the various configuration options.
- The encoding table only lists the possible combinations applying to the Audi A8.
- In contrast to the codes of other control units, the code of the telematics control unit has 7 digits.

Encoding procedure

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 7 to select "Encode control unit" function.

-> Indicated on display:

```
Rapid data transfer     Q
07 - Encode control unit
```

- Confirm entry with Q key.

-> Indicated on display:

```
Encode control unit
Enter code number XXXXX     (0-32000)
```

- Enter code number as per encoding table => Page 161 .

Code: 13324

- Data bus 1 = Without CAN
- Vehicle model: 3 = A8
- Voice recognition/multi-function steering wheel: 3 = With voice recognition and multi-function steering wheel
- Navigation system: 2 = Nav II-D
- Radio system: 4 = Radio system without CAN bus or Nav II-D

```
4D0035192E     Telephone Nokia 3     0001
□
Code 0013324     WSC XXXXX
```

-> Control unit identification appears on display together with code entered (0013324).

- Press ⇒ key to terminate encoding procedure.

Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```


- Press keys 0 and 6.

Indicated on display:

```
Rapid data transfer     Q
06 - End output
```

- Confirm entry with Q key.

Encoding table:

6 - 7	5	4	3	2	1	← Decimal places of byte coding on tester display
						Radio 1): 1: Without radio 2: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II) 3: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II) with Bose 4: With radio (without CAN) (Chorus I, Concert I, Symphony I) or Nav II-D 5: With radio (without CAN) (Chorus I, Concert I, Symphony I) or Nav II-D with Bose
					Navigation: 0: Without nav 1: With Nav III 2: With Nav II-D 3: With Nav IV	
				Voice control/multi-function steering wheel (VCS/MSW): 0: Without VCS, without MSW 1: Without VCS, with MSW 2: Not used 3: With VCS, with MSW		
			Vehicle model: 0: A3 1: A4 (B5) 2: A6 3: A8 4: A2 5: A4 (B6)			
		0: With data bus 1: Without data bus				
	00: Columns reserved for subsequent encoding					

1) A distinction is made between the various radio types since it is also possible to fit a radio without CAN functionality.

9.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

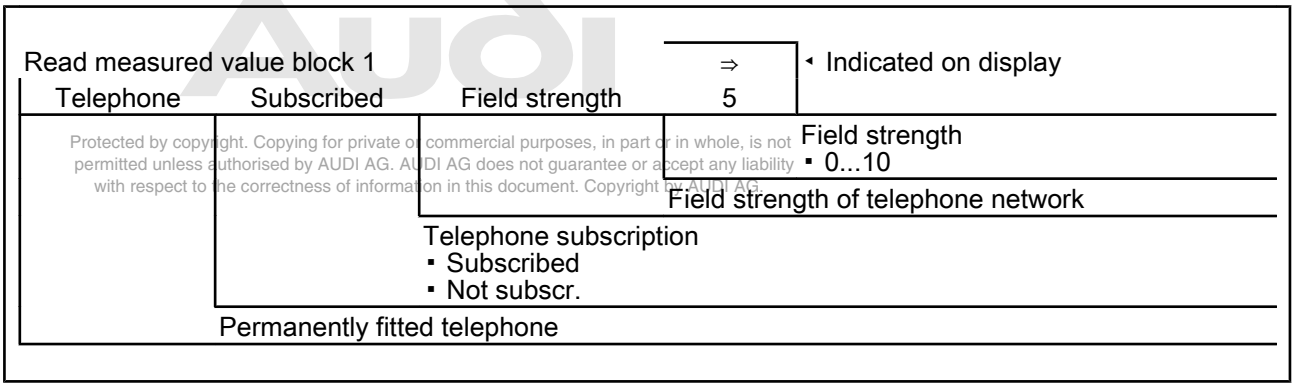
- Enter display group number (from table => Page 162) and confirm with Q key.

The measured value block selected is then displayed in standardised form.

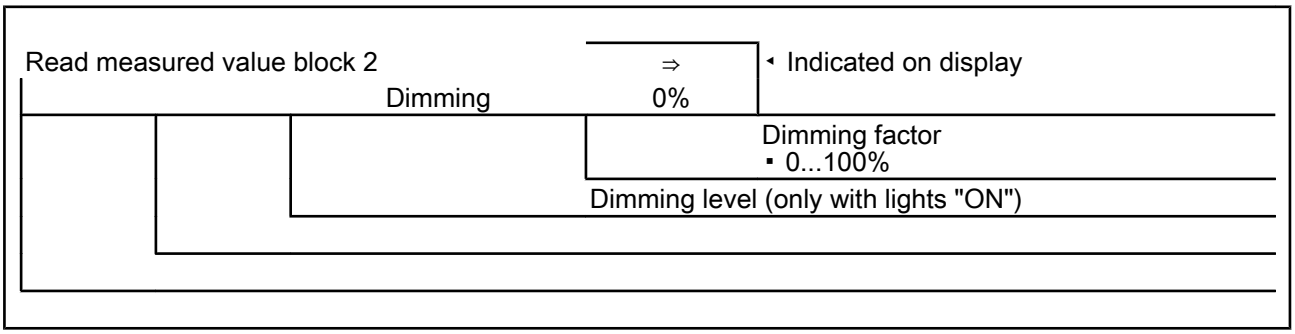
List of display groups:

