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# 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



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

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## Contents

01 -	Self-d	liagnosis	.1
	1	Self-diagnosis of radio systems	.1
	1.1	Self-diagnosis of radio systems	.1
	1.2	General	.1
	1.3	Starting self-diagnosis of radio systems	.1
	1.4	Safety precautions	.1
	1.5	Interrogating control unit version	.3
	1.6	Interrogating fault memory	.4
	1.7	Fault table for radio systems	.5
	1.8	Final control diagnosis	.10
	1.9	Erasing fault memory	.11
	1.10	Ending output	.12
	1.11	Encoding control unit	.12
	1.12	Reading measured value block	.16
	1.13	Adaption	.20
	2	Self-diagnosis of navigation system II (Navigation System Plus) (up to Wk 47/99)	24
	21	Self-diagnosis of navigation system II (Navigation System Plus) (up to Wk 47/99)	24
	2.2	General	.24
	2.3	Starting self-diagnosis of navigation system II	.24
	2.4	Safety precautions	.25
	2.5	Interrogating control unit version	.26
	2.6	Interrogating fault memory	.27
	2.7	Fault table for navigation system II	.28
	2.8	Final control diagnosis	.30
	2.9	Erasing fault memory	.31
	2.10	Ending output	.31
	2.11	Encoding control unit	.32
	2.12	Reading measured value block	.32
	2.13	Adaption	.35
	3	Self-diagnosis of navigation system II-D (Navigation System Plus RNS 4.1) (from Wk 48/99	9
	• •	onwards)	.38
	3.1	Self-diagnosis of navigation system II-D (Navigation System Plus RNS 4.1) (from Wk 48/99	) 20
	2.2	Onwards)	.38
	ა.∠ აა	General	.30 20
	21	Starting solf diagnosis of pavigation system U.D.	.30
	3.4	Safety precautions	.40
	3.5 3.6	disterred at induced trade and the second seco	.40
	3 Primitte	ed unless authorised by AUDI AG does not guarantee or accept any liability	<u>۲</u> ۲.
	3.7 with	respect to year the solid Mitchildory in this document. Copyright by AUDI AG.	.43 43
	3.9	Final control diagnosis	46
	3 10	Frasing fault memory	.40 47
	3 11	Ending output	48
	3.12	Reading measured value block	48
	3 13	Function status register	51
	3 14	Adaption	52
	1	Self-diagnosis of pavigation system III (route pavigation) (from Wk 27/00 onwards)	6/
	<b>-</b> / 1	General	-0-
	4.2	Starting self-diagnosis of navigation system III	64
	4.3	Safety precautions	65
	4.0	Interrogating control unit version	66
	4.5	Interrogating fault memory	67
	4.6	Fault table for navigation system III	.68
	4.7	Final control diagnosis	.70
		<b>.</b>	-

4.8 4.9 4.10 4.11 5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9 5.10 5.11	Erasing fault memory       .7         Ending output       .7         Reading measured value block       .7         Function status register       .7         Adaption       .7         Self-diagnosis of navigation system Nav IV (BNS 4.0) (from Wk 04/01 onwards)       .8         Self-diagnosis of navigation system Nav IV (BNS 4.0) (from Wk 04/01 onwards)       .8         Self-diagnosis of navigation system Nav IV (BNS 4.0) (from Wk 04/01 onwards)       .8         Self-diagnosis of navigation system Nav IV (BNS 4.0) (from Wk 04/01 onwards)       .8         Starting self-diagnosis of navigation system BNS 4.0 (Nav IV)       .8         Starting control unit version       .8         Interrogating fault memory       .8         Fault table for navigation system       .8         Final control diagnosis       .8         Erasing fault memory       .9         Ending output       .9         Reading measured value block       .9	12267 <b>2</b> 22335569011
5.12 5.13	Function status register       9         Adaption       9	5 5
5.13 <b>6</b>	Adaption	5 03
6.1 6.2	Self-diagnosis of multi-function steering wheel	03
6.3	Starting self-diagnosis of multi-function steering wheel	03
6.4	Safety precautions	04
6.5 6.6	Interrogating control unit version	05
0.0 6.7	Fault table for multi-function steering wheel	00
6.8	Final control diagnosis	08
6.9	Erasing fault memory	10
6.10	Ending output	10
6.11	Encoding control unit	11 12
0.1Z		13
<i>I</i> 71	Self-diagnosis of telematics system	15 15
7.2	General	15
7.3	Notes on enabling system	15
7.4	Starting self-diagnosis of telematics system	15
7.5	Safety precautions	16
7.6 7.7	Interrogating control unit version	17 18
7.8	Fault table for telematics system	19
7.9	Final control diagnosis	24
7.10	Erasing fault memory	25
7.11	Ending output	26
7.12	Encoding control unit	26
7.13	Adaption	20 32
8	Self-diagnosis of voice control system	20 20
8.1	Self-diagnosis of voice control system	39
8.2	General	39
8.3	Starting self-diagnosis of voice control system	40
8.4	Safety precautions by Albit AG. AUDI AG does not guarantee or accept any liability	40
8.5 0 c	Interrogating control anti version this document. Copyright by AUDI AG.	42 42
0.0 8 7	Fault table for voice control system	43
8.8	Final control diagnosis	45
8.9	Erasing fault memory	47

8.10 8.11 8.12 <b>9</b> 9.1 9.2 9.3 9.4 9.5 9.6 9.7	Ending output Encoding control unit Reading measured value block Self-diagnosis of telephone Self-diagnosis of telephone General Starting self-diagnosis of telephone Starting self-diagnosis of telephone Safety precautions Interrogating control unit version Interrogating fault memory Frault table for telephone tvate or commercial purposee, in part er in whele, is not	147 148 149 <b>151</b> 151 151 151 151 153 154 154
9.8 9.9 9.10 9.11 9.12	Final control diagnosis UD AG. AUDI AG does not guarantee or accept any liability with respect to the contections of information in this document. Copyright by AUDI AG. Erasing fault memory Ending output Encoding control unit Reading measured value block	158 158 159 159 161
<b>10</b> 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 10.10 10.11 10.12 <b>11</b>	Self-diagnosis of TV tuner         Self-diagnosis of TV tuner         General         Starting self-diagnosis of TV tuner         Safety precautions         Interrogating control unit version         Interrogating fault memory         Fault table for TV tuner         Final control diagnosis         Erasing fault memory         Ending output         Encoding control unit         Reading measured value block	<b>164</b> <b>166</b> <b>166</b> <b>166</b> <b>168</b> <b>168</b> <b>168</b> <b>169</b> <b>171</b> <b>172</b> <b>173</b> <b>173</b> <b>175</b>
11.1	V.A.G 1551, and selecting functions	<b>177</b> 177



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## 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

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- 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  $\Rightarrow$  key. ٠
- ٠
- 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 ٠ 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.

-> Ind	-> 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 56 - Radio	Q	
-----------------------------------	---	--

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 Code 00117	Radio WSC XXXXX	D0002			
A 11			~	_	

-> Adjacent display appears after approx. 5 s:

#### From MY 02 onwards:

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8E0035195B	symphony II NP2 authorised by AUDI A WP2 0004 With respect to the correctness of inf	G. AUDI AG does not guarantee or accept any liability prmation in this document. Copyright by AUDI AG.
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  $\Rightarrow$  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 respon	se

=> 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 trans	fer	HELP
Select function	XX	

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

#### Self-diagnosis functions

Possible functions:

- 01 Interrogate control unit version => Page 3
- 02 Interrogate fault memory => Page 4
- 03 Final control diagnosis=> Page 10
- 05 Erase fault memory => Page 11
- 06 End output => Page 12
- 07 Encode control unit=> Page 12
- 08 Read measured value block => Page 16
- 10 Adaption=> Page 20
- 1.5 Interrogating control junit yersion te or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



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

-> Indicated on display:				
Rapid data transfer 01 - Interrogate control	Q 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  $\Rightarrow$  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".

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#### -> 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 0 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.

HELP

-> In the case of "No faults detected", program returns to start when

⇒ key is pressed. No faults detected

-> Indicated on display:

Rapid data transfer 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 ٠ 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/defec- tive - Short circuit in vehicle electrical system - Battery voltage lower than 9.5 V - Alternator defective	<ul> <li>Charge/replace battery</li> <li>&gt; Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging bat- tery</li> <li>Check alternator</li> <li>&gt; Electrical System; Repair Group 27; Removing and in- stalling alternator Removing and installing alternator</li> <li>Repair short circuit in vehicle electrical system</li> </ul>
00849 S-contact on ignition/starter switch -D - Open circuit	- Ignition/starter switch -D defective - Open circuit in wiring	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace ignition/starter</li> <li>switch -D</li> <li>Electrical system; Repair</li> <li>Group 94; Repairing lock cyl- inder and ignition/starter</li> <li>switch Repairing lock cylinder</li> <li>and ignition/starter switch</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace active amplifier</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Radio sys- tems; Removing and installing BOSE power amplifier Radio systems; Re- moving and installing BOSE power am- plifier</li> </ul>
00852 Loudspeaker f - Short circuit - Open circuit	- Wiring damage - Front loudspeaker defective - Open circuit in wiring	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace defective loudspeaker</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Radio sys- tems; Removing and installing loud- speakers Radio systems; Removing and installing loudspeakers</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace defective loudspeaker</li> <li>Radio, Telephone and Navigation System; Repair</li> <li>Group 91; Radio systems; Removing and installing loud-speakers</li> </ul>

Output on printer of V.A.G 1551ed by copyright. Copying for private or co	Possible cause of trouble mmercial purposes, in part or in whole, is not AG does not quarantee or accent any liability	Fault remedy
00854 with respect to the correctness of information	in this document. Copyright by AUDI AG.	
Output radio display dash panel insert - No communication 1)	- Open circuit in wiring - Dash panel insert defective - Radio defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations bind- er</li> <li>Eliminate open circuit in wiring Replace dash panel insert</li> <li>Electrical System; Repair Group 90; Dash panel insert; Removing and instal- ling dash panel insert Radio systems; Removing and installing radio</li> </ul>

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 inter- rupted - 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 us-
		Ing current flow diagram Replace CD changer => Radio, Telephone and Navigation System; Repair Group 91; Radio sys- tems; 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	<ul> <li>Open circuit in wiring</li> <li>Short circuit in aerial wire</li> <li>Aerial wire not plugged in</li> </ul>	<ul> <li>Use current flow diagram to perform fault- finding</li> <li>&gt; Current Flow Diagrams, Electrical Fault- finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check aerial wire</li> <li>Check aerial</li> </ul>
00857	Protected by copyright. Copying for priv	ate or commercial purposes, in part or in whole, is not
CD changer -R41 - No communication - Defective	<ul> <li>Open circuit in wiringespect to the correctness of inf</li> <li>Voltage supply to CD changer interrupted</li> <li>CD changer -R41 defective</li> <li>Radio defective</li> </ul>	<ul> <li>All About AG does not quartered of accept any labeling</li> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to CD changer using</li> <li>current flow diagram</li> <li>Replace CD changer</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing CD changer Radio</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring or short circuit</li> </ul>
00878		

- Short circuit - Open circuit	- Open circuit in wiring - Front left loudspeaker defective	form fault-finding => Current Flow Diagrams, Electri- cal Fault-finding and Fitting Loca- tions 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; Re- moving 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 Protected by copyright. Copying for private permitted unless authorised by AUDI AG. with respect to the correctness of inform	- Wiring damage - Open circuit in wiring - Front right loudspeaker defec- tive or commercial purposes, in part or in whole, is n UDI AG does not guarantee or accept any liabili ation in this document. Copyright by AUDI AG.	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace front right loudspeaker</li> <li>&gt; Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing loudspeakers Radio</li> <li>systems; Removing and installing loudspeakers</li> </ul>
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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wir- ing Replace navigation system control unit</li> <li>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; Re- moving and installing control unit for navigation system</li> </ul>
01303		

Telephone transmitter/receiver unit - No communication	CAN bus fault     Open circuit in wiring     Telephone transmitter/receiver unit defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wir- ing Replace transmitter/receiver unit</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telephone sys- tem, Removing and installing transmitter/receiver unit Tel- ephone system; Removing and installing transmitter/re- ceiver unit</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> </ul>
01317		
Control unit with display in dash panel insert -J285 - No communication	- CAN bus fault - Open circuit in wiring - Dash panel insert defec- tive	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace dash panel insert</li> <li>Electrical System; Repair</li> <li>Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel in- sert; Removing and installing dash panel insert</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder</li> <li>Eliminate open circuit in wiring Replace multi-function steering wheel control unit</li> <li>Radio, Telephone and Nav- igation System; Repair Group</li> <li>Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steer- ing wheel control unit -J453</li> </ul>

65535		
Control unit - Defective	- Radio defective	<ul> <li>Replace radio</li> <li>Radio, Telephone and Nav- igation System; Repair Group</li> <li>91; Radio systems; Removing and installing radio Radio sys- tems; Removing and installing radio</li> </ul>

## 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:	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not
Rapid data transfer Q 03 - Final control diagnosis	with respect to the correctness of information in this document. Copyright by AUDI AG.

- Confirm entry with Q key.

-> Indicated or	n display:
Final control Loudspeakers	diagnosis

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:

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

-> Indicated on display:



## 1.9 - Erasing fault memory

Note:

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

**Requirements:** 

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- with respault memory interrogated im>Ragent 4 opyright by AUDI AG.
  - 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  $\Rightarrow$  key.

-> Indicated on display:	
Rapid data transfer Select function XX	HELP

Notes:

Attent	cion:			
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.



**1.11** - Percent de la manufaciona de la comparación de la compara

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 tra	ansfer	Q	
07 - E	Incoding	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
- ٠ 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 ٠
- Radio configuration 1: 7 = With diversity, CD changer and multi-function steering wheel ٠

4D0035192E Radio D0002 Code 00117 WSC XXXXX

-> The display will show the control unit identification and the coding that was entered (00117).

