

Workshop Manual Audi A3 1997 ➤

Radio, telephone and navigation system, Self-diagnosis

Edition 06.2003

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List of Workshop Manual Repair Groups

Repair Group

01 - Self-diagnosis



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

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01 – Self-diagnosis

1 Radio system self-diagnosis (as of MY 98)

1.1 General

1.1.1 Technical features of radio systems

The new generation of AUDI radio systems has extensive self-diagnosis capability.

All 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.

1.2 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- . Unit is always to be attached to rear seat and operated from there by a second person.*
- ◆ *Deactivate front passenger's airbag by way of key switch in glove box or via self-diagnosis ⇒ Body, Self-diagnosis; Rep. Gr. 01 ; Adaption, activating and blocking front passenger's airbag unit .*
- ◆ *Reactivate front passenger's airbag on completion of work.*

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

- ◆ Always switch off ignition before disconnecting and connecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. The fault memory is therefore to be interrogated and if necessary erased on completion of all tests and repair work.

1.3 Starting radio system self-diagnosis

1.3.1 Additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations



◆ Technical Service Handbook

◆ Parts List

Test requirements:

◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)

◆ Ignition on

1.3.2 Procedure

Indicated on display:

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

Radio address word: 56

– Press keys **[5]** and **[6]**.

Indicated on display:

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

– Confirm entry by pressing **[Q]** key.

“DIAG” appears on radio display during self-diagnosis.

Up to MY 01:

Following display appears after approx. 5 seconds:

4B0035152 Code 00501	Radio	D01 WSC XXXXX	->
-------------------------	-------	------------------	----

As of MY 02:

Following display appears after approx. 5 seconds:

8E0035195B Code 05637	symphony II	NP2 0004 WSC XXXXX	->
--------------------------	-------------	-----------------------	----

All vehicles:

- ◆ 4B0035152: Control unit part no.
- ◆ 8E0035195B: Control unit part no.
- ◆ Radio: Component designation
- ◆ symphony II NP 2: Component designation and manufacturer
- ◆ D01 or 0004: Software version
- ◆ Code 00501 or 05637: Encoding
- ◆ WSC XXXXX: Workshop code

– Check encoding on the basis of the encoding table (up to MY 01) ⇒ [page 12](#) , (as of MY 02) ⇒ [page 12](#) .

– Press **[Q]** key.

Indicated on display:

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

1.3.3 Self-diagnosis functions

Available functions:

01 - Interrogating control unit version ⇒ [page 3](#)

02 - Interrogating fault memory ⇒ [page 3](#)

03 - Final control diagnosis ⇒ [page 8](#)

05 - Erasing fault memory ⇒ [page 10](#)

06 - End of output ⇒ [page 10](#)

07 - Encoding control unit ⇒ [page 10](#)

08 - Reading measured value block ⇒ [page 13](#)

10 - Adaption ⇒ [page 18](#)

1.4 Interrogating control unit version

Indicated on display:

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

- Press keys  and  (01 is used to select “Interrogating control unit version” function).

Indicated on display:

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Rapid data transfer 01 - Interrogating control unit version	Q
--	---

- Confirm entry by pressing  key.

Up to MY 01:

Following display appears after approx. 5 seconds:

4B0035152 Code 00501	Radio	D01 WSC XXXXX	->
-------------------------	-------	------------------	----

As of MY 02:

Following display appears after approx. 5 seconds:

8E0035195B Code 05637	symphony II	NP2 0004 WSC XXXXX	->
--------------------------	-------------	-----------------------	----

All vehicles:

- ◆ 4B0035152: Control unit part no.
- ◆ 8E0035195B: Control unit part no.
- ◆ Radio: Component designation
- ◆ symphony II NP 2: Component designation and manufacturer
- ◆ D01 or 0004: Software version
- ◆ Code 00501 or 05637: Encoding
- ◆ WSC XXXXX: Workshop code
- Press  key.

Indicated on display:

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

1.5 Interrogating fault memory



Note!

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 “Erasing fault memory”.

Indicated on display:

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

- Press keys  and  (02 is used to select “Interrogating fault memory” function).

Indicated on display:

Rapid data transfer 02 - Interrogating fault memory	Q
--	---

- Confirm entry by pressing  key.

The number of stored faults appears on the display.

Indicated on display:

X fault(s) detected

The stored faults are displayed and printed out consecutively.

- Check fault printout against fault table ⇒ [page 4](#) and eliminate faults.

If “No fault detected” is displayed, tester returns to initial setting after pressing  key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

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

If any other display appears, refer to ⇒ Fault reader operating instructions .

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.
- Switch off ignition.
- Unplug connectors to fault reader -V.A.G 1551- .

1.6 Radio system fault table



Note!

- ◆ *The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.*
- ◆ *Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.*
- ◆ *On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.*
- ◆ *All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.*

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 ◆ Signal too low	◆ Starter operated for more than 10 sec. ◆ Battery flat/defective ◆ Short circuit in vehicle electrical system ◆ Battery voltage less than 9.5V ◆ Alternator defective	– Repair short circuit in vehicle electrical system – Check battery ⇒ Electrical system; Rep. Gr. 27 – Check alternator ⇒ Electrical system; Rep. Gr. 27

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Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00849 S-contact at ignition/starter switch -D ◆ Open circuit	◆ Open circuit in wiring ◆ Ignition/starter switch -D defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace ignition/starter switch -D ⇒ Electrical system; Rep. Gr. 94
00850 Ctrl output active ampli. on radio ◆ Short to earth	◆ Wiring damage ◆ Open circuit in wiring/short circuit ◆ Amplifier defective ◆ Amplifier and bass loudspeaker defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/short circuit - Replace amplifier ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00852 Front loudspeaker ◆ Short circuit ◆ Open circuit	◆ Wiring damage ◆ Open circuit in wiring/short circuit ◆ Front loudspeaker defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/short circuit - Replace loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00853 Rear loudspeaker ◆ Short circuit ◆ Open circuit	◆ Wiring damage ◆ Open circuit in wiring/short circuit ◆ Rear loudspeaker defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00854 Output radio display dash panel insert ◆ No communication ¹⁾	◆ Open circuit in wiring ◆ Dash panel insert defective ◆ Radio -R- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90 - Replace radio -R- ⇒ Radio, telephone and navigation system; Rep. Gr. 91

1) Whether or not a fault is still present following fault elimination cannot be detected during self-diagnosis. For this reason, operation of second display must always be checked and fault memory then interrogated again after eliminating a fault and erasing fault memory.

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 ◆ Open circuit in CD changer power supply ◆ CD changer -R41- defective ◆ Radio -R- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Check wiring between CD changer and radio ⇒ Radio, telephone and navigation system; Rep. Gr. 91 - Use current flow diagram to check CD changer power supply ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace CD changer -R41- ⇒ Radio, telephone and navigation system; Rep. Gr. 91 - Replace radio -R- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00856 Aerial on the radio ◆ Short circuit ◆ Open circuit	◆ Wiring damage ◆ Open circuit in wiring ◆ Short circuit in aerial wire ◆ Aerial wire disconnected	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Check aerial wire - Replace aerial ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00857 CD changer -R41- ◆ No communication ◆ Defective	◆ Open circuit in wiring ◆ Open circuit in CD changer power supply ◆ CD changer -R41- defective ◆ Radio defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Check wiring between CD changer and radio ⇒ Radio, telephone and navigation system; Rep. Gr. 91 - Use current flow diagram to check CD changer power supply - Replace CD changer -R41- ⇒ Radio, telephone and navigation system; Rep. Gr. 91 - Replace radio -R- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00858 Connect. radio midrange outp., aerial amp. ◆ Short circuit ◆ Open circuit	◆ Wiring damage ◆ Open circuit in wiring/short circuit ◆ Aerial selection control unit -J515- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/short circuit - Replace aerial selection control unit -J515- ⇒ Radio, telephone and navigation system; Rep. Gr. 91

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Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00878 Connections to FL loudspeakers ◆ Short circuit ◆ Open circuit	◆ Wiring damage ◆ Open circuit in wiring/short circuit ◆ Front left loudspeaker defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring/short circuit – Replace front left loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00879 Connections to FR loudspeakers ◆ Short circuit ◆ Open circuit	◆ Wiring damage ◆ Open circuit in wiring/short circuit ◆ Front right loudspeaker defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring/short circuit – Replace front right loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01044 Control unit ◆ Incorrectly encoded	◆ Radio not encoded to match configuration in vehicle	– Encode radio accordingly ⇒ page 10
01300 Nav. with CD drive control unit -J401- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Wiring damage ◆ Navigation system with CD drive control unit -J401- defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Read out fault memory in navigation control unit ⇒ page 68 – Replace navigation system with CD drive control unit -J401- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01303 Telephone transmitter/receiver unit -R36- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Telephone transmitter and receiver unit -R36- defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Read out fault memory in transmitter and receiver unit ⇒ page 120 – Replace telephone transmitter and receiver unit -R36- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01305 Data bus display ◆ Defective	◆ CAN bus fault ◆ Open circuit in wiring	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01317 Control unit with display in dash panel insert -J285- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Dash panel insert defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in dash panel insert ⇒ Electrical system, Self-diagnosis; Rep. Gr. 01 - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90
01326 Multi-func. steering wheel ctrl. unit -J453- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Multi-function steering wheel control unit -J453- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in multi-function steering wheel control unit -J453- ⇒ page 89 - Replace multi-function steering wheel control unit -J453- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
02218 Satellite radio -R146- ◆ No communication link on TP channel	◆ Open circuit in wiring ◆ Satellite radio -R146- not connected ◆ Satellite radio -R146- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Read out fault memory in satellite radio -R146- - Check satellite radio -R146-
02230 Digital radio (DAB) -R147- ◆ No communication link on TP channel	◆ Open circuit in wiring ◆ Digital radio (DAB) -R147- not connected ◆ Digital radio (DAB) -R147- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Read out digital radio (DAB) -R147- fault memory - Check digital radio (DAB) -R147-
65535 Control unit ◆ Defective	◆ Radio -R- defective	- Replace radio -R- ⇒ Radio, telephone and navigation system; Rep. Gr. 91

1.7 Final control diagnosis

- ◆ Final control diagnosis can only be performed with vehicle stationary and engine not running.
- ◆ If final control diagnosis detects a fault, locate and eliminate cause of trouble if necessary.
- ◆ Any wiring faults (e.g. short circuits) occurring are stored in the fault memory.

1.7.1 Final control diagnosis procedure

- Press keys **0** and **3** (03 is used to select “final control diagnosis” function).

Indicated on display:

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

- Confirm entry by pressing **0** key.

Indicated on display:

Final control diagnosis Loudspeakers	->
---	----

All loudspeakers are briefly energised (not audible).

- Press **0** key.

Up to MY 01:

Indicated on display:

Final control diagnosis Output Radio display Dash panel insert	->
---	----

Dash panel insert displays the following test pattern:

DISPLAY TEST



Note!

On vehicles with RNS, the display changes between normal and inverse every 4 seconds.

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- Press **0** key.

As of MY 02:

Indicated on display:

Final control diagnosis Segment test	->
---	----

All pixels light up on radio display.

- Press **0** key.

Indicated on display:

Final control diagnosis Segment test	->
---	----

A light block measuring 4x4 pixels appears in centre of radio display. “Diagnosis” display is blanked out.



Note!

Pixel faults are not stored in fault memory.

- Press **0** key.

All vehicles:

Indicated on display:

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

- Press **0** key.

This returns tester to basic function.

Indicated on display:

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

1.8 Erasing fault memory

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

Requirements:

- Fault memory interrogated ⇒ [page 3](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys  and  (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing  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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated	-
---	---

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

1.9 End of output

- Press keys  and  (06 is used to select “End of output” function).

Indicated on display:

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

- Confirm entry by pressing  key.

Indicated on display:

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

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

1.10 Encoding control unit

This function can be used to encode radio as follows:

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

The encoding procedure is used to set the various radio configuration options.

The code must always correspond to vehicle equipment.

Radio section of Nav II-D is encoded in line with encoding table for MY 01.

1.10.1 Encoding procedure

Indicated on display:

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

- Press keys **[0]** and **[7]** (07 is used to select “Encoding control unit” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Encoding control unit Enter code number XXXXX
--

- Enter code number in line with encoding table, up to MY 01
⇒ [page 12](#) ; as of MY 02 ⇒ [page 12](#) .

Encoding up to MY 01: e.g. 00501

- ◆ Country identification: 0 = standard
- ◆ Sound matching: 0 = standard
- ◆ Number of passive loudspeakers: 5 = 2 passive loudspeakers at front and no active loudspeakers at rear
- ◆ Sound system: 0 = standard
- ◆ Radio configuration: 1 = radio with no CD changer and no second display

For Nav II-D and BOSE sound, “0” is always to be encoded for number of passive loudspeakers (3rd position).

Encoding as of MY 02: e.g. 05637

- ◆ Radio configuration 5: 0 = standard
- ◆ Radio configuration 4: 5 = A3
- ◆ Radio configuration 3: 6 = with Bose and active amplifier deactivation when using telephone
- ◆ Radio configuration 2: 3 = with navigation system and telephone
- ◆ Radio configuration 1: 7 = with diversity, CD changer and multi-function steering wheel

With BOSE sound, “0” is always to be encoded for radio configuration 4.

- Confirm entry by pressing **[Q]** key.

Control unit identification appears on display together with code entered (e.g.: 00501).

Indicated on display:

4B0035152 Code 00501	Radio	D01 WSC XXXXX	->
-------------------------	-------	------------------	----

- Press **[]** key to terminate encoding.

Indicated on display:

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

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

**1.10.2 Encoding table up to MY 01:**

5	4	3	2	1	← Decimal places of byte encoding on tester display			
				1	Radio configuration			
						Remotely powered aerial	CD changer	Second display
					1	X	-	-
					3	X	X	-
					5	X	-	X
					7	X	X	X
					X = Component fitted - = not fitted			
			0		Sound system adjustment			
						Type of adjustment		
					0	Standard (not BOSE sound system)		
					1	BOSE sound system		
		5			Number of passive loudspeakers			
						Number and location		
					0	No passive loudspeakers (BOSE sound system)		
					1	1 passive loudspeaker, front left (BOSE with telephone)		
					2	2 passive loudspeakers at front and 2 active loudspeakers at rear		
					5	2 passive loudspeakers at front and no active loudspeakers at rear		
	0				Sound matching			
					0	Standard		
0					Country identification			
						Country		
					0	Standard		

1.10.3 Encoding table as of MY 02:

5	4	3	2	1	← Decimal places of byte encoding on tester display			
				7	Radio configuration 1 optional extra			
						Diversity box	CD changer	Multi-function steering wheel
					0	-	-	-
					1	X	-	-
					2	-	X	-
					3	X	X	-
					4	-	-	X
					5	X	-	X
					6	-	X	X
					7	X	X	X
					X = Component fitted - = not fitted			

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5	4	3	2	1	← Decimal places of byte encoding on tester display			
			3		Radio configuration 2 optional extra			
						Navigation system	Telephone	VCS
					0	-	-	-
					1	X	-	-
					2	-	X	-
					3	X	X	-
					4	-	-	X
					5	X	-	X
					6	-	X	X
					7	X	X	X
					X = Component fitted - = not fitted			
		6			Radio configuration 3 vehicle adaption			
						Fader OFF	BOSE display ON	Active amplifier de-activation when using telephone
					0	-	-	-
					1	X	-	-
					2	-	X	-
					3	X	X	-
					4	-	-	X
					5	X	-	X
					6	-	X	X
					7	X	X	X
					X = Component fitted - = not fitted			
					Radio configuration 4 sound curves			
					0	A8(D2)/A2		
					1	A4 (B6)		
					2	A6(C5)		
					3	A4 (B6) Cabrio		
					4	TT		
					5	A3(AB)		
0					5. position = 0			

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1.11 Reading measured value block

1.11.1 "Reading measured value block" procedure

Indicated on display:

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

- Press keys **[0]** and **[8]** (08 is used to select "Reading measured value block" function).

Indicated on display:

Rapid data transfer 08 - Reading measured value block	Q
--	---

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block
Enter display group number XXX

- Enter display group number from table ⇒ [page 14](#) up to MY 01; ⇒ [page 14](#) as of MY 02 and confirm by pressing [Q] key.

1.11.2 List of display groups up to MY 01

Display group number	Indicated on display
001	1 = GALA (vehicle speed signal) level 2 = Voltage terminal 30 3 = Illumination dimming 4 = S-contact status
002	1 = Front loudspeaker 2 = Front loudspeaker status 3 = Rear loudspeaker 4 = Rear loudspeaker status
003	1 = Type of aerial 2 = Aerial 3 = Aerial status
004	1 = Active amplifier control output 3 = Telephone 4 = Telephone mute input status
005	1 = CD link 2 = CD link status
006	1 = Ext. display (dash panel insert) 2 = Status of ext. display

1.11.3 List of display groups as of MY 02

Display group number	Indicated on display
001	1 = Voltage terminal 30 2 = Active amplifier control output 3 = Telephone 4 = Telephone mute input status
002	1 = Front loudspeaker 2 = Front loudspeaker status
003	1 = Type of aerial 2 = Aerial 3 = Aerial status
004	1 = CD link 2 = CD link status
005	1 = IF output 2 = IF output status

1.11.4 Measured value block 001 up to MY 01

Reading measured value block 1	→	Indicated on display
0	12.3 V	60 %
		On
		Status of S-contact input
		• Ignition key removed = "Off"
		• Ignition key inserted = "On"
		Illumination dimming (only with lighting "On")
		• 0 ... 99%
		Voltage terminal 30

GALA (vehicle speed signal) level

- 0 = Low level
- 1 = High level

1.11.5 Measured value block 001 as of MY 02

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Reading measured value block 1 →				▼ Indicated on display
12.3 V	OK	Tele- phone	OFF	
				Status of telephone mute input
				• Telephone in use = "ON"
				• Telephone switched off = "OFF"
				Telephone
				Status of active amplifier control output
				• "OK"
				• "Short circuit"
Voltage terminal 30				

1.11.6 Measured value block 002 up to MY 01

Reading measured value block 2 →				▼ Indicated on display
Front loud- speaker	OK	Rear loud- speaker	OK	
				Rear loudspeaker status
				• OK
				• Short circuit
				• Open circuit
				Rear loudspeaker (display with passive loudspeakers only)
				Front loudspeaker status
				• OK
				• Short circuit
				• Open circuit
Front loudspeaker				

1.11.7 Measured value block 002 as of MY 02

Reading measured value block 2 →	▼ Indicated on display
----------------------------------	------------------------



Front loud-speaker	OK	
		Front loudspeaker status
		• OK • Short circuit • Open circuit
		Front loudspeaker (no display with BOSE sound system)

1.11.8 Measured value block 003

Reading measured value block 3	→	Indicated on display
Active	Aerial	OK
		Aerial status
		• OK • Short circuit • Open circuit
		Aerial
		Type of aerial
		• Passive • Active

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1.11.9 Measured value block 004 up to MY 01

Reading measured value block 4	→	Indicated on display
0	Telephone	ON
		Telephone mute input status
		• Telephone in use = "ON" • Telephone switched off = "OFF"
		Telephone
		Active amplifier control output status
		• 0 = Status OK • 1 = Short to earth

1.11.10 Measured value block 004 as of MY 02

Reading measured value block 4	→	Indicated on display
CD link	OK	
CD link status		
• OK • Not OK (also if not fitted)		
CD link	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.	