Display group number	Indicated on display
001	1 = Telephone 2 = Subscribed/not subscribed 3 = Field strength 4 = 0...010
002	3 = Dimming 4 = 0...100%
005	1 = Device number
080	1 = Hardware version, prod. date
081	1 = Software version
125	1 = Dash panel data bus 2 = Steering wheel data bus 3 = Radio data bus 4 = Navigation data bus
126	1 = Voice recognition data bus

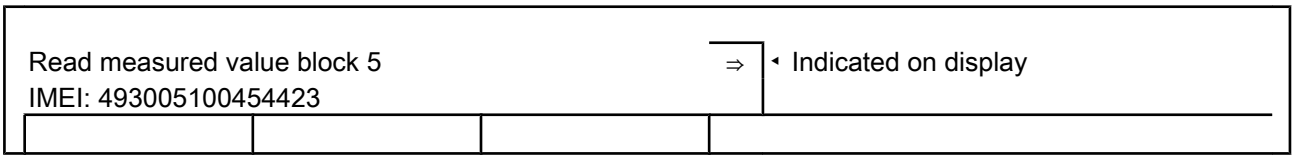
Measured value block 001

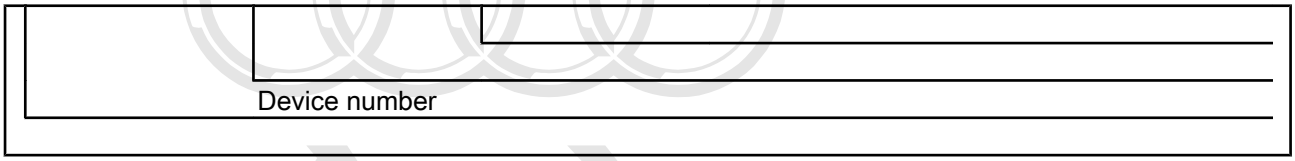


Measured value block 002

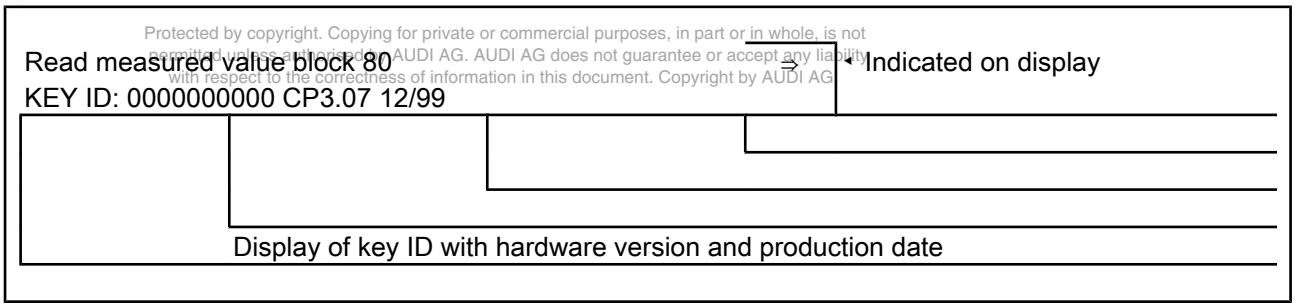


Measured value block 005

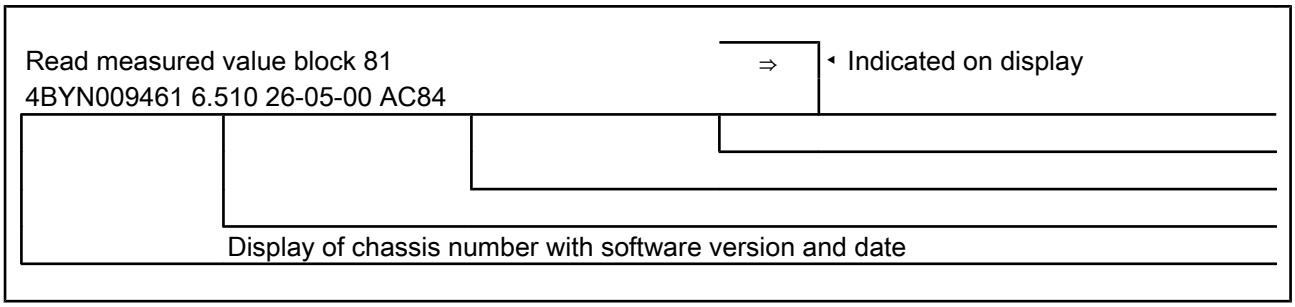




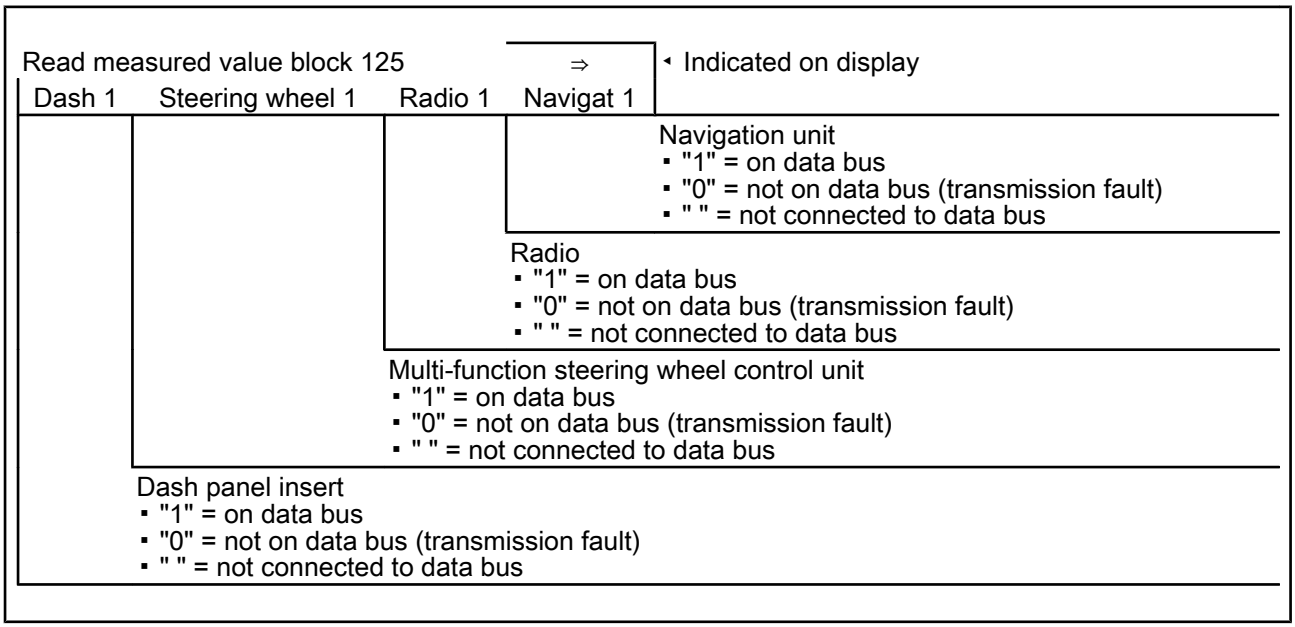
Measured value block 080



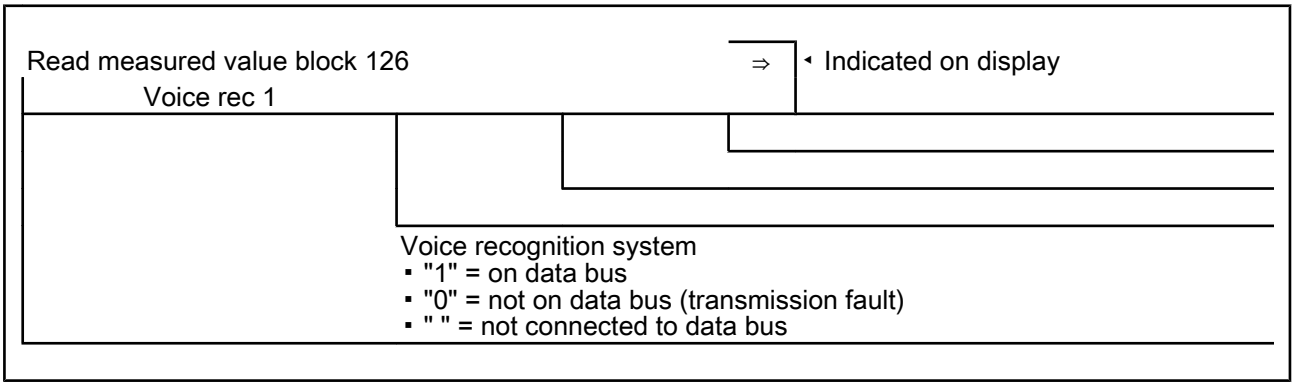
Measured value block 081



Measured value block 125



Measured value block 126



9.13 - Adaption

The "Adaption" function can be used to select the GSM aerial test.