Press  $\Rightarrow$  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.	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
Encoding table up to MY 01:	

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

## مس Audi A8 1994 ≻ مس Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

5	4	3	2	1	l← C	Decimal places of byte coding on tester display				
				7		Radio confi	guration			
						Aerial with remote power supply	CD changer	Secondary display		
1				1	Х	-	-			
					3	Х	Х	-		
					5	Х	-	Х		
	7				7	Х	Х	Х		
	X = Component fitted					- Component fitted	- = Not fitted			

5	4	3	2	1	← Decimal pla	aces 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				
	_				permitted unless authorised by AUDI Country G does not guarantee or accept any liability				
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Encoding table from MY 02 onwards:

5	4	3	2	1	← Deci	- Decimal places of byte coding on tester display					
					-						
				7			Radio configur	ation 1			
						Diversity box	CD changer	Multi-function steering wheel			
					0	-	-	-			
					1	Х	-	-			
					2	-	Х	-			
					3	Х	Х	-			
					4	-	-	Х			
					5	Х	-	Х			
					6	-	X	Х			
					7	Х	Х	Х			

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

5	4	3	2	1	← Decimal p	- Decimal places of byte coding on tester display			
			3			Radio c	onfiguration 2		
						Navigation	Telephone	VCS	
					0	-	-	-	
					1	Х	-	-	
					2	-	Х	-	
					3	Х	Х	-	
					4	-	-	X	
					5	Х	-	X	
					6	-	Х	Х	
					7	X	X	X	
					X = Compon	ent fitted	- = Not fitted		

5	4	3 2	1	← Dec	Decimal places of byte coding on tester display					
		6				Radio	o configuration 3			
					Fader OFF	BOSE display ON	Active amplifier deactivation when using telephone			
				0	_	-				
				1	X		-			
				2	-	Х	_			
				3	Х	Х	-			
				4	-		X			
				5	Х		Х			
				6	-	X	X			
			7 Protecte to copyright. Copying for part or commercial purposes, in part or in whole, is not							
				X = C	omponent fitted	correctNot fitted mation in th	poes not guarantee or accept any hability is document. Copyright by AUDI AG.			

5	4	3	2	1	← Decimal places of by	← 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 m	neasured 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.

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-> 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 am- plifier 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 am- plifier 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

Read n	neasured val	ue block 1	⇒	<ul> <li>Indicated on display</li> </ul>
0	12.3 V	60 %	ON	
			Dimming   • 0 99%	Status of input/S-contact • Can be checked during output of measured values • Remove ignition key =display "off" • Ignition key re-inserted in ignition lock = display "on" evel of radio illumination in percent (only when lights are ON)
		Voltage term	า. 30	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is n
	Vehicle-spe • 0 = Level • 1 = Level	ed signal (GA low high	LA level)	permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any flabil with respect to the correctness of information in this document. Copyright by AUDI AG

## Measured value block 001 from MY 02 onwards

Read measured value block 1			⇒	Indicated on display
12.3 V	OK	Telephone	OFF	
				Status of input/telephone mute <ul> <li>Telephone in use = "ON"</li> <li>Telephone switched off = "OFF"</li> </ul>
			Telepho	one
		Status of control output for active amplifier • "OK" • "Short"		
Voltage term. 30				

## Measured value block 002 up to MY 01

Г

Read measured val	ue block 2		⇒	<ul> <li>Indicated on display</li> </ul>
Lsp. front	OK	Lsp. rear	OK	

Status of rear loudspeaker • OK • Short circuit • Open circuit
Rear loudspeaker
Status of front loudspeakers • OK • Short circuit • Open circuit
Front loudspeakers
I Toni Toudspeakers

## Measured value block 002 from MY 02 onwards

Read measured value	block 2	l sp. rear	→ Indicated on display		
		Status of front loudspeakers 1) <ul> <li>OK</li> <li>Short circuit</li> <li>Open circuit</li> </ul>			
Front loudspeak Breedted by copyright. Copying for private or commercial purposes, in part or in whole, is not					
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1) No display for BOSE sound system

## Measured value block 003

Read measured value block 3			⇒ Indicated on display
Active	Aerial	OK	
			Status of aerial • OK • Short circuit • Open circuit
		Aerial	
	Type of aerial Passive Active		

## Measured value block 004 up to MY 01

Read meas 0	ured value block 4 Telephone	⇒ Indicated on display
		Status of input/telephone mute <ul> <li>Telephone in use = "ON"</li> <li>Telephone switched off = "OFF"</li> </ul>
		Telephone

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

Read measured value block 5 CD connect.	→ Indicated on display
	Status of CD connection <ul> <li>OK</li> <li>Not OK</li> </ul>
	D connection
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Measured value block 005 from MY 02 onwards

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Read measured value blo	ck 5	$\Rightarrow$ Indicated on display
IF output	OK	
		Status of IF output
		• OK • Short
		- Short
	ποαιραί	

## Measured value block 006 up to MY 01

Read measured value block 6	→ Indicated on display

Ext. disp	I. OK		
		Status of exte	rnal display
		<ul> <li>Not OK</li> </ul>	
	External display	(dash panel in	sert)

## Measured value block 007



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## 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 10 - Adaption	Q	

- Confirm entry with Q key.

-> Ind	icated or	n display	/:	
Adapti	lon			
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:

Adapti	lon			
Enter	channel	number	XX	

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

## Note:

Wrong entries can be corrected by pressing C key.

0

- Confirm entry with Q key.

-> Indicated on display: Channel 77 Adaption

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

- Press  $\Rightarrow$  key.

-> Indicated on display: ted by copyright. Copying for private or commercial purposes, in part or in whole, is not Channel 77 Adaption AG. AUDI AG. AUDI AG does not guarantee or accept any liability Enter adaption value XXXXX in formation in this document. Copyright by AUDI AG.

- 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:

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Channel 77	Adaption	1	Q	
Store altered	value?			

- Confirm entry with Q key.

-> Indicated on display:



- Press  $\Rightarrow$  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

maloatoa on alopiay.
----------------------

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.

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-> 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		
Encer adaption value AAAAA			

- 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:

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- Confirm entry with Q key.

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-> Indicated on display:



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

- Press  $\Rightarrow$  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:



- Confirm entry with Q key.

-> Indicated on display:

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

- Confirm entry with Q key.

-> Indicated on display:

Channel 99 Adaption Altered value stored	1	
---	---	--

- Press  $\Rightarrow$  key.

-> Indicated on display:	
Rapid data transfer Select function XX	HELP

- 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 uthorised by AUDI AG. AUDI AG does not guarantee or accept any liability (address word 56) as of Page: to the correctness of information in this document. Copyright by AUDI AG.

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  $\Rightarrow$  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:



#### Address word for navigation system: 37

- Press keys 3, and 7 pying for private or commercial purposes, in part or in whole, is not

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- 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  $\Rightarrow$  key.

Indicated on display of radio/navigation system:

DIAG	
Indicated on dash panel insert display:	
DIAG	

- Press  $\Rightarrow$  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	
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_=> Current Flow Diagrams, Electrical Fault-	AUDI AG AUDI AG does not guarantee or accept any liability
Rapid data transfer HELP	coordination in the section. Oppingin by AODI Ad.

Fault in co	ommunicatio	n link	
Rapid data K-wire not	transfer switched t	HELP o earth	
Rapid data	transfer	HELP	

K-wire not switched to positive

-> Indicated on display:

Rapid data trans	sfer	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 26
- 02 Interrogate fault memory => Page 27
- 03 Final control diagnosis=> Page 30
- 05 Erase fault memory => Page 31
- 06 End output => Page 31
- 07 Encode control unit=> Page 32
- 08 Read measured value block => Page 32
- 10 Adaption=> Page 35

## 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.

-> 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).

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

-> Indicated on display:

Rapid data tran	fer Q	
02 - Interrogat	e 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  $\Rightarrow$  key is pressed.

No	faults	detected	

-> Indicated on display:		
Rapid data transfer Select function XX	HELP	

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.	<ul> <li>Battery discharged/defective</li> <li>Short circuit in vehicle electrical system</li> <li>Battery voltage lower than 9.5 V</li> <li>Alternator defective</li> </ul>	<ul> <li>Charge/replace battery</li> <li>=&gt; Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging bat- tery</li> <li>Repair short circuit in vehicle electrical system</li> <li>Check alternator</li> <li>=&gt; Electrical System; Repair</li> <li>Group 27; Removing and in- stalling alternator</li> </ul>

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

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

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace navigation aerial</li> <li>Radio, Telephone and Navigation System;</li> <li>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)</li> </ul>
00867		
Connection to ABS control unit - No signal	<ul> <li>Wiring damage</li> <li>Open circuit in wiring</li> <li>ABS wheel sensors defective</li> <li>ABS control unit defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Perform ABS self-diagnosis</li> <li>=&gt; Running gear self-diagnosis for ABS, ESP;</li> <li>Repair Group 01</li> </ul>

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 con- nected - Open circuit in bus wire between control units in radio/navigation system otected by copyright. Copying for private or commercial purpose ermitted unless authorised by AUDI AG. AUDI AG does not guar with respect to the correctness of information in this document.	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace radio/navigation system</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Navigation system II</li> <li>(Navigation System Plus); Removing and installing operating electronics control unit for navigation System Plus); Removing and installing operating electronics control unit for navigation System Plus); Removing and installing operating electronics control unit for navigation system -J402</li> </ul>

65535		
Control unit - Defective	- Radio/navigation system defective	- Replace radio/navigation system => Radio, Telephone and Navigation Sys- tem; Repair Group 91; Navigation system II (Navigation System Plus); Removing and in- stalling 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	l on display:	
Rapid data 03 - Final	transfer Q control diagnosis	

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 Confirm entry with Q key JDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

-> Indic	cated o	n display	/:		
Final d	control	l diagnos	sis		
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  $\Rightarrow$  key.

-> Indicated on display:

Final	control	diagnosis	
End			

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

-> Ind	icated	d 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.

HELP

-> Indicated on display:				
Rapid data 05 - Erase	transfer fault memory	Q		

- Confirm entry with Q key.

-> Indicated on display:	
Rapid data transfer Fault memory erased	

Fault memory has now been erased.

- Press  $\Rightarrow$  key.

-> Indicated on display:

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

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 "En-٠ coding 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



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

#### -> Indicated on display: Rapid data transfer 08 - Read measured value block

Confirm entry with Q key. \_

### -> Indicated on display:

ng for private or commercial purposes, in part or in whole, is not Read measured value blook mitted unless authorised b y AUDI AG. AUDI AG does not guarantee or accept any liability Enter display group numberithXXX pect to the correct ss of information in this document. Copyright by AUDI AG.

-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

Read measured	value block 2 → Indicated on display			
Reverse off	Term.15 ON			
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	Status of input/term. 15 Input/term. 15 active =Display "ON" Input/term. 15 not active =Display "OFF"			
Status of input/reversing light switch <ul> <li>Input/reversing light switch active =Display "ON"</li> <li>Input/reversing light switch not active =Display "OFF"</li> </ul>				
	<ul> <li>Input/reversing light switch not active =Display "OFF"</li> </ul>			

### Measured value block 003

Read measured value	block 3	⇒ Indicated on display	
GPS aer.	OK		



### Measured value block 004

Read measured value block 4		⇒	<ul> <li>Indicated on display</li> </ul>
	Function/commu • OK • Not OK	unication w	ith external display
Protected by copyright. Copyring for prive permitted unless author CATE/NAL/OIS with respect to the correctness of info	te or commercial purposes, splay (dash panel) rmation in this document. Co	in part or in whole <b>INSERT</b> cept any opyright by AUDI	e, is not y liability AG.

### Measured value block 005

Read measured valu	ie block 5		⇒	Indicated on display
Data bus	OK			
		Function/commu	nication of d	lata bus information
		• OK • Not OK		
	Data bus	Hoton		

### Measured value block 006

Read measu	red value block 6		→	Indicated on display
Left	86 km/h	Right	86 km/h	
				Vehicle speed, right
			Pulse generat	or (ABS), right
		Vehicle speed,	left	
	Pulse generator (AB	S), left		

### 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.



- Confirm entry with Q key.

-> Indicated or	n display	/:		
Adaption Enter channel	number	xx		

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- Confirmentry with @keyinformation in this document. Copyright by AUDI AG.

### 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:

Adapti	lon			
Enter	channel	number	XX	

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

### Note:

• Wrong entries can be corrected by pressing C key.

### مس Audi A8 1994 ≻ مىم Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

- 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  $\Rightarrow$  key.

-> Indicated on display: Channel 1 Adaption 2060 Q Enter adaption value XXXXX

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- 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 Store altered	Adaption value?	2074	Q	

- Confirm entry with Q key.

### -> Indicated on display:

Channel	1	Adaption	2074
Altered	value	stored	

- Press  $\Rightarrow$  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:



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

- Press  $\Rightarrow$  key.

```
-> Indicated on display:
Channel 2
               Adaption
                             42
                                    0
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. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability -> Indicated on display: with respect to the correctness of information in this document. Copyright by AUDI AG.

		111111000000000	0000000	
Channel 2 Store altered	Adaption value?	45	Q	

Confirm entry with Q key.

-> Indicated on display:

Channel Altered	2 value	Adaption stored	45	

Press  $\Rightarrow$  key.

-> Indicated on display:	
Rapid data transfer Select function XX	HELP

- Press keys 0 and 6 to select "End output" function.
- Press  $\Rightarrow$  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:



### 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 protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

No fault is entered in fault memory on in this document. Copyright by AUDI AG.

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
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- ISwitchuons gnittion by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

### 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 $\tt XX$		

### 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 \Rightarrow key.
```

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



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

Rapid data transfer Fault in communication	HELP link	
Rapid data transfer K-wire not switched to	HELP earth	
Rapid data transfer K-wire not switched to	HELP positive	
-> Indicated on display:		
Rapid data transfer Select function XX	HELP	

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#### 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: Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not Rapid data transfer 01 - Interrogate control Protected by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Confirm entry with Q key.