1.11.11 Measured value block 005 up to MY 01

Reading measured value block 5	→	Indicated on display
CD link	OK	
CD link status		
• OK • Not OK (also if not fitted)		
CD link		

1.11.12 Measured value block 005 as of MY 02

Reading measured value block 5	→	Indicated on display
IF output	OK	
IF output status		
• OK • Short circuit		
IF output		

1.11.13 Measured value block 006 up to MY 01

Reading measured value block 6	→	Indicated on display
Ext. display	OK	
External display status		
• OK • Not OK (also if not fitted)		



External display (dash panel insert)

1.12 Adaption

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

◆ Adaption of external tuner

Appropriate radio adaption is required in the event of additional connection of DAB or SDARS tuner (digital radio).

SDARS tuners are only used in North America.

◆ Deactivating/activating GALA function

Speed-dependent volume control (GALA) can be activated or deactivated.

GALA function is activated at factory.

◆ Deactivating/activating vehicle speed display

Vehicle speed display in radio display can be activated for driving school vehicles.

To obtain display of vehicle speed in radio display, **[MENU]** key must be pressed whilst switching on radio.

◆ Activating/deactivating "long wave" band

Long wave reception can be activated for certain countries and on customer request.

◆ Deactivating/activating transportation mode

Radio cannot be switched on if transportation mode is active.

Transportation mode may be active in new vehicles on delivery.

The individual functions are called up by way of the appropriate adaption channel number (adaption table ⇒ [page 18](#)).

1.12.1 Adaption table

Adaption channel	Adaption function
55	External tuner adaption ⇒ page 19
66	GALA function activation ⇒ page 20
77	Vehicle speed display activation ⇒ page 20
88	Long wave activation ⇒ page 21
99	Transportation mode activation ⇒ page 22

1.12.2 Implementing function "10 - Adaption"

Indicated on display:

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

- Press keys **[1]** and **[0]** (10 is used to select "Adaption" function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Adaption Enter channel number	XX
----------------------------------	----

- Enter required adaption channel (adaption table ⇒ [page 18](#)).
- Confirm entry by pressing **[Q]** key.



After altering adaption value or exiting from adaption channel, function "10 - Adaption" must be implemented again to select a different adaption channel.

1.12.3 External tuner adaption (digital radio)

Indicated on display:

Adaption Enter channel number XX

- Press keys **[5]** and **[5]** (55 is used to select "Channel 55").



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- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 55	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration are displayed on top line (0 = No external tuner, 1 = SDARS tuner (USA), 2 = DAB tuner).

- Press **[]** key.

Indicated on display:

Channel 55	Adaption	0	->
Enter adaption value XXXXX			

- Enter new adaption value (e.g. 00002).

00000 = No external tuner

00001 = SDARS tuner (USA)

00002 = DAB tuner

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 55	Adaption	2	->
		<-1 3->	

- Press **[]** key.

Indicated on display:

Channel 55	Adaption	2	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 55	Adaption	2	->
Altered value stored			

- Press **[]** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **[0]** and **[6]** (06 is used to select "End of output" function).
- Confirm entry by pressing **[Q]** key.

1.12.4 Activating/deactivating GALA function

Indicated on display:

Adaption Enter channel number XX

- Press keys **[6]** and **[6]** (66 is used to select “Channel 66”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 66	Adaption	0	->
<-1 3->			

Channel selected and relevant configuration are displayed on top line (0 = GALA function activated, 1 = GALA function deactivated).

- Press **[←]** key.

Indicated on display:

Channel 66	Adaption	0	->
Enter adaption value XXXXX			

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

00001 = GALA function off

00000 = GALA function on

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 66	Adaption	1	->
<-1 3->			

- Press **[←]** key.

Indicated on display:

Channel 66	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

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Indicated on display:

Channel 66	Adaption	1	->
Altered value stored			

- Press **[←]** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

1.12.5 Activating/deactivating vehicle speed display

Indicated on display:

Adaption Enter channel number XX

- Press keys **[7]** and **[7]** (77 is used to select “Channel 77”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 77	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration are displayed on top line (0 = vehicle speed display deactivated, 1 = vehicle speed display activated).

- Press  key.

Indicated on display:

Channel 77	Adaption	0	->
Enter adaption value XXXXX			

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

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00001 = Vehicle speed display on

00000 = Vehicle speed display off

- Confirm entry by pressing  key.

Indicated on display:

Channel 77	Adaption	1	->
		<-1 3->	

- Press  key.

Indicated on display:

Channel 77	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 77	Adaption	1	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys  and  (06 is used to select “End of output” function).

- Confirm entry by pressing  key.

1.12.6 Activating/deactivating long wave reception

Indicated on display:

Adaption
Enter channel number XX

- Press keys  and  (88 is used to select “Channel 88”).



Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 88	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration are displayed on top line (0 = long wave reception activated, 1 = long wave reception deactivated).

- Press  key.

Indicated on display:

Channel 88	Adaption	0	->
Enter adaption value XXXXX			

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

00001 = Long wave off



00000 = Long wave on

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 88	Adaption	1	->
		<-1 3->	

- Press **[]** key.

Indicated on display:

Channel 88	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **[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]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

1.12.7 Activating/deactivating transportation mode

Indicated on display:

Adaption	
Enter channel number XX	

- Press keys **[9]** and **[9]** (99 is used to select “Channel 99”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 99	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration are displayed on top line (0 = Transportation mode deactivated, 1 = Transportation mode activated).

- Press **[]** key.

Indicated on display:

Channel 99	Adaption	0	->
Enter adaption value XXXXX			

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

00001 = Transportation mode on

00000 = Transportation mode off

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 99	Adaption	1	->
		<-1 3->	

- Press **[]** key.

Indicated on display:

Channel 99	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

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Indicated on display:

Channel 99	Adaption	1	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.



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2 Self-diagnosis of navigation system II-D (Navigation System Plus RNS 4.1) (as of week 36/00)

2.1 General

Navigation System Plus RNS 4.1 is an enhanced version of the familiar navigation system II. Key innovations include aerial selection control unit, extended self-diagnosis, CAN bus link (infotainment) and dynamic navigation.

2.1.1 Features

- ◆ Retention of features from navigation system II
- ◆ Dynamic navigation
- ◆ Provision of telematics link
- ◆ Aerial diversity for radio and TV reception

2.1.2 As of week 45/01 (version RNS 4.2)

- ◆ Entry of destinations via chip card for electronic log book
- ◆ Operator service for telematics
- ◆ Display of current road/street location in dash panel insert
- ◆ Entry of intermediate destination and selective speller
- ◆ Voice control

2.2 Fault messages on navigation system display

Indicated on display of navigation system II-D:

RDS TMC tuner:
Problem with RDS TMC
tuner link or link could
not be established

This fault message occurs in the following situations:

- ◆ No CAN communication/CAN communication problems between operating electronics control unit, navigation -J402- and navigation interface -R94- (open circuit in wiring or wiring not connected)
- ◆ Navigation interface -R94- defective

If this fault occurs, TMC traffic information cannot be received via the radio and the "Settings" menu of the traffic 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:
No telephone response;
dynamic function only with
ignition switched on

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This fault message occurs in the following situations:

- ◆ No CAN communication/CAN communication problems between operating electronics control unit, navigation -J402- and telephone/telematics control unit -J526- (open circuit in wiring or wiring not connected)
- ◆ Telephone/telematics control unit -J256- defective
- ◆ Ignition off (terminal 15 off)

If this fault occurs, TMC traffic information cannot be received via telephone. Dynamic navigation is not possible.

Indicated on display of navigation system II-D:

Problem with log book link
Journeys not stored
Record journeys manually
Confirm with RETURN

This fault message occurs in the following situations:

- ◆ No CAN communication or problems with CAN communication between operating electronics control unit, navigation -J402- and electronic log book
- ◆ Electronic log book not connected or defective

If this fault occurs, data from electronic log book can neither be read into navigation system nor recorded on chip card.

No fault is entered in fault memory.

Indicated on display of navigation system II-D:

LOGBOOK
Log book not active
Activate on PC
Record journeys manually

This message occurs in the following situations:

- ◆ Chip card for electronic log book not yet activated on PC following delivery of vehicle
- ◆ This message on navigation system display does not indicate a fault

– Inform customer accordingly.

Indicated on display of navigation system II-D:

Unsuitable CD
Insert CD-ROM
for TravelPilot DX

This message occurs in the following situations:

- ◆ No version DX navigation CD inserted
- Insert navigation CD with DX logo.
- Inform customer accordingly.

Fault messages are displayed until fault has been eliminated or acknowledged by pressing **[RETURN]** key.

2.3 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551-. Unit is always to be attached to 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:

- ◆ Always switch off ignition before connecting and disconnecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

2.4 Starting self-diagnosis of navigation system II-D

2.4.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)
- ◆ Ignition on

2.4.2 Procedure

Indicated on display:

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

Address word for navigation system: 37

- Press keys **[3]** and **[7]**.

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Up to week 36/00:

Following display appears after approx. 5 seconds:

4B0035192F	Navigation	BNO	0004	->
Code 00000		WSC	XXXXX	

As of week 37/00:

Following display appears after approx. 5 seconds:

4D0035192K	RNS 4.1 H05	BNO	0017	->
Code 00000		WSC	XXXXX	

All vehicles:

- ◆ 4B0035192F: Control unit part number
- ◆ Navigation: Component designation
- ◆ BNO: Manufacturer code
- ◆ 0004 or 0017: Software version
- ◆ Code 00000: Not used
- ◆ WSC XXXXX: Workshop code

Indicated on display of navigation system II-D:

DIAG

Indicated on display of dash panel insert:

DIAG

- Press  key.

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Indicated on display:

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

2.4.3 Self-diagnosis functions

Available functions:

- 01 - Interrogating control unit version ⇒ [page 27](#)
- 02 - Interrogating fault memory ⇒ [page 28](#)
- 03 - Final control diagnosis ⇒ [page 31](#)
- 05 - Erasing fault memory ⇒ [page 32](#)
- 06 - End of output ⇒ [page 33](#)
- 08 - Reading measured value block ⇒ [page 33](#)
- 10 - Adaption ⇒ [page 37](#)

Radio section is encoded as part of radio self-diagnosis in line with encoding table for MY 01 ⇒ [page 12](#).

2.5 Interrogating control unit version

Indicated on display:

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

- Press keys  and  (01 is used to select “Interrogating control unit version” function).

Indicated on display:

Rapid data transfer 01 - Interrogating control unit version	Q
--	---

- Confirm entry by pressing  key.

**Up to week 36/00:**

Following display appears after approx. 5 seconds:

4B0035192F	Navigation	BNO	0004	->
Code 00000		WSC	XXXXX	

As of week 37/00:

Following display appears after approx. 5 seconds:

4D0035192K	RNS 4.1 H05	BNO	0017	->
Code 00000		WSC	XXXXX	

All vehicles:

- ◆ 4B0035192F: Control unit part number
- ◆ Navigation: Component designation
- ◆ BNO: Manufacturer code
- ◆ 0004 or 0017: Software version
- ◆ Code 00000: Not used
- ◆ WSC XXXXX: Workshop code
- Press key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

2.6 Interrogating fault memory**Note!**

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 "Erasing fault memory".

Indicated on display:

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Rapid data transfer	HELP
Select function XX	

- Press keys and (02 is used to select "Interrogating fault memory" function).

Indicated on display:

Rapid data transfer	Q
02 - Interrogating fault memory	

- Confirm entry by pressing key.

The number of stored faults appears on the display.

Indicated on display:

X fault(s) detected

The stored faults are displayed and printed out consecutively.

- Check printout against fault table and rectify faults
⇒ [page 29](#) .

If "No fault detected" is displayed, tester returns to initial setting after pressing key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

Rapid data transfer	HELP
Select function XX	

If any other display appears, refer to ⇒ Fault reader operating instructions .

- Press keys and (06 is used to select "End of output" function).
- Confirm entry by pressing key.

- Switch off ignition and unplug diagnostic connector.

2.7 Fault table for navigation system II-D



Note!

- ◆ The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.
- ◆ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ◆ On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.
- ◆ All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00625 Speed signal ◆ No signal ²⁾	◆ Open circuit in wiring ◆ Dash panel insert defective ◆ Navigation system control unit defective	– Eliminate open circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90 – Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

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2) GALA speed and GPS speed are constantly compared in the navigation unit. This fault is stored if GPS signal is > 40 km/h for 100 sec. but there is no GALA signal.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 ◆ Signal too low	◆ Starter operated for more than 10 sec. ◆ Battery flat/defective ◆ Short circuit in vehicle electrical system ◆ Battery voltage less than 9.5 V ◆ Alternator defective	– Repair short circuit in vehicle electrical system – Charge/replace battery ⇒ Electrical system; Rep. Gr. 27 – Check alternator ⇒ Electrical system; Rep. Gr. 27

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00854 Output radio display dash panel insert ◆ No communication ³⁾	◆ Open circuit in wiring ◆ Dash panel insert defective ◆ Navigation system control unit defective ◆ Navigation system interface defective	- Eliminate open circuit in wiring - Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90 - Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91 - Replace navigation interface - R94- ⇒ Radio, telephone and navigation system; Rep. Gr. 91

3) Whether or not a fault is still present following fault elimination cannot be detected during self-diagnosis. For this reason, operation of dash panel insert must always be checked (to vehicle speed ≤ 15 km/h) and fault memory then interrogated again after eliminating a fault and erasing fault memory.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00862 Navigation aerial ⁴⁾ (GPS) - R50/R52 ◆ Open circuit ◆ Short circuit	◆ Open circuit in aerial wire ◆ Short circuit in aerial wire ◆ Navigation aerial ⁴⁾ (GPS) defective ◆ Aerial filter -R87- ⁴⁾ defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations. - Replace GPS aerial wire - Replace navigation aerial (GPS) ⇒ Radio, telephone and navigation system; Rep. Gr. 91 - Replace aerial filter -R87- ⇒ Radio, telephone and navigation system; Rep. Gr. 91

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4) If an aerial filter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested as far as the aerial filter. The wiring from the aerial filter to the GPS aerial and the aerial itself are tested by the telematics system ⇒ [page 97](#).

If fault 00862 occurs, the number of satellites received must first be checked. It must be possible to receive signals from at least 4 satellites in the open air. Call up "Settings" menu on navigation unit and press **[MODE]** button to select "GPS viewer" menu.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00867 Connection to ABS control unit ◆ No signal	◆ Wiring damage ◆ Open circuit in wiring ◆ ABS wheel sensors defective ◆ ABS control unit defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Perform ABS self-diagnosis ⇒ Running gear, Self-diagnosis; Rep. Gr. 01

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01311 Data bus information ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring or short circuit between data bus wires ◆ Navigation system control unit defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01317 Control unit with display in dash panel insert -J285- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Dash panel insert defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in dash panel insert ⇒ Electrical system, Self-diagnosis; Rep. Gr. 01 - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90
65535 Control unit ◆ Defective	◆ Navigation system control unit defective	- Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

2.8 Final control diagnosis



Note!

- ◆ *Final control diagnosis can only be performed with vehicle stationary and engine not running.*
- ◆ *Navigation system must be active.*
- ◆ *If final control diagnosis detects a fault, locate and eliminate cause of trouble 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.*
- ◆ *Any faults (e.g. short circuits) occurring are stored in the fault memory.*

2.8.1 Final control diagnosis procedure

- Press keys  and  (03 is used to select "Final control diagnosis" function).

Indicated on display:

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

- Confirm entry by pressing  key.

Indicated on display:

Final control diagnosis Telephone/ navigation system loudspeaker R39	->
--	----

High-pitched tone can be heard at loudspeaker 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

Display switches between normal and inverse every 4 seconds.

- Press  key.

Indicated on display:

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

- Press  key.

This returns tester to basic function.

Indicated on display:

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

2.9 Erasing fault memory



Note!

- ◆ *Erasing fault memory simultaneously resets function status register.*
- ◆ *If fault memory cannot be erased, interrogate it again and eliminate fault.*

Requirements:

- Fault memory interrogated ⇒ [page 28](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys  and  (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing  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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated
--

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

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2.10 End of output

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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

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

2.11 Reading measured value block

2.11.1 “Reading measured value block” procedure

Indicated on display:

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

- Press keys **[0]** and **[8]** (08 is used to select “Reading measured value block” function).

Indicated on display:

Rapid data transfer 08 - Reading measured value block	Q
--	---

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block Enter display group number XXX
--

- Enter display group number from table [⇒ page 33](#) and confirm entry by pressing **[Q]** key.