At present the GSM aerial test cannot be activated.

Adaption table:

Adaption channel	Adaption function
05	Aerial test selection => Page 165

Performing function "10 - Adaption"

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 1 and 0 to select "Adaption" function.

-> Indicated on display:

```
Rapid data transfer      Q
10 - Adaption
```

- Confirm entry with Q key.

-> Indicated on display:

```
Adaption
Enter channel number XX
```


- Enter desired adaption channel (adaption table => Page 164).
- Confirm entry with Q key.

Note:

After changing adaption value/following termination of an adaption channel, function "10 - Adaption" must be performed again to select a different adaption channel.

Aerial test selection

It is possible to determine whether the GSM aerial is to be monitored by the control unit. A fault is entered if this function is not possible.

At present the GSM aerial cannot be tested. "0 = No test" must therefore be set.

-> Indicated on display:

```
Adaption
Enter channel number XX
```

- Press keys 0 and 5 to select "Channel 5".

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     0
Test OFF
```

Top line shows selected channel and currently stored aerial test.

0 = No test

1 = GSM aerial is tested

- Press ⇒ key.

-> Indicated on display:

```
Channel 5     Adaption     0
Enter adaption value XXXXX
```

- Enter 1 to test the GSM aerial.
- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
Test ON
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1     Q
Store altered value?
```

- Confirm entry with Q key.

-> Indicated on display:

```
Channel 5     Adaption     1
Altered value stored
```

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 6 to select "End output" function.
- Press ⇒ key.

10 - Self-diagnosis of TV tuner

10.1 - Self-diagnosis of TV tuner

10.2 - General

Technical features of TV tuner

The new TV tuner has extensive self-diagnosis capability.

The TV tuner has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

10.3 - Starting self-diagnosis of TV tuner

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

Additional information material required

- Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- Technical Service Handbook
- Parts List

10.4 - Safety precautions

Pay attention to the following if testers and measuring instruments have to be used in the course of a test drive:

Attention:
- **Proceed as follows during measurement and test drives so as to avoid the risk of accident:**
- **Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.**

Heed the following so as to avoid possible injury and/or the destruction of electrical and electronic components:

- Switch off ignition before disconnecting and connecting measuring instruments and testers.
- Certain tests may lead to a fault being detected by the control unit and stored. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.
- Always switch off ignition before disconnecting and connecting battery so as not to damage control units.

Test requirements:

- Use current flow diagram to check that fuse is OK.
- Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 177 .

- Switch on ignition.

Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing ⇒ key.
- Incorrect entries can be aborted by pressing the C key.
- Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

- Switch on ignition.
- Switch on screen navigation.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

Address word for TV tuner: 57

- Press keys 5 and 7.

-> Indicated on display:

```
Rapid data transfer      Q
75 - TV tuner
```

- Confirm entry with Q key.

```
3B0919142     TV Tuner 17001     0001
Code 00010     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 3B0919142: Part number of TV tuner
- TV Tuner 17001: Component designation
- 0001: Software version of TV tuner
- Code 00010: Code for TV tuner
- WSC XXXXX: Workshop code

Note:

Check code against encoding table => Page 174 .

- Press ⇒ key.

-> If one of the adjacent messages appears on the display, perform fault-finding in line with fault-finding program for diagnostic wire.

```
Rapid data transfer      HELP
No control unit response
```


=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

```
Rapid data transfer      HELP
Fault in communication link
```

```
Rapid data transfer      HELP
K-wire not switched to earth
```

```
Rapid data transfer      HELP
K-wire not switched to positive
```

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Pressing HELP key prints out a list of possible functions.
- Press ⇒ key to select next step in program sequence.

Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 168

02 - Interrogate fault memory => Page 168

03 - Final control diagnosis=> Page 171

05 - Erase fault memory => Page 172

06 - End output => Page 173

07 - Encode control unit=> Page 173

08 - Read measured value block => Page 175

10.5 - Interrogating control unit version

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```

- Press keys 0 and 1 to select "Interrogate control unit version" function.

-> Indicated on display:

```
Rapid data transfer      Q
01 - Interrogate control unit version
```

- Confirm entry with Q key.

```
3B0919142     TV Tuner 17001     0001
Code 00010     WSC XXXXX
```

-> Adjacent display appears after approx. 5 s:
- 3B0919142: Part number of TV tuner
- TV Tuner 17001: Component designation
- 0001: Software version of TV tuner
- Code 00010: Code for TV tuner
- WSC XXXXX: Workshop code

- Press ⇒ key.

10.6 - Interrogating fault memory

Note:

Fault information displayed is not updated constantly, but rather only on starting self-diagnosis/implementing function 05 "Erase fault memory".

- Switch on printer by pressing PRINT key (lamp in key lights).

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 2 to select "Interrogate fault memory" function.

-> Indicated on display:

```
Rapid data transfer       Q
02 - Interrogate fault memory
```

- Confirm entry with Q key.

-> The number of stored faults appears on the display.