### Up to Wk 36/00:

4D0035192H	Navigation	BNO	0004
$\Box$ Code 00000	WSC XXXXX		

-> Adjacent display appears after approx. 5 s:

### From Wk 37/00 onwards:

4D0035192K F	RNS 4.1	H05	BNO	0017
Code 00000 W	VSC XXXX	XX		

-> 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 tr	ansfer	HELP
Select	functi	on XX	

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

-> Indicated on display:

Rapid	d data	transf	ler	Q	
02 -	Interi	rogate	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

- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not End output (function 06) DTAC A399AGes not guarantee or accept any liability
- Switch off ignition and unplug diagnostic connector by AUDI AG.

### 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 continuous- ly 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. Protected by copyright. Copying for private or commercial purposes, in pa permitted unless authorised by AUDI AG. AUDI AG does not guarantee of with respect to the correctness of information in this document. Copyri	- Open circuit in wiring - Dash panel insert defec- tive - Navigation system control unit defective rt or in whole, is not or accept any liability ght by AUDI AG.	- Eliminate open circuit in wir- ing 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 sys- tem II (Navigation System Plus); Removing and instal- ling 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.	<ul> <li>Battery discharged/defective</li> <li>Short circuit in vehicle electrical system</li> <li>Battery voltage lower than 9.5 V</li> <li>Alternator defective</li> </ul>	<ul> <li>Charge/replace battery</li> <li>=&gt; Electrical system, Repair Group 27</li> <li>Repair short circuit in vehicle electrical system</li> <li>Check alternator</li> <li>=&gt; Electrical system, Repair</li> <li>Group 27</li> </ul>

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	<ul> <li>Eliminate open circuit in wiring Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electri- cal Fault-finding and Fitting Loca- tions binder</li> <li>Replace dash panel insert</li> <li>Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert</li> <li>Navigation system II (Navigation System Plus); Removing and instal- ling operating electronics control unit for navigation system -J402</li> </ul>

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	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Navigation aerial 1) (GPS) defective</li> <li>Aerial splitter -R87 1) defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace GPS aerial wire</li> <li>Replace navigation aerial (GPS)</li> <li>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</li> </ul>
--	--	---

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	<ul> <li>Wiring damage</li> <li>Open circuit in wiring</li> <li>ABS wheel sensors defective</li> <li>ABS control unit defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder</li> <li>Eliminate open circuit in wiring Perform ABS self-diagnosis</li> <li>Running gear self-diagno- sis for ABS, ESP; Repair</li> <li>Group 01</li> </ul>
01300		
Control unit for navigation system with CD drive - J401 - Defective	The navigation system con- trol 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 con- trol 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 re- placed if the system is no lon- ger operative

Output on printer of rised by AUDI AG. AUDI AG does not guaran V.A.G 1554 pect to the correctness of information in this document. C	Possible cause of trouble ppyright by AUDI AG.	Fault remedy
01311 Data bus information - No communication	The navigation system con- trol 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	- The navigation system con- trol 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 re- placed if the system is no lon-
01317	between central unit and navigation unit in navigation system control unit.	ger operative

Control unit with display in dash panel insert -J285 - No communication 1)	- CAN bus fault - Open circuit in wiring - Dash panel insert defec- tive	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder</li> <li>Eliminate open circuit in wiring Replace dash panel insert</li> <li>Electrical System; Repair</li> <li>Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert;</li> </ul>
		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	Protected by copyright. Copying fo - Navigation system control unit defective with respect to the correctness	private or commercial purposes, in part or in whole, is not ■ Replace navigation system control unit => Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navi- gation System Plus); Removing and installing operating electronics control unit for naviga- tion system -J402 Navigation system II (Navi- gation System Plus); Removing and installing operating electronics control unit for naviga- tion system Plus); Removing and installing operating electronics control unit for naviga- tion 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:



- 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  $\Rightarrow$  key.

3.10 - Erasing fault memory

#### Notes:

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- permitted uplass authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with response the tault memory is erased the trunction 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:



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

-> Indicated on display:

Rapi	d dat	a trar	nsfer	Q	
05 E	rase	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 Select function XX	HELP

Notes:

Attent	cion:			
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 06 - End output	Q	

- Confirm entry with Q key.

-> Indicated on display:			
Rapid	data transfer	HELP	

- 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:	
				1

Rapid data transf	er HELP
Select function X	X

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



ra	<b>DT</b> C	i ualo	Q			
08	-	Read	measured	value	block	

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block Enter display group number XXX

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- 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 Prote wheel) 2 = Vehicle speed, left in km/h
007	1 = Content of function status reg-



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Measured value block 001

Read m	Read measured value block 1 0 14.1 V 99 %			<ul> <li>Indicated on display</li> </ul>
				Status of input/S-contact <ul> <li>Can be checked during output of measured values</li> <li>Remove ignition key =display "off"</li> <li>Ignition key re-inserted in ignition lock = display "on"</li> </ul>
			Dimn • 0	ning level of radio illumination (only when lights are on) . 99%
Voltage term. 30			n. 30	
Vehicle-speed signal (GALA level) • 0 = Level low • 1 = Level high				

### Measured value block 002

Read measured value	block 2	⇒	<ul> <li>Indicated on display</li> </ul>
Reverse off			

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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 (	)03			
Read measured value	e block 3		⇒	<ul> <li>Indicated on display</li> </ul>
GPS aer.	ОК			
Protected by copyright. Co permitted unless authorise with respect to the corre	Pring for private or commes ad by AUDI AG. AUDI AG do actors of information in this GPS aerial	tus of GPS a K hort circuit <sup>ar</sup> pen circuit <sup>or</sup>	t or in whole, is accept any lia ht by AUDI AC	ote power supply 1) s not ubility

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/commu • OK • Not OK	unication wi	ith external display
External display (dash panel		insert)		

### Measured value block 005

Read measured va	lue block 5 OK		⇒	<ul> <li>Indicated on display</li> </ul>
		Communication, in • OK • Not OK	formation data	bus (internal data bus)

### Data bus

### Measured value block 006

Read measured value block 6	⇒	<ul> <li>Indicated on display</li> </ul>
Vehicle speed c tyre circumfere	alculated as a function of ABS sign nce and number of pulses per wh	nal with allowance for programmed eel revolution.
Pulse generator (ABS), left		
Measured value block 007		)
Read measured value block 7 255	⇒ • Ir	ndicated on display

	<ul> <li>Terminal 15 (ignition ON) detected = 4</li> <li>Current consumption of GPS aerial OK (10 to 30 mA) = 2</li> <li>CAN communication with navigation unit (internal) OK = 1</li> </ul>
:	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

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

CAN communication with dash panel insert OK = 16 Signal from reversing light switch detected = 8

ABS pulses detected at least once = 32

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(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 ٠
- Number of pulses from ABS wheel sensors adapted => Page 54 Erase fault memory => Page 47 ٠
- ٠
- 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: private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Changes to tyre size

Changes to number of pulses from ABS wheel sensors ٠

- Disabling/enabling of production diagnosis ٠
- ٠ 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 tables are Bages 52) ercial purposes, in part or in whole, is not \_
  - Confirm entry with Q key. permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

### 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:



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

Press  $\Rightarrow$  key.

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-> Indicated on displa Channel 1 Adapt:	ay: ion	2060 x			
<ul> <li>Enter adaption value XXXX</li> <li>Enter new tyre circumference with zero before 4-digit number (e.g. 2075). Tyre table =&gt; Page 37.</li> <li>Confirm entry with Q key.</li> </ul>					
-> Indicated on displa	ay:				
Channel 1 Adapt:	ion	2075	Q		
- Confirm entry with	n Q key	y.			
-> Indicated on displa	ay:				
Channel 1 Adapt: Store altered value	ion ?	2075	Q		
- Confirm entry with	n Q key	y.			
-> Indicated on displa	ay:				
Channel 1 Adapt: Altered value store	ion d	2075			
- Press ⇒ key.					
-> Indicated on displa	av:				
Rapid data transfer Select function XX	H	ELP			
				I	

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

- Press ⇒ key.

### Adapting number of pulses from ABS wheel sensors

-> Indicated on display:					
Adapt:	ion				
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 number of pulses from ABS wheel sensors opyright by AUDI AG.

- Press  $\Rightarrow$  key.

-> Indicated on display:				
Channel 2 Enter adaption	Adaption value XXXXX	42	Q	



- 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:



- 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  $\Rightarrow$  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). Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not

- Press ⇒ key.

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-> Indicated on display:				
Channel 3	Adaption 0	)		
Enter adapt	ion value XXXXX			

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

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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	AUUI

- Press keys 0 and 6 to select End output and a convriction of private or commercial purposes, in part or in whole, is not permitted by convriction of a conversion of a conver

### 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.



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

Press  $\Rightarrow$  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  $\Rightarrow$  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:						
Adapt:	ion					
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  $\Rightarrow$  key.

-> Indicated on display:

Channel 5 Adaption 0 Enter adaption value XXXXX Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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

- Committeenary with Q	KCy.			
-> Indicated on display:				
Channel 5 Adaption	1	Q		
- Confirm entry with Q	key.		I	
-> Indicated on display:				
Channel 5 Adaption Store altered value?	1	Q		
- Confirm entry with Q	key.			
-> Indicated on display:				
Channel 5 Adaption Altered value stored	1			
- Press ⇒ key.				
-> Indicated on display:		_		
Rapid data transfer Select function XX	HELP			

- Press keys 0 and 6 to select "End output" function.
- Press  $\Rightarrow$  key.

Adapting telematics

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-> Indicated on display:							
Adapti	lon						
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  $\Rightarrow$  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 trans	sfer	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". <i>Note:</i>	

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated	on display:		_
Channel 7	Adaption	0	
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Topsline shows selected channel and respective system configuration (0 = without electronic logbook, 1 = with electronic logbook).

- Press  $\Rightarrow$  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 Altered value stored	1	
--	---	--

- Press  $\Rightarrow$  key.

-> Indicated on display:				
Rapid	data	transfer	HELP	

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

Press ⇒ key.

Select function XX

### 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	В	ack to RETURN
Communication status	: B	ack 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	<i>ı</i> :
				_

Adaption Enter channel number XX

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 Press keys @andi 7ntosselectel@Channel.7(UDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

### 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).

<ul> <li>Press ⇒ key.</li> </ul>		
-> Indicated on display:		
Channel 7 Adaption Enter adaption value XXXXX	0	

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

	-> Indica	ated or	n display:			_
	Channel	7	Adaption	15		
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Channel 7	Adaption	15	Q
Store altered	value?		

- Confirm entry with Q key.

-> Indicated on display: Channel 7 Adaption 15 Altered value stored

- Press  $\Rightarrow$  key.

-> Indicated on display:			
Rapid data transfer Select function XX	HELP		

- 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	х			
2		x		
3	Х	х		
4			х	
5	х		х	
6		x	х	
7	х	x	х	
8				х
9	Х			х
10		х		х
11	х	x		х
12			x	х
13	X		X	х
14		х	x	x

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

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	bv pressind	n C kev
in ong on aloo oan	20 001100100		

- 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  $\Rightarrow$  key.

-> Indicated on display: Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Channel 9 Adaption 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 Store altered value?	0	Q
--	---	---

- Confirm entry with Q key.

-> Indicated on display:

Channel	9	Adaption	0	
Altered	value	stored		

- Press  $\Rightarrow$  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.

0

- Confirm entry with Q key.

```
-> Indicated on display:
```

Channel 99 Adaption

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

- Press  $\Rightarrow$  key.

-> Indicated on display:

Channel Protected by copying for private or commercial purposes, in part or in whole, is not permitted unless attriorised by AUDI AG. AUDI AG does not guarantee or accept any liability adaption value xxxxx with respect to the correctness of information in this document. Copyright by AUDI AG.

- 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  $\Rightarrow$  key.

->	Ind	icate	ed or	n displa	ay:	
_						

Rapid data trans	sfer	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

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- 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.

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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 37 - Navigation	Q
-	

Confirm entry with Q key.

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

- -> 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  $\Rightarrow$  key.

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



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

Rapid Fault	data in co	transfer mmunication	HELP link	
Panid	data	transfor	UFLD	

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  $\Rightarrow$  key to select next step in program sequence.

### Self-diagnosis functions

Possible functions:

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability 01 - Interrogate control unit version espectation of the control unit version of the

- 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



Rapid d	lata transfe	r HELP
Select	function XX	

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



```
Rapid data transfer
  - Interrogate control unit version
01
```
- Confirm entry with Q key.

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

- -> 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	trans	sfer	HELP
Select	func	tion	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.

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-> 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 <u>68</u>.

-> 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 ٠ 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. ٠
- All static and sporadic faults are stored in the fault memory: ٠ 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 ٠ (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 wir- ing 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 continuous- ly 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 defec- tive - Navigation system control unit defective	- Eliminate open circuit in wir- ing 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 sys- tem III (route navigation) (from Wk 27/99 onwards); Removing and installing con- trol unit for navigation system with CD drive -J401

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
00668ed by copyright. Copying for private or commercial purposes, in propermitted unless authorised by AUDI AG. AUDI AG does not guaranteed vehicle voltage terminal 30 ormation in this document. Copyri - Signal too low* *This fault may also be stored if starter has been operated for more than 10 seconds.	rt or in whole, is not or accept any liability mBattery discharged/defec- tive - Short circuit in vehicle elec- trical system - Battery voltage lower than 9.5 V - Alternator defective	<ul> <li>Charge/replace battery</li> <li>&gt; Electrical system, Repair Group 27</li> <li>Repair short circuit in vehicle electrical system</li> <li>Check alternator</li> <li>&gt; Electrical system, Repair</li> <li>Group 27</li> </ul>
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	<ul> <li>Rectify mutual wire shorting Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> </ul>
--	--	--

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

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	<ul> <li>Eliminate open circuit in wiring Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electri- cal Fault-finding and Fitting Loca- tions binder</li> <li>Replace dash panel insert</li> <li>Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert</li> <li>Navigation system III (route naviga- tion) (from Wk 27/99 onwards); Re- moving and installing control unit for navigation system with CD drive - J401</li> </ul>

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		

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Navigation aerial (GPS) - R50/R52 - Open circuit - Short circuit	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Navigation aerial</li> <li>(GPS) defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace GPS aerial wire</li> <li>Replace navigation aerial (GPS)</li> <li>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</li> </ul>
01311		
Data bus information - No communication	The navigation system control unit con- tains 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 naviga- tion 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 sys- tem is no longer operative

Output on printer of V.A.G 1551	Possible cause of troubleht. Copying for private or permitted unless authorised by AUDI AG. AU with respect to the correctness of informati	Fault in the second sec
65535		
Control unit - Defective	- Navigation system control unit defective	<ul> <li>Replace navigation system control unit</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Navigation system III (route navigation) (from Wk 27/99 onwards); Remov- ing 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 navi- gation system with CD drive -J401</li> </ul>

# 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	t pattern:

DISPLAY TEST

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The display changes between normal and inverse every 4 seconds. Copyright by AUDI AG.