2.11.2 List of display groups

Display group number	Indicated on display
001	1 = GALA (vehicle speed signal) level 2 = Voltage terminal 30 3 = Illumination dimming 4 = S-contact status
002	1 = Input status Reversing light switch 2 = Terminal 15 input status
003	1 = GPS aerial 2 = GPS aerial remote power supply status
004	1 = External display 2 = Function: Communication with external display
005	1 = Data bus 2 = Function: Communication Data bus information
006	1 = Pulse generator (ABS), left (rear wheel) 2 = Vehicle speed, left
007	1 = Content of function status register

2.11.3 Measured value block 001

Reading measured value block 1 →				Indicated on display
0	14.1 V	99 %	On	
				Status of S-contact input
				• Remove ignition key = "Off"
				• Ignition key inserted = "On"
				Illumination dimming (only with lighting "ON")
				• 0 ... 99%
				Voltage terminal 30
				GALA (vehicle speed signal) level
				• 0 = Low level
				• 1 = High level

2.11.4 Measured value block 002

Reading measured value block 2 →				Indicated on display
Reverse off	Term.15 ON			
				Terminal 15 input status
				• Terminal 15 active (ignition on) = Display "ON"
				• Terminal 15 inactive (ignition off) = Display "OFF"
				Reversing light switch input status
				• Reversing light switch active (reverse gear engaged) = Display "ON"
				• Reversing light switch input inactive (reverse gear not engaged) = Display "OFF"

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2.11.5 Measured value block 003

Reading measured value block 3 →				Indicated on display
GPS aerial	OK			
				GPS aerial remote power supply status ⁵⁾
				• OK
				• Short circuit
				• Open circuit
				GPS aerial

If fault 00862 occurs, the number of satellites received must first be checked. At least 4 satellites must be received in the open air. Call up “Settings” menu on navigation unit and press **MODE** button to select “GPS viewer” menu.

Reading measured value block 4	→	▾ Indicated on display
Ext. display	OK	

Function: Communication with external display

- OK
- Not OK

External display (dash panel insert)

Reading measured value block 5	→	▾ Indicated on display
Data bus	OK	

Communication: Data bus information

- OK
- Not OK

Data bus

Reading measured value block 6	→	▼ Indicated on display
Left	86 km/h	
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. Vehicle speed calculated as a function of ABS signal with allowance for programmed tyre circumference and number of pulses per wheel revolution Pulse generator (ABS), left		

2.11.9 Measured value block 007

Reading measured value block 7	→	Indicated on display
255		
Content of function status register ⇒ page 36 comprises: ⁶⁾ • Wheel circumference adaption performed = 128 • Adaption of number of pulses for ABS sensors performed = 64 • ABS pulses detected at least once = 32 • CAN communication with dash panel insert OK = 16 • Signal from reversing light switch detected = 8 • Terminal 15 (ignition ON) detected = 4 • Current input of GPS aerial OK (10 to 30 mA) = 2 • CAN communication with navigation unit (internal) OK = 1		

6) If all eight items listed are OK, the numerical values indicated above are added together and a value of 255 appears in the function status register (measured value block 7). If, for example, ABS pulses were not detected, the value for ABS pulses (32) is subtracted from the value of 255 and the value displayed in the function status register is then 223 (255 - 32 = 223). Proceed as follows if 244 for example is displayed in function status register: 255 - 244 = 11; 11 is made up of 8 (signal from reversing light switch not detected), 2 (current input of GPS aerial not OK) and 1 (CAN communication with navigation unit not OK).

2.12 Function status register

2.12.1 Description of operation

Production diagnosis is a special mode for checking the wiring and correct functioning of the navigation system. It involves automatic checking of the individual fault locations, filing of the result in the so-called function status register (measured value block 007) and permanent storage.

Production diagnosis can be disabled/enabled by way of "Adaption" (channel 03) ⇒ [page 40](#).

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

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

Test requirements:

- ◆ No navigation CD inserted
- ◆ Navigation system switched on
- ◆ Tyre circumference adapted ⇒ [page 38](#)
- ◆ Number of ABS wheel sensor pulses adapted ⇒ [page 39](#)
- ◆ Erase fault memory ⇒ [page 32](#)
- ◆ Drive vehicle at a speed of at least 10 km/h
- ◆ With vehicle stationary, engage reverse gear for at least 2 seconds

Value "255" will be displayed in measured value block 007 if production diagnosis has been implemented correctly (all test requirements met) and navigation system is OK.

2.13 Adaption

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

- ◆ Changes to tyre size
- ◆ Changes to number of ABS wheel sensor pulses
- ◆ Disabling/enabling of production diagnosis
- ◆ Colour or black-and-white dash panel insert display
- ◆ Changes to country identification
- ◆ Connection of telematics system
- ◆ Connection of electronic log book

Additional features as of week 45/01 (version RNS 4.2):

- ◆ Adaption of CAN bus users (fitting list)
- ◆ Changes to front passive loudspeaker diagnosis

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

- ◆ Deactivating/activating transportation mode

If transportation mode is active, unit is switched off 10 seconds after being switched on. "TRANSPORTATION MODE" appears on display.

Transportation mode may be active in new vehicles on delivery.

Navigation system II-D uses ABS sensor pulses to calculate distance travelled.

The individual functions are called up by way of the appropriate adaption channel number (adaption table [⇒ page 37](#)).

2.13.1 Adaption table

Adaption channel	Adaption function
01	Tyre circumference ⇒ page 38
02	Number of ABS sensor pulses ⇒ page 39
03	Disabling/enabling production diagnosis ⇒ page 40
04	Adaption of dash panel insert display ⇒ page 41
05	Country identification ⇒ page 41
06	Adaption of telematics system ⇒ page 42
07	Adaption of electronic log book ⇒ page 43

As of week 45/01 (version RNS 4.2):

07	Adaption of CAN bus users ⇒ page 44
09	Front passive loudspeaker diagnosis ⇒ page 45
99	Transportation mode activation ⇒ page 46

2.13.2 Implementing function "10 - Adaption"

Indicated on display:

- Press keys **[1]** and **[0]** (10 is used to select "Adaption" function).

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Enter required adaption channel (adaption table ⇒ [page 37](#)).
- Confirm entry by pressing **[Q]** key.

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

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

Adaption Enter channel number XX

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Note!

After altering adaption value or exiting from adaption channel, function "10 - Adaption" must be implemented again to select a different adaption channel.

2.13.3 Adapting tyre circumference

Indicated on display:

- Press keys **[0]** and **[1]** (01 is used to select "Channel 1").



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel selected and currently stored tyre circumference in mm are displayed on top line.

- Press **[C]** key.

Indicated on display:

- Enter new tyre circumference (e.g. 01910), tyre table ⇒ [page 39](#).

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[C]** key.

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Adaption Enter channel number XX

Channel 1	Adaption	1935	-
>		<-1 3->	

Channel 1	Adaption	1935	-
>	Enter adaption value XXXXX		

Channel 1	Adaption	1910	-
>		<-1 3->	

Channel 1	Adaption	1910	Q
	Store altered value?		

Channel 1	Adaption	1910	-
>	Altered value stored		

- Press  key.

Indicated on display:

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

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.

2.13.4 Adapting number of ABS wheel sensor pulses

Indicated on display:

Adaption Enter channel number XX

- Press keys  and  (02 is used to select “Channel 2”).



Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	42	->
		<-1 3->	

Channel selected and currently stored number of ABS wheel sensor pulses are displayed on top line.

- Press  key.

Indicated on display:

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Channel 2	Adaption	42	Q
	Enter adaption value XXXXX		

- Enter new number of pulses (e.g.: 0045).

Number of pulses for A3 with navigation system II-D is always 45.

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	45	->
		<-1 3->	

- Press  key.

Indicated on display:

Channel 2	Adaption	45	Q
	Store altered value?		

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	45	->
	Altered value stored		

- Press  key.

Indicated on display:

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

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.

2.13.5 Tyre table for Audi A3

	Tyre size	Circumference (mm)
Summer tyres	195/65 R15	1935
Summer tyres	205/60 R15	1910

	Tyre size	Circumference (mm)
Summer tyres	205/55 R16	1930
Summer tyres	225/45 R17	1930
Summer tyres	225/40 ZR18	1943
Winter tyres	185/65 R15	1895
Winter tyres	195/65 R15	1935
Winter tyres	205/55 R16	1930
Winter tyres	225/45 R17	1930

2.13.6 Disabling/enabling production diagnosis (function status register)

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[3]** (03 is used to select “Channel 3”).



Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 3 Adaption 0 ->
 <-1 3->

Channel selected and production diagnosis status (0 = disabled, 1 = active) are displayed on top line.

- Press **[C]** 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 by pressing **[Q]** key.

Indicated on display:

Channel 3 Adaption 1 ->
 <-1 3->

- Press **[C]** key.

Indicated on display:

Channel 3 Adaption 1 Q
Store altered value?

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 3 Adaption 1 ->
Altered value stored

- Press **[C]** key.

Indicated on display:

Rapid data transfer HELP
Select function XX

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

2.13.7 Adapting dash panel insert display

Indicated on display:

Adaption Enter channel number XX

- Press keys **[0]** and **[4]** (04 is used to select “Channel 4”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 4	Adaption	0	->
		<-1 3->	

Channel selected and type of display in dash panel insert are displayed on top line.

- Press **[C]** key.

Indicated on display:

Channel 4	Adaption	0	->
Enter adaption value XXXXX			

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

Up to week 44/01:

00000 = Black-and-white display

00001 = Colour display

As of week 45/01 (version RNS 4.2):

00000 = Black-and-white display (up to MY 01)

00001 = Black-and-white display (as of MY 02)

No adaption with colour display as of MY 02

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 4	Adaption	1	->
		<-1 3->	

- Press **[C]** key.

Indicated on display:

Channel 4	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 4	Adaption	1	->
Altered value stored			

- Press **[C]** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

2.13.8 Adapting country identification

Indicated on display:

Adaption Enter channel number XX

- Press keys **[0]** and **[5]** (05 is used to select “Channel 5”).



Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	0	->
		<-1 3->	

Channel selected and country identification (0 = Europe, 1 = USA) are displayed on top line.

- 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 by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	1	->
		<-1 3->	

- Press **[]** key.

Indicated on display:

Channel 5	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	1	->
Altered value stored			

- Press **[]** key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

2.13.9 Adapting telematics system

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[6]** (06 is used to select “Channel 6”).



Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 6	Adaption	1	->
		<-1 3->	

Channel selected and relevant configuration (1 = without telematics, 3 = with telematics) are displayed on top line.

- Press **[]** key.

Indicated on display:

Channel 6	Adaption	1	->
Enter adaption value XXXXX			

- Enter new adaption value (e.g. 00003).

00001 = Without telematics

00003 = With telematics

- Confirm entry by pressing  key.

Indicated on display:

Channel 6	Adaption	3	->
<-1 3->			

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- Press  key.

Indicated on display:

Channel 6	Adaption	3	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 6	Adaption	3	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys  and  (06 is used to select “End of output” function).

- Confirm entry by pressing  key.

2.13.10 Adapting electronic log book

Indicated on display:

Adaption	
Enter channel number XX	

- Press keys  and  (07 is used to select “Channel 7”).



Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 7	Adaption	0	->
<-1 3->			

Channel selected and relevant configuration (0 = without electronic log book, 1 = with electronic log book) are displayed on top line.

- Press  key.

Indicated on display:

Channel 7	Adaption	0	->
Enter adaption value XXXXX			

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

00001 = With electronic log book

00000 = Without electronic log book

- Confirm entry by pressing  key.

Indicated on display:

Channel 7	Adaption	1	->
<-1 3->			

- Press  key.

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[]** key.

Indicated on display:

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

Channel 7	Adaption	1	Q
Store altered value?			

Channel 7	Adaption	1	->
Altered value stored			

Rapid data transfer	HELP
Select function XX	

2.13.11 Adapting CAN bus users

Control units fitted must be set in adaption channel 07. Navigation system control unit monitors CAN bus communication.

CAN bus communication status can also be indicated on navigation system display by simultaneously pressing **[AS]** and **[V]** keys.

Indicated on display of navigation system II-D:

FM1	Aerial	TP
Card reader	:	Not encoded
TV tuner	:	Ok
Gateway	:	No link
Telematics system	:	Ok
Multi-function steering wheel	:	Ok
VCS	:	Ok
Dash panel insert	:	Ok
Communication status		Back to RETURN

- ◆ Not encoded: Unit not fitted or fitted but not encoded
- ◆ No link: Unit encoded but not fitted
- ◆ Activate term. 15: Unit encoded but no terminal 15 signal

Indicated on display:

- Press keys **[0]** and **[7]** (07 is used to select “Channel 7”).



Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel selected and relevant configuration are displayed on top line (fitting list ⇒ [page 45](#)).

- Press **[]** key.

Indicated on display:

Adaption
Enter channel number XX

Channel 7	Adaption	6	->
<-1 3->			

Channel 7	Adaption	0	->
Enter adaption value XXXXX			

- Enter new adaption value (e.g. 00006) (fitting list ⇒ [page 45](#)).
- Confirm entry by pressing **Q** key.

Indicated on display:

Channel 7	Adaption	6	->
		<-1 3->	

- Press **Q** key.

Indicated on display:

Channel 7	Adaption	6	Q
Store altered	value?		

- Confirm entry by pressing **Q** key.

Indicated on display:

Channel 7	Adaption	6	->
Altered value	stored		

- Press **Q** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **0** and **6** (06 is used to select “End of output” function).
- Confirm entry by pressing **Q** key.

2.13.12 Fitting list

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

x = Control unit fitted

e.g.: 6 = With multi-function steering wheel and TV tuner

2.13.13 Front passive loudspeaker diagnosis

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

For A3 the value is always “0”.

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[9]** (09 is used to select “Channel 9”).


Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 9	Adaption	1	->
		<-1 3->	

Channel selected and relevant configuration (0 = with fault memory entry, 1 = without fault memory entry) are displayed on top line.

- Press **[C]** key.

Indicated on display:

Channel 9	Adaption	1	->
	Enter adaption value XXXXX		

- Enter new adaption value (e.g. 00000).

00001 = Without fault memory entry

00000 = With fault memory entry

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 9	Adaption	0	->
		<-1 3->	

- Press **[C]** key.

Indicated on display:

Channel 9	Adaption	0	Q
	Store altered value?		

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 9	Adaption	0	->
	Altered value stored		

- Press **[C]** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

2.13.14 Activating/deactivating transportation mode

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[9]** and **[9]** (99 is used to select “Channel 99”).


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An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 99	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration are displayed on top line (0 = Transportation mode deactivated, 1 = Transportation mode activated).

- Press  key.

Indicated on display:

Channel 99	Adaption	0	->
Enter adaption value XXXXX			

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

00001 = Transportation mode on

00000 = Transportation mode off

- Confirm entry by pressing  key.

Indicated on display:

Channel 99	Adaption	1	->
<-1 3->			

- Press  key.

Indicated on display:

Channel 99	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 99	Adaption	1	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys  and  (06 is used to select “End of output” function).

- Confirm entry by pressing  key.

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3 Self-diagnosis of navigation system III (as of week 29/99)

3.1 General

Navigation system III is designed to replace navigation system I and features self-diagnosis capability.

3.1.1 Features

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

3.1.2 Description of operation

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 located in an area (country, town or road) which is not stored on the navigation CD, the message "OFF-ROAD" or "OFF MAP" appears on the dash panel insert display. 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.

Route recommendations are given in both acoustic form (spoken directions) and visual form (arrows, turn-off points on the dash panel insert centre display).

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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.

3.2 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551-. Unit is always to be attached to 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:

- ◆ Always switch off ignition before connecting and disconnecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

3.3 Starting self-diagnosis of navigation system III

3.3.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)
- ◆ Ignition on

3.3.2 Procedure

Indicated on display:

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

Address word for navigation system: 37

- Press keys **[3]** and **[7]**.

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

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

- ◆ 4B0919887A: Control unit part number
- ◆ Navigation: Component designation
- ◆ 0001: Software version
- ◆ Code 00000: Not used
- ◆ WSC XXXXX: Workshop code

Indicated on display of dash panel insert:

DIAG

- Press **[]** key.

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Indicated on display:

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

3.3.3 Self-diagnosis functions

Available functions:

01 - Interrogating control unit version ⇒ [page 50](#)

02 - Interrogating fault memory ⇒ [page 50](#)

03 - Final control diagnosis ⇒ [page 54](#)

05 - Erasing fault memory ⇒ [page 55](#)

06 - End of output ⇒ [page 55](#)

08 - Reading measured value block ⇒ [page 56](#)

10 - Adaption ⇒ [page 60](#)

3.4 Interrogating control unit version

Indicated on display:

- Press keys **[0]** and **[1]** (01 is used to select “Interrogating control unit version” function).

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

- ◆ 4B0919887A: Control unit part number
- ◆ Navigation: Component designation
- ◆ 0001: Software version
- ◆ Code 00000: Not used
- ◆ WSC XXXXX: Workshop code

- Press **[]** key.

Indicated on display:

Rapid data transfer 01 - Interrogating control unit version	Q
--	---

4B0919887A	Navigation	0001	->
Code 00000		WSC XXXXX	

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

3.5 Interrogating fault memory



Note!

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 “Erasing fault memory”.

Indicated on display:

- Press keys **[0]** and **[2]** (02 is used to select “Interrogating fault memory” function).

Indicated on display:

- Confirm entry by pressing **[Q]** key.

The number of stored faults appears on the display.

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

Rapid data transfer 02 - Interrogating fault memory	Q
--	---

Indicated on display:

X fault(s) detected

The stored faults are displayed and printed out consecutively.

- Check printout against fault table and rectify faults
⇒ [page 51](#) .

If “No fault detected” is displayed, tester returns to initial setting after pressing  key.

Indicated on display:

No fault detected

->

Indicated on display:

Rapid data transfer
Select function XX

HELP

If any other display appears, refer to ⇒ Fault reader operating instructions .

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.
- Switch off ignition and unplug diagnostic connector.

3.6 Fault table for navigation system III



Note!

- ◆ *The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.*
- ◆ *Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.*
- ◆ *On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.*
- ◆ *All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off operations are erased.*

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00576 Terminal 15 ◆ Open circuit	◆ Open circuit in wiring	– Eliminate open circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00625 Speed signal ◆ No signal ⁷⁾	◆ Open circuit in wiring ◆ Dash panel insert defective ◆ Navigation system control unit defective	– Eliminate open circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90 – Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

7) GALA speed and GPS speed are constantly compared in the navigation unit. This fault is stored if GPS signal is > 40 km/h for 100 sec. but there is no GALA signal.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 ◆ Signal too low	◆ Starter operated for more than 10 sec. ◆ Battery flat/defective ◆ Short circuit in vehicle electrical system ◆ Battery voltage less than 9.5 V ◆ Alternator defective	– Repair short circuit in vehicle electrical system – Charge/replace battery ⇒ Electrical system; Rep. Gr. 27 – Check alternator ⇒ Electrical system; Rep. Gr. 27
00851 Loudspeaker ⁸⁾	◆ Mutual short circuit in wires to hands-free loudspeaker	– Rectify short circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

8) This fault is stored if a fault occurs during final control diagnosis (loudspeaker).