```
X faults detected
```

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault
  => Page 169 .

-> In the case of "No faults detected", program returns to start when ⇒ key is pressed.

```
No faults detected
```


-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 173 .
- Switch off ignition and unplug diagnostic connector.

10.7 - Fault table for TV tuner

Notes:

- The following table lists all the faults which can be recognised by the TV tuner and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- The fault code only appears on the printout.
- Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- After completing repair work and checking that system is functioning correctly, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- All static and sporadic faults are stored in the fault memory:
  A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- Sporadic faults which do not re-occur after TV tuner has been switched on/off 40 times are erased.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00482 Rear display unit - Open circuit/short to positive - Short to earth	- Rear monitor defective	- Replace rear monitor 1)

00861 Connection to navigation system computer - No communication - Open circuit/short to positive - Short to earth	- Wiring damage - Open circuit in wiring - Navigation system control unit -J402 defective	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402 Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402

1) No rear compartment monitor is currently fitted.

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00863 Aerial 1 for TV -R55 - Open circuit/short to positive - Short to earth	- Open circuit in aerial wire - Short circuit in aerial wire - Amplifier for TV aerial 1 defective	- Replace aerial wire Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace TV aerial amplifier => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window
00864 Aerial 2 for TV -R55 - Open circuit/short circuit - to positive - Short to earth	- Open circuit in aerial wire - Short circuit in aerial wire - Amplifier for TV aerial 2 defective	- Replace aerial wire Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace TV aerial amplifier => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00865		

Aerial 3 for TV -R55 - Open circuit/short circuit - to positive - Short to earth	- Open circuit in aerial wire - Short circuit in aerial wire - Amplifier for TV aerial 3 defective	- Replace aerial wire Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace TV aerial amplifier => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window
00866 Aerial 4 for TV -R55 - Open circuit/short circuit - to positive - Short to earth	- Open circuit in aerial wire - Short circuit in aerial wire - Amplifier for TV aerial 4 defective	- Replace aerial wire Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace TV aerial amplifier => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window

10.8 - Final control diagnosis

Notes:

- Final control diagnosis can only be performed with vehicle stationary and engine stopped.
- If final control diagnosis detects a fault, locate and eliminate cause of problem if necessary.

The "Final control diagnosis" function tests the TV aerials -R55, -R56, -R57 and -R58.

Performing final control diagnosis:

- Switch the radio/navigation unit to TV reception.
- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

```
Rapid data transfer     Q
03 - Final control diagnosis
```

- Confirm entry with Q key.

-> Indicated on display:

```
Final control diagnosis
Aerial 1
```

Check reception via aerial 1.

Note:

Any faults (e.g. short circuits) that occur will be recorded in the fault memory.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Aerial 2
```

Check reception via aerial 2.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Aerial 3
```

Check reception via aerial 3.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
Aerial 4
```

Check reception via aerial 4.

- Press ⇒key.

-> Indicated on display:

```
Final control diagnosis
End
```

- Press ⇒key.
- Tester returns to basic function.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```


10.9 - Erasing fault memory

Note:

If fault memory cannot be erased, interrogate fault memory again and eliminate fault.

Requirements:

- Fault memory interrogated =>Page 168
- All faults eliminated

After fault memory interrogation:

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:

```
Rapid data transfer      Q
05 - Erase fault memory
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer
Fault memory erased
```

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer     HELP
Select function XX
```


Notes:

◆

```
Attention:
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

◆

```
Rapid data transfer
Fault memory not interrogated
```

-> Test sequence has not been correctly implemented if adjacent display appears.

Keep exactly to test sequence: Interrogate fault memory first, eliminate any faults and then erase fault memory.

10.10 - Ending output

- Press keys 0 and 6 to select "End output" function.

-> Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

-> Indicated on display:

```
Rapid data transfer     HELP
Enter address word XX
```

- Switch off ignition.
- Unplug connectors to fault reader V.A.G 1551.

10.11 - Encoding control unit

This function is used to encode the TV tuner as follows:

- Diagnosis start-up
- Country code
- Tuner configuration

Notes:

- The encoding procedure is used to set the various configuration options.
- The encoding table only lists the possible combinations applying to the Audi A8.

Encoding procedure

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 7 to select "Encode control unit" function.

-> Indicated on display:

```
Rapid data transfer      Q
07 - Encode control unit
```


- Confirm entry with Q key.