- Press  $\Rightarrow$  key.

-> Indicated on display: Final control diagnosis End

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

-> Indicated on display:

Rapid data transfer Select function XX	HELP	
---	------	--

# 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	dis	plav	<b>y</b> :

Rapid	data	trar	nsfer	Q	
05 Er	ase f	ault	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 Select function XX	HELP	

Notes:

Attent	ion:			
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 06 - End output	Q	

- 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



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Performing "Read measured value block" function with respect to the correctness of information in this document. Copyright by AUDI AG.

-> 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 rist the prindisplaxed rin standardised if prmr in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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 reg- ister

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 out- put

Read measured	value block 1	$\Rightarrow$ Indicated on display
0	14.1 V	

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Voltage term. 30 Vehicle-speed signal (GALA level)		
Vehicle-speed signal (GALA level)	Voltage term. 30	Voltage term
<ul> <li>0 = Level low</li> <li>1 = Level high</li> </ul>	GALA level)	Vehicle-speed signal (GALA level) • 0 = Level low • 1 = Level high

# Measured value block 002

Reverse off     Term.15 ON       Status of input/term. 15       Status of input/term. 15	Read measured va	alue block 2		⇒	Indicated on display
Status of input/term. 15	Reverse off	Term.15 ON			
Status of input/term. 15					
Input/term. 15 active =Display "OFF"     Input/term. 15 not active =Display "OFF"		Status of i Input/ter Input/ter	nput/term. m. 15 activ m. 15 not a	15 /e =Display "ON" active =Display "OFF"	
Status of input/reversing light switch <ul> <li>Input/reversing light switch active =Display "ON"</li> <li>Input/reversing light switch not active =Display "OFF"</li> </ul>					

# Measured value block 003

Read measured value I GPS aer.	block 3 OK	→ Indicated on display Protected by copyright. Copying for private or commercial purposes, in part or in whole, is n permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liabi
	CPS aprial	with respect to the correctness of information in this document. Copyright by AUDI AG. Status of GPS aerial remote power supply OK Short circuit Open circuit
	GPS aeriai	

Read measured value	e block 4	→ Indicated on display	
Ext. displ.	OK		
		Status of communication with external display <ul> <li>OK</li> <li>Not OK</li> </ul>	
External display (dash panel insert)			

# Measured value block 005

Read measured val	lue block 5		⇒	<ul> <li>Indicated on display</li> </ul>
Data bus	OK			
		Status of commun	ication, data b	ous (internal data bus)
		<ul> <li>Not OK</li> </ul>		
	Data bus			

# Measured value block 006

Read mea	sured value b	block 6	⇒	<ul> <li>Indicated on display</li> </ul>
Left	86 km/h			
		Vehicle speed calculated med tyre circumference a	as a function of GALA signand number of pulses per wh	al with allowance for program- neel revolution
	Left			

# Measured value block 007

Read measure	ed value block.7
255	Protected by copyright. Copying for private or commercial purposes, in part of in whole, is Not - permitted unless authorised by AUDLAG, AUDLAG does not quarantee or accept any liability
255	with respect to the correctines of information in this document. Copyright Add.
	The content of the function status register =>Page 76 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
	<ul> <li>Signal from reversing light switch detected = 8</li> <li>Terminal 15 (ignition ON) detected = 4</li> </ul>
	<ul> <li>Current consumption of GPS aerial OK (10 to 30 mA) = 2</li> <li>CAN communication with navigation unit OK = 1</li> </ul>

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).

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### Measured value block 008



### Measured value block 010



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# 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  $\frac{77}{10}$ ).

### 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 Select function XX	HELP

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

#### -> Indicated on display:

Rapid data transfer Q 10 - Adaption Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not

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-> Indicated on display:



- 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. \_

-> Indica	ated	on display:		
Channel	1	Adaption	2060	

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

Press  $\Rightarrow$  key.

-> Indicated on	display:	
Channel 1 Enter adaption	Adaption value XXXXX	2060

- 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. -

-> Indicat	ted or	display:		
Channel 1 Altered v	l value	Adaption stored	2075	

Press  $\Rightarrow$  key.

-> Indicated on display: Rapid data transfer Select function XX HELP

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

Press  $\Rightarrow$  key.

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-> Indicated on display:

Adapti	lon		
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:



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

- Press  $\Rightarrow$  key.

-> Indicated on display:

Channe	el 2 /	Adaptio	on	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.

-> Indica	ated	on display:		
Channel	2	Adaption	8	0

- Confirm entry with Q key.



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

Select function XX

# 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:



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	Anteched by copyright. Copyright of private of commercial purposes, in part or in whole, is not Anteced anteciantes authorized by AUDI AG. AUDI AG does not guarantee or accept any liability
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- Confirm entry with Q key.

### -> Indicated on display:

Channel 3 Store altered	Adaption value?	1	Q	

- Confirm entry with Q key.
- -> Indicated on display:

Allereu value storeu	Channel Altered	3 value	Adaption stored	1		
----------------------	--------------------	------------	--------------------	---	--	--

- 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.

-> Indica	ated	d 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  $\Rightarrow$  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	$\mathcal{T}$

- Confirm entry with Q key.

-> Indicated or	n display:			
Channel 4 Store altered	Adaption value?	1	Q	

- Confirm entry with Q key.

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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  $\Rightarrow$  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.

-> Indica	ated or	n display:		
Channel Altered	5 value	Adaption stored	1	

- 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)

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# 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 Socations" whole, is not
- Technical Service Handbook nitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- 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 37 - Navigation	Q	

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  $\Rightarrow$  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 respons	e

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

Rapid data transfer Fault in communication	HELP link		-	
Rapid data transfer K-wire not switched to	HELP earth			
Rapid data transfer K-wire not switched to	HELP positive	A		
-> Indicated on display:				
Rapid data transfer Select function XX	HELP			

Pressing HELP key prints out a list of possible functions.

Press  $\Rightarrow$  key to select next step in program sequence.

### Self-diagnosis functions

Possible functions:

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- 02 Interrogate fault memory => Page 85
- 03 Final control diagnosis=> Page 89
- 05 Erase fault memory => Page 90

- 06 End output => Page 91
- 08 Read measured value block => Page 91
- 10 Adaption=> Page 95



Rapid data transfer Q 01 - Interrogate control unit version	

- Confirm entry with Q key. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- -> 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 trans Select function	sfer XX	HELP

- 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 IAULTS detected			
-> Indicated on display:			
Rapid data transfer Select function XX	HELP		
If any other display app	ears:		
=> Fault reader operation	ng instructio	ons	
- End output (function	06) => Pa	ne <mark>91</mark>	

Switch off ignition and unplug diagnostic connector.

# 5.7 - Fault table for navigation system

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Notes:

- The following table lists all the faults which can be recognised by the navigation system and printed out by ٠ 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 ٠ (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 wir- ing 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 continuous- ly 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 defec- tive - Navigation system control unit defective	<ul> <li>Eliminate open circuit in wiring</li> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace dash panel insert</li> <li>Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system III (route navigation)</li> <li>(from Wk 27/99 onwards); Removing and installing control unit for navigation system with CD drive -J401</li> </ul>

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.	<ul> <li>Battery discharged/defective</li> <li>Short circuit in vehicle electrical system</li> <li>Battery voltage lower than 9.5 V</li> <li>Alternator defective</li> </ul>	<ul> <li>Charge/replace battery</li> <li>=&gt; Electrical system, Repair Group 27</li> <li>Repair short circuit in vehicle electrical system</li> <li>Check alternator</li> <li>=&gt; Electrical system, Repair</li> <li>Group 27</li> </ul>
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	<ul> <li>Rectify mutual wire shorting Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> </ul>

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

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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 - Short circuit - Short circuit - Short circuit - Aerial splitter -R87	<ul> <li>al wire</li> <li>- Use current flow diagram to perform fault-finding</li> <li>- S Current Flow Diagrams, Electrical Fault-finding</li> <li>and Fitting Locations binder</li> <li>Replace GPS aerial wire</li> <li>Replace navigation aerial (GPS)</li> <li>=&gt; Radio, Telephone and Navigation System; Re</li> <li>pair Group 91; Navigation system I (route navigation); Removing and installing navigation aerial (- R50) Telematics; Removing and installing GPS</li> <li>aerial splitter -R87</li> </ul>
---	---

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 -	- Control unit for navigation	- Use current flow diagram to	
- Defective	defective	<ul> <li>&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace navigation system control unit</li> <li>&gt; Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing control unit for navigation sys- tem with CD drive -J401 Nav- igation system III; Removing and installing control unit for navigation system with CD drive -J401</li> </ul>	
01317			
Control unit with display in dash panel insert -J285 - No communication 1)	- CAN bus fault - Open circuit in wiring - Dash panel insert defec, at tive with respect to the correctness	- Use current flow diagram to perform fault-finding - Current Flow Diagrams.cop Electrical Fault-finding and by A 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 in- sert; Removing and installing dash panel insert	/hole, is n ; any liabil JDI AG.

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

Output on printer of Possible cause of trouble V.A.G 1551		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); Remov- ing 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 navi-
		gation 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.

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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:

# ()) Audi A8 1994 ≻ Audi Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

DISPLAY TEST	

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press  $\Rightarrow$  key.

### -> Indicated on display:

Final control diagnosis End Protected by copyrig

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- 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 Select function XX	HELP

- 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	
ault	memory erased	

Fault memory has now been erased.

- Press  $\Rightarrow$  key.

-> Indicated on display:

Rapid data trans	sfer	HELP
Select function	XX	

Notes:

Attent	cion:			
Fault	memory	not	interrogated	

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

Rapid	data 1	transi	fer
Fault	memory	y 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
<ul> <li>Switch off ignition.</li> <li>Unplug connectors to fault reader V.A.G 1551.</li> <li>Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.</li> </ul>

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
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 reg- ister
008	1 = Front loudspeakers 2 = Status of front loudspeakers
010	1 = Telephone 2 = Status of telephone mute input

# Measured value block 001

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Read measured	d value block 1		⇒ Indicated on display
	14.1 V	r	
		Voltage term.	. 30
	Vehicle-speed signal (GAI • 0 = Level low • 1 = Level high	LA level)	

Read measured va	lue block 2 Term.15 ON		⇒	<ul> <li>Indicated on display</li> </ul>
Sta •   •			nput/term. m. 15 activ m. 15 not a	15 ve =Display "ON" 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 a • OK • Short circuit • Open circuit	erial remo	te power supply 1)
	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
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Status of • OK • Not OK	communication with external display
External display (dash	panel insert)

Read measured va	lue block 5	⇒ Indicated on display
Data bus	OK	
		Status of communication, data bus (internal data bus) • OK • Not OK
	Data bus	

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### Measured value block 006

Read mea	asured value b 86 km/h	olock 6	⇒	<ul> <li>Indicated on display</li> </ul>
		Vehicle speed calculated med tyre circumference a	as a function of GALA signand number of pulses per wh	al with allowance for program- neel revolution
	Left			

### Measured value block 007

Read measure 255	d value block 7		⇒	<ul> <li>Indicated on display</li> </ul>
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).

Read measured value block 8 Lsp. front	3 OK	Protected by copyright. Copyring for private or commercial purposes, in part or in whole, is no permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
		Status of front loudspeakers • OK • Short circuit • Open circuit
	Front loudspe	akers

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 socalled 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 in a grad provide the provided of the provide
- ٠
- ٠
- 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 П.

# 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 Select function XX	HELP			



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permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Press keys 1 and 0 to select "Adaption" function with respect to the correctness of information in this document. Copyright by AUDI AG.

#### -> Indicated on display: Rapid data transfer Q - Adaption 10

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.