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00852 Front loudspeaker ◆ Short circuit ◆ Open circuit	◆ Short to earth in wire to hands-free loudspeaker ◆ Open circuit in wire to hands-free loudspeaker ◆ Hands-free loudspeaker defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Replace hands-free loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00854 Output radio display dash panel insert ◆ No communication ⁹⁾	◆ Open circuit in wiring ◆ Dash panel insert defective ◆ Navigation system control unit defective	- Eliminate open circuit in wiring - Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90 - Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

9) Whether or not a fault is still present following fault elimination cannot be detected during self-diagnosis. For this reason, operation of second display must always be checked and fault memory then interrogated again after eliminating a fault and erasing fault memory.

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	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace GPS aerial wire - Replace navigation aerial (GPS) ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01311 Data bus information ◆ No communication	The navigation system control unit contains the central unit and the navigation unit, which are interconnected via a CAN bus. ◆ Internal short circuit or short to earth in bus wire between central unit and navigation unit in navigation system control unit	- Navigation system control unit need not be replaced if system is still functional (control unit then switches to one-wire mode). - Control unit must be replaced if system is no longer functional.
65535 Control unit ◆ Defective	◆ Navigation system control unit defective	- Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

3.7 Final control diagnosis



Note!

- ◆ *Final control diagnosis can only be performed with vehicle stationary and engine not running.*
- ◆ *Navigation system must be active.*
- ◆ *If final control diagnosis detects a fault, locate and eliminate cause of trouble 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.*
- ◆ *Any faults (e.g. short circuits) occurring are stored in the fault memory.*

3.7.1 Final control diagnosis procedure

- Press keys [0] and [3] (03 is used to select “Final control diagnosis” function).

Indicated on display:

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

- Confirm entry by pressing [Q] key.

Indicated on display:

Final control diagnosis Loudspeaker	->
--	----

Loudspeaker is briefly energised (not audible).

- Press [] key.

Indicated on display:

Final control diagnosis Telephone/ navigation system loudspeaker R39	->
--	----

Sound can be heard at loudspeaker 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

Display switches between normal and inverse every 4 seconds.

- Press [] key.

Indicated on display:

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

- Press [] key.

This returns tester to basic function.

Indicated on display:

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

3.8 Erasing fault memory



Note!

- ◆ *Erasing fault memory simultaneously resets function status register.*
- ◆ *If fault memory cannot be erased, interrogate it again and eliminate fault.*

Requirements:

- Fault memory interrogated ⇒ [page 50](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

- Press keys **[0]** and **[5]** (05 is used to select “Erasing fault memory” function).

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Fault memory has now been erased.

- Press **[]** key.

Indicated on display:

If however the following message appears:

Indicated on display:

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

3.9 End of output

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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

Rapid data transfer
Select function XX HELP

Rapid data transfer
05 - Erasing fault memory Q

Rapid data transfer
Fault memory erased ->

Rapid data transfer
Select function XX HELP

Attention:
>
Fault memory not interrogated -

Rapid data transfer
06 - End of output Q

Rapid data transfer
Enter address word XX HELP



3.10 Reading measured value block

3.10.1 “Reading measured value block” procedure

Indicated on display:

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

- Press keys [0] and [8] (08 is used to select “Reading measured value block” function).

Indicated on display:

Rapid data transfer 08 - Reading measured value block	Q
--	---

- Confirm entry by pressing [Q] key.

Indicated on display:

Reading measured value block Enter display group number XXX
--

- Enter display group number from table ⇒ [page 56](#) and confirm entry by pressing [Q] key.

3.10.2 List of display groups

Display group number	Indicated on display
001	1 = GALA (vehicle speed signal) level 2 = Voltage terminal 30
002	1 = Input status Reversing light switch 2 = Terminal 15 input status
003	1 = GPS aerial 2 = GPS aerial remote power supply status
004	1 = External display 2 = Function: Communication with external display
005	1 = Data bus 2 = Function: Communication Data bus information
006	1 = Left 2 = Vehicle speed (GALA)
007	1 = Content of function status register
008	1 = Front loudspeaker 2 = Front loudspeaker status
010	1 = Telephone 2 = Telephone mute input status 3 = Telephone 4 = Telephone mute output status

3.10.3 Measured value block 001

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Reading measured value block 1	→	Indicated on display
0	14.1 V	
		Voltage terminal 30

- GALA (vehicle speed signal) level
- 0 = Low level
 - 1 = High level

3.10.4 Measured value block 002

Reading measured value block 2	→	▼ Indicated on display
Reverse off	Term.15 ON	
Terminal 15 input status		
• Terminal 15 active (ignition on) = Display "ON" • Terminal 15 inactive (ignition off) = Display "OFF"		
Reversing light switch input status		
• Reversing light switch active (reverse gear engaged) = Display "ON" • Reversing light switch inactive (reverse gear not engaged) = Display "OFF"		

3.10.5 Measured value block 003

Reading measured value block 3	→	▼ Indicated on display
GPS aerial OK		
GPS aerial remote power supply status		
• OK • Short circuit • Open circuit		
GPS aerial		

3.10.6 Measured value block 004

Reading measured value block 4	→	▼ Indicated on display
Ext. display	OK	
Function: Communication with external display		
• OK • Not OK		

External display (dash panel insert)

3.10.7 Measured value block 005

Reading measured value block 5	→	Indicated on display
Data bus	OK	
Information data bus communication (internal data bus)		
• OK • Not OK		
Data bus		

3.10.8 Measured value block 006

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

3.10.9 Measured value block 007

Reading measured value block 7	→	Indicated on display
255		
Content of function status register ⇒ page 59 comprises: ¹⁰⁾		
• Wheel circumference adaption performed = 128 • Adaption of number of pulses per wheel revolution performed = 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 input of GPS aerial OK (10 to 30 mA) = 2 • CAN communication with navigation unit OK = 1		

10) 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). Proceed as follows if 244 for example is displayed in function status register: 255 - 244 = 11; 11 is made up of 8 (signal from reversing light switch not detected), 2 (current input of GPS aerial not OK) and 1 (CAN communication with navigation unit not OK).

3.10.10 Measured value block 008

Reading measured value block 8		→	Indicated on display
Front loud-speaker	OK		
Front loudspeaker status			
• OK • Short circuit • Open circuit			
Front loudspeaker			

3.10.11 Measured value block 010

Reading measured value block 10		→	Indicated on display
Tele-phone	Off	Tele-phone	Off
Status of telephone mute output (to radio)			
• Telephone in use = "On" • Telephone switched off = "Off"			
Telephone			
Status of telephone mute input (from telephone)			
• Telephone in use = "On" • Telephone switched off = "Off"			
Telephone			

3.11 Function status register

3.11.1 Description of operation

Production diagnosis is a special mode for checking the wiring and correct functioning of the navigation system. It involves automatic checking of the individual fault locations, filing of the result in the so-called function status register (measured value block 007) and permanent storage.

Production diagnosis can be disabled/enabled by way of "Adaption" (channel 03) ⇒ [page 62](#) .

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

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

Test requirements:

- ◆ No navigation CD inserted
- ◆ Navigation system switched on
- ◆ Tyre circumference adapted ⇒ [page 61](#)
- ◆ Adaption of number of pulses per wheel revolution (GALA) performed ⇒ [page 62](#)
- ◆ Erase fault memory ⇒ [page 55](#)
- ◆ Drive vehicle at a speed of at least 10 km/h
- ◆ With vehicle stationary, engage reverse gear for at least 2 seconds

Value "255" will be displayed in measured value block 007 if production diagnosis has been implemented correctly (all test requirements met) and navigation system is OK.

3.12 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 individual functions are called up by way of the appropriate adaption channel number (adaption table ⇒ [page 60](#)).

Use is made of radio loudspeakers if a radio is fitted. If there is no radio fitted, a separate hands-free loudspeaker is installed with the navigation system.

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

3.12.1 Adaption table

Adaption channel	Adaption function
01	Tyre circumference ⇒ page 61
02	Number of pulses per wheel revolution ⇒ page 62
03	Disabling/enabling production diagnosis ⇒ page 62
04	Loudspeaker connection ⇒ page 63
05	Country identification ⇒ page 64

3.12.2 Implementing function "10 - Adaption"

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Rapid data transfer
Select function XX

HELP

- Press keys **1** and **0** (10 is used to select “Adaption” function).

Indicated on display:

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

- Confirm entry by pressing **0** key.

Indicated on display:

Adaption Enter channel number XX

- Enter required adaption channel (adaption table ➤ [page 60](#)).
- Confirm entry by pressing **0** key.



Note!

After altering adaption value or exiting from adaption channel, function “10 - Adaption” must be implemented again to select a different adaption channel.

3.12.3 Adapting tyre circumference

Indicated on display:

Adaption Enter channel number XX

- Press keys **0** and **1** (01 is used to select “Channel 1”).



Note!

*An incorrect entry can be corrected after pressing **0** key.*

- Confirm entry by pressing **0** key.

Indicated on display:

Channel 1	Adaption	1935	-
>		<-1 3->	

Channel selected and currently stored tyre circumference in mm are displayed on top line.

- Press **0** key.

Indicated on display:

Channel 1	Adaption	1935	-
>		Enter adaption value XXXXX	

- Enter new tyre circumference (e.g. 01910), tyre table ➤ [page 39](#) .
- Confirm entry by pressing **0** key.

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Channel 1	Adaption	1910	-
>		<-1 3->	

- Press **0** key.

Indicated on display:

Channel 1	Adaption	1910	Q
Store altered value?			

- Confirm entry by pressing **0** key.

Indicated on display:

Channel 1	Adaption	1910	-
>		Altered value stored	

- Press **0** key.

Indicated on display:

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

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

3.12.4 Adapting number of pulses per wheel revolution (GALA)

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[2]** (02 is used to select “Channel 2”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 2 Adaption 4 ->
 <-1 3->

Channel selected and number of pulses currently stored are displayed on top line.

- Press **[C]** key.

Indicated on display:

Channel 2 Adaption 4 ->
Enter adaption value XXXXX

- Enter new number of pulses (e.g.: 00008).

The number of pulses is always 8 for A3 with navigation system III.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 2 Adaption 8 ->
 <-1 3->

- Press **[C]** key.

Indicated on display:

Channel 2 Adaption 8 Q
Store altered value?

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 2 Adaption 8 ->
Altered value stored

- Press **[C]** key.

Indicated on display:

Rapid data transfer
Select function XX HELP

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

3.12.5 Disabling/enabling production diagnosis (function status register)

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[3]** (03 is used to select “Channel 3”).

 Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 3	Adaption	8	->
		<-1 3->	

Channel selected and production diagnosis status (0 = disabled, 1 = active) are displayed on top line.

- 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 by pressing  key.

Indicated on display:

Channel 3	Adaption	1	->
		<-1 3->	

- Press  key.

Indicated on display:

Channel 3	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 3	Adaption	1	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer		HELP
Select function XX		

- Press keys  and  (06 is used to select "End of output" function).

- Confirm entry by pressing  key.

3.12.6 Adapting loudspeaker connection

Indicated on display:

Adaption
Enter channel number XX

- Press keys  and  (04 is used to select "Channel 4").

 Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 4	Adaption	0	->
		<-1 3->	

Channel selected and type of loudspeaker connection (0 = external radio, 1 = separate loudspeaker) are displayed on top line.

- Press  key.



Indicated on display:

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

00000 = External radio

00001 = Separate loudspeaker

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[]** key.

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[]** key.

Indicated on display:

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

3.12.7 Adapting country identification

Indicated on display:

- Press keys **[0]** and **[5]** (05 is used to select “Channel 5”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

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- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel selected and country identification (0 = Europe, 1 = USA) are displayed on top line.

- Press **[]** key.

Indicated on display:

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

00000 = Europe

00001 = USA

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[]** key.

Channel 4	Adaption	0	->
Enter adaption value XXXXX			

Channel 4	Adaption	1	->
<-1 3->			

Channel 4	Adaption	1	Q
Store altered value?			

Channel 4	Adaption	1	->
Altered value stored			

Rapid data transfer			HELP
Select function XX			

Adaption	
Enter channel number XX	

Channel 5	Adaption	0	->
<-1 3->			

Channel 5	Adaption	0	->
Enter adaption value XXXXX			

Channel 5	Adaption	1	->
<-1 3->			

Indicated on display:

Channel 5	Adaption	1	Q
Store altered	value?		

- Confirm entry by pressing **Q** key.

Indicated on display:

Channel 5	Adaption	1	->
Altered value	stored		

- Press **Q** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **0** and **6** (06 is used to select "End of output" function).
- Confirm entry by pressing **Q** key.

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4 Self-diagnosis of navigation system Nav IV (BNS 4.0) as of week 04/01

4.1 General

Navigation system IV is an enhanced version of the familiar navigation system III.

4.1.1 Features

- ◆ Retention of features from navigation system III
- ◆ Dynamic navigation
- ◆ Link with telematics system

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4.1.2 Description of operation

Navigation system BNS 4.0 (Nav IV) is an enhanced version of the familiar navigation system III.

Key innovations include a link with the data bus (infotainment) and dynamic navigation.

The system obtains dynamic navigation information from the radio TMC function or via the telephone.

4.2 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551-. Unit is always to be attached to 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:

- ◆ Always switch off ignition before connecting and disconnecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

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

4.3.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)
- ◆ Ignition on

4.3.2 Procedure

Indicated on display:

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

Address word for navigation system: 37

- Press keys **3** and **7**.

Indicated on display:

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

- Confirm entry by pressing **Q** key.

Following display appears after approx. 5 seconds:

4B0919887A Code 00000	BNS 4.0	0001 WSC XXXXX	->
--------------------------	---------	-------------------	----

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- ◆ 4B0919887A: Control unit part number
- ◆ BNS 4.0: Component designation
- ◆ 0001: Software version
- ◆ Code 00000: Not used
- ◆ WSC XXXXX: Workshop code

Indicated on display of dash panel insert:

DIAG

- Press **DIAG** key.

Indicated on display:

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

4.3.3 Self-diagnosis functions

Available functions:

- 01 - Interrogating control unit version ⇒ [page 68](#)
- 02 - Interrogating fault memory ⇒ [page 68](#)
- 03 - Final control diagnosis ⇒ [page 71](#)
- 05 - Erasing fault memory ⇒ [page 72](#)

06 - End of output ⇒ [page 73](#)

08 - Reading measured value block ⇒ [page 73](#)

10 - Adaption ⇒ [page 77](#)

4.4 Interrogating control unit version

Indicated on display:

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

- Press keys **[0]** and **[1]** (01 is used to select “Interrogating control unit version” function).

Indicated on display:

Rapid data transfer 01 - Interrogating control unit version	Q
--	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

4B0919887A Code 00000	BNS 4.0	0001 WSC XXXXX	->
--------------------------	---------	-------------------	----

- ◆ 4B0919887A: Control unit part number
- ◆ BNS 4.0: Component designation
- ◆ 0001: Software version
- ◆ Code 00000: Not used
- ◆ WSC XXXXX: Workshop code

- Press **[Q]** key.

Indicated on display:

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

4.5 Interrogating fault memory



Note!

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 “Erasing fault memory”.

Indicated on display:

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

- Press keys **[0]** and **[2]** (02 is used to select “Interrogating fault memory” function).

Indicated on display:

Rapid data transfer 02 - Interrogating fault memory	Q
--	---

- Confirm entry by pressing **[Q]** key.

The number of stored faults appears on the display.

Indicated on display:

X fault(s) detected

The stored faults are displayed and printed out consecutively.

- Check printout against fault table and rectify faults
⇒ [page 69](#).

If “No fault detected” is displayed, tester returns to initial setting after pressing **[Q]** key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

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

If any other display appears, refer to ⇒ Fault reader operating instructions .

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[0]** key.
- Switch off ignition and unplug diagnostic connector.

4.6 Fault table for navigation system IV



Note!

- ◆ *The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.*
- ◆ *Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.*
- ◆ *On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.*
- ◆ *All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.*

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00576 Terminal 15 ◆ Open circuit	◆ Open circuit in wiring	– Eliminate open circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
00625 Speed signal ◆ No signal ¹¹⁾	◆ Open circuit in wiring ◆ Dash panel insert defective ◆ Navigation system control unit defective	– Eliminate open circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90 – Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

11) GALA speed and GPS speed are constantly compared in the navigation unit. This fault is stored if GPS signal is > 40 km/h for 100 sec. but there is no GALA signal.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00668 Vehicle voltage terminal 30 ◆ Signal too low	◆ Starter operated for more than 10 sec. ◆ Battery flat/defective ◆ Short circuit in vehicle electrical system ◆ Battery voltage less than 9.5 V ◆ Alternator defective	– Repair short circuit in vehicle electrical system – Charge/replace battery ⇒ Electrical system; Rep. Gr. 27 – Check alternator ⇒ Electrical system; Rep. Gr. 27
00851 Loudspeaker ¹²⁾	◆ Mutual short circuit in wires to hands-free loudspeaker	– Rectify mutual short circuit in wiring – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

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12) This fault is stored if a fault occurs during final control diagnosis (loudspeaker).

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00852 Front loudspeaker ◆ Short circuit ◆ Open circuit	◆ Short to earth in wire to hands-free loudspeaker ◆ Open circuit in wire to hands-free loudspeaker ◆ Hands-free loudspeaker defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Replace hands-free loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00862 Navigation aerial ¹³⁾ (GPS) - R50/R52 ◆ Open circuit ◆ Short circuit	◆ Open circuit in aerial wire ◆ Short circuit in aerial wire ◆ Navigation aerial ¹³⁾ (GPS) defective ◆ Aerial filter -R87- ¹³⁾ defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace GPS aerial wire – Replace navigation aerial (GPS) ⇒ Radio, telephone and navigation system; Rep. Gr. 91 – Replace aerial filter -R87- ⇒ Radio, telephone and navigation system; Rep. Gr. 91

13) If an aerial filter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested as far as the aerial filter. The wiring from the aerial filter to the GPS aerial and the aerial itself are tested by the telematics system ⇒ [page 97](#).