-> Indicated on display:

```
Encode control unit
Enter code number XXXXX      (0-32000)
```

- Enter code number as per encoding table => Page 174 .

Code: 00010

- 0 = Not used
- 0 = Not used
- Country code: 01 = PAL B/G Central Europe
- Tuner configuration: 0 = Without secondary display

Code 00010 is standard for Germany.

```
3B0919142      TV Tuner 17001      0001
Code 00010      WSC XXXXX
```

-> The display will show the control unit identification and the code that was entered (00010).

- Press ⇒ key to terminate encoding procedure.

Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 6.

Indicated on display:

```
Rapid data transfer      Q
06 - End output
```

- Confirm entry with Q key.

Encoding table:

5	4	3	2	1	← Decimal places of byte coding on tester display
					Tuner configuration, secondary display: 4 - 7: Component fitted 0 - 3: Component not fitted

5	4	3	2	1	← Decimal places of byte coding on tester display	
		0	0		Country code/video standard	CENTRAL EUROPE
		0	1		Not used	ITALY
		0	2		PAL B/G	UK, IRELAND
		0	3		PAL B/G	EAST EUROPE
		0	4		PAL I	FRANCE
		0	5		SECAM D/K	NORTH AMER.
		0	6		SECAM L	AUSTRALIA
		0	7		NTSC M	BRAZIL
		1	0		PAL B/H	ARGENTINA
		1	1		PAL M	NEW ZEALAND
		1	2		PAL N	CHINA
		1	3		PAL B	AFRICA
		1	4		PAL D/K	GREECE, EGYPT
		1	5		PAL I	AFRICA
		1	6		SECAM D/K	JAPAN
		1	7		SECAM K1 NTSC M	
					Diagnosis start-up 0: Not used 1: Prompting only possible via CAN	2: Prompting only possible via K wire 3: Prompting possible via CAN and K wire
					Not used = 0	

10.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 8 to select "Read measured value block" function.

-> Indicated on display:

```
Rapid data transfer       Q
08 - Read measured value block
```

- Confirm entry with Q key.

-> Indicated on display:

```
Read measured value block
Enter display group number XXX
```

- Enter display group number (from table => Page 175) and confirm with Q key.

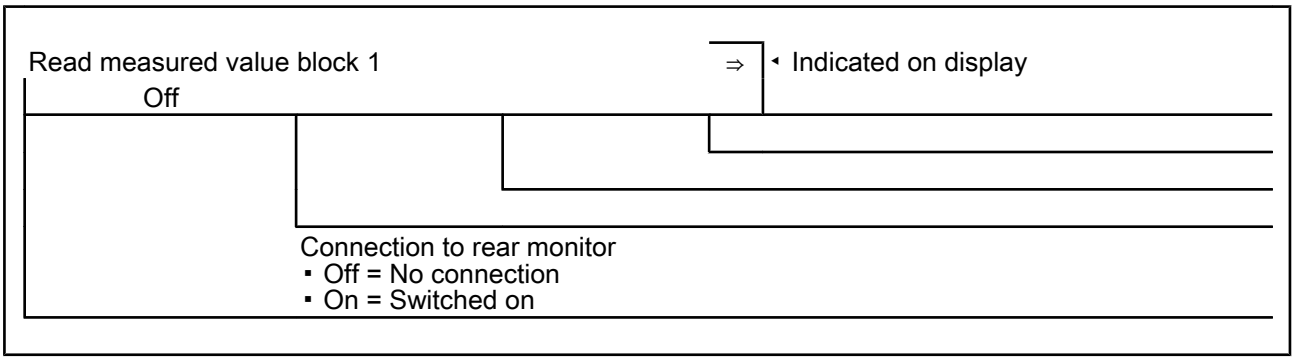
The measured value block selected is then displayed in standardised form.

List of display groups:

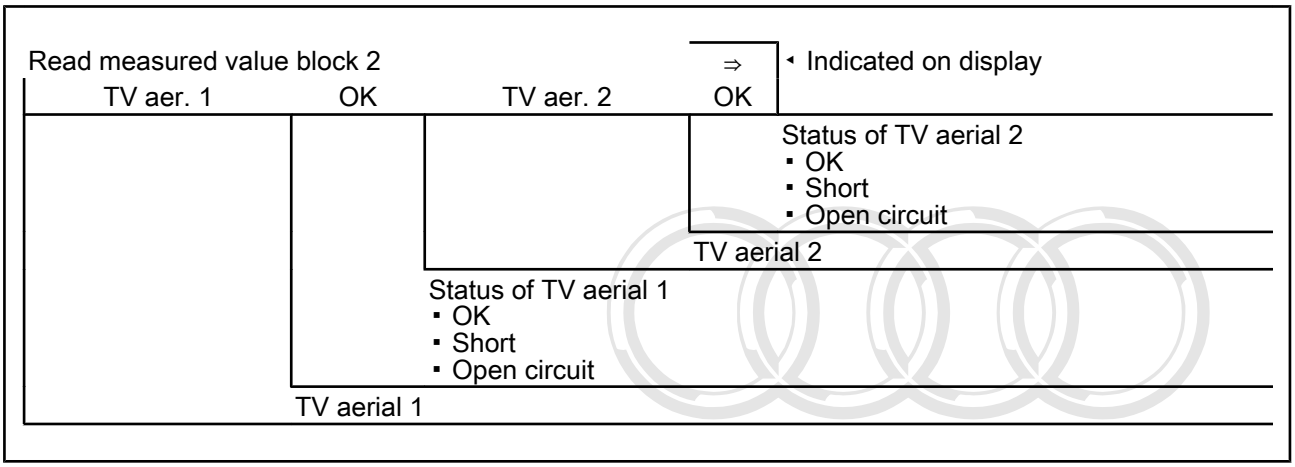
Display group number	Indicated on display
001	1 = Rear monitor connection 2 = On/off
002	1 = TV aerial 1 2 = Status of TV aerial 1 3 = TV aerial 2 4 = Status of TV aerial 2

Display group number	Indicated on display
003	1 = TV aerial 3 2 = Status of TV aerial 3 3 = TV aerial 4 4 = Status of TV aerial 4
004	1/2 = Connections to navigation unit 3 = Status of connection
005	1 = External input AV1 2 = External input AV2