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 XXXX       2060         -       Enter new tyre circumference with zero before 4-digit number (e.g. 2075) cying for private or commercial purposes, in part or in whole, is not Tyre table ⇒ Page 37 milled unless automated by AUDI AG. AUDI AG does not guarantee or accept any liability         -       Confirm entry with Q key.         -> Indicated on display:         (channel 1       Adaption         -> Indicated on display:         (channel 1       Adaption         -> Indicated on display:         (channel 1       Adaption         2075       Q         -> Indicated on display:         (channel 1       Adaption         2075       Q         -> Indicated on display:         (channel 1       Adaption         2075       Q         -> Indicated on display:         (channel 1       Adaption         2075       Q         -> Indicated on display:         -> Press > key.         -> Indicated on display:         <	-> Indicated on display:	
Top line shows selected channel and currently stored tyre circumference in mm.         - Press ⇒ key.         -> Indicated on display:         (channel 1 Adaption 2000         - Enter new tyre circumference with zero before 4-digit number (e.g. 2075) (ving for private or commercial purposes, in part or in whole, is not Tyre table => Page 37 mitted unless authorated by AUDI AG. AUDI AG does not guarantee or accept any liability         - 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         - 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         - 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)	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) oving for private or commercial purposes, in part or in whole, is no Tyre table => Page 37 milled unless a uniformation to this document. Copyright by AUDI AG.         - 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         - 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         - Confirm entry with Q key.         -> Indicated on display:         Channel 1 Adaption 2075 Altered value?         - Press > key.         -> Indicated on display:         Channel 1 Adaption 2075 Altered value stored         -> Press > key.         -> Indicated on display:         Rapid data transfer HELP         Select function XX         - Press > key.         - Press > key.		
<ul> <li>Press ⇒ key.</li> <li>&gt; Indicated on display: Channel 1 Adaption 2060 Enter adaption value XXXXX Enter adaption value XXXXX Enter new tyre circumference with zero before 4-digit number (e.g., 2075) cying for private or commercial purposes, in part or in whole, is no Tyre table =&gt; Page 37 milled unless subinorsed by AUDI AG. AUDI AG does not guarantee or accept any liabilit. Confirm entry with Q key. &gt; Indicated on display: Channel 1 Adaption 2075 Q Confirm entry with Q key. &gt; Indicated on display: Channel 1 Adaption 2075 Q Store altered value? Confirm entry with Q key. &gt; Indicated on display: Channel 1 Adaption 2075 Q Store altered value? - Confirm entry with Q key. &gt; Indicated on display: Channel 1 Adaption 2075 Q Store altered value? - Press ⇒ key. &gt; Indicated on display: Channel 1 Adaption 2075 Altered value stored Press ⇒ key. &gt; Indicated on display: Channel 1 Adaption 2075 Altered value stored Press ⇒ key</li></ul>	I op line shows selected channel and cu	irrently stored tyre circumference in mm.
<ul> <li>-&gt; Indicated on display:</li> <li>Channel 1 Adaption 2060 Enter adaption value XXXXX</li> <li>- Enter new tyre circumference with zero before 4-digit number (e.gv/2075) going for private or commercial purposes, in part or in whole, is no Tyre table =&gt; Page 37 miled unless authorsed by AUDI AG. AUDI Addes not guarantee or accept any liability.</li> <li>- Indicated on display:</li> <li>- Indicated on display:</li> <li>- Confirm entry with Q key.</li> <li>- Indicated on display:</li> <li>Channel 1 Adaption 2075 Q</li> <li>Store altered value?</li> <li>- Confirm entry with Q key.</li> <li>- Indicated on display:</li> <li>Channel 1 Adaption 2075 Q</li> <li>Store altered value?</li> <li>- Confirm entry with Q key.</li> <li>- Indicated on display:</li> <li>Channel 1 Adaption 2075 Q</li> <li>Store altered value?</li> <li>- Press &gt; key.</li> <li>- Indicated on display:</li> <li>- Press keys 0 and 6 to select "End output" function.</li> <li>- Press &gt; key.</li> <li>- Press keys 0 and 6 to select "End output" function.</li> <li>- Press &gt; key.</li> </ul>	- Press ⇒ key.	
Channel 1 Adaption 2060 Enter adaption value XXXXX  - Enter new tyre circumference with zero before 4-digit number (e.g.v.2075) uving for private or commercial purposes, in part or in whole, is no Tyre table => Page 37milled unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liabilit - 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 - 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 Altered value stored - Press > key. -> Indicated on display: Channel 1 Adaption 2075 Altered value stored - Press keys 0 and 6 to select "End output" function. - Press > key. - Press keys 0 and 6 to select "End output" function.	-> Indicated on display:	
<ul> <li>Enter new tyre circumference with zero before 4-digit number! (e.g., 20075) print or private or commercial purposes, in part or in whole, is no Tyre table ⇒ Page 37 milliod unless authonsed by AUDI AG. AUDI AG does not guarantee or accept any liabilit.</li> <li>Confirm entry with Q kells.</li> <li>Indicated on display:</li> <li>Channel 1 Adaption 2075 Q</li> <li>Confirm entry with Q key.</li> <li>Indicated on display:</li> <li>Channel 1 Adaption 2075 Q</li> <li>Store altered value?</li> <li>Confirm entry with Q key.</li> <li>Indicated on display:</li> <li>Channel 1 Adaption 2075 Q</li> <li>Store altered value?</li> <li>Press ⇒ key.</li> <li>Indicated on display:</li> <li>Press ⇒ key.</li> <li>Indicated on display:</li> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	Channel 1 Adaption 2060 Enter adaption value XXXXX	
-> 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. - Press ⇒ key. Adapting number of pulses per wheel revolution (GALA)	<ul> <li>Enter new tyre circumference with zero before 4-digit number (e.go/2079) Tyre table =&gt; Page 37<sup>mitted unless author</sup></li> <li>Confirm entry with Q key.</li> </ul>	bypying for private or commercial purposes, in part or in whole, is not sed by AUDI AG. AUDI AG does not guarantee or accept any liability rrectness of information in this document. Copyright by AUDI AG.
Channel 1       Adaption       2075       Q         -       Confirm entry with Q key.         -> Indicated on display:         Channel 1       Adaption       2075       Q         store altered value?       2075       Q         -       Confirm entry with Q key.         -> Indicated on display:         Channel 1       Adaption       2075         Altered value stored       2075         -       Press ⇒ key.         -> Indicated on display:         Rapid data transfer       HELP         Select function XX         -       Press keys 0 and 6 to select "End output" function.         -       Press ⇒ key.         -       Press p key.	-> Indicated on display:	
<ul> <li>Confirm entry with Q key.</li> <li>-&gt; Indicated on display: Channel 1 Adaption 2075 Q Store altered value?</li> <li>Confirm entry with Q key.</li> <li>-&gt; Indicated on display: Channel 1 Adaption 2075 Altered value stored</li> <li>Press ⇒ key.</li> <li>-&gt; Indicated on display: Rapid data transfer HELP Select function XX</li> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	Channel 1 Adaption 2075 Q	2
<ul> <li>Channel 1 Adaption 2075 Q Store altered value?</li> <li>Confirm entry with Q key.</li> <li>-&gt; Indicated on display: Channel 1 Adaption 2075 Altered value stored</li> <li>Press ⇒ key.</li> <li>-&gt; Indicated on display: Rapid data transfer HELP Select function XX</li> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	- Confirm entry with Q key.	
<ul> <li>Confirm entry with Q key.</li> <li>Indicated on display: Channel 1 Adaption 2075 Altered value stored </li> <li>Press ⇒ key. Indicated on display: Rapid data transfer HELP Select function XX </li> <li>Press keys 0 and 6 to select "End output" function. Press ⇒ key. </li> </ul>	Channel 1 Adaption 2075 ( Store altered value?	2
<ul> <li>-&gt; Indicated on display: Channel 1 Adaption 2075 Altered value stored         <ul> <li>Press ⇒ key.</li> <li>-&gt; Indicated on display: Rapid data transfer HELP Select function XX         </li> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> </ul> </li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	- Confirm entry with Q key.	
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:	
<ul> <li>Press ⇒ key.</li> <li>Indicated on display:         <ul> <li>Rapid data transfer HELP</li> <li>Select function XX</li> </ul> </li> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	Channel 1 Adaption 2075 Altered value stored	
-> 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)	- Press ⇒ key.	
<ul> <li>Rapid data transfer HELP</li> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	-> Indicated on display:	
<ul> <li>Press keys 0 and 6 to select "End output" function.</li> <li>Press ⇒ key.</li> <li>Adapting number of pulses per wheel revolution (GALA)</li> </ul>	Rapid data transfer HELP Select function XX	
Adapting number of pulses per wheel revolution (GALA)	<ul> <li>Press keys 0 and 6 to select "End ou</li> <li>Press ⇒ key.</li> </ul>	tput" function.
	Adapting number of pulses per wheel re	volution (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.

-> Indica	ate	d on display:		
Channel	2	Adaption	4	

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

- Press  $\Rightarrow$  key.

-> Indicated on display:	
Channel 2 Adaption Enter adaption value XXXXX	4

- 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.

-> Indica	atec	l on display:			
Channel	2	Adaption	8	Q	

- Confirm entry with Q key.

-> Indicated on display:				
Channel 2 Store altered	Adaption value?	8	Q	

- Confirm entry with Q key.

-> Indicated on display:			
Channel 2 Adaption Altered value stored	8		
- Press $\Rightarrow$ key.			
-> Indicated on display:			
Rapid data transfer Select function XX	HELP		
		-	

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

Adapting production diagnosis (function status register)

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 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  $\Rightarrow$  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  $\Rightarrow$  key. -

-> Indicated on display:

Rapid data transfer HELP Select function XX

- Press keys 0 and 6 to select "End output" function.
- Press  $\Rightarrow$  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 Revoced by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



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  $\Rightarrow$  key.

-> Indicated on display:

# () Audi A8 1994 ≻ \_Au∂i Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

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 or				
Channel 4 Store altered	Adaption value?	1	Q	

- Confirm entry with Q key.

-> Indicated on display:

Channel	4	Adaption	1	
Altered	value	stored		

- Press  $\Rightarrow$  key.

-> Indicated on display:

Rapid data transfer Select function XX

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

HELP

Press ⇒ key.

### Adapting country identification

-> Indicated on display:

Adaption

Enter channel number XX Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with ensemble authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

- Press keys 0 and "5"to select "Channel 5" formation in this document. Copyright by AUDI AG.

Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indica	ate	d 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.

-> Indica	ated or	n display:		
Channel Altered	5 value	Adaption stored	1	

- Press  $\Rightarrow$  key.

-> Indicated on display:	
Rapid data transfer Select function XX	HELP

- 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.



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

### Note:

Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.



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  $\Rightarrow$  key.

->	Ind	icat	ted	on	dis	play	<b>y</b> :	
								Î

Channel 6 Adaption 0 Enter adaption value XXXXX Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Enter new adaption value (e.g. 00001); 00001 = Dynamic operation via Symphony II radio.
- Confirm entry with Q key.

-> Indicated on display:

	Channel	б	Adaption	1	Q
--	---------	---	----------	---	---

Confirm entry with Q key.

-> Indicated on display:				
Channel 6 Store altered	Adaption value?	1	Q	

Confirm entry with Q key.

-> Indicated on display:

Channel	6	Adaption	1
Altered	value	stored	

Press  $\Rightarrow$  key.

-> Indicated on display:

Rapid	data	trans	fer	HE	LΡ
Select	func	tion	XX		

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

Press  $\Rightarrow$  key.

# Adapting electronic logbook



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:



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

Press  $\Rightarrow$  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
                              1
               Adaption
```
- Confirm entry with Q key.

-> Indicated on display:

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

- Confirm entry with Q key.

-> Indicated on display:				
Channel Altered	7 value	Adaption stored	1	

- Press  $\Rightarrow$  key.

-> Indicated on display:	
Rapid data transfer Select function XX	HELP

- 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

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## 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
- 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.



- -> 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

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## Note:

Check code against encoding tables => from Page 112 onwards.

- Press  $\Rightarrow$  key.

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



=> 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 trans	fer	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



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## 6.5 - Interrogating control unit version



- 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 D01 Code 00001	Steering wheel electronics				
-> Adja - 4B0 - Stee - D01	cent display appears after approx 907487 A, C or J: Part number of ering wheel electronics: Compone : Software version of control unit	5 s: control unit for ste nt designation	eering wheel ele	ectronics (refer a	also to Parts List)

- Code 00001: Control unit code
- Press ⇒ key.

## 6.6 - Interrogating fault memory

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#### 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



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.
- 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	<ul> <li>Open circuit - connection broken between interface and steering wheel</li> <li>Incomprehensible mes- sages on CAN bus (interface and buttons on steering wheel are linked via CAN bus)</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder</li> <li>Eliminate open circuit in wiring Check wiring between inter- face and steering wheel</li> </ul>
01748		
Switch for Tiptronic on steering wheel, upshift 1) - Open circuit/short to positive - Defective	<ul> <li>Open circuit in wiring</li> <li>Sticking switch</li> <li>Switch defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder</li> <li>Eliminate open circuit in wiring Replace switch</li> <li>Radio, Telephone and Nav- igation System; Repair Group</li> <li>91; Multi-function steering</li> <li>wheel; Removing and instal- ling control switches on multi- function steering wheel</li> </ul>

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	

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Switch for Tiptronic on steering wheel, downshift 1) - Open circuit/short to positive - Defective	- Open circuit in wiring - Sticking switch - Switch defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder</li> <li>Eliminate open circuit in wiring Replace switch</li> <li>Radio, Telephone and Nav- igation System; Repair Group</li> <li>91; Multi-function steering</li> <li>wheel; Removing and installing control switches on multi-func- tion steering wheel</li> </ul>
65535 Control unit - Defective	- Control unit defective	- Replace control unit => Radio, Telephone and Nav- igation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-func- tion 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 in whole, is not permitted unseed by AUDI AG. AUDI AG does not guarantie or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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:
```

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.

-> Indie	cated or	<u>ı display:</u>			
Final Radio	control station	diagnosis search up	3 0		

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 prosent workshop telephone card. Switch off radio and then enter PIN.
- Press ⇒key.

-> Indicated on display:

Final co	ntrol	diagnosis
Telephor	le memo	pry

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 diagno	sis
Next telephone memor	У

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 Select function XX	HELP

## 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	trans	sfer	HELP
Select	func	tion	XX	

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

-> Indicated on display:		
Rapid data transfer 05 Erase fault memory	Q	

- Confirm entry with Q key.

-> Indicated on display:		
Rapid	data transfer	
Fault	memory erased	

Fault memory has now been erased.

- Press  $\Rightarrow$  key.

-> Indicated on display:

Select function XX	Rapid data transfer Select function XX	HELP
--------------------	---	------

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## Notes:

Atten	cion:			
Fault	memory	not	interrogated	

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

Rapid	data ti	ransf	fer
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 d	lata	trans	fer	HELP
Select	func	tion	XX	

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

#### -> Indicated on display:

Rapid	data	transfer	Q
07 – 1	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 rotected by copyright. Copying for private or commercial purposes, in part or in whole, is not 00 = German permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Fourth digit; Tiptronic: 0 = Without Tiptronic<sup>i</sup><sup>th</sup> respect to the correctness of information in this document. Copyright by AUDI AG.
- Fifth digit; steering wheel variant: 1 = Steering wheel for radio/telephone operation ٠
- 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  $\Rightarrow$  key to terminate encoding procedure.