If fault 00862 occurs, the number of satellites received must first be checked. It must be possible to receive signals from at least 4 satellites in the open air. Call up "Settings" menu on navigation unit and press **[MODE]** button to select "GPS viewer" menu.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01300 Nav. with CD drive control unit -J401- ♦ Defective	♦ Navigation system with CD drive control unit -J401- defective	- Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01317 Control unit with display in dash panel insert -J285- ♦ No communication ¹⁴⁾	♦ CAN bus fault ♦ Open circuit in wiring ♦ Dash panel insert defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in dash panel insert ⇒ Electrical system, Self-diagnosis; Rep. Gr. 01 - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90
65535 Control unit ♦ Defective	♦ Navigation system control unit defective	- Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

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

4.7 Final control diagnosis



Note!

- ♦ *Final control diagnosis can only be performed with vehicle stationary and engine not running.*
- ♦ *Navigation system must be active.*
- ♦ *If final control diagnosis detects a fault, locate and eliminate cause of trouble if necessary.*
- ♦ *Any faults (e.g. short circuits) occurring are stored in the fault memory.*

4.7.1 Final control diagnosis procedure

- Press keys [0] and [3] (03 is used to select "Final control diagnosis" function).

Indicated on display:

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

- Confirm entry by pressing [Q] key.

Indicated on display:

Final control diagnosis Loudspeaker	->
--	----

Loudspeaker is briefly energised (not audible).

- Press [] key.

Indicated on display:

Final control diagnosis Telephone/ navigation system loudspeaker R39	->
--	----

Sound can be heard at loudspeaker 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

Display switches between normal and inverse every 4 seconds.

- Press  key.

Indicated on display:

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

- Press  key.

This returns tester to basic function.

Indicated on display:

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

4.8 Erasing fault memory



Note!

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

Requirements:

- Fault memory interrogated ⇒ [page 68](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys  and  (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing  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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated	-
---	---

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

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4.9 End of output

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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

- Switch off ignition.

- Unplug connectors to fault reader V.A.G 1551.

4.10 Reading measured value block

4.10.1 “Reading measured value block” procedure

Indicated on display:

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

- Press keys **[0]** and **[8]** (08 is used to select “Reading measured value block” function).

Indicated on display:

Rapid data transfer 08 - Reading measured value block	Q
--	---

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block Enter display group number XXX
--

- Enter display group number from table [⇒ page 73](#) and confirm entry by pressing **[Q]** key.

4.10.2 List of display groups

Display group number	Indicated on display
001	1 = GALA (vehicle speed signal) level 2 = Voltage terminal 30
002	1 = Input status Reversing light switch 2 = Terminal 15 input status
003	1 = GPS aerial 2 = GPS aerial remote power supply status
004	1 = External display 2 = Status of communication with external display
005	1 = Data bus 2 = Status of communication Data bus information
006	1 = Left 2 = Vehicle speed
007	1 = Content of function status register
008	1 = Front loudspeaker 2 = Front loudspeaker status
010	1 = Telephone 2 = Telephone mute input status

4.10.3 Measured value block 001

Reading measured value block 1	→	Indicated on display
0	14.1 V	
Voltage terminal 30		
GALA (vehicle speed signal) level		
• 0 = Low level • 1 = High level		

4.10.4 Measured value block 002

Reading measured value block 2	→	Indicated on display
Reverse off	Term.15 ON	
Terminal 15 input status		
• Terminal 15 active (ignition on) = Display "ON" • Terminal 15 inactive (ignition off) = Display "OFF"		
Reversing light switch input status		
• Reversing light switch active (reverse gear engaged) = Display "ON" • Reversing light switch inactive (reverse gear not engaged) = Display "OFF"		

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4.10.5 Measured value block 003

Reading measured value block 3	→	Indicated on display
GPS aerial	OK	
GPS aerial remote power supply status ¹⁵⁾		
• OK • Short circuit • Open circuit		
GPS aerial		

15) If an aerial filter (GPS splitter) is fitted in conjunction with the telematics system, the navigation aerial remote power supply and the aerial itself are only tested as far as the aerial filter. The wiring from the aerial filter to the GPS aerial and the aerial itself are tested by the telematics system ⇒ [page 97](#).

If fault 00862 occurs, the number of satellites received must first be checked. At least 4 satellites must be received in the open air. Call up "Settings" menu on navigation unit and press **[MODE]** button to select "GPS viewer" menu.

4.10.6 Measured value block 004

Reading measured value block 4	→	▼ Indicated on display
Ext. display	OK	
Status of communication with external display		
• OK • Not OK		
External display (dash panel insert)		

4.10.7 Measured value block 005

Reading measured value block 5	→	▼ Indicated on display
Data bus	OK	
Status of data bus communication (internal data bus)		
• OK • Not OK		
Data bus		

4.10.8 Measured value block 006

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

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4.10.9 Measured value block 007

Reading measured value block 7	→	▼ Indicated on display
255		

Content of function status register ⇒ [page 77](#) comprises: ¹⁶⁾

- Wheel circumference adaption performed = 128
- Adaption of number of pulses per wheel revolution performed = 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 input of GPS aerial OK (10 to 30 mA) = 2
- CAN communication with navigation unit OK = 1

16) 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). Proceed as follows if 244 for example is displayed in function status register: 255 - 244 = 11; 11 is made up of 8 (signal from reversing light switch not detected), 2 (current input of GPS aerial not OK) and 1 (CAN communication with navigation unit not OK).

4.10.10 Measured value block 008

Reading measured value block 8	→	Indicated on display
Front loud-speaker	OK	
Front loudspeaker status		
• OK • Short circuit • Open circuit		
Front loudspeaker		

4.10.11 Measured value block 010

Reading measured value block 10	→	Indicated on display
Tele-phone	Off	
Status of telephone mute input (from telephone)		
• Telephone in use = "On" • Telephone switched off = "Off"		
Telephone		

4.11 Function status register

4.11.1 Description of operation

Production diagnosis is a special mode for checking the wiring and correct functioning of the navigation system. It involves automatic checking of the individual fault locations, filing of the result in the so-called function status register (measured value block 007) and permanent storage.

Production diagnosis can be disabled/enabled by way of "Adaption" (channel 03) [⇒ page 80](#).

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

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

Test requirements:

- ◆ No navigation CD inserted
- ◆ Navigation system switched on
- ◆ Tyre circumference adapted [⇒ page 78](#)
- ◆ Adaption of number of pulses per wheel revolution (GALA) performed [⇒ page 79](#)
- ◆ Erase fault memory [⇒ page 72](#)
- ◆ Drive vehicle at a speed of at least 10 km/h
- ◆ With vehicle stationary, engage reverse gear for at least 2 seconds

Value "255" will be displayed in measured value block 007 if production diagnosis has been implemented correctly (all test requirements met) and navigation system is OK.

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
- ◆ Adaption of dynamic navigation
- ◆ Adaption of electronic log book
- ◆ Activation/deactivation of GALA function

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 unit the associated information is to be supplied: RDS radio with TMC and/or telephone.

Use is made of radio loudspeakers if a radio is fitted. If there is no radio fitted, a separate hands-free loudspeaker is installed with the navigation system.

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

The individual functions are called up by way of the appropriate adaption channel number (adaption table ⇒ [page 78](#)).

4.12.1 Adaption table

Adaption channel	Adaption function
01	Tyre circumference ⇒ page 78
02	Number of pulses per wheel revolution ⇒ page 79
03	Disabling/enabling production diagnosis ⇒ page 80
04	Connection of separate/external loudspeakers ⇒ page 81
05	Country identification ⇒ page 81
06	Adaption of dynamic navigation ⇒ page 82
07	Adaption of electronic log book ⇒ page 83
66	Activation/deactivation of GALA function ⇒ page 84

4.12.2 Implementing function “10 - Adaption”

Indicated on display:

Rapid data transfer
Select function XX

HELP

- Press keys **[1]** and **[0]** (10 is used to select “Adaption” function).

Indicated on display:

Rapid data transfer
10 - Adaption

Q

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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Adaption
Enter channel number XX

- Enter required adaption channel (adaption table ⇒ [page 78](#)).
- Confirm entry by pressing **[Q]** key.



Note!

After altering adaption value or exiting from adaption channel, function “10 - Adaption” must be implemented again to select a different adaption channel.

4.12.3 Adapting tyre circumference

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[1]** (01 is used to select “Channel 1”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 1 Adaption 1935 -
>
 <-1 3->

Channel selected and currently stored tyre circumference in mm are displayed on top line.

- Press  key.

Indicated on display:

Channel 1	Adaption	1935	-
> Enter adaption value XXXXX			

- Enter new tyre circumference (e.g. 01910), tyre table
⇒ [page 39](#).

- Confirm entry by pressing  key.

Indicated on display:

Channel 1	Adaption	1910	-
> <-1 3->			

- Press  key.

Indicated on display:

Channel 1	Adaption	1910	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 1	Adaption	1910	-
> Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys  and  (06 is used to select “End of output” function).

- Confirm entry by pressing  key.

4.12.4 Adapting number of pulses per wheel revolution (GALA)

Indicated on display:

Adaption	
Enter channel number XX	

- Press keys  and  (02 is used to select “Channel 2”).



Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	4	->
<-1 3->			

Channel selected and number of pulses currently stored are displayed on top line.

- Press  key.

Indicated on display:

Channel 2	Adaption	4	->
Enter adaption value XXXXX			

- Enter new number of pulses (e.g.: 00008).

The number of pulses is always 8 for A3 with navigation system IV.

- Confirm entry by pressing  key.



Indicated on display:

Channel 2	Adaption	8	->
		<-1 3->	

- Press key.

Indicated on display:

Channel 2	Adaption	8	Q
Store altered value?			

- Confirm entry by pressing key.

Indicated on display:

Channel 2	Adaption	8	->
Altered value stored			

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- Press key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys and (06 is used to select “End of output” function).
- Confirm entry by pressing key.

4.12.5 Disabling/enabling production diagnosis (function status register)

Indicated on display:

Adaption
Enter channel number XX

- Press keys and (03 is used to select “Channel 3”).



Note!

An incorrect entry can be corrected after pressing key.

- Confirm entry by pressing key.

Indicated on display:

Channel 3	Adaption	0	->
		<-1 3->	

Channel selected and production diagnosis status (0 = disabled, 1 = enabled) are displayed on top line.

- 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 enabled

- Confirm entry by pressing key.

Indicated on display:

Channel 3	Adaption	1	->
		<-1 3->	

- Press key.

Indicated on display:

Channel 3	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing key.

Indicated on display:

Channel 3	Adaption	1	->
Altered value stored			

- Press key.

Indicated on display:

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

4.12.6 Adapting loudspeaker connection

Indicated on display:

- Press keys **[0]** and **[4]** (04 is used to select “Channel 4”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

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- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel selected and type of loudspeaker connection (0 = external radio, 1 = separate loudspeaker) are displayed on top line.

- Press **[C]** key.

Indicated on display:

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

00000 = External radio

00001 = Separate loudspeaker

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[C]** key.

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[C]** key.

Indicated on display:

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

4.12.7 Adapting country identification

Indicated on display:

- Press keys **[0]** and **[5]** (05 is used to select “Channel 5”).

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

Adaption Enter channel number XX

Channel 4	Adaption	0	->
		<-1 3->	

Channel 4	Adaption	0	->
Enter adaption value XXXXX			

Channel 4	Adaption	1	->
		<-1 3->	

Channel 4	Adaption	1	Q
Store altered value?			

Channel 4	Adaption	1	->
Altered value stored			

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

Adaption Enter channel number XX



Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	0	->
		<-1 3->	

Channel selected and country identification (0 = Europe, 1 = USA) are displayed on top line.

- Press **[C]** 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 by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	1	->
		<-1 3->	

- Press **[C]** key.

Indicated on display:

Channel 5	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	1	->
Altered value stored			

- Press **[C]** key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

- Confirm entry by pressing **[Q]** key.

4.12.8 Adapting dynamic navigation

The control unit is informed of whether or not dynamic navigation is to be set and, if so, via which channels the associated information is to be obtained.

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[6]** (06 is used to select “Channel 6”).



Note!

An incorrect entry can be corrected after pressing **[C]** key.

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 6	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration are displayed on top line.

0 = Without dynamic function

1 = Dynamic function via Symphony II radio

2 = Dynamic function via Telematics II

3 = Dynamic function via Symphony II radio and Telematics II

– Press  key.

Indicated on display:

Channel 6	Adaption	0	->
Enter adaption value XXXXX			

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

0 = Without dynamic function

1 = Dynamic function via Symphony II radio

2 = Dynamic function via Telematics II

3 = Dynamic function via Symphony II radio and Telematics II

– Confirm entry by pressing  key.

Indicated on display:

Channel 6	Adaption	1	->
		<-1 3->	

– Press  key.

Indicated on display:

Channel 6	Adaption	1	Q
Store altered value?			

– Confirm entry by pressing  key.

Indicated on display:

Channel 6	Adaption	1	->
Altered value stored			

– Press  key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

– Press keys  and  (06 is used to select “End of output” function).

– Confirm entry by pressing  key.

4.12.9 Adapting electronic log book

Indicated on display:

Adaption
Enter channel number XX

– Press keys  and  (07 is used to select “Channel 7”).



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An incorrect entry can be corrected after pressing  key.

– Confirm entry by pressing  key.

Indicated on display:

Channel 7	Adaption	0	->
		<-1 3->	

Channel selected and relevant configuration (0 = without electronic log book, 1 = with electronic log book) are displayed on top line.

– Press  key.



Indicated on display:

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

00001 = With electronic log book

00000 = Without electronic log book

- Confirm entry by pressing key.

Indicated on display:

- Press key.

Indicated on display:

- Confirm entry by pressing key.

Indicated on display:

- Press key.

Indicated on display:

- Press keys and (06 is used to select “End of output” function).

- Confirm entry by pressing key.

4.12.10 Activating/deactivating GALA function

Indicated on display:

- Press keys and (66 is used to select “Channel 66”).



Note!

An incorrect entry can be corrected after pressing key.

- Confirm entry by pressing key.

Indicated on display:

Channel selected and relevant configuration are displayed on top line (0 = GALA function active, 1 = GALA function deactivated).

- Press key.

Indicated on display:

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

00001 = GALA function off

00000 = GALA function on

- Confirm entry by pressing key.

Indicated on display:

- Press key.

Channel 7	Adaption	0	->
Enter adaption value XXXXX			

Channel 7	Adaption	1	->
<-1 3->			

Channel 7	Adaption	1	Q
Store altered value?			

Channel 7	Adaption	1	->
Altered value stored			

Rapid data transfer			HELP
Select function XX			

Adaption
Enter channel number XX

Channel 66	Adaption	0	->
<-1 3->			

Channel 66	Adaption	0	->
Enter adaption value XXXXX			

Channel 66	Adaption	1	->
<-1 3->			

Indicated on display:

Channel 66	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing **Q** key.

Indicated on display:

Channel 66	Adaption	1	->
Altered value stored			

- Press **Q** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **0** and **6** (06 is used to select “End of output” function).
- Confirm entry by pressing **Q** key.



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5 Multi-function steering wheel self-diagnosis

5.1 General

5.1.1 Technical features of multi-function steering wheel

Function buttons are integrated into the steering wheel to facilitate operation of radio and telephone as well as implementation of Tiptronic function with automatic gearbox whilst driving. The multi-function steering wheel is also electrically heated.

The steering wheel electronics are responsible for control of steering wheel heating, relaying of button functions to CAN bus and dimming of function button illumination.

The multi-function steering wheel control unit is responsible for control of radio set, telephone system, dash panel insert, steering wheel heating and Tiptronic function.

The control unit is provided with a fault memory and features comprehensive self-diagnosis. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

The control units are distinguished only by index letters.

Control unit no.	Radio operation only	Radio/telephone operation	CAN bus with Tiptronic	CAN bus without Tiptronic
4B0907487 C	X	X		X
4B0907487 E				
4B0907487 G		X		
4B0907487 H		X	X	
4B0907487 J		X	X	

Control units with index "C", "G", "H" and "J" must be encoded.

5.2 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551-. Unit is always to be attached to rear seat and operated from there by a second person.*
- ◆ *Deactivate front passenger's-airbag by way of self-diagnosis ⇒ Body, Self-diagnosis; Repair group 01; Adaption: Activating and blocking front passenger's airbag unit.*
- ◆ *Reactivate front passenger's airbag on completion of work.*

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

- ◆ Always switch off ignition before disconnecting and connecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

5.3 Starting self-diagnosis of multi-function steering wheel

5.3.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)
- ◆ Ignition on

5.3.2 Procedure

Indicated on display:

Rapid data transfer
Enter address word XX

HELP

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**Steering wheel electronics address word: 16**

- Press keys **[1]** and **[6]**.

Indicated on display:

Rapid data transfer 16 - Steering wheel electronics	Q
--	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

4B0907487E Steering wheel electronics D01 -> Code 00001

- ◆ 4B0907487E: Control unit part number
- ◆ Steering wheel electronics: Component designation
- ◆ D01: Software version
- ◆ Code 00001: Encoding

- Press **[Q]** key.

Indicated on display:

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

5.3.3 Self-diagnosis functions

Available functions:

- 01 - Interrogating control unit version ⇒ [page 88](#)
- 02 - Interrogating fault memory ⇒ [page 89](#)
- 03 - Final control diagnosis ⇒ [page 91](#)
- 05 - Erasing fault memory ⇒ [page 92](#)
- 06 - End of output ⇒ [page 93](#)
- 07 - Encoding control unit ⇒ [page 93](#)
- 08 - Reading measured value block ⇒ [page 94](#)

5.4 Interrogating control unit version

Indicated on display:

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

- Press keys **[0]** and **[1]** (01 is used to select “Interrogating control unit version” function).

Indicated on display:

Rapid data transfer 01 - Interrogating control unit version	Q
--	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

4B0907487E Steering wheel electronics D01 -> Code 00001

- ◆ 4B0907487 E: Control unit (radio operation only)
- ◆ 4B0907487 C, G, H or J: Control unit (radio and telephone operation)
- ◆ Steering wheel electronics: Component designation
- ◆ D01: Software version
- ◆ Code 00001: Encoding
- Press **[Q]** key.

Indicated on display:

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

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5.5 Interrogating fault memory



Note!

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 "Erasing fault memory".

Indicated on display:

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

- Press keys **0** and **2** (02 is used to select "Interrogating fault memory" function).