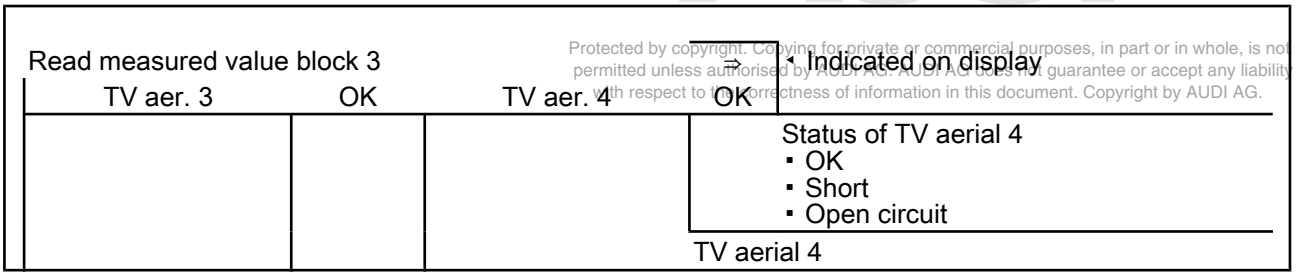
Measured value block 001

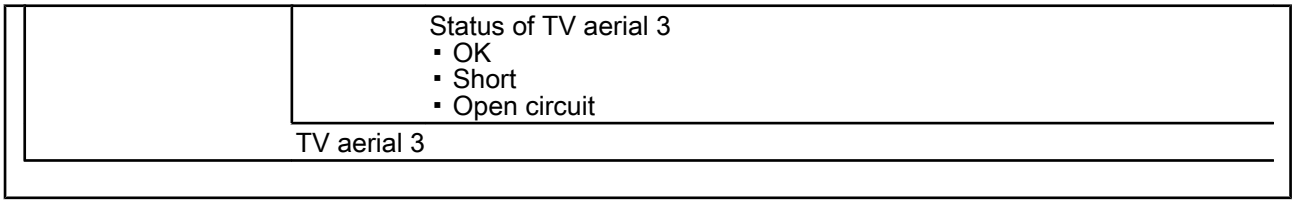


Measured value block 002

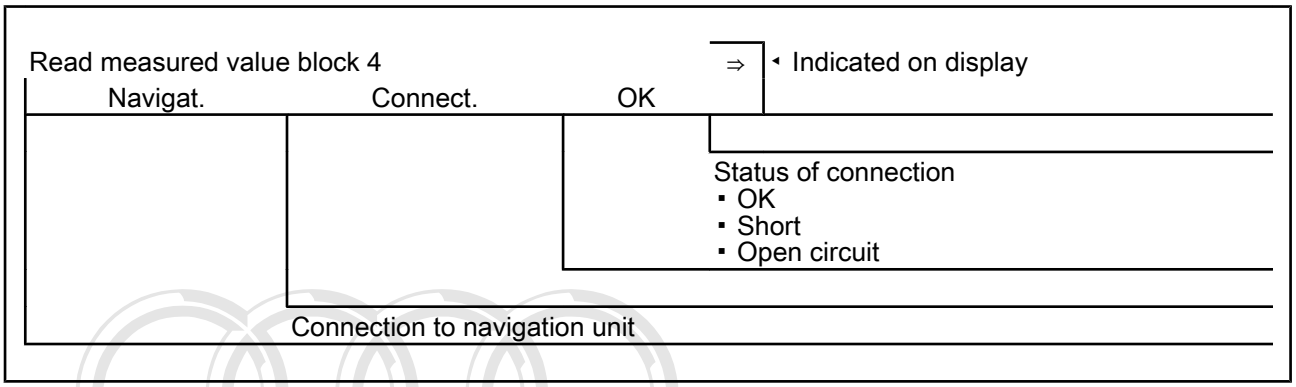


Measured value block 003

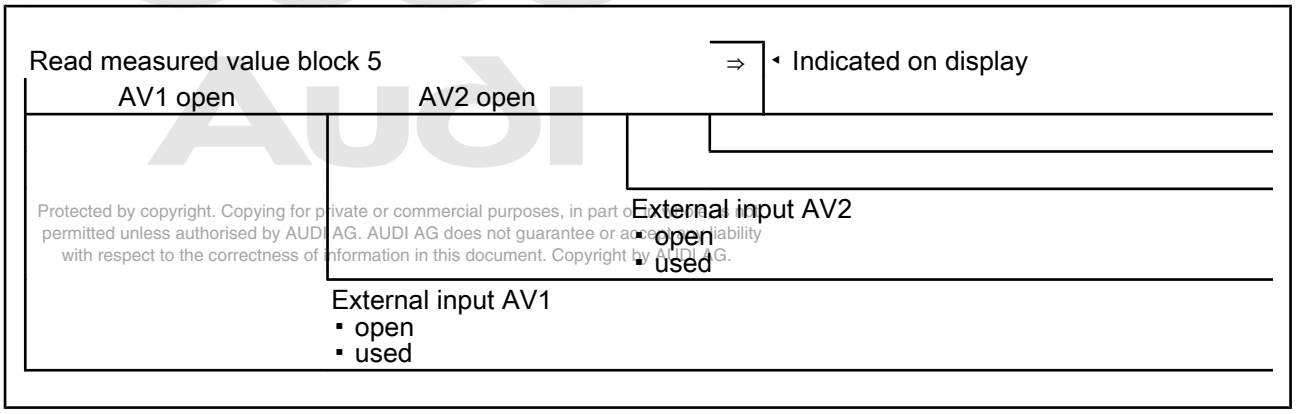




Measured value block 004



Measured value block 005



11 - Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551, and selecting functions

11.1 - Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551, and selecting functions

Test requirements

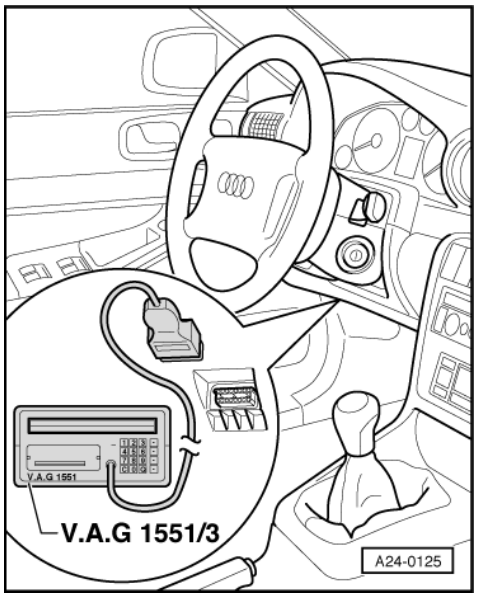
- Battery voltage at least 11 V
- Fuse OK

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

- Earth connections and earth points OK

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

- Check battery earthing strap.
- Switch off ignition.



- -> Connect vehicle diagnostic, testing and information system VAS 5051 with diagnostic lead VAS 5051/1. Alternatively, connect fault reader V.A.G 1551 with diagnostic lead VAG 1551/3.

Attention:
- **On test drives the vehicle diagnostic, testing and information system VAS 5051 or the fault reader V.A.G 1551 must only be secured on the rear seat and operated from there.**
- **Observe the safety precautions => Page 1**

-> Indicated on display:

```
V.A.G SELF-DIAGNOSIS      HELP
1 - Rapid data transfer 1)
2 - Flash code output1)
```

1) Displayed alternately

Note:

If display remains blank:

=> Fault reader operating instructions

- Switch on ignition.
- Press Print key to switch on printer (lamp in key lights).
- Press key 1 for "Rapid data transfer".

-> Indicated on display:

```
Rapid data transfer      HELP
Enter address word XX
```

Note:

Address word 00 starts the automatic test sequence, i.e. the fault memories of all vehicle systems with self-diagnosis capability are interrogated by way of rapid data transfer.