Indicated on display:

## Audi A8 1994 ≻ Auði Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

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":

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 "Inited unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

ХХХХХ	Code
Х	Standard
0	Always zero
Х	Radio remote control
0	0 Switched on (standard) 1 Switched off
Х	Language variant
0	Always zero
Х	Tiptronic
0	Always zero
X	Steering wheel variant
1 2 5	Radio and telephone operation Radio operation (6-button radio) Radio/telephone operation and voice con- trol

## Encoding table for control unit index "J":

XXXX	<pre>X Code</pre>
Х	Standard
0	Always zero
X	Radio remote control
0	0 Switched on (standard) 1 Switched off
X	Language variant
0	Always zero

Х	Tiptronic
0 1	0 Without Tiptronic 1 With Tiptronic
X	Steering wheel variant
1 2	Radio and telephone operation Radio operation (6-button radio)
5	Radio/telephone operation and voice con- trol

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:	Prof	tected by copyrigh	t. Copying for private or commercial purposes, in part or in whole, is not
Rapid data transfer 08 - Read measured value	Q v block	with respect to the	correctness of information in this document. Copyright by AUDI AG.

- 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 num- ber	Indicated on display
001	<ol> <li>1 = Volume Lower button</li> <li>2 = Volume Higher button</li> <li>3 = Station Memory Down button</li> <li>4 = Station Memory Up button</li> </ol>
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			1	→	<ul> <li>Indicated on display</li> </ul>
Qui	eter >	Louder >	Mem. Down >	Mem. Up >	
					Station Memory Up button <ul> <li>Not pressed</li> <li>Mem. Up &gt;</li> </ul>

	Station Memory Down button <ul> <li>Not pressed</li> <li>Mem. Down &gt;</li> </ul>	
	Louder button (increase volume) • Not pressed • Louder >	
Quieter button (reduce volume)  Not pressed Quieter >		

## Measured value block 002

Read measured value bl	ock 2	-	⇒ Indicated on display
Pressed	Send		
		Telephone :	Send
		<ul> <li>Not press</li> <li>Send</li> </ul>	sed
	Radio/telephone swi • Not pressed • Pressed	itchover	

### Measured value block 003

Read measure	d value block 3	⇒ Indicated on display
Pressed	Pressed	
		Tiptronic "downshift" switch on steering wheel; left or right 2)  Not pressed Pressed
	Tiptronic "upshift" • Not pressed • Pressed	switch on steering wheel; left or right 1)

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 pt iability down. "Pressed" appears at the second position in measured value block 003 if one of the two buttons is pressed UDI AG. 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.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not By pressing antemergency 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: ٠
- 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
- Switch on ignition.

### Notes:

- If no display appears, use current flow diagram to check power supply for V.A.G 1551. ٠
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- ٠ Next step in program sequence can be selected by pressing  $\Rightarrow$  key.
- Incorrect entries can be aborted by pressing the C key.
- ٠ 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 noticates d Diagnosis Activated of guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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  $\Rightarrow$  key.

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



#### => 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 => Pagermind unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- 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 Select function XX	HELP

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

-> Indicated	on display:	
Rapid data 01 - Interr	transfer Q ogate control unit version	
- Confirm	entry with Q key.	
4B0035617	Telematics Nokia 1 0003	1
Code 0003324	WSC XXXXX	
-> Adjac - 4B00	ent display appears after appr 35617: Part number of telema	ox. 5 s: itics 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 o	n display:	
Rapid data tr Select functi	ansfer Ion XX	HELP

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

#### -> Indicated on display:

Rapid data transfer Q 02 - Interrogateyrfaultspyngnopyvate or commercial purposes, in part or in whole, is not

- permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- 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 de- fective	<ul> <li>Replace telematics control unit</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telematics; Re- moving and installing tele- phone/telematics control unit</li> <li>J526 Telematics; Removing and installing telephone/tele- matics control unit -J526</li> </ul>
00469 Data bus display in single-wire mode - Fault in electrical circuit	- CAN bus fault - Open circuit in wiring - Wiring damage	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> </ul>
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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wir- ing</li> <li>Replace hands-free loud- speaker</li> <li>Radio, Telephone and Navigation System; Repair</li> <li>Group 91; Telephone system; Removing and installing hands-free loudspeaker Tele- phone system; Removing and installing hands-free loud- speaker</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace GPS aerial wire Replace navigation aerial (GPS)</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (route navigation); Remov- ing and installing navigation aerial (-R50) Navigation; Re- moving and installing naviga- tion aerial (-R50)</li> </ul>
01300		
Control unit for navigation system with CD drive - J401 - No communication	<ul> <li>CAN bus fault</li> <li>Open circuit in wiring</li> <li>Wiring damage</li> <li>Control unit for navigation system with CD drive -J401 defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace navigation system control unit</li> <li>Radio, Telephone and Navigation System; Repair</li> <li>Group 91; Navigation system III; Removing and installing control unit for navigation sys- tem with CD drive -J401 Nav- igation system III; Removing and installing control unit for navigation system with CD drive -J401</li> </ul>

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     Jugatuation of the second s	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to speech input control unit according to current flow diagram</li> <li>Replace speech input control unit</li> <li>Radio, Telephone and Navigation</li> <li>System; Repair Group 91; Voice con- trol system; Removing and installing</li> <li>speech input control unit -J507 Voice</li> <li>control system; Removing and instal- ling speech input control unit -J507</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to radio using current flow diagram</li> <li>Replace radio</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio</li> </ul>
01305		
Data bus display - Defective	- CAN bus fault - Open circuit in wiring	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> </ul>

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 defec- tive	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace dash panel insert</li> <li>Electrical System; Repair</li> <li>Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel in- sert; Removing and installing</li> </ul>
01220		dash panel insert
01326         Multi-function steering wheel control unit -J453         - No communication         Protected by copyright. Copying for private or commercial purposes, in part permitted unless authorised by AUDI AG. AUDI AG does not guarantee o with respect to the correctness of information in this document. Copyrig	- CAN bus fault - Open circuit in wiring - Multi-function steering wheel control unit defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace multi-function steer- ing wheel control unit</li> <li>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 instal- ling multi-function steering wheel control unit -J453</li> </ul>

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>&gt; Current Flow Diagrams, Electrical</li> <li>Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace telephone handset</li> <li>&gt; Radio, Telephone and Navigation System; Repair Group 91; Telephone system</li> </ul>
01523		
Telephone microphone -R38 - Open circuit/short to positive - Short to earth	<ul> <li>Open circuit in wiring</li> <li>Short in wiring</li> <li>Telephone microphone defective</li> <li>Telephone microphone defective</li> <li>ected by copyright. Copying for private or commercial mitted unless authorised by AUDI AG. AUDI AG does with respect to the correctness of information in this does</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone microphone</li> <li>Radio, Telephone and Navigation Sys- tem; Repair Group 91; Telematics; Remov- ing and installing hands-free microphone Telematics; Removing and installing hands-free microphone</li> </ul>

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01524		
Telephone aerial - No signal	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Telephone aerial defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Replace telephone aerial wire Replace telephone aerial</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing aerial Telephone system; Removing and installing aerial</li> </ul>
01526		
Emergency call button -E276 - Open circuit/short to positive - Short to earth	<ul> <li>Open circuit in wiring</li> <li>Short in wiring</li> <li>Emergency call button defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Replace emergency call button</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing emergency call button - E276 and breakdown help button -E275</li> <li>Telematics; Removing and installing emergency call button -E275</li> <li>Telematics; Removing and installing emergency call button -E275</li> </ul>

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	<ul> <li>Open circuit in wiring</li> <li>Short in wiring</li> <li>Emergency call button defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Replace breakdown help button</li> <li>Radio, Telephone and Navigation</li> <li>System; Repair Group 91; Telematics; Removing and installing emergency call button -E276 and breakdown help button -E276 and breakdown</li> <li>button -E276 and breakdown</li> <li>button -E275</li> </ul>
01528		
Additional aerial for telematics -R90 - No signal	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Additional aerial for telematics (emergency aerial) defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace wire of additional aerial for telematics</li> <li>Replace additional aerial for telematics</li> <li>Radio, Telephone and Navigation</li> <li>System; Repair Group 91; Telematics; Removing and installing additional aerial for telematics, Removing and installing additional aerial for telematics</li> </ul>

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 tel- ematics defective	- Use current flow diagram to per- form fault-finding => Current Flow Diagrams, Elec- trical Fault-finding and Fitting Lo- cations binder Rectify open circuit/short Replace additional loudspeaker ⇒> Radio, Telephone and Navi- gation System; Repair Group 91; Telematics; Removing and in- stalling additional loudspeaker for telematics -R91 (emergency loudspeaker) Telematics; Re- moving and installing additional loudspeaker for telematics -R91 (emergency loudspeaker)
01531		

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Emergency battery - No signal	- Open circuit in wiring - Short in wiring - Emergency battery defective/ discharged	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Replace emergency battery</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing emergency battery for telematics Telematics; Removing and installing emergency battery for telematics</li> </ul>
----------------------------------	---	--

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01656		
Crash signal - No signal	<ul> <li>Open circuit in wiring</li> <li>Short in wiring</li> <li>Airbag control unit defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Check airbag control unit</li> <li>Body Self-Diagnosis; Repair Group 01</li> </ul>
01796		
Telematics SIM card - No signal	- Open circuit in wiring - Short in wiring - Telematics SIM card defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Replace telematics SIM card</li> <li>Radio, Telephone and Navigation System; Repair</li> <li>Group 91; Telematics; Replacing telematics SIM card</li> <li>Telematics; Replacing telematics SIM card</li> </ul>

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7.9 - Final control diagnosis spect to the correctness of information in this document. Copyright by AUDI AG.

## 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	l on display:	
Rapid data 03 - Final	transfer Q control diagnosis	

- Confirm entry with Q key.

#### -> Indicated on display:

Final control diagnosis Loudspeakers

A test tone is audible through the hands-free loudspeaker.

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## 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 iloudspeaker by AUDI AG. AUDI AG does not guarantee or accept any liability

- 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	disp	lay	/:
				_	

Rapid data	transfer	Q
05 - Erase	fault memory	

- Confirm entry with Q key.

->	Indicated	on dis	plav:
	maioatoa	011 010	

Rapid	data transfe
Fault	memory erase

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:			
Rapid data transfer Select function XX	HELP		

Notes:

Attent	cion:			
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



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### 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

->	ndicated on display:
Ra Se	id data transfer HELP ect 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 Entercedecaympecoxxxxxx private (AcoAxQQA) purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

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 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 Select function XX	HELP
---	------

- 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) (S rus II, Concert II) 3: With radio (with CAN) (S rus II, Concert II) with Bose 4: With radio (without CAN or Nav II-D 5: With radio (without CAN or Nav II-D with Bose	Symphony I CAN, Symphony II, Cho- Symphony I CAN, Symphony II, Cho- e I) (Chorus I, Concert I, Symphony I) I) (Chorus I, Concert I, Symphony I)
				Navigation: 0: Without n 1: With Nav 2: With Nav 3: With Nav 4: With Nav 5: With Nav	nav III II-D IV II-D (from Wk 45/01 onwards IV (from Wk 45/01 onwards	ds) s)
	Protected	by copyrig	Voice contro 0: Without \ 1: Without \ 3::With VCS	ol/multi-funct /CS, without /CS, with MS anwith MSW	ion steering wheel (VCS/MS MSW SW purposes, in part or in whole, is not	SW):
	permitted with re	Vehicle 0: A3 1: A4 (E 2: A6	thorised by AUDI A model coneciness of inf 35)	AG. AUDI AG does formation in this doo	not guarantee or accept any liability cument. Copyright by AUDI AG.	3: A8 4: A2 5: A4 (B6)
•	000: Co	lumns r	eserved 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	a transfer		Q	
08 - Read	measured v	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 num- ber	Indicated on display
001	1 = Telephone 2 = Subscribed/not subscribed 3 = Field strength 4 = 0010

Display group nu ber	m-Indicated on display
002	1 = Emergency battery 2 = Fully charged/low/discharged 3 = Dimming 4 = 0100%
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
Protocod by conviright Conving (	1 = Device number
permitted unless a 006 sed by A	UDI <b>A</b> G <b>⇒\SIM©card number</b> e or accept any liapili
with respect to the correctness 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

Read measured	value block 1		⇒	Indicated on display
Telephone	Subscribed	Field strength	5	
				Field strength • 010
			Field stre	ngth of telephone network
		Telephone subscrip <ul> <li>Subscribed</li> <li>Not subscr.</li> </ul>	otion	
Permanently fitted telephone				

## Measured value block 002

Read measured value b	lock 2		⇒	<ul> <li>Indicated on display</li> </ul>	
Emergency battery	Full	Dimming	0%		
				Dimming factor • 0100%	
			Dimming level (only with lights "ON")		
Status of emergency battery • Full • Low • Discharged				ery	
Telematics emergency battery					

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### Measured value block 003



### Measured value block 004

Read measured value blo Emergency call button	ock 4 Not pressed	Breakdown help button	⇒ Not pressed	<ul> <li>Indicated on display</li> </ul>	
				Breakdown help button • Pressed • Not pressed	
			Breakdown he	elp button	
		Emergency call button <ul> <li>Pressed</li> <li>Not pressed</li> </ul>			
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## Measured value block 005

Read measured va	llue block 5 54423	⇒	<ul> <li>Indicated on display</li> </ul>
	Device number		

## Measured value block 006

Read measure ICC ID: 894920	d value block 6 84298279009023	⇒	<ul> <li>Indicated on display</li> </ul>

	SIM card number <ul> <li>Display of number with telematics SIM card inserted</li> <li>"n.fitted" = Telematics SIM card not inserted</li> <li>"n.active" = There is another SIM card in the telephone handset</li> </ul>
l	

### Measured value block 080

Read measured value block 80 KEY ID: 3762H CP3.07 12/99	→ Indicated on display
Display of key ID with hardware vers	sion and production date

### Measured value block 081

Read measured value	block 81 3456 6.510 26-05-00 221	⇒	
Di	splay of chassis number with sof	tware version and date	

## Measured value block 125

Read mea	asured value block 1 Steering wheel 1	25 Radio 1	⇒ Navigat 1	<ul> <li>Indicated on display</li> </ul>
		Protected by cc permitted unles with respect	oyright. Copying for authorised by AU to the correctness	Navigation unit ■ "1" = on data buses, in part or in whole, is not private of one data buse(transmission)fault) of non-maineticonnected to data busAG.
			Radio • "1" = on d • "0" = not c	ata bus on data bus (transmission fault) onnected to data bus
		Multi-func • "1" = on • "0" = nc • "" = no	tion steering data bus of on data bus connected t	wheel control unit s (transmission fault) to data bus
	Dash panel insert • "1" = on data bus • "0" = not on data b • " " = not connected	ous (transm d to data bi	nission fault) Js	

٦

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### Measured value block 126

Read measured value bloc Voice rec 1	k 126	-	⇒	<ul> <li>Indicated on display</li> </ul>
	Voice recogniti • "1" = on data • "0" = not on c • " " = not conr	on system bus data bus (tran nected to data	smis	sion fault)

## 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. Does, in part or in whole, is not permitted unless authorised by AUDI AG does not guarantee or accept any liability.