Indicated on display:

Rapid data transfer 02 - Interrogating fault memory	Q
--	---

- Confirm entry by pressing **Q** key.

The number of stored faults appears on the display.

Indicated on display:

X fault(s) detected

The stored faults are displayed and printed out consecutively.

- Check printout against fault table and rectify faults
⇒ [page 90](#).

If "No fault detected" is displayed, tester returns to initial setting after pressing **Q** key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

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

If any other display appears, refer to ⇒ Fault reader operating instructions.

- Press keys **0** and **6** (06 is used to select "End of output" function).
- Confirm entry by pressing **Q** key.
- Switch off ignition and unplug diagnostic connector.

5.6 Fault table for multi-function steering wheel



Note!

- ◆ The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.
- ◆ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ◆ On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.
- ◆ All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01044 Multi-function steering wheel control unit -J453- ◆ Incorrectly encoded	◆ Multi-function steering wheel control unit -J453- encoding does not correspond to equipment	– Encode multi-function steering wheel control unit -J453- ⇒ page 93
01302 Telematics control unit -J499- ◆ No communication	◆ CAN bus fault ◆ Telematics control unit -J499- defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Read out telematics control unit -J499- fault memory ⇒ page 89 – Replace telematics control unit -J499- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01304 Radio -R- ◆ No communication	◆ CAN bus fault ◆ Radio -R- defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Read out radio -R- fault memory ⇒ page 3 – Replace radio -R- ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01426 Operating unit in steering wheel -E221- ◆ No communication ◆ Implausible signal	◆ Open circuit in wiring - loss of link between control unit and steering wheel ◆ Incomprehensible messages on data bus (control unit and steering wheel electronics are linked via CAN bus)	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Check wiring between control unit and steering wheel

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
65535 Control unit ◆ Defective	◆ Control unit defective	– Replace control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

5.7 Final control diagnosis

- ◆ Final control diagnosis can only be performed with vehicle stationary and engine not running.
- ◆ If final control diagnosis detects a fault, locate and eliminate cause of trouble if necessary.
- ◆ Any faults (e.g. short circuits) occurring are stored in the fault memory.

5.7.1 Final control diagnosis procedure

- Switch on ignition.
- Switch off radio and navigation system (telephone not in use).
- Press keys **0** and **3** (03 is used to select “Final control diagnosis” function).

Indicated on display:

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

- Confirm entry by pressing **Q** key.

Indicated on display:

Final control diagnosis
Segment test **->**

“AAAABBBBCCCCDDDD” appears on dash panel insert centre display.

- Switch on radio.
- Press **Q** key.

Indicated on display:

Final control diagnosis
Radio louder **->**

Radio volume becomes noticeably louder.

- Press **Q** key.

Indicated on display:

Final control diagnosis
Radio quieter **->**

Radio volume is noticeably turned down.

- Press **Q** key.

Indicated on display:

Final control diagnosis
Radio station forward search **->**

Next station is found and appears on dash panel insert centre display.

- Press **Q** key.

Indicated on display:

Final control diagnosis
Radio station reverse search **->**

Preceding station is reset and appears on dash panel insert centre display.

- Switch off radio, insert workshop telephone card, switch on telephone and then enter PIN.

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- Press key.

Indicated on display:

Final control diagnosis Telephone memory	->
---	----

First name stored in telephone memory appears on dash panel insert centre display.

- Press key.

Indicated on display:

Final control diagnosis Next telephone memory	->
--	----

Second entry in telephone memory appears on dash panel insert centre display.

- Press key.

Indicated on display:

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

- Press key.

- This returns tester to basic function.

Indicated on display:

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

5.8 Erasing fault memory



Note!

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

Requirements:

- Fault memory interrogated ⇒ [page 89](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys and (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing 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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated	-
--	---

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

5.9 End of output

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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

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

5.10 Encoding control unit

This function can be used to encode multi-function steering wheel control unit with index “C”, “G”, “H” and “J” as follows:

- ◆ Steering wheel version
- ◆ Language version

The code must always correspond to vehicle equipment.

5.10.1 Encoding procedure

Indicated on display:

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

- Press keys **[0]** and **[7]** (07 is used to select “Encoding control unit” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Encoding control unit Enter code number XXXXX
--

- Enter code number as per encoding table [⇒ page 94](#) .

Encoding: e.g. 00001

- ◆ First position: 0 = standard
- ◆ Second position: 0 = standard
- ◆ Third position; language version: 0 = German
- ◆ Fourth position; Tiptronic: 0 = no Tiptronic
- ◆ Fifth position; steering wheel version: 1 = steering wheel for radio/telephone operation
- Confirm entry by pressing **[Q]** key.

Control unit identification and code entered (00001) appears on display.

Indicated on display:

4B09074876 Steering wheel electronics D04 -> Code 00001

- Press **[Q]** key to terminate encoding.

Indicated on display:

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



- Press keys [0] and [6] (06 is used to select “End of output” function).
- Confirm entry by pressing [Q] key.

5.10.2 Encoding table for control units with index “C” “H” and “J”

X	X	X	X	X	Encoding
X					Standard
0					Always zero
	X				Radio remote
	0				0 activated (standard) 1 deactivated
		X			Language version
		0			Always zero
			X		Tiptronic
			0		Always 0 (“C”) Always 1 (“H”, “J”)
				X	Steering wheel version
				1	Radio and telephone operation
				2	Radio operation (6-button radio)
				3	Radio/telephone operation and voice control

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5.10.3 Encoding table for control units with index “G”

X	X	X	X	X	Encoding
X					Standard
0					Always zero
	X				Standard
	0				Always zero
		X			Language version
		0			German
		1			English
		2			French
		3			Italian
		4			Dutch
		5			Spanish
		6			Portuguese
			X		Tiptronic
			0		No Tiptronic
			1		With Tiptronic
				X	Steering wheel version
				1	Radio and telephone operation
				2	Radio operation (6-button radio)

5.11 Reading measured value block

5.11.1 “Reading measured value block” procedure

Indicated on display:

Rapid data transfer
Select function XX

HELP

- Press keys **[0]** and **[8]** (08 is used to select “Reading measured value block” function).

Indicated on display:

Rapid data transfer 08 - Reading measured value block	Q
--	---

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block Enter display group number XXX
--

- Enter display group number from table ➔ [page 95](#) and confirm entry by pressing **[Q]** key.

5.11.2 List of display groups

Display group number	Indicated on display
001	1 = [Leiser] button 2 = [Lauter] button 3 = Memory down button 4 = Memory up button
002	1 = Radio/telephone switching 2 = Telephone transmission

5.11.3 Measured value block 001

Reading measured value block 1 Quieter > Louder > Mem. down > Mem. up >	→	Indicated on display
		[Speicher aufwärts] button • Not pressed • Mem. up >
		[Speicher abwärts] button • Not pressed • Mem. down >
		[Lauter] button • Not pressed • Louder >
		[Leiser] button • Not pressed • Quieter >

5.11.4 Measured value block 002

Reading measured value block 2 Pressed Transmission	→	Indicated on display



Telephone transmission

- Not pressed
- Transmission

Radio/telephone switching

- Not pressed
- Pressed



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6 Telematics self-diagnosis

6.1 General

The telematics system provides a link between navigation system and mobile phone.

With the aid of an emergency call button and/or in the event of airbag triggering, the telematics system transmits an emergency call which is relayed by the network operator to the police and emergency rescue services. The exact location of the accident is determined by way of the navigation system.

A breakdown button enables breakdown service to be summoned at short notice when necessary without the need for any further action by the driver. It is also possible to call up various services such as current traffic information.

The new telematics system features comprehensive self-diagnosis.

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.

6.2 Notes on system release

If the telematics system SIM card is defective, a new one must be requested by fax ⇒ Radio, telephone and navigation system; Rep. Gr. 91 .

Hotline no.: 0800/2 83 47 27

Fax no.: 0800/9 63 96 39

6.3 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- . Unit is always to be attached to 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:

- ◆ Always switch off ignition before disconnecting and connecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

6.4 Starting self-diagnosis of telematics system

6.4.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List
- ◆ SSP 236 Audi telematics +

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)
- ◆ Ignition on

6.4.2 Procedure

Indicated on display:

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

Address word for telematics system: 75

- Press keys  and .



Note!

- ◆ *Emergency call function is deactivated during self-diagnosis.*
- ◆ *"Diagnosis activated" appears on dash panel insert centre display during self-diagnosis.*

Indicated on display:

Rapid data transfer 75 = Telematics	Q
--	---

- Confirm entry by pressing  key.

Following display appears after approx. 5 seconds:

4B0035617	Telematics	Nokia 1	0001	-
>				
Code 0000124		WSC	XXXXX	

- ◆ 4B0035617: Control unit part number
- ◆ Telematics Nokia 1: Component designation
- ◆ 0001: Software version
- ◆ Code 0000124: Encoding
- ◆ WSC XXXXX: Workshop code
- Press  key.

Indicated on display:

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

6.4.3 Self-diagnosis functions

Available functions:

- Check printout against fault table and rectify faults
⇒ [page 100](#) .

If “No fault detected” is displayed, tester returns to initial setting after pressing  key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

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

If any other display appears, refer to ⇒ Fault reader operating instructions .

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing .
- Switch off ignition and unplug diagnostic connector.

6.7 Fault table for telematics system



Note!

- ◆ *The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.*
- ◆ *Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.*
- ◆ *On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.*
- ◆ *All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.*

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Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00003 Control unit ◆ Defective	◆ Telematics control unit defective	– Replace telematics control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00469 Display data bus in one-wire mode ◆ Electrical fault in circuit	◆ CAN bus fault ◆ Open circuit in wiring ◆ Wiring damage	– Fault-finding in line with current flow diagram ⇒ Current flow dia- grams, Electrical fault finding and Fitting locations

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00851 Loudspeaker ¹⁷⁾	♦ Mutual short circuit in wires to hands-free loudspeaker	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace hands-free loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91

17) This fault is stored if a fault occurs during final control diagnosis (loudspeaker).

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00862 Navigation aerial (GPS) - R50/R52 ♦ Open circuit ♦ Short circuit	♦ Open circuit in aerial wire ♦ Short circuit in aerial wire ♦ Navigation aerial (GPS) defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations. - Replace GPS aerial wire - Replace navigation aerial (GPS) ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01300 Nav. with CD drive control unit -J401- ♦ No communication	♦ CAN bus fault ♦ Open circuit in wiring ♦ Wiring damage ♦ Navigation system with CD drive control unit -J401- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in navigation system control unit ⇒ page 68 - Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01304 Radio -R- ♦ No communication	♦ CAN bus fault ♦ Open circuit in wiring ♦ Open circuit in radio power supply ♦ Radio defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Use current flow diagram to examine radio power supply - Read out radio fault memory ⇒ page 3 - Replace radio ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01305 Data bus display ♦ Defective	♦ CAN bus fault ♦ Open circuit in wiring	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01317 Control unit with display in dash panel insert -J285- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Dash panel insert defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in dash panel insert ⇒ Electrical system, Self-diagnosis; Rep. Gr. 01 - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90
01326 Multi-func. steering wheel ctrl. unit -J453- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Multi-function steering wheel control unit defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in multi-function steering wheel control unit ⇒ page 89 - Replace multi-function steering wheel control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01522 Telephone handset -R37- ◆ No communication	◆ Open circuit in wiring ◆ Telephone handset defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace telephone handset ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01523 Telephone microphone -R38- ◆ Open circuit/short to positive ◆ Short to earth	◆ Open circuit in wiring ◆ Short circuit ◆ Telephone microphone defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace telephone microphone ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01524 Telephone aerial ◆ No signal	◆ Open circuit in aerial wire ◆ Short circuit in aerial wire ◆ Telephone aerial defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace telephone aerial wire - Replace telephone aerial ⇒ Radio, telephone and navigation system; Rep. Gr. 91

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Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01526 Emergency call button -E276- ◆ Open circuit/short to positive ◆ Short to earth	◆ Open circuit in wiring ◆ Short circuit ◆ Emergency call button defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations. - Eliminate open circuit in wiring/ short circuit - Replace emergency call button ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01527 Breakdown help button - E275- ◆ Open circuit/short to positive ◆ Short to earth	◆ Open circuit in wiring ◆ Short circuit ◆ Emergency call button defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/ short circuit - Replace breakdown help button ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01528 Additional aerial for telematics -R90 ◆ No signal	◆ Open circuit in aerial wire ◆ Short circuit in aerial wire ◆ Additional aerial for telematics (emergency aerial) defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace wire of additional aerial for telematics - Replace additional aerial for telematics ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01529 Additional loudspeaker for telematics -R91- ◆ Open circuit/short to positive ◆ Short to earth	◆ Open circuit in wiring ◆ Short circuit ◆ Additional loudspeaker for telematics (emergency loudspeaker) defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/ short circuit - Replace additional loudspeaker ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01531 Emergency battery ◆ No signal	◆ Open circuit in wiring ◆ Short circuit ◆ Emergency battery defective/flat	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/ short circuit - Replace emergency battery ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01656 Crash signal ◆ No signal	◆ Open circuit in wiring ◆ Short circuit ◆ Airbag control unit defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/ short circuit - Check airbag control unit ⇒ Body, Self-diagnosis; Repair group 01

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Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01796 Telematics SIM card ◆ No signal	◆ Open circuit in wiring ◆ Short circuit ◆ Telematics SIM card defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring/ short circuit - Replace telematics SIM card ⇒ Radio, telephone and navigation system; Rep. Gr. 91

6.8 Final control diagnosis

- ◆ Final control diagnosis can only be performed with vehicle stationary and engine not running.
- ◆ If final control diagnosis detects a fault, locate and eliminate cause of trouble if necessary.
- ◆ Any faults (e.g. short circuits) occurring are stored in the fault memory.

6.8.1 Final control diagnosis procedure

- Press keys [0] and [3] (03 is used to select "Final control diagnosis" function).

Indicated on display:

Rapid data transfer
03 - Final control diagnosis Q

- Confirm entry by pressing [0] key.

Indicated on display:

Final control diagnosis
Loudspeaker ->

Test tone can be heard via hands-free loudspeaker.

- Press [0] key.

Indicated on display:

Final control diagnosis
Additional loudspeaker for telematics R9
1 ->

Test tone can be heard via additional loudspeaker (emergency loudspeaker).

- Press [0] key.

Indicated on display:

Final control diagnosis
Emergency call button E276 ->

Emergency call button starts to flash.

- Press [0] key.

Indicated on display:

Final control diagnosis
Breakdown help button E275 ->

Breakdown help button starts to flash.

- Press [0] key.

Indicated on display:

Final control diagnosis
End ->

- Press [0] key.

- This returns tester 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 it again and eliminate fault.

Requirements:

- Fault memory interrogated => [page 99](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys **[0]** and **[5]** (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing **[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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated	-
--	---

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

6.10 End of output

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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

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

6.11 Encoding control unit

This function can be used to encode telematics system as follows:

- ◆ Vehicle type

- ◆ Voice control/multi-function steering wheel
- ◆ Navigation system
- ◆ Radio configuration



Note!

In contrast to the codes of other control units, the telematics control unit code displayed has 7 digits.

6.11.1 Encoding procedure

Indicated on display:

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

- Press keys **[0]** and **[7]** (07 is used to select “Encoding control unit” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Encoding control unit Enter code number XXXXX
--

- Enter code number as per encoding table ⇒ [page 106](#).

Code: 00124

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- ◆ 0 = Not used, always 0
- ◆ Vehicle type: 0 = A3
- ◆ Voice control/multi-function steering wheel: 1 = no voice control, with multi-function steering wheel
- ◆ Navigation system: 2 = Navigation system II-D
- ◆ Radio system: 4 = Radio system without CAN bus or navigation system II-D

Control unit identification and code entered (0000124) appears on display.

Indicated on display:

4B0035617	Telematics Nokia 1	0001	-
>	Code 0000124	WSC XXXXX	

- Press **[X]** key to terminate encoding.

Indicated on display:

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

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

6.11.2 Encoding table

5 - 7	4	3	2	1	← Decimal places of byte encoding on tester display
					Radio: 1: No 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 (no CAN) (Chorus I, Concert I, Symphony I) or Nav II-D 5: With radio (no CAN) (Chorus I, Concert I, Symphony I) or Nav II-D with Bose

5 - 7	4	3	2	1	← Decimal places of byte encoding on tester display
Navigation: 0: No Nav 1: With Nav III 2: With Nav II-D 3: With Nav IV 4: With Nav II-D (as of week 45/01) 5: With Nav IV (as of week 45/01)					
Voice control/multi-function steering wheel (VCS/MFS): 0: No VCS, no MFS 1: No VCS, with MFS 3: With VCS, with MFS					
Vehicle type: 0: A3(AB) 3: A8 (D2) 1: A4 (B5) 4: A2 2: A6(C5) 5: A4 (B6)					
000: Columns reserved for subsequent encoding = 0					

6.12 Reading measured value block

6.12.1 "Reading measured value block" procedure

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Indicated on display:

Rapid data transfer
Select function XX HELP

- Press keys **[0]** and **[8]** (08 is used to select "Reading measured value block" function).

Indicated on display:

Rapid data transfer
08 - Reading measured value block Q

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block
Enter display group number XXX

- Enter display group number from table [⇒ page 107](#) and confirm entry by pressing **[Q]** key.

6.12.2 List of display groups

Display group number	Indicated on display
001	1 = Telephone 2 = Registered/not registered 3 = Field strength of telephone network 4 = 0...010
002	1 = Emergency battery 2 = Full/low/flat 3 = Illumination dimming 4 = 0...100%
003	1 = Vehicle speed signal 2 = xxx km/h 3 = Direction of travel
004	1 = [Notruf] button 2 = Pressed/not pressed 3 = [Pannen] button 4 = Pressed/not pressed
005	1 = Unit number
006	1 = SIM card number

Display group number	Indicated on display
080	1 = Key ID
081	1 = Chassis number
125	1 = CAN bus link with dash panel insert 2 = CAN bus link with steering wheel 3 = CAN bus link with radio 4 = CAN bus link with navigation system

6.12.3 Measured value block 001

Reading measured value block 1 →				Indicated on display
Telephone	Registered	Field strength	5	
				Field strength • 0...10
				Field strength of telephone network Telephone registration • Registered • Not registered
Permanently installed telephone				

6.12.4 Measured value block 002

Reading measured value block 2 →				Indicated on display
Emergency battery	Full	Dimming	0%	
				Dimming value • 0...100%
				Dimming (only with lights "ON")
				Status of emergency battery • Full • Low • Flat
Telematics system emergency battery				

6.12.5 Measured value block 003

Reading measured value block 3 →				Indicated on display
Vehicle speed signal	0 km/h	Forwards		

		Direction of travel
		• Forwards
		• Reverse
	Vehicle speed	
	• 0...XXX km/h	
	Vehicle speed signal	

6.12.6 Measured value block 004

Reading measured value block 4	→	▼ Indicated on display
Emergency call button	Not pressed	Breakdown help button
		• Pressed
		• Not pressed
		Breakdown help button
		Emergency call button
		• Pressed
		• Not pressed
		Emergency call button

6.12.7 Measured value block 005

Reading measured value block 5	→	▼ Indicated on display
IMEI: 493005100454423		
		Unit number

6.12.8 Measured value block 006

Reading measured value block 6	→	▼ Indicated on display
ICC-ID: 89492084298279009023		



SIM card number

- Display of number with telematics SIM inserted
- "Not fitted" = Telematics SIM not inserted
- "Not active" = Another SIM card in telephone handset

6.12.9 Measured value block 080

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

6.12.10 Measured value block 081

Reading measured value block 81 WVW ZZZ1 JZW W123456 6.510 26-05-00 221	→	▾ Indicated on display
Display of chassis number with software version and date		

6.12.11 Measured value block 125

Reading measured value block 125 Dash 1 Steering Radio 1 Navigat 1 wheel 1	→	▾ Indicated on display
		Navigation unit • "1" = On CAN bus • "0" = Not on CAN bus (transmission problem) • " " = Not connected to CAN bus
		Radio • "1" = On CAN bus • CAN bus (transmission problem) • " " = Not connected to CAN bus
		Multi-function steering wheel control unit • "1" = On CAN bus • "0" = Not on CAN bus (transmission problem) • " " = Not connected to CAN bus

Dash panel insert

- "1" = On CAN bus
- "0" = Not on CAN bus (transmission problem)
- " " = Not connected to CAN bus

6.13 Adaption

Channels can be used for adaption of several functions:

- ◆ Changes to tyre size
- ◆ Changes to number of pulses per wheel revolution (GALA)
- ◆ Activating/deactivating service mode

Service mode must be activated before disconnecting vehicle battery and deactivated following re-connection.

Control unit does not switch to emergency battery if service mode is active. Emergency battery in control unit is then not subjected to load.

- ◆ GSM aerial test selection

It is possible to determine which GSM aerial (telephone 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 to main aerial or emergency aerial and to use a telephone link to check for correct aerial operation. Automatic selection is to be used for normal operation.

- ◆ System selection

This channel can be used to suppress system fault messages on dash panel insert display and telephone handset. This is necessary if telematics control unit is to be operated as a permanently installed telephone following expiry of telematics service contract.

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

The individual functions are called up by way of the appropriate adaption channel number (adaption table ⇒ [page 111](#)).

The telematics system uses the pulses from the ABS sensors to calculate distance travelled.

6.13.1 Adaption table

Adaption channel	Adaption function
01	Tyre circumference ⇒ page 112
02	Number of pulses per wheel revolution ⇒ page 113
03	Activating/deactivating service mode ⇒ page 114
05	Aerial test selection ⇒ page 115
06	Aerial selection ⇒ page 115
07	System selection ⇒ page 116

6.13.2 Implementing function "10 - Adaption"

Indicated on display:

- Press keys **[1]** and **[0]** (10 is used to select "Adaption" function).

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Enter required adaption channel (adaption table [⇒ page 111](#)).

- Confirm entry by pressing **[Q]** key.

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Note!

After altering adaption value or exiting from adaption channel, function "10 - Adaption" must be implemented again to select a different adaption channel.

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

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

Adaption Enter channel number XX

6.13.3 Adapting tyre circumference

Indicated on display:

- Press keys **[0]** and **[1]** (01 is used to select "Channel 1").



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel selected and currently stored tyre circumference in mm are displayed on top line.

- Press **[C]** key.

Indicated on display:

- Enter new tyre circumference (e.g. 01910), tyre table [⇒ page 39](#).

- Confirm entry by pressing **[Q]** key.

Indicated on display:

- Press **[C]** key.

Indicated on display:

- Confirm entry by pressing **[Q]** key.

Adaption Enter channel number XX

Channel 1	Adaption	1935	-
>		<-1 3->	

Channel 1	Adaption	1935	-
>	Enter adaption value XXXXX		

Channel 1	Adaption	1910	-
>		<-1 3->	

Channel 1	Adaption	1910	Q
	Store altered value?		

Indicated on display:

Channel 1	Adaption	1910	-
> Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.

6.13.4 Adapting number of pulses per wheel revolution (GALA)

Indicated on display:

Adaption
Enter channel number XX

- Press keys  and  (02 is used to select “Channel 2”).



Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	42	->
Pulses per revolution		<-1 3-	
>			

Channel selected and number of pulses currently stored are displayed on top line.

- Press  key.

Indicated on display:

Channel 2	Adaption	42	Q
Enter adaption value XXXXX			

- Enter new number of pulses (e.g.: 00008).

The number of pulses is always 8 for A3 with telematics system.

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	8	->
Pulses per revolution		<-1 3-	
>			

- Press  key.

Indicated on display:

Channel 2	Adaption	8	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 2	Adaption	8	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys  and  (06 is used to select “End of output” function).
- Confirm entry by pressing  key.

6.13.5 Activating/deactivating service mode

Control unit switches immediately to emergency battery after disconnecting vehicle battery. If emergency battery is used for a lengthy period, it becomes discharged and must be replaced (fault code: 01531).

Control unit does not switch to emergency battery if service mode is active. Service mode must be deactivated again on completion of service work.

Service mode can also be activated and deactivated by entering "#4616#" on handset.

Indicated on display:

- Press keys  and  (03 is used to select "Channel 3").



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An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 3	Adaption	0	->
Service mode off			

Channel selected and service mode status currently stored are displayed on top line.

0 = Service mode deactivated

1 = Service mode activated

- Press  key.

Indicated on display:

Channel 3	Adaption	0	->
Enter adaption value XXXXX			

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

00000 = Service mode off

00001 = Service mode on

- Confirm entry by pressing  key.

Indicated on display:

Channel 3	Adaption	1	->
Service mode on			

- Press  key.

Indicated on display:

Channel 3	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 3	Adaption	1	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys  and  (06 is used to select "End of output" function).

- Confirm entry by pressing  key.

6.13.6 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 = Testing GSM emergency aerial" must therefore be set.

Indicated on display:

Adaption
Enter channel number XX

- Press keys **[0]** and **[5]** (05 is used to select "Channel 5").



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	0	->
Test OFF			

Channel selected and aerial test currently stored are displayed on top line.

0 = No test

1 = Testing of GSM main aerial

2 = Testing of GSM emergency aerial

3 = Testing of both GSM aerials

- Press **[C]** key.

Indicated on display:

Channel 5	Adaption	0	->
Enter adaption value XXXXX			

- Enter new adaption value (00002) if GSM emergency aerial is to be tested.
- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	2	->
Test ON Main aerial			

- Press **[C]** key.

Indicated on display:

Channel 5	Adaption	2	Q
Store altered value?			

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	1	->
Altered value stored			

- Press **[C]** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **[0]** and **[6]** (06 is used to select "End of output" function).
- Confirm entry by pressing **[Q]** key.

6.13.7 Aerial selection

It is possible to determine which GSM aerial is to be used to establish the telephone link.

"0 = automatic selection" applies to normal operation.

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For test purposes, it is possible to switch to emergency or main aerial and to use a telephone link to check aerial operation.

Indicated on display:

Adaption Enter channel number XX

- Press keys **[0]** and **[6]** (06 is used to select “Channel 6”).



Note!

*An incorrect entry can be corrected after pressing **[C]** key.*

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 6 autom.	Adaption	0	->
---------------------	----------	---	----

Channel selected and aerial selection currently stored are displayed on top line.

0 = Automatic selection

1 = GSM main aerial selected

2 = GSM emergency aerial selected

- Press **[C]** key.

Indicated on display:

Channel 6 Enter adaption value XXXXX	Adaption	0	->
---	----------	---	----

- Enter new adaption value (e.g. 00001) if GSM main aerial is to be selected.
- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 6 Main aerial	Adaption	1	->
--------------------------	----------	---	----

- Press **[C]** key.

Indicated on display:

Channel 6 Store altered value?	Adaption	1	Q
-----------------------------------	----------	---	---

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 6 Altered value stored	Adaption	1	->
-----------------------------------	----------	---	----

- Press **[C]** key.

Indicated on display:

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

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

6.13.8 System selection

Following expiry of telematics service contract, telematics control unit can be used as a permanently installed telephone (with new SIM card). Telematics system fault messages can be suppressed in channel 7.

Indicated on display:

Adaption Enter channel number XX

- Press keys **[0]** and **[7]** (07 is used to select “Channel 7”).

 Note!

An incorrect entry can be corrected after pressing  key.

- Confirm entry by pressing  key.

Indicated on display:

Channel 7	Adaption	0	->
-----------	----------	---	----

Channel selected and status currently stored are displayed on top line.

0 = Normal operation

1 = Fault messages suppressed

- Press  key.

Indicated on display:

Channel 7	Adaption	0	->
Enter adaption value XXXXX			

- Enter new adaption value (e.g. 00001), if telematics system fault messages are to be suppressed

- Confirm entry by pressing  key.

Indicated on display:

Channel 7	Adaption	1	->
Telephone only, no telematics faults			

- Press  key.

Indicated on display:

Channel 7	Adaption	1	Q
Store altered value?			

- Confirm entry by pressing  key.

Indicated on display:

Channel 7	Adaption	1	->
Altered value stored			

- Press  key.

Indicated on display:

Rapid data transfer			HELP
Select function XX			

- Press keys  and  (06 is used to select "End of output" function).

- Confirm entry by pressing  key.

7 Telephone self-diagnosis

7.1 General

7.1.1 Technical features of permanently installed telephone

The new permanently installed telephone features extensive self-diagnosis.

The permanently installed 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.

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7.2 Safety precautions

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



Caution

Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ *Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551-. Unit is always to be attached to 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:

- ◆ Always switch off ignition before disconnecting and connecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

7.3 Starting telephone self-diagnosis

7.3.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List
- ◆ SSP 236 Audi telematics +

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)
- ◆ Ignition on

7.3.2 Procedure

Indicated on display:

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

Address word for telephone: 77

- Press keys **[7]** and **[7]**.

Indicated on display:

Rapid data transfer 77 - Telephone	Q
---------------------------------------	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

4D0035192E	Telephone Nokia 3	0001	-
>			
Code 0010124		WSC XXXXX	

- ◆ 4D0035192E: Control unit part number
- ◆ Telephone Nokia 3: Component designation
- ◆ 0001: Software version
- ◆ Code 0010124: Encoding
- ◆ WSC XXXXX: Workshop code
- Press **[]** key.

Indicated on display:

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

7.3.3 Self-diagnosis functions

Available functions:

- 01 - Interrogating control unit version ⇒ [page 119](#)
- 02 - Interrogating fault memory ⇒ [page 120](#)
- 03 - Final control diagnosis ⇒ [page 123](#)
- 05 - Erasing fault memory ⇒ [page 124](#)
- 06 - End of output ⇒ [page 124](#)
- 07 - Encoding control unit ⇒ [page 124](#)
- 08 - Reading measured value block ⇒ [page 126](#)
- 10 - Adaption ⇒ [page 128](#)

7.4 Interrogating control unit version

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

- Press keys **[0]** and **[1]** (01 is used to select “Interrogating control unit version” function).

Indicated on display:

Rapid data transfer 01 - Interrogating control unit version	Q
--	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

4D0035192E	Telephone Nokia 3	0001	-
>			
Code 0010124		WSC XXXXX	

- ◆ 4D0035192E: Control unit part number

- ◆ Telephone Nokia 3: Component designation
- ◆ 0001: Software version
- ◆ Code 0010124: Encoding
- ◆ WSC XXXXX: Workshop code
- Press  key.

Indicated on display:

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

7.5 Interrogating fault memory



Note!

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 "Erasing fault memory".

Indicated on display:

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

- Press keys  and  (02 is used to select "Interrogating fault memory" function).

Indicated on display:

Rapid data transfer 02 - Interrogating fault memory	Q
--	---

- Confirm entry by pressing  key.

The number of stored faults appears on the display.

Indicated on display:

X fault(s) detected	
---------------------	--

The stored faults are displayed and printed out consecutively.

- Check printout against fault table and rectify faults
⇒ [page 121](#).

If "No fault detected" is displayed, tester returns to initial setting after pressing  key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

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

If any other display appears, refer to ⇒ Fault reader operating instructions .

- Press keys  and  (06 is used to select "End of output" function).
- Confirm entry by pressing  key.
- Switch off ignition and unplug diagnostic connector.

7.6 Telephone fault table



Note!

- ◆ The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.
- ◆ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ◆ On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.
- ◆ All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00003 Control unit ◆ Defective	◆ Transmitter/receiver defective	– Replace transmitter/receiver ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00469 Display data bus in one-wire mode ◆ Electrical fault in circuit	◆ CAN bus fault ◆ Open circuit in wiring ◆ Wiring damage	– Fault-finding in line with current flow diagram ⇒ Current flow dia- grams, Electrical fault finding and Fitting locations
00851 Loudspeaker ¹⁸⁾	◆ Mutual short circuit in wires to hands-free loudspeaker	– Fault-finding in line with current flow diagram ⇒ Current flow dia- grams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Replace hands-free loudspeaker ⇒ Radio, telephone and naviga- tion system; Rep. Gr. 91

18) This fault is stored if a fault occurs during final control diagnosis (loudspeaker).

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
01300 Nav. with CD drive control unit -J401- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Wiring damage ◆ Navigation system with CD drive control unit -J401- defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in navigation system control unit ⇒ page 68 - Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01304 Radio -R- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Open circuit in radio power supply ◆ Radio defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out radio fault memory ⇒ page 3 - Use current flow diagram to examine radio power supply - Replace radio ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01305 Data bus display ◆ Defective	◆ CAN bus fault ◆ Open circuit in wiring	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring
01317 Control unit with display in dash panel insert -J285- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Dash panel insert defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in dash panel insert ⇒ Electrical system, Self-diagnosis; Rep. Gr. 01 - Replace dash panel insert ⇒ Electrical system; Rep. Gr. 90
01326 Multi-function steering wheel control unit -J453- ◆ No communication	◆ CAN bus fault ◆ Open circuit in wiring ◆ Multi-function steering wheel control unit defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Read out fault memory in multi-function steering wheel control unit ⇒ page 89 - Replace multi-function steering wheel control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

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	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace telephone handset ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01523 Telephone microphone -R38- ◆ Open circuit/short to positive ◆ Short to earth	◆ Open circuit in wiring ◆ Short circuit ◆ Telephone microphone defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Eliminate open circuit in wiring - Replace telephone microphone ⇒ Radio, telephone and navigation system; Rep. Gr. 91
01524 Telephone aerial ◆ No signal	◆ Open circuit in aerial wire ◆ Short circuit in aerial wire ◆ Telephone aerial defective	- Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations - Replace telephone aerial wire - Replace telephone aerial ⇒ Radio, telephone and navigation system; Rep. Gr. 91

7.7 Final control diagnosis

- ◆ Final control diagnosis can only be performed with vehicle stationary and engine not running.
- ◆ If final control diagnosis detects a fault, locate and eliminate cause of trouble if necessary.
- ◆ Any faults (e.g. short circuits) occurring are stored in the fault memory.

7.7.1 Final control diagnosis procedure

- Press keys  and  (03 is used to select "Final control diagnosis" function).

Indicated on display:

Rapid data transfer
03 - Final control diagnosis Q

- Confirm entry by pressing  key.

Indicated on display:

Final control diagnosis
Loudspeaker ->

Test tone can be heard via loudspeaker.

- Press  key.

Indicated on display:

Final control diagnosis
End ->

- Press  key.
- This returns tester to basic function.

Indicated on display:

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

7.8 Erasing fault memory



Note!

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

Requirements:

- Fault memory interrogated ⇒ [page 120](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys [0] and [5] (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing [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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated	-
--	---

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

7.9 End of output

- Press keys [0] and [6] (06 is used to select “End of output” function).

Indicated on display:

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

- Confirm entry by pressing [Q] key.

Indicated on display:

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

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

7.10 Encoding control unit

This function can be used to encode the telephone as follows.

- ◆ Data bus

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- ◆ Vehicle type
- ◆ Voice control/multi-function steering wheel
- ◆ Navigation system
- ◆ Radio configuration



Note!

In contrast to the codes of other control units, the telematics control unit code displayed has 7 digits.

7.10.1 Encoding procedure

Indicated on display:

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

- Press keys **[0]** and **[7]** (07 is used to select “Encoding control unit” function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Encoding control unit Enter code number XXXXX
--

- Enter code number as per encoding table ⇒ [page 125](#).

Code: 10124

- ◆ Data bus 1 = Without CAN
- ◆ Vehicle type: 0 = A3
- ◆ Voice control/multi-function steering wheel: 1 = no voice control, with multi-function steering wheel
- ◆ Navigation system: 2 = Navigation system II-D
- ◆ Radio system: 4 = Radio system without CAN bus or navigation system II-D

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Control unit identification and code entered (0010124) appear on display.

Indicated on display:

4D0035192E Telephone Nokia 3 0001 -
> Code 0010124 WSC XXXXX

- Press **[Q]** key to terminate encoding.

Indicated on display:

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

- Press keys **[0]** and **[6]** (06 is used to select “End of output” function).
- Confirm entry by pressing **[Q]** key.

7.10.2 Encoding table

6 - 7	5	4	3	2	1	← Decimal places of byte encoding on tester display
						Radio ¹⁹⁾ : 1: No 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 (no CAN) (Chorus I, Concert I, Symphony I) or RNS-D 5: With radio (no CAN) (Chorus I, Concert I, Symphony I) or RNS-D with BOSE

6 - 7	5	4	3	2	1	← Decimal places of byte encoding on tester display
						Navigation: 0: No navigation 1: With navigation system III (NSLow) 2: With navigation system II-D (RNS-D) 3: With navigation system IV (Nav IV)
						Voice control/multi-function steering wheel (VCS/MFS): 0: No VCS, no MFS 1: No VCS, with MFS 2: Not used 3: With VCS, with MFS
						Vehicle type: 3: A8 (D2) 0: A3(AB) 4: A2 1: A4 (B5) 5: A4 (B6) 2: A6(C5)
						0: With data bus 1: No data bus
						00: Columns reserved for subsequent encoding

19) A distinction is made between the various radio types as radios without CAN functions may also be fitted.