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 0 10 - Adaption Confirm entry with Q key. -> Indicated on display: Adaption Enter channel number XX

- Enter desired adaption channel Protected by convright. Copying for private in commercial purposes, in part or in whole, is not commercial purposes, in part or in whole, is not commercial purposes and the second s
  - Confirm entry with Q key. with respect to the correctness of information in this document. Copyright by AUDI AG.

### 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 circumfe	rence			

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

- Press  $\Rightarrow$  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 circumf	erence			

- Confirm entry with Q key.

-> Indicated on display:					
Channel 1 Store altered	Adaption value?	2074	Q		

- Confirm entry with Q key.

->	Indicated	on display	y:

Channel Altered	1 value	Adaption stored	2074	

- Press  $\Rightarrow$  key.

-> Indicated on display:

Rapid d	ata	trans	fer	HELP	
Select	func	tion	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".

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Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:				
Channel 2 Revolution	Adaption pulses	4		

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

- Press ⇒ key.

-> Indicated on display:

Channe	el 2 /	Adaptio	on	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 Altered	2 value	Adaption stored	8	

- Press ⇒ key.

-> Indicated on display:			
Rapid data transfer Select function XX	HELP		

- 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		

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Top line shows selected channel and currently stored Service mode status.

- 0 = Service mode deactivated
- 1 = Service mode activated
- Press ⇒ key.
- -> Indicated on display:

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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 Store altered	Adaption value?	1	Q		

- Confirm entry with Q key.

-> Indicated on display:

Channel	3	Adaption	1
Altered	value	stored	

- Press  $\Rightarrow$  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 Test OFF	Adaption	<sup>0</sup> Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not
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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  $\Rightarrow$  key.

-> Indicated on display: Channel 5 Adaption 0 Enter adaption value XXXXX
<ul> <li>Enter 2 to test the GSM emergency aerial.</li> <li>Confirm entry with Q key.</li> </ul>
-> 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 Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

## -> Indicated on display:

Channel	5	Adaption	2
Altered	value	stored	

- Press  $\Rightarrow$  key.

-> Indicated on display:

Rapid data transf	er HELP
Select function X	X

- 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:

- 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:

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Cha aut	annel com.	6	Adaptic	n	0	
То	p line	shov	vs selecte	ed ch	annel	and curren
0 =	= Auto	matio	c selectio	n		
1 =	= GSN	1 mai	n aerial s	elect	ed	
2 =	= GSN	1 eme	ergency a	erial	selec	ted
-	Pres	s ⇒ k	ey.			
-> Cha Ent	Indica annel ter ad	6 Baptio	Adaptic Nalue	n xxxx	0	
-	Enter Confi	r 1 to irm ei	select the	e GS Q ke	Mema yrmitted with re	in <b>aerial.</b> Co unless authorise spect to the corre
>	Indica	ated c	on display	:		
Cha Mai	annel in aer	6 cial	Adaptic	n	1	

- 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 Altered	6 value	Adaption stored	1	

- Press  $\Rightarrow$  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 char	nel 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  $\Rightarrow$  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 f	aults
- Confirm entry with Q key.	
-> Indicated on display:	
Channel 7 Adaption 1 Store altered value?	Q
- Confirm entry with Q key.	
-> Indicated on display:	
Channel 7 Adaption 1 Altered value stored	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Press ⇒ kev.	mar respect to and confectances of micrimation in this document. Opyright by AOD AC.

-> 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: is not

Switch off ignition before disconnecting and connecting metasturing 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.

```
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 Code 0000001 WSC XXXXX 0001

-> Adjacent display appears after approx. 5 s:

#### From MY 02 onwards:

```
4B0035753A Voice control system 0100
Code 0018017 WSC XXXXX
Code 0018017
```

-> 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  $\Rightarrow$  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 Fau Rapid data transfer HELP Fault in communication link	<u>Ilt-fi</u> nding and Fitting Locations binder
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	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
	—

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

#### Self-diagnosis functions

Possible functions:

- 01 Interrogate control unit version => Page 142
- 02 Interrogate fault memory => Page 143
- 03 Final control diagnosis=> Page 145
- 05 Erase fault memory => Page 147
- 06 End output => Page 147
- 07 Encode control unit=> Page 148
- 08 Read measured value block => Page 149

## 8.5 - Interrogating control unit version

-> Indicated on display:	
Rapid data transfer Select function XX	HELP

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



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:

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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  $\Rightarrow$  key.

## 8.6 - Interrogating fault memory

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

-> Indicated on display:



- 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
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- with respect to the correctness of information in this document. Copyright by AUDI AG. -> In the case of "No faults detected", program returns to start when  $\Rightarrow$  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	<ul> <li>Replace control unit</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing speech input control unit -J507 Tele- matics; Removing and installing speech input control unit -J507</li> </ul>
00532		
Supply voltage - Signal too low	<ul> <li>Battery discharged/defective</li> <li>Short circuit in vehicle electrical system</li> <li>Battery voltage lower than 9 V</li> <li>Alternator defective</li> </ul>	<ul> <li>Charge/replace battery</li> <li>&gt; Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging battery</li> <li>Check alternator</li> <li>&gt; Electrical System; Repair Group 27; Removing and installing alternator Removing and installing alternator</li> <li>Repair short circuit in vehicle electrical system</li> </ul>

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01303		
Telephone transmitter/receiver unit - No communication	<ul> <li>CAN bus fault</li> <li>Open circuit in wiring</li> <li>Voltage supply to telephone transmitter/receiver unit interrupted</li> <li>Telephone transmitter/receiver unit defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace telephone transmitter/receiver unit</li> <li>&gt; Radio, Telephone and Navigation</li> <li>System; Repair Group 91; Telematics; Removing and installing telephone/telematics control unit -J526</li> <li>Telematics; Control unit -J526</li> </ul>
01304 Radio - No communication	- CAN bus fault - Open circuit in wiring - Voltage supply to radio interrupted - Radio defective	<ul> <li>Use current flow diagram to per- form fault-finding</li> <li>&gt; Current Flow Diagrams, Electri- cal Fault-finding and Fitting Loca- tions binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to radio using current flow diagram</li> <li>Replace radio</li> <li>&gt; Radio, Telephone and Navigation</li> <li>System; Repair Group 91; Radio</li> <li>systems; Removing and installing radio Radio systems; Removing and installing radio</li> </ul>

Output on printer of y copyright. Copying for private or commercial V A G 1551 permitted unless authorised by AUDI AG. AUDI AG does	Possible cause of trouble	Fault remedy
01305 with respect to the correctness of information in this de	cument. Copyright by AUDI AG.	

Data bus display - Defective	- CAN bus fault - Open circuit in wiring	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring</li> </ul>
01317		
Control unit with display in dash panel insert -J285 - No communication	- CAN bus fault - Open circuit in wiring - Dash panel insert defec- tive	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace dash panel insert</li> <li>Electrical System; Repair</li> <li>Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel in- sert; Removing and installing dash panel insert</li> </ul>

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 for private or commercial purposes, in part of AUDI AG. AUDI AG does not guarantee or as of information in this document. Copyright	- Use current flow diagram to perform fault-finding => Current Flow Diagrams, Electrical Fault-finding and Fit- ting Locations binder Eliminate open circuit in wiring Replace multi-function steering wheel control unit => Radio, Telephone and Nav- igation System; Repair Group 94; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steer- ing wheel control unit -J453

# 8.8 - Final control diagnosis

## Notes:

- ٠
- 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. ٠
- ٠

## Performing final control diagnosis:

- Press keys 0 and 3 to select "Final control diagnosis" function.
- Switch on radio. \_

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

- Confirm entry with Q key.

#### -> Indicated on display:

Final control Radio muting	diagnosis
-------------------------------	-----------

- 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 Telephone microphone R38

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-> Indicated on display:

Press ⇒key.

\_

Control	element	being	tested
Telephor	ne microp	phone F	२३८

Loudspeakers are muted.

- Press ⇒key.

-> Indicated on display:

Final control End	diagnosis
----------------------	-----------

- Press ⇒key.

- Tester returns to basic function.

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 Select function XX	HELP	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
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- Press keys 0 and 5 to select "Erase fault memory" function.

-> Indicated on display:			
Rapid data 05 - Erase	transfer fault memory	Q	

- Confirm entry with Q key.

-> Indicated on display:		
Rapid	data transfer	
Fault	memory erased	

Fault memory has now been erased.

- Press  $\Rightarrow$  key.

-> Indicated on display:

Notes:

Attention: Fault memory not interrogated

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

Rapid	data ti	ranst	fer
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.

	la data transier	Q	
06 - End output	- End output		

- Confirm entry with Q key.

-> Indicated on display:	
Rapid data transfer HEI Enter address word XX	ιÞ
<ul><li>Switch off ignition.</li><li>Unplug connectors to faul</li></ul>	t 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.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Control units with number 480 to 35 rr 53 sonly chave on the source of the source

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 Select function XX	HELP

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

#### -> Indicated on display:

-		
ſ	Rapid data transfer	Q
L	07 - Encode control	unic

- Confirm entry with Q key.



- 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  $\Rightarrow$  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 06 - End output	Q	

- 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:



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

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## 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	a 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 = 06
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

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Two-wire	
	•
	Monitoring data bus <ul> <li>"Single-wire" = data bus only in single-wire mode (faulty)</li> <li>"Two-wire" = data bus OK</li> </ul>

# 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, whole, is not

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### 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. ٠
- Additional operating instructions can be called up by pressing the fault reader HELP key.
- Next step in program sequence can be selected by pressing  $\Rightarrow$  key. ٠
- Incorrect entries can be aborted by pressing the C key. ٠
- 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 Enter address word XX HELP

Address word for telephone in 77 private or commercial purposes, in part or in whole, is not

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- 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  $\Rightarrow$  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 Select function XX	HELP
---	------

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

### Self-diagnosis functions

Possible functions:

- 01 Interrogate control unit version => Page 153
- 02 Interrogate fault memory => Page 154
- 03 Final control diagnosis=> Page 158
- 05 Erase fault memory => Page 158
- 06 End output => Page 159
- 07 Encode control unit=> Page 159
- 08 Read measured value block => Page 161
- 10 Adaption=> Page 164

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# 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).



- 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.
The stored faults are consecutively displayed and printed out.
<ul> <li>Consult fault table with fault printed out and eliminate fault</li> <li>Page 154.</li> </ul>
-> In the case of "No faults detected", program returns so start wheDDI AG. AUDI AG does not guarantee or accept any li → key is pressed.
No faults detected

> Indicated on display:

-> mulcaleu on uisplay.	
Rapid data transfer Select function XX	HELP

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	<ul> <li>Replace transmitter/receiver unit</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telephone system Telephone system</li> </ul>
00469		
Data bus display in single-wire mode - Fault in electrical circuit	- CAN bus fault - Open circuit in wiring - Wiring damage	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> </ul>
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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wir- ing</li> <li>Replace hands-free loud- speaker</li> <li>Radio, Telephone and</li> <li>Navigation System; Repair</li> <li>Group 91; Telephone system;</li> <li>Removing and installing tele- phone/navigation systems loudspeaker -R39 Telephone system; Removing and instal- ling telephone/navigation systems loudspeaker -R39</li> </ul>

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 Protected by copyrigi permitted unless aut with respect to the	CAN bus fault     Open circuit in wiring     Wiring damage     Navigation system control     unit -J401 defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wir- ing</li> <li>Replace navigation system control unit</li> <li>Radio, Telephone and</li> <li>Navigation System; Repair</li> <li>Group 91, Navigation system</li> <li>III; Removing and installing control unit for navigation system with CD drive -J401</li> <li>Navigation system III; Re- moving and installing control unit for navigation system</li> </ul>
01301		

Speech input control unit -J507 - No communication	<ul> <li>CAN bus fault</li> <li>Open circuit in wiring</li> <li>Voltage supply to speech input control unit interrupted</li> <li>Speech input control unit defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wir- ing</li> <li>Check voltage supply to speech input control unit ac- cording to current flow dia- gram</li> <li>Replace speech input control unit</li> <li>Radio, Telephone and Navigation System; Repair</li> <li>Group 91; Voice control sys- tem; Removing and installing speech input control unit - J507 Voice control system;</li> <li>Removing and installing speech input control unit - J507</li> </ul>
---	---	---

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      t. Copying for private or commercial purposes, in part o     porised by AUDI AG. AUDI AG does not guarantee or a     correctness of information in this document. Copyright	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to radio using current flow diagram</li> <li>Replace radio</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio</li> </ul>
01305		
Data bus display - Defective	- CAN bus fault - Open circuit in wiring	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> </ul>

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 defec- tive	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace dash panel insert</li> <li>Electrical System; Repair</li> <li>Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel in- sert; Removing and installing dash panel insert</li> </ul>
01326		

Eliminate open circuit in Replace multi-function ing wheel control unit => Radio, Telephone a Navigation System; Re Group 91; Multi-function steering wheel; Removi and installing multi-function steering wheel control J453 Multi-function stee wheel; Removing and ling multi-function stee	Multi-function steering wheel control unit -J453 - No communication	- CAN bus fault - Open circuit in wiring - Multi-function steering wheel control unit defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace multi-function steer- ing wheel control unit</li> <li>Radio, Telephone and Navigation System; Repair</li> <li>Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit - J453 Multi-function steering wheel; Removing and instal- ling multi-function steering</li> </ul>
---	--	--	---

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical</li> <li>Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace telephone handset</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Telephone system</li> </ul>
01523		
Telephone microphone -R38 - Open circuit/short to positive - Short to earth	<ul> <li>Open circuit in wiring</li> <li>Short in wiring</li> <li>Telephone microphone defective</li> </ul>	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder Eliminate open circuit in wiring Replace telephone microphone</li> <li>Radio, Telephone and Navigation Sys- tem; Repair Group 91; Telematics; Remov- ing and installing hands-free microphone Telematics; Removing and installing hands-free microphone</li> </ul>

Output on printer of V.A.G 1551	Possible cause of trouble	Fault remedy
01524	permitted unl	ess authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
Telephone aerial - No signal	- Open circuit in aerial Wife - Short circuit in aerial wire - Telephone aerial defective	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace telephone aerial wire</li> <li>Replace telephone aerial</li> <li>&gt; Radio, Telephone and Navigation System; Repair Group</li> <li>91; Telephone system; Removing and installing aerial Telephone system; Removing and installing aerial</li> </ul>

## 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:

- Protected by copyright. Copying lof private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

Rapid data	transfer	Q
03 - Final	control diagr	nosis

- 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:



- Press ⇒key.

- Tester returns to basic function.

-> Indicated on display:

Rapid data transfer Select function XX	HELP	
---	------	--

# 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:

Rapid data transfer	HELP	
Select function XX		

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

-> Indicated on display:

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

Confirm entry with Q key.

-> Indicated on display:

Rapid	id data transfer
Fault	lt memory erased

Fault memory has now been erased.

Press  $\Rightarrow$  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.



## 9.11 - Encoding control unit

This function is used to encode the telephone as follows.

- Data busprotected by copyright. Copying for private or commercial purposes, in part or in whole, is not Vehicle model unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Voice recognition/multi-function/steering wheelcument. Copyright by AUDI AG.

- 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:

apid data transfer	Q
/ - 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:

Select function XX	ιΡ
--------------------	----

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- Press keys 0 and 6.

Indicated on display:		
Rapid data transfer 06 - End output	Q	

- 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 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											
	3: A8 4: A2 5: A4 (B6)										
		0: Wit 1: Wit	th data thout o	a bus data bus							
	00: C	olumn	s rese	erved for sub	sequent enco	oding					

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 right. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

## 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	a transfer	2	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 num- ber	Indicated on display
001	1 = Telephone 2 = Subscribed/not subscribed 3 = Field strength 4 = 0010
002	3 = Dimming 4 = 0100%
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

Read measured	l value block 1		⇒	<ul> <li>Indicated on display</li> </ul>					
Telephone	Subscribed	Field strength	5						
Protected by copy permitted unless	ight. Copying for private or authorised by AUDI AG. AL	commercial purposes, in part o IDI AG does not guarantee or a	r in whole, is not ccept any liability	Field strength • 010					
with respect to	with respect to the correctness of information in this document. Copyright by AUDI AG. Field strength of telephone network								
		Telephone subscript <ul> <li>Subscribed</li> <li>Not subscr.</li> </ul>	tion						
	Permanently fitte	d telephone							
	-								

Measured value block 002

Read measured value	e block 2	⇒	Indicated on display	
	Dimming	0%		
			Dimming factor ▪ 0100%	
		Dimming level (only with lights "ON")		

## Measured value block 005

Read measured value bloc IMEI: 493005100454423	:k 5	⇒ Indicated on display	

Padio 1	Audi A8 1994 > 000
	relephone and Navigation System, Sen-diagnosis - Edition 09.2000 Addi
	Device number
Measured value bloc	× 080
Protected by Read measured va with respe	copyright. Copying for private or commercial purposes, in part or <u>in whole, is</u> not <b>Real block 80</b> AUDI AG. AUDI AG does not guarantee or accept any liab <sup>uity</sup> of to the correctness of information in this document. Copyright by AUDI AG <b>00 CP3.07 12/99</b>
_	

## Measured value block 081

Read measured 4BYN009461 6.5	value block 81 510 26-05-00 AC84		⇒	<ul> <li>Indicated on display</li> </ul>
	Display of chassis nu	umber with software v	ersion a	nd date

## Measured value block 125

Read me	asured value block 1	25	⇒	<ul> <li>Indicated on display</li> </ul>			
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 <ul> <li>"1" = on data bus</li> <li>"0" = not on data bus (transmission fault)</li> <li>" " = not connected to data bus</li> </ul>							
	Dash panel insert • "1" = on data bus • "0" = not on data bus (transmission fault) • "" = not connected to data bus						

## Audi A8 1994 ≻ Audi Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

## 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 Protected by copyright. Copying for private o commercial purposes, in part or in whole, is not
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<ul> <li>Enter desired adaption channel (adaption table =&gt; Page 164).</li> <li>Confirm entry with Q key.</li> </ul>

#### 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.



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 Test OFF	Adaption	0			

Top line shows selected channel and currently stored aerial test.

0 = No test

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- 1 = GSM aerial is tested
- Press  $\Rightarrow$  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 Store altered	Adaption value?	1	Q

- Confirm entry with Q key.
- -> Indicated on display:

Channel 5 Adaption 1 Altered value stored

Press  $\Rightarrow$  key.

Rapid data trans	sfer	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  $\Rightarrow$  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 ٠ 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 0 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  $\Rightarrow$  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 transferin respect the correctness of infor Fault in communication link nation in this document. Copyright by AUDI AG.

Rapid data transfer HELP K-wire not switched to earth

Rapid data	transfer	HELP
K-wire not	switched	to positive

Rapid data transfer HELP Select function XX

- Pressing HELP key prints out a list of possible functions.
- Press  $\Rightarrow$  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 Select function XX HELP

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

#### -> Indicated on display:

Rapid	data	transf	ler	Q	
01 - 1	Interi	rogate	control	unit	version

Confirm entry with Q key.

3B0919142	TV Tuner 17001	0001
Code 00010	WSC XXXXX	

- 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  $\Rightarrow$  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:

-> Adjacent display appears after approx. 5 s: Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Rapid data transfer HELP Select function XX

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

->	Indicated	on	dis	play	<b>y</b> :
					_

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.

with respect to the correctness of information in this document. Copyright by AUDI AG. -> 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 Roar display unit	Poor monitor defective	Poplace rear monitor 1)
- Open circuit/short to positive - Short to earth		

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	<ul> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring Replace navigation system control unit</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for navigation system II (Navigation System Plus); Removing and installing operating electronics control unit for 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</li> </ul>

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	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Amplifier for TV aerial 1 defective</li> </ul>	<ul> <li>Replace aerial wire</li> <li>Use current flow diagram to perform fault-finding</li> <li>&gt; Current Flow Diagrams, Electrical</li> <li>Fault-finding and Fitting Locations binder</li> <li>Replace TV aerial amplifier</li> <li>&gt; Radio, Telephone and Navigation System; Repair Group 91; Navigation system</li> <li>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)</li> <li>(from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window</li> </ul>
00864		
Aerial 2 for TV -R55 - Open circuit/short circuit - to positive - Short to earth	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Amplifier for TV aerial 2 defective</li> </ul> Protected by copyright. Copyling permitted unless authorised by with respect to the correctrice	<ul> <li>Replace aerial wire</li> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical</li> <li>Fault-finding and Fitting Locations binder</li> <li>Replace TV aerial amplifier</li> <li>Radio, Telephone and Navigation System; Repair Group 91; Navigation system</li> <li>II-D (Navigation System Plus) (from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window Navigation system</li> <li>(from Wk 48/99 onwards); Removing and installing aerial amplifier in rear window</li> </ul>

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	<ul> <li>Open circuit in aerial wire</li> <li>Short circuit in aerial wire</li> <li>Amplifier for TV aerial 3 defective</li> </ul>	<ul> <li>Replace aerial wire</li> <li>Use current flow diagram to perform fault-finding</li> <li>Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace TV aerial amplifier</li> <li>Radio, Telephone and Navigation System;</li> <li>Repair Group 91; Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards);</li> <li>Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards);</li> </ul>
00866 Aerial 4 for TV -R55 - Open circuit/short circuit - to positive permitted unless with respect to t - Short to earth	- Open circuit in aerial wire Short circuit in aerial wire Amplifier for TV aerial 4 defective	<ul> <li>Replace aerial wire</li> <li>Use current flow diagram to perform fault-find- ling, ADD AG.</li> <li>Current Flow Diagrams, Electrical Fault- finding and Fitting Locations binder</li> <li>Replace TV aerial amplifier</li> <li>Radio, Telephone and Navigation System;</li> <li>Repair Group 91; Navigation system II-D (Nav- igation System Plus) (from Wk 48/99 onwards);</li> <li>Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards);</li> <li>Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from Wk 48/99 onwards);</li> </ul>

## 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 t 03 - Final d
------------------------------

- 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.

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-> 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 Protected by copyright Copying for private or commercial purposes, in part or in whole, is not
permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
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 Select function XX	HELP	

- 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 of	on display:
Rapid data t Fault memory	ransfer • erased
Fault memory	y has now been erased.
- Press $\Rightarrow$ k	ey.
-> Indicated (	on display
Rapid data t Select funct	ransfer HELP
Notes:	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
Attention: Fault memory n	ot interrogated
-> Test se	equence 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.

## Audi A8 1994 ≻ Audi Radio, Telephone and Navigation System, Self-diagnosis - Edition 09.2000

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
<ul> <li>Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not</li> <li>Confirm entry with Q key permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.</li> </ul>
-> 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 Code 00010	TV Tuner 17001 WSC XXXXX	0001	

- -> The display will show the control unit identification and the code that was entered (00010).
- Press  $\Rightarrow$  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: 0 - 3: Component not fitted	4 - 7: Component fitted	
5	4	3 2 1 ← Decimal places of byte coding on t	ester display			
---	---	---	--			
		0 0 Country code/video standard 0 1 Not used 0 2 PAL B/G 0 3 PAL B/G 0 4 PAL I 0 5 SECAM D/K 0 6 SECAM L 0 7 NTSC M 1 0 PAL B/H 1 1 PAL M 1 2 PAL N 1 3 PAL B 1 4 PAL D/K 1 5 PAL I 1 6 SECAM D/K 1 7 SECAM K1 NTSC M	CENTRAL EUROPE ITALY UK, IRELAND EAST EUROPE FRANCE NORTH AMER. AUSTRALIA BRAZIL ARGENTINA NEW ZEALAND CHINA AFRICA GREECE, EGYPT AFRICA JAPAN			
		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			
	Ν	ot used = 0				

# 10.12 - Reading measured value block

### Performing "Read measured value block" function



- 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:



- 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 num- ber	Indicated on display	
001	1 = Rear monitor connection 2 = On/off	
002 Protected b permitted u with resp	1 = TV aerial 1 2 = Status of U aerial I G does not g 3 = the aerial 2 finformation in this docume 4 = Status of TV aerial 2	ses, in part or in whole, is not larantee or accept any liability ht. Copyright by AUDI AG.

Display group num- ber	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	<ul><li>1/2 = Connections to navigation</li><li>unit</li><li>3 = Status of connection</li></ul>
005	1 = External input AV1 2 = External input AV2

## Measured value block 001



## Measured value block 002

Read measured value	e block 2		⇒	<ul> <li>Indicated on display</li> </ul>
TV aer. 1	OK	TV aer. 2	OK	
				Status of TV aerial 2 • OK • Short • Open circuit
			TV aer	ial 2
		Status of TV aerial 1 • OK • Short • Open circuit		
	TV aerial 1			
	TV aerial 1			

### Measured value block 003

Read measured value	block 3	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is n permitted unless authorised by DOLCAUS ON AUSDIAY guarantee or accept any liabil
TV aer. 3	OK	TV aer. 4th respect to tok rectness of information in this document. Copyright by AUDI AG.
		Status of TV aerial 4 • OK • Short • Open circuit TV aerial 4

Status of TV aerial 3 • OK • Short • Open circuit
TV aerial 3

#### Measured value block 004

Read measured valu	e block 4		⇒	<ul> <li>Indicated on display</li> </ul>
Navigat.	Connect.	OK		
	Connection to navigat	ion unit	Stat • O • SI • O	us of connection K hort pen circuit

### Measured value block 005

Read measured value blo	ck 5	$\Rightarrow$ Indicated on display
AV1 open	AV2 open	
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	External input AV1	
	• used	

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 ÓK

=> 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

V.A.G SELF-DIAGNOSIS HELP 1 - Rapid data transfer 1) 2 - Flash code output1)	-> Indicated on display:	
	V.A.G SELF-DIAGNOSIS HELP 1 - Rapid data transfer 1) 2 - Flash code outputl)	

1) Displayed alternately ht. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

#### 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:



#### Note:

Address word 00 starts the automatic test sequence, i.e. the fault memories of all vehicle systems with selfdiagnosis capability are interrogated by way of rapid data transfer.



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