7.11 Reading measured value block

7.11.1 "Reading measured value block" procedure

Indicated on display:

Rapid data transfer
Select function XX HELP

- Press keys **[0]** and **[8]** (08 is used to select "Reading measured value block" function).

Indicated on display:

Rapid data transfer
08 - Reading measured value block Q

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block
Enter display group number XXX

- Enter display group number from table ⇒ [page 126](#) and confirm entry by pressing **[Q]** key.

7.11.2 List of display groups

Display group number	Indicated on display
001	1 = Telephone 2 = Registered/not registered 3 = Field strength 4 = 0...010
002	3 = Illumination dimming 4 = 0...100%
005	1 = Unit number
080	1 = Hardware version, prod. date
081	1 = Software version

Display group number	Indicated on display
125	1 = CAN bus link with dash panel insert 2 = CAN bus link with steering wheel 3 = CAN bus link with radio 4 = CAN bus link with navigation system

7.11.3 Measured value block 001

Reading measured value block 1			→	Indicated on display
Tele- phone	Regis- tered	Field strength	5	
				Field strength • 0...10
				Field strength of telephone network
				Telephone registration • Registered • Not registered
				Permanently installed telephone

7.11.4 Measured value block 002

Reading measured value block 2			→	Indicated on display
		Dimming	0%	
				Dimming value • 0...100%
				Dimming (only with lights "ON")

7.11.5 Measured value block 005

Reading measured value block 5			→	Indicated on display
IMEI: 493005100454423				
				Unit number

7.11.6 Measured value block 080

Reading measured value block 80			→	Indicated on display
------------------------------------	--	--	---	----------------------



KEY ID: 0000000000 CP3.07
12/99

Display of key ID with hardware version and production date

7.11.7 Measured value block 081

Reading measured value block →
81
4BYN009461 6.510 26-05-00 AC84

▾ Indicated on display

Display of chassis number with software version and date

7.11.8 Measured value block 125

Reading measured value block →
125
Dash 1 Steering wheel 1 Radio 1 Navigat 1

▾ Indicated on display

Navigation unit

- "1" = On CAN bus
- "0" = Not on CAN bus (transmission problem)
- " " = Not connected to CAN bus

Radio

- "1" = On CAN bus
- "0" = Not on CAN bus (transmission problem)
- " " = Not connected to CAN bus

Multi-function steering wheel control unit

- "1" = On CAN bus
- "0" = Not on CAN bus (transmission problem)
- " " = Not connected to CAN bus

Dash panel insert

- "1" = On CAN bus
- "0" = Not on CAN bus (transmission problem)
- " " = Not connected to CAN bus

7.12 Adaption

The "Adaption" function can be used to select the GSM aerial test.

At present the GSM aerial test cannot be activated.

7.12.1 Adaption table

Adaption channel	Adaption function
05	Aerial test selection ⇒ page 129

7.12.2 Implementing function "10 - Adaption"

Indicated on display:

Rapid data transfer
Select function XX HELP

- Press keys **1** and **0** (10 is used to select "Adaption" function).

Indicated on display:

Rapid data transfer
10 - Adaption Q

- Confirm entry by pressing **Q** key.

Indicated on display:

Adaption
Enter channel number XX

- Enter required adaption channel (adaption table ⇒ [page 129](#)).
- Confirm entry by pressing **Q** key.



Note!

After altering adaption value or exiting from adaption channel, function "10 - Adaption" must be implemented again to select a different adaption channel.

7.12.3 Aerial test selection

It is possible to determine whether the GSM aerial is to be monitored by the control unit. A fault is entered if this function is not possible.

At present the GSM aerial cannot be tested. "0 = No test" must therefore be set.

Indicated on display:

Adaption
Enter channel number XX

- Press keys **0** and **5** (05 is used to select "Channel 5").



Note!

*An incorrect entry can be corrected after pressing **C** key.*

- Confirm entry by pressing **Q** key.

Indicated on display:

Channel 5 Adaption 1 ->
Test ON

Channel selected and aerial test currently stored are displayed on top line.

0 = No test

1 = Testing of GSM aerial (cannot be used)

- Press **C** key.

Indicated on display:

Channel 5 Adaption 1 ->
Enter adaption value XXXXX



- Enter new adaption value (e.g. 00000) if value currently stored is not "00000".
- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	0	->
Test	OFF		

- Press **[]** key.

Indicated on display:

Channel 5	Adaption	0	Q
Store altered	value?		

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Channel 5	Adaption	0	->
Altered value	stored		

- Press **[]** key.

Indicated on display:

Rapid data transfer	HELP
Select function XX	

- Press keys **[0]** and **[6]** (06 is used to select "End of output" function).
- Confirm entry by pressing **[Q]** key.



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8 Self-diagnosis of TV tuner

8.1 General

8.1.1 Technical features of TV tuner

The new TV tuner features extensive self-diagnosis.

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.

8.2 Safety precautions

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



Caution

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Proceed as follows to avoid risk of accident during measurement and test drives:

- ◆ ***Exclusive use is to be made for measured value block readout of vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551-. Unit is always to be attached to 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:

- ◆ Always switch off ignition before disconnecting and connecting measuring instruments and testers.
- ◆ Certain tests may result in fault detection and storage by the control unit. 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.

8.3 Starting self-diagnosis of TV tuner

8.3.1 Necessary additional sources of information and test requirements

Additional sources of information:

- ◆ Binder ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Technical Service Handbook
- ◆ Parts List

Test requirements:

- ◆ Corresponding fuses checked ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ◆ Vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- connected up ⇒ [page 141](#)



- ◆ Ignition on

8.3.2 Procedure

Indicated on display:

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

Address word for TV tuner: 57

- Press keys **[5]** and **[7]**.

Indicated on display:

Rapid data transfer 57 - TV tuner	Q
--------------------------------------	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

3B0919142 Code 00010	TV Tuner 17001 WSC XXXXX	0001 ->
-------------------------	-----------------------------	------------

- ◆ 3B0919142: Control unit part number
- ◆ TV tuner 17001: Component designation
- ◆ 0001: Software version
- ◆ Code 00010: Encoding
- ◆ WSC XXXXX: Workshop code
- Press **[Q]** key.

Indicated on display:

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

8.3.3 Self-diagnosis functions

Available functions:

- 01 - Interrogating control unit version ⇒ [page 132](#)
- 02 - Interrogating fault memory ⇒ [page 133](#)
- 03 - Final control diagnosis ⇒ [page 135](#)
- 05 - Erasing fault memory ⇒ [page 136](#)
- 06 - End of output ⇒ [page 137](#)
- 07 - Encoding control unit ⇒ [page 137](#)
- 08 - Reading measured value block ⇒ [page 138](#)

8.4 Interrogating control unit version

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Indicated on display:

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

- Press keys **[0]** and **[1]** (01 is used to select “Interrogating control unit version” function).

Indicated on display:

Rapid data transfer 01 - Interrogating control unit version	Q
--	---

- Confirm entry by pressing **[Q]** key.

Following display appears after approx. 5 seconds:

3B0919142 Code 00010	TV Tuner 17001 WSC XXXXX	0001 ->
-------------------------	-----------------------------	------------

- ◆ 3B0919142: Control unit part number
- ◆ TV tuner 17001: Component designation
- ◆ 0001: Software version
- ◆ Code 00010: Encoding

◆ WSC XXXXX: Workshop code

- Press  key.

Indicated on display:

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

8.5 Interrogating fault memory



Note!

The fault information displayed is not constantly updated, but rather only on starting self-diagnosis or using function 05 "Erasing fault memory".

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Indicated on display:

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

- Press keys  and  (02 is used to select "Interrogating fault memory" function).

Indicated on display:

Rapid data transfer 02 - Interrogating fault memory	Q
--	---

- Confirm entry by pressing  key.

The number of stored faults appears on the display.

Indicated on display:

X fault(s) detected

The stored faults are displayed and printed out consecutively.

- Check printout against fault table and rectify faults
⇒ [page 134](#).

If "No fault detected" is displayed, tester returns to initial setting after pressing  key.

Indicated on display:

No fault detected	->
-------------------	----

Indicated on display:

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

If any other display appears, refer to ⇒ Fault reader operating instructions

- Press keys  and  (06 is used to select "End of output" function).
- Confirm entry by pressing  key.
- Switch off ignition and unplug diagnostic connector.

8.6 Fault table for TV tuner



Note!

- ◆ The following table lists all faults which can be detected by the system and printed out on fault reader -V.A.G 1551- in ascending order of 5-digit fault codes.
- ◆ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ◆ On completion of repair work and after checking system operation, fault memory is always to be interrogated again and erased.
- ◆ All static and sporadic faults are stored in the fault memory. Faults persisting for at least 2 seconds are identified as being static faults. 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 during 40 on/off cycles are erased.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00482 Rear display unit ◆ Open circuit/short to positive ◆ Short to earth	◆ Rear monitor defective	– Replace rear monitor ²⁰⁾
00861 Connection to computer for navigation ◆ No communication ◆ Open circuit/short to positive ◆ Short to earth	◆ CAN bus fault ◆ Wiring damage ◆ Open circuit in wiring ◆ Navigation system control unit - J402- defective	– Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Eliminate open circuit in wiring – Read out fault memory in navigation system control unit ⇒ page 68 – Replace navigation system control unit ⇒ Radio, telephone and navigation system; Rep. Gr. 91

20) Rear monitor is not fitted at present.

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00863 TV aerial 1 -R55- ◆ Open circuit/short to positive ◆ Short to earth	◆ Open circuit in aerial wire ◆ Short circuit in aerial wire ◆ Amplifier for TV aerial 1 defective	– Replace aerial wire – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace TV aerial amplifier ⇒ Radio, telephone and navigation system; Rep. Gr. 91

Output on printer of -V.A.G 1551-	Possible cause of trouble	Fault remedy
00864 TV aerial 2 -R56- ♦ Open circuit/short to positive ♦ Short to earth	♦ Open circuit in aerial wire ♦ Short circuit in aerial wire ♦ Amplifier for TV aerial 2 defective	– Replace aerial wire – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace TV aerial amplifier ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00865 TV aerial 3 -R57- ♦ Open circuit/short to positive ♦ Short to earth	♦ Open circuit in aerial wire ♦ Short circuit in aerial wire ♦ Amplifier for TV aerial 3 defective	– Replace aerial wire – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace TV aerial amplifier ⇒ Radio, telephone and navigation system; Rep. Gr. 91
00866 TV aerial 4 -R58- ♦ Open circuit/short to positive ♦ Short to earth	♦ Open circuit in aerial wire ♦ Short circuit in aerial wire ♦ Amplifier for TV aerial 4 defective	– Replace aerial wire – Fault-finding in line with current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations – Replace TV aerial amplifier ⇒ Radio, telephone and navigation system; Rep. Gr. 91

8.7 Final control diagnosis

- ♦ Final control diagnosis can only be performed with vehicle stationary and engine not running.
- ♦ If final control diagnosis detects a fault, locate and eliminate cause of trouble if necessary.

A check is made on reception via the various TV aerials.

8.7.1 Final control diagnosis procedure

- Switch radio navigation unit to TV reception.
- Press keys [0] and [3] (03 is used to select “Final control diagnosis” function).

Indicated on display:

Rapid data transfer
03 - Final control diagnosis Q

- Confirm entry by pressing [0] key.

Indicated on display:

Final control diagnosis
Aerial 1 ->

Check reception via aerial 1.

- Press [] key.

Indicated on display:

Final control diagnosis
Aerial 2 ->

Check reception via aerial 2.

- Press [] key.

Indicated on display:

Final control diagnosis Aerial 3	->
-------------------------------------	----

Check reception via aerial 3.

- Press  key.

Indicated on display:

Final control diagnosis Aerial 4	->
-------------------------------------	----

Check reception via aerial 4.

- Press  key.

Indicated on display:

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

- Press  key.

- This returns tester to basic function.

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 accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.	Rapid data transfer Select function XX	HELP
--	---	------

8.8 Erasing fault memory



Note!

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

Requirements:

- Fault memory interrogated ⇒ [page 133](#)
- All faults rectified

On completion of fault memory interrogation:

Indicated on display:

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

- Press keys  and  (05 is used to select “Erasing fault memory” function).

Indicated on display:

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

- Confirm entry by pressing  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
---	------

If however the following message appears:

Indicated on display:

Attention: > Fault memory not interrogated	-
--	---

Test procedure not OK

Adhere exactly to test sequence: First interrogate fault memory, eliminate any faults and then erase memory.

8.9 End of output

- Press keys **[0]** and **[6]** (06 is used to select "End of output" function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

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

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

8.10 Encoding control unit

This function can be used to encode the TV tuner as follows.

- Start of diagnosis
- Country code
- Tuner configuration

8.10.1 Encoding procedure

Indicated on display:

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

- Press keys **[0]** and **[7]** (07 is used to select "Encoding control unit" function).

Indicated on display:

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

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Encoding control unit Enter code number XXXXX
--

- Enter code number as per encoding table [⇒ page 138](#).

Code: 00010

- 0 = Not used
- 0 = Not used
- Country code: 01 = PAL B/G Central Europe
- Tuner configuration: 0 = No second display

Standard code for Germany is 00010.

Control unit identification and code entered (00010) appear on display.

Indicated on display:

3B0919142 Code 00010	TV Tuner 17001 WSC XXXXX	0001 ->
-------------------------	-----------------------------	------------

- Press **[Q]** key to terminate encoding.

Indicated on display:

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

- Press keys **[0]** and **[6]** (06 is used to select "End of output" function).
- Confirm entry by pressing **[Q]** key.

8.10.2 Encoding table

5	4	3	2	1 ← Decimal places of byte encoding on tester display
				Tuner configuration second display: 4 - 7: Component fitted 0 - 3: Component not fitted
		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
				Start of diagnosis
				0: Not used
				1: Wake-up via CAN only
				2: Wake-up via K-wire only
				3: Wake-up via CAN and K-wire
				Not used = 0

8.11 Reading measured value block

8.11.1 "Reading measured value block" procedure

Indicated on display:

Rapid data transfer
Select function XX HELP

- Press keys **[0]** and **[8]** (08 is used to select "Reading measured value block" function).

Indicated on display:

Rapid data transfer
08 - Reading measured value block Q

- Confirm entry by pressing **[Q]** key.

Indicated on display:

Reading measured value block
Enter display group number XXX

- Enter display group number from table ⇒ [page 138](#) and confirm entry by pressing **[Q]** key.

8.11.2 List of display groups

Display group number	Indicated on display
001	1 = Rear monitor link 2 = on/off
002	1 = TV aerial 1 2 = OK/short circuit/open circuit 3 = TV aerial 2 4 = OK/short circuit/open circuit

Display group number	Indicated on display
003	1 = TV aerial 3 2 = OK/short circuit/open circuit 3 = TV aerial 4 4 = OK/short circuit/open circuit
004	1/2 = Link with navigation unit 3 = OK/short circuit/open circuit
005	1 = External input AV1 2 = External input AV2

8.11.3 Measured value block 001

Reading measured value block 1	→	Indicated on display
off		

Rear monitor link

- Off = No link
- On = Activated

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8.11.4 Measured value block 002

Reading measured value block 2		→	▼ Indicated on display
TV aer. 1	OK	TV aer. 2	OK
		Status of TV aerial 2 • OK • Short circuit • Open circuit	
		TV aerial 2	
		Status of TV aerial 1 • OK • Short circuit • Open circuit	
TV aerial 1			

8.11.5 Measured value block 003

Reading measured value block 3	→	▼ Indicated on display
TV aer. 3 OK TV aer. 4 OK		



		Status of TV aerial 4
		• OK • Short circuit • Open circuit
		TV aerial 4
		Status of TV aerial 3
		• OK • Short circuit • Open circuit
		TV aerial 3

8.11.6 Measured value block 004

Reading measured value block 4		→	Indicated on display
Navigat.	Link	OK	
		Status of link	
		• OK • Short circuit • Open circuit	
		Link with navigation unit	

8.11.7 Measured value block 005

Reading measured value block 5		→	Indicated on display
AV1 open AV2 open			
		External input AV2	
		• Open • Used	
		External input AV1	
		• Open • Used	

9 Connecting up vehicle diagnostic, testing and information system - VAS 5051- or fault reader - V.A.G 1551- and selecting functions

9.1 Test conditions

- Battery voltage at least 11 V
- Earth connections to battery, engine and gearbox OK
- Fuse OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations



Caution

- ◆ *When performing measurement and test drives, always attach vehicle diagnostic, testing and information system -VAS 5051- or fault reader -V.A.G 1551- to rear seat and have it operated from there.*
- ◆ *Heed safety precautions.*

9.2 Procedure

- Switch off ignition.

- Connect up vehicle diagnostic, testing and information system -VAS 5051- using diagnostic wire -VAS 5051/1- . Alternatively, connect up fault reader -V.A.G 1551- with diagnostic wire - VAG 1551/3- .

- Switch on ignition.

Indicated on display:

V.A.G - SELF-DIAGNOSIS 1 - Rapid data transfer	HELP
---	------

V.A.G - SELF-DIAGNOSIS 2 - Flash code output	HELP
---	------

Display alternates between “1...” and “2...”.

If display remains blank ⇒ Fault reader operating instructions

- Use **Print** key to switch on printer (lamp in key lights).
- Press key **1** for “Rapid data transfer”.

Indicated on display:

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

Address word “00 - Automatic test sequence” can now be used to automatically interrogate all vehicle control units.

For further procedure refer to self-diagnosis of relevant control units.

The following notes relate to the fault reader -V.A.G 1551- .



Note!

- ◆ *Additional operating instructions can be called up by pressing **HELP** key.*
- ◆ *Next step in program sequence can be selected by pressing **1** key.*
- ◆ *Incorrect entry can be cancelled with **C** key.*

If one of the following 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.

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

Rapid data transfer Communication problem	HELP
--	------

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

